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Learning, Identity and Agency : Secondary Mathematics Professional Developers' Lived Experiences of Participation and Collaborative Inquiry in Professional Learning Communities

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LEARNING, IDENTITY AND AGENCY: SECONDARY MATHEMATICS

PROFESSIONAL DEVELOPERS’ LIVED EXPERIENCES OF

PARTICIPATION AND COLLABORATIVE INQUIRY

IN PROFESSIONAL LEARNING COMMUNITIES

by

SUSAN STEIN

A dissertation submitted in partial fulfillment of the requirements for the degree of

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in

EDUCATIONAL LEADERSHIP:
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Portland State University
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DISSERTATION APPROVAL

The abstract and dissertation of Susan Stein for the Doctor of Education in Educational Leadership: Curriculum and Instruction were presented July 19, 2007, and accepted by the dissertation committee and the doctoral program.

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ABSTRACT


Title: Learning, Identity and Agency: Secondary Mathematics Professional Developers' Lived Experiences of Participation and Collaborative Inquiry in Professional Learning Communities

This study of professional development for professional developers used a narrative inquiry design to understand the lived experience of two professional developers as they participated in professional learning communities (inquiry groups), and learned to improve their practice as inquiry group facilitators. The study's purposes included: investigating professional developers' experience and practice in inquiry groups; amplifying professional developers' voices in the professional development field; and suggesting recommendations for educational leadership.

A literature review developed a framework grounded in social, situated learning theory. It revealed that professional development needed to provide teachers with opportunities to collaborate in inquiry groups to solve problems
arising in practice (e.g., Ball & Cohen, 1999; Thompson & Zeuli, 1999), especially as these problems related to teaching mathematics to marginalized students (e.g., Boaler, 2002b; Ladson-Billings, 1994, 1999). Instead, most professional learning involved workshops that attempted to transmit pedagogical principles and skills (e.g., Darling-Hammond & McLaughlin, 1999; Lieberman & Miller, 2001). This study analyzed professional developers' stories to understand professional development in the context of inquiry groups. Connections between learning, participation, context, practice, identities and exertion of agency were found.

Six conclusions about inquiry group participation emerged.

1. Facilitators' participation in a professional learning community with other inquiry group facilitators was a vital factor in learning to initiate, design, facilitate and sustain teacher leader inquiry groups.

2. Facilitators ensured that all voices and sharing of personal practical knowledge were encouraged and appreciated.

3. Participants in a facilitator inquiry group sustained and supported one another's professional identities and, at the same time, encouraged one another to question and change practices.

4. Participants in inquiry groups were encouraged to direct their own learning and, at the same time, facilitators framed group tasks to encourage participants to examine and improve their practice.
5. Participants found it was initially difficult to change practices and develop new professional identities.

6. Facilitator inquiry groups flourished when they operated in supportive contexts. Inquiry groups thrived when supervising administrators supported facilitators to engage in professional learning community practices. Learning and leadership were enhanced when administrators valued and negotiated with facilitators around solutions their inquiry generated.
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I believe they are making important contributions to teacher learning, 
teacher leadership and professional development.

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CHAPTER I

PROFESSIONAL DEVELOPERS' LEARNING

For schools to become more socially just and academically excellent (Shields, 2003), teacher professional development needs to be transformed to provide teachers with opportunities to continuously reflect on and collaboratively solve problems that arise in practice. The cascading reasons for facilitators of professional development to participate likewise in ongoing, collaborative, reflective inquiry about their own practice are compelling.

1. There is a disparity in achievement and access to high quality learning opportunities between middle class, European-American students, and students placed at risk of failure due to their class, race, ethnicity, language, or gender (e.g., Boaler, 2002b; Campbell, 1997; Ladson-Billings, 1994, 1999).

2. To improve student learning, teachers need to improve instructional practice by questioning their assumptions and beliefs, developing new understandings about subject content, learning, teaching, and students, as well as developing a repertoire of new skills (e.g., Ball & Cohen, 1999; Cochran-Smith & Lytle, 2001; Darling-Hammond & Sykes, 1999; Elmore, 2002; Harwell, D'Amico, Stein, & Gatti, 2000; Hawley & Valli, 1999; Lieberman & Miller, 2001).
3. As teachers are vital to student success, effective teacher professional development is a linchpin of any fundamental improvement in learning opportunities for students (e.g., Thompson & Zeuli, 1999).

4. Despite research about what constitutes effective professional development, most learning opportunities offered to teachers are one-time workshops, in-service presentations, or short seminars (e.g., Darling-Hammond & McLaughlin, 1999; Ladson-Billings, 1999; Lieberman & Miller, 2001).

5. To make their own practice with teachers more effective, facilitators of professional development also need opportunities to continuously engage with colleagues in ongoing, collaborative, reflective inquiry.

I focus on mathematics education for several reasons. In 1989, the National Council of Teachers of Mathematics (NCTM) became the first professional teacher organization to define standards for reform in curriculum and instruction in their subject (National Council of Teachers of Mathematics, 1989). This document, revised in 2000, includes a vision of teaching mathematics that involves meaningful classroom discourse around solving complex, multi-faceted problems (National Council of Teachers of Mathematics, 2000). The research literature about mathematics educational reform and about reforming practices for professional development of mathematics teachers has developed since that time. Both bodies of research – on teaching mathematics and on facilitating learning of mathematics
teachers – focus on similar pedagogies. That is, they describe the need to
develop learning communities engaged in the enterprise of solving problems and
developing a repertoire of practices recognized as effective and meaningful in their
disciplines (e.g., Ball & Cohen, 1999; Fennema & Nelson, 1997). Finally, my
background as an experienced secondary mathematics teacher prompts me to focus
on mathematics education. Thus, a focus on professional development of
mathematics teachers and professional developers is an appropriate and rich area to
explore. Next, I look in more depth at the five cascading reasons for professional
developer professional development.

First, to address the disparity in achievement, there is an increasingly urgent
call to create access to high quality education for an ever more diverse student
population (e.g., Delpit, 1995; Kohl, 1994; Ladson-Billings, 1999). Nasir (2002)
describes some of the complexities such diversity entails:

In research on culture and learning, studies have documented multiple
dynamic factors in the gap in school achievement between White students
and students of color, including differences in interaction styles (Au, 1980;
Cummins, 1986); internalization of perceived and real societal limitations
on success (Giroux, 1983; McLeod, 1987; Ogbu, 1992); and tracking
practices in school (Oakes, 1984, 1990). ...some of these societal and
classroom factors partially influence learning through their contribution to
the development of an "oppositional identity" (Fordham & Ogbu, 1986),
whereby minority students identify themselves in opposition to the
mainstream school culture and thus fail in school as part of the playing out
of this identity. (p. 214)

These equity issues are critical as schools and school districts attempt to
deal with the differences in opportunity and success among students of distinct
socio-economic classes, races, languages, ethnicities, and genders (e.g., Boaler, 2002b; Campbell, 1997; Ladson-Billings, 1999; Secada & Adajian, 1997).

Schools and teaching have improved more for some students than others. Over the last century some educational practices and perspectives have gradually improved schools and student learning (Tyack & Cuban, 1995). However, positivist and post-positivist assumptions and attitudes toward teachers and students, learning and teaching, as well as schools and educational policy, including many practices fostered by these beliefs, have not improved learning for all students (e.g., Delpit, 1995; Ladson-Billings, 1999). Positivist and post-positivist practices are understood to represent "objective" truths and are supported by learning theories that carry attitudes toward teachers and students that, by their nature, maintain power for those whose knowledge has been historically privileged, while they undermine agency for many teachers and students (Apple, 2000; Freire, 1998), especially for persons historically placed on the margins for reasons of race, gender, class, language, as well as status or position. Since teachers have low-status positions, their voices and professional knowledge are often marginalized or ignored (Lightfoot, 1983). To foster educational equity and excellence for all students and address the ways teachers' voices and expertise are marginalized, in this dissertation educational practices stem from a social constructivist point of view in which knowledge is understood to be situated in contexts and activities and distributed among the persons, setting, and fools involved in its creation.
Second, although repeated waves of educational reform throughout the last century focused on making major changes to school structure, curriculum, content standards, and assessment (e.g., Goodlad, 2003; Tyack & Cuban, 1995), by contrast, for the past 20 years educational reform has focused on strengthening teaching in order to enhance student learning (e.g., Ball & Cohen, 1999; Darling-Hammond & Sykes, 1999; Lieberman & Miller, 2001). Describing the need to improve instructional practice, Darling-Hammond (1997) writes, "What matters most for students' learning are the commitments and capacities of their teachers" (p. 293). Indeed, teachers need ongoing support, encouragement, and effective learning opportunities to learn to meet the expanding needs for more effective and equitable student learning, growth, and achievement.

Third, to support teachers as they enhance teaching instruction, opportunities for teacher learning also need improvement. Reforms in teaching will "require most teachers to move far beyond what they themselves experienced as students" (Darling-Hammond, 1997, p. 319). Most teachers were taught in ways that reflected a behaviorist or trivial constructivist view of learning (von Glasersfeld, 1987, 1996). From this view, knowledge is transferred from the expert to the novice (Perkins, 1999). Although many teachers claim to be constructivist in their practice, much of today's teaching stems from positivist and behaviorist assumptions (Ball & Cohen, 1999; Lortie, 1975; Thompson & Zeuli, 1999).
In contrast, recent learning theories presented by the education and psychology research communities shift perspectives on teaching, learning, and knowing to a situated and socially constructed orientation (e.g., Brown, Collins, & Duguid, 1989; Cobb & Bowers, 1999; Fenwick, 2000; Putnam & Borko, 2000). Thompson and Zeuli (1999) write, "most striking about teachers' efforts to learn and put into practice the current reform ideas in science and mathematics education is that it is possible – indeed fairly common – to get a great deal right and still miss the point of... the 'inner intent' of the reforms..." (pp. 345-346). Thus, to enhance student learning by continuously improving instructional practice, teachers need high quality, ongoing, relevant, and effective professional development (e.g., Ball & Cohen, 1999; Garet, Porter, Desimone, Birman, & Yoon, 2001; Hawley & Valli, 1999; National Council of Teachers of Mathematics, 1991; Stein, Smith & Silver, 1999; Thompson & Zeuli, 1999). Based on situative, social learning theory, teachers need the chance to belong to, negotiate and identify with learning communities that support reform practices and values.

Fourth, for most teachers, however, professional development means workshops, short-term courses, seminars, presentations, or conferences – all shown to be largely ineffective for creating substantive, sustained growth in teaching practice and improvement in student learning (e.g., Ball & Cohen, 1999; Elmore, 2002; Garet et al., 2001; Hawley & Valli, 1999; Sykes, 1999). Workshops are usually "intellectually superficial, disconnected from deep issues of curriculum and
learning, fragmented, and non-cumulative" (Ball & Cohen, 1999, pp. 3-4).

Traditional technique-focused workshops are also confined by a metaphor of "training." Dewey (1904) distinguished training teachers to be proficient in instructional skills from engaging them in learning to "control ... the intellectual methods required for personal and independent mastery" as well as reflective, responsive use of such skills (p. 251). Teacher training is based on an assumption that knowledge about curriculum and teaching methods, revealed by an expert, is absorbed by the workshop participant (e.g., Ball & Cohen, 1999; Hammerman, 1995; Schifter & Fosnot, 1993). Research in learning and teaching challenges this assumption (e.g., Borko, 2004; Brown et al., 1989; Cobb & Bowers, 1999; Mezirow, 2000; Putnam & Borko, 2000; Stein & Brown, 1997). Wenger (1998) makes a distinction between training and education this way:

Whereas training aims to create an inbound trajectory targeted at competence in a specific practice, education must strive to open new dimensions for the negotiation of the self. It places [learners] on an outbound trajectory toward a broad field of possible identities. Education is not merely formative – it is transformative. (p. 263)

Further, workshops derive from a supposition that teachers need to be "fixed," given advice, and offered new activities or other teaching tips to try. When teachers engage in "productive tinkering" by adding new techniques to their practice, the result is highly normative and conservative (Thompson & Zeuli, 1999, p. 355). Teachers expand their toolbox while preserving their own style and maintain, without question, their fundamental assumptions and beliefs about
mathematics, learning, students, and teaching (e.g., Cooney & Shealy, 1997; Thompson & Zeuli, 1999).

Ironically, teacher-training workshops are grounded in assumptions that contradict the social constructivist ideas many of these workshops seek to teach (Ball & Cohen, 1999; Schifter & Fosnot, 1993, Thompson & Zeuli, 1999). Historically, educational change has been grounded in assumptions that teachers need to adjust their practice rather than transform it (Cuban, 1990; Darling-Hammond & McLaughlin, 1999; Thompson & Zeuli, 1999; Tyack & Cuban, 1995). These assumptions lead to expectations that educational problems can be fixed quickly and that workshops or new curriculua, for two examples, will provide mechanisms with which to fix it. "Any professional development experience intended to promote serious change in teaching is up against this pattern of 'productive tinkering,' a pattern ... that is ... resiliently conservative" (Thompson & Zeuli, 1999, p. 355).

For the most part, teachers have not been encouraged to question their assumptions about learning and teaching (e.g., McCombs, 1998; Thompson & Zeuli, 1999). Believing that reality is objective, knowledge is separate from the knower, and learning involves acquiring, storing, and recalling knowledge for use in other contexts, teachers enact a traditional, teacher- and curriculum-centered pedagogy that leaves little room for students and their thinking (e.g., Ball & Cohen, 1999; Brown et al., 1989; Putnam & Borko, 2000; Thompson & Zeuli, 1999). The
practice of many teacher educators and professional developers is not exempt from such perspectives and pedagogy (e.g., Ball & Cohen, 1999; Stein et al., 1999; Thompson & Zeuli, 1999). We find that traditional professional development seminars and workshops have been increasingly seen as ineffective for improving instruction or student learning (Fullan as cited in West & Staub, 2003; Huberman as cited in West & Staub, 2003; Wilson & Berne as cited in West & Staub, 2003).

However, a small but growing number of professional development educators and researchers are creating and examining programs that encourage teachers to question their beliefs, examine assumptions, and develop new understandings about learning, teaching, and students. These programs also help teachers examine beliefs, build new skills, and create a sense of themselves as teachers whose practice is explicitly developing classroom communities in which students are expected to think, solve authentic, complex problems, and create knowledge (Ball & Cohen, 1999; Darling-Hammond & Sykes, 1999; Lieberman & Miller, 2001; Thompson & Zeuli, 1999). In this model teacher professional development provides teachers with ongoing opportunities to reflect on and collaboratively solve problems that arise in practice (Cochran-Smith & Lytle, 2001). These models of teacher learning propose that teachers meet regularly, over long periods of time to collaboratively and continuously inquire about their practice, their students, and the subjects they teach (e.g., Ball & Cohen, 1999;
Cochran-Smith & Lytle, 2001; Hawley & Valli, 1999; Schifter & Fosnot, 1993). Such ongoing teacher inquiry groups are often called professional learning communities (e.g., Hord, 2004; Kruse, Louis, & Bryk, 1995). Just as teachers are asked to make their classrooms student-centered, professional development, to be effective, needs to become teacher-centered. That is, teachers need transformative professional development (Thompson & Zeuli, 1999).

Fifth and last, few professional developers have prior experience as members or facilitators of ongoing, collaborative, reflective professional learning communities. To provide transformative professional development for teachers, professional developers need to transform their own practice. "To widen the circles of people who understand how to design and conduct [effective professional development] programs appropriate to their own settings ... would involve professional developers participating in the same fashion that a teacher would participate" in ongoing, collaborative, reflective inquiry with other facilitators of teacher learning (Thompson & Zeuli, 1999, p. 369). That is, like teachers, professional developers need transformative professional development.

Definitions

Since educators use the phrase professional development to mean different things, I start by explaining the meaning of terms I use. Along with Lieberman and Miller (2001), I use the terms transformative professional development and transformative teacher learning to mean, "when teachers work together over time
to deepen their knowledge... and transform schooling for their students and for themselves" (p. vii). The dynamic relationship between transformative learning for teachers and professional developers, on the one hand, and substantive changes in teaching and professional development practice, on the other hand, is a critical dimension of this definition. I use two terms to describe a person who initiates and supports learning opportunities for practicing teachers: facilitator of teacher learning and professional developer. Similarly, I use the terms professional learning community and inquiry group to describe groups of teachers and/or professional developers engaged in ongoing collaborative learning with the purpose of improving student mathematics understanding and schools for students and teachers. Although the terms inquiry group and professional learning community have been used to label many groups of teachers, some more effective and productive than others, for the purpose of this proposal I mean groups that are functioning well and provide opportunities for transformative learning.

I use the term transformative learning to indicate teachers' and professional developers' learning that leads to new ways of thinking about teachers, students, mathematics, and learning as well as new teaching practices. According to Thompson and Zeuli (1999),

To carry out the ... proposed [educational] reforms will require a great deal of learning – not merely additive learning (the addition of new skills to an existing repertoire) but transformative learning (thoroughgoing changes in deeply held beliefs, knowledge, and habits of practice). (p. 342)
Transformative teacher learning challenges teachers' beliefs and assumptions about learning and teaching, fundamentally changing their thinking, knowledge, skills, and instructional approaches (Cooney & Shealy, 1997; Franke, Fennema, & Carpenter, 1997; Thompson & Zeuli, 1999). Transformative learning involves engaging teachers in reimagining and realigning their practice.

Transformative teacher learning is enabled by collaborative reflection on practice over long periods of time and depends on problem solving in contexts of particular schools, school districts, and students (Ball & Cohen, 1999; Cochran-Smith & Lytle, 2001; Hawley & Valli, 1999). In terms of transformative learning for mathematics teachers, what constitutes mathematical activity and what it means to teach mathematics also needs to be reconceived (Cooney & Shealy, 1997). I refer to these transformative changes in beliefs and practice when I use the terms teacher (or professional developer) growth, or teacher (or professional developer) learning.

Here, I briefly introduce professional learning communities. Teacher professional learning communities, or inquiry groups, are characterized by small groups of teachers who meet regularly (usually once per week to once per month) over long periods of time (for at least one school year, and often longer) (e.g., Ball & Cohen, 1999; Hord, 2004; Thompson & Zueli, 1999). As "communities of continuous inquiry and improvement," these groups share responsibility for deciding on what specific aspects of subject matter, students, learning, and pedagogy, to focus their learning (Hord, 2004, p. 1). Professional learning
communities are frequently situated in one school, encompassing some or all of one faculty (e.g., Ancess, 2000; Little, 2001; Stein & Brown, 1997; Stokes, 2001). However, other inquiry groups are formed of individuals from different schools from one or more districts (e.g., Schifter & Fosnot, 1993; Thompson & Zeuli, 1999).

The balance of this dissertation contains four chapters. Chapter 2 is a literature review that ends with the research questions that guided this study. In the literature review, I present a conceptual perspective and theoretical framework followed by a review of literature regarding teacher professional development, specifically professional learning communities. Chapter 3 describes narrative inquiry as the study's methodology. In chapter 4, I present findings and analysis and chapter 5 includes conclusions, recommendations and reflections.
CHAPTER II
LITERATURE REVIEW

The purpose of this literature review is to select a relevant and powerful framework that supports an exploration of transformative professional development for professional developers and teachers in the context of professional learning communities. It is divided into two main sections. In the first section I (a) present a situative perspective as a guiding conceptual orientation, (b) describe situated learning theory as a relevant and powerful theoretical framework for studying teacher and professional developer learning in inquiry groups, (c) describe aspects of this theory especially relevant to a study of teacher and professional developer learning in professional learning communities, and (d) explore other learning theories that offer ways to understand learning in the context of professional learning communities.

In the second section, I examine literature about teacher professional learning in professional learning communities. I include (a) evidence of the effectiveness of professional learning communities and (b) descriptions of four exemplary professional development programs. In the conclusion I describe a need for research about how facilitators of teacher learning, in the context of their practice and participation in an inquiry group of colleague facilitators, learn to
 initiate, design for, facilitate, and support teacher professional learning communities. I then present my guiding research questions.

Conceptual Perspective

I use the terms conceptual perspective and theoretical framework to mean distinct, although related and equally important ideas. Mewborn (2005) distinguishes conceptual perspectives, orientations, and viewpoints from theoretical frameworks. By conceptual perspective she means a worldview that shapes one's stance toward one's professional work. Presenting a conceptual perspective informs both readers and researchers themselves about the lens through which their work is examined, alerting them to how their work might be colored or clouded. Mewborn regards a theoretical framework as an important, multipurpose tool for research that can influence how ideas are perceived, defined, shaped, understood, supported, and structured. She argues that researchers need to use their theoretical frameworks not only to define their studies, but also throughout their research to guide collection and analysis of data and to report findings.

In the situative perspective that shapes this study, knowledge is continuously created and recreated in contexts that involve individuals interacting with other persons, activities, tools, and settings (Brown et al., 1989; Lave, 1988; Lave & Wenger, 1991). With Borko (2004), I use the term situative to refer to "perspectives...[conceptualizing] learning as changes in participation in socially
organized activities, and individuals' use of knowledge as an aspect of their participation in social practices" (p. 4).

A situative perspective is appropriate for an exploration of teacher and professional developer learning in professional learning communities because it "interact[s] with, and sometimes fuel[s], current reform movements in education" (Putnam & Borko, 2000, p. 4) and pertains as much to understanding professional development as making sense of student learning. Professional learning communities are "socially organized activities" (Borko, 2004, p. 4) that provide opportunities for professional developers and teachers to change their practices and participate in a community of educators in new ways. Thus, because it views learning as change in persons, participation, and social contexts, a situative lens fits well with an inquiry about teacher and professional developer learning in the context of professional learning communities.

Given this situative conceptual orientation, my task in the next section is to develop an appropriate theoretical framework. While a conceptual orientation describes the angle from which a researcher views an inquiry, a framework metaphorically supports and creates a border around it (Eisenhart, 1991). In this way a framework can influence the way an observer perceives what is being observed (Mewborn, 2005). It allows a researcher to "notice things and ... cut out 'noise' in [the] data" (Mewborn, 2005, p. 3). It can help a researcher distinguish what data to place in the foreground of a study, and what belongs in the
background. Frameworks can also "support the building up and deepening of an idea, or it can provide a structure on which to hang new ideas" (Mewborn, 2005, p. 3). A framework for my research needs to fit my conceptual viewpoint and help structure and support my understanding of teacher and professional developer learning in inquiry groups as well as aid in developing a research question and methodology.

Theoretical Framework

In this section, my main purpose is to construct a relevant and robust framework that will support an exploration of learning in professional learning communities. This framework is grounded in situated learning theory. I briefly sketch some of situated theory's origins and look at its associated epistemological stance. I describe major concepts and important tenets of situated learning theory.

Next, I look at other learning theories and perspectives that might have provided useful frameworks for studying learning in professional learning communities. Still, I conclude that situated theory provides the most relevant and powerful frame. This framework focuses on situated theory's development of the interplay among learning, community, and identity.

Situated, Social Learning Theory

Professional development focuses on the learning of teachers and professional developers. Therefore, it is appropriate to frame an exploration of professional development with learning theory. Further, from a situative
perspective it is important to choose a theory that takes interactions among settings, activities, individuals, and social context into account. Learning is both as individual and sociocultural (Borko, 2004). Given a situative understanding, learning is changes in participation in social activities and individuals use knowledge as an aspect of their participation in social practices. A situative perspective can be useful in research about teacher learning. Situated learning theory with its explications of learning in the context of communities of practice provides a powerful, multi-focal framework by theorizing learning as an aspect of community membership and identity transformation (Lave & Wenger, 1991; Wenger, 1998).

With Borko (2004), I define learning as changes in participation in social settings as well as in activities and tools, social and cultural communities, and identities (Brown et al., 1989; Lave & Wenger, 1991; Wenger, 1998). Putnam and Borko (2000) delineate three themes in this situated, socially constructed view of learning. "Cognition is a) situated in particular physical and social contexts; b) social in nature; and c) distributed across the individual, other persons, and tools" (p. 4). Ideas are not isolated, abstract entities separate from the person who knows them but are shaped by the setting, activities, resources and persons involved. Thus, knowledge cannot be transferred from one person or situation to another but is shared, or distributed, across a community and its resources (Brown et al., 1989; Lave, 1988). To emphasize this idea, some situative theorists use the word,
Knowing, or the phrase, *coming to know*, rather than the word *knowledge* (e.g., Greeno, 1998). However, others do use the term knowledge (e.g., Boaler, 2000; Brown et al., 1989; Wenger, 1998). Although not synonymous, knowledge is the more commonly used word and I will use *knowledge* as well as *knowing*, and *coming to know*.

In Lave's (1988) study of mathematics use in the grocery store, she shows how knowing is shaped by physical resources, settings and activities. She depicts shoppers using arithmetic ideas and mathematical problem solving. Figuring out which of two products to buy, shoppers use number sense rather than a formula. While the shoppers’ thinking and behavior look different from school mathematics, their mathematics is no less sophisticated or accurate. In situated theory knowing is neither an end product nor a state of being but involves a dynamic interplay – a continuous change of contexts, resources and persons shaping one another.

Situated learning theory has roots in Vygotsky's (1978) social learning perspective, Dewey's (1938) emphasis on the importance of experience, and a critical viewpoint. Vygotsky views learning as a social activity. He recognizes that an individual's learning is socially constructed, mediated by tools, language, other cultural symbols, and the activities in which the individual is engaged. Dewey's view that learning involves direct experience, creating new meanings, and strengthening one’s ability to shape future experiences also undergirds situated learning theory. Situated learning theory also descends from a critical perspective
which views learning in cultural, political, and historical contexts. These contexts provide lenses for looking at issues of how power and privilege shape what is taught and who has access to meaningful education (Apple, 2000; Freire, 1998; McLaren, 1989). After a more complete description of situated learning theory, I further explore these contributing learning perspectives.

I introduce (a) tools as a metaphor for conceptual knowledge, (b) the importance of context, (c) co-emergence of knowing and context, (d) apprenticeship as a metaphor for learning through authentic activity, (e) the concept of legitimate peripheral participation, (f) participation in community, and (g) learning as belonging and becoming. Then, I proceed to elaborate elements of situated learning theory most relevant to a study of learning in inquiry groups.

Brown et al. (1989) consider a set of tools as a metaphor for conceptual knowledge. By using a tool or concept, a learner comes to know how to use it. The learner also comes to know a community of individuals who already use that tool or concept. The learner also comes to know the community's perspectives and culture, including what the tool means to that community (Brown et al., 1989). "Just as carpenters and cabinetmakers use chisels differently, so physicists and engineers use mathematical formulae differently" (Brown et al., 1989, p. 33). That is, "conceptual tools ... reflect the cumulative wisdom of the culture in which they are used and the insights and experience of individuals" (Brown et al., 1989, p. 33). What a tool or concept means, what it is for, and how it is used (i.e., knowledge
about a tool or concept) is not static but results from continuous negotiation within a community about how the tool or concept is used (Lave & Wenger, 1991).

Situated learning theory emphasizes the importance of context. The physical settings, tools, resources, and social relations involved with an activity are central elements that shape learning (Brown et al., 1989; Putnam & Borko, 2000). Learning occurs through participation in a social-historical-cultural community (Lave, 1988; Lave & Wenger, 1991). Context can be thought of as these elements interacting with one another to create knowing that is "interminably inventive and entwined with doing" (Fenwick, 2000, p. 253). To be clear, while learning emerges through individuals' participation in a physical setting, which is colloquially called a context, setting is only one aspect of context according to situated learning theory. Lave's (1988) descriptions of learning as participation in activities-in-settings focuses on ways that activities and settings structure one another. For instance, I have noted that mathematics is different in grocery stores and classrooms (Lave, 1988).

Learning changes both learner and context (Lave, 1988; Lave & Wenger, 1991). That is, learning and context are emergent (e.g., Cobb & Yackel, 1995) or co-emergent (Fenwick, 2000). Fenwick (2000) writes,

As actors are influenced by symbols and actions in which they participate, they adapt and learn. As they do so, their behaviors and thus their effects on
the systems connected with them change.... Thus, the environment and the learner emerge together... (p. 261)

I use the term co-emergent to emphasize the interactive, mutual shaping of activities, settings, learning, and persons. In an example of mutually transforming and constituting activities, Lave (1988) describes reading and knitting at the same time. At times, maybe when she is in mid-paragraph, she stops knitting to turn the page. Her reading shapes how she knits. At other times, she will wait to turn the page until she has finished knitting a row. In this case, her knitting shapes how she reads. The two activities structure one another and the learning involved is co-emergent.

*Cognitive apprenticeship*, another feature of situated learning theory, involves the development of knowledge through engagement in activity, in which learners are "enculturated into authentic practices through social interaction and activity" (Brown et al., 1989, p. 37). Lave and Wenger (1991) vividly describe situations in which learning is enabled by apprenticeship, developing language and skills valued by a community. Apprentice tailors, for instance, through involvement in gradually more complex tasks become increasingly integral, valued members of a community of tailors. Taking the idea of apprenticeship as metaphor, an individual's learning can be thought of as becoming an increasingly competent, valued participant in the activities of a community (Lave & Wenger, 1991; Wenger, 1998).
The concept of legitimate peripheral participation further develops the metaphor of apprenticeship (Lave & Wenger, 1991). Legitimate peripheral participation concerns the process by which newcomers become part of a community. Legitimate peripheral participation describes how persons, like apprentices, become increasingly engaged in communities and develop competencies, values, beliefs, resources, and tools valued by that community. While newcomers are peripheral members of a community, their participation becomes a legitimate part of the community's practice (Lave & Wenger, 1991). Legitimate peripheral participation is a way to understand evolving social practices, learning, belonging to community, negotiating meanings and developing identities (Lave & Wenger, 1991). Legitimate peripheral participation describes how persons move from being newcomers or apprentices in a community to becoming experienced, knowledgeable, accomplished old hands (Lave & Wenger, 1991).

Although legitimate peripheral participation must be taken as a whole concept, it is helpful to make sense of its parts (Lave & Wenger, 1991; Quay, 2003). Participation involves engaging with others to further a community's goals and join with others to make sense of the world. Legitimacy entails a person's ability to contribute to and influence a community's negotiation of meanings. Peripherality focuses on a person's position in a community and how central a role one plays in its activities. A person's trajectory from being a newcomer to becoming a full participant in a community involves changing who one is
becoming (Lave & Wenger, 1991). That is, learning involves constructing and reconstructing identities. "One way to think of learning is as the historical production, transformation and change of persons" (Lave & Wenger, 1991, p. 51). Here, Lave and Wenger (1991) interrelate identity, learning, and social membership.

Learning can be conceived as persons-belonging-in-community and persons-continuously-becoming, or transforming identities (Lave & Wenger, 1991; Wenger, 1998). Learning involves the ability to negotiate new meanings by participating with others in a community of practice and it "changes who we are by changing our ability to participate, to belong, to negotiate meaning" (Wenger, 1998, p. 226). A focus on belonging and becoming examines the interrelations of community, identity development and learning.

Next, I further develop several aspects of situated, social learning theory. After an overview of four components of learning, I narrow my focus by looking at two of these components, belonging and becoming, as most relevant for understanding professional learning communities.

Learning: Four Interrelated Components

Building on his work with Lave (1989; Lave & Wenger, 1991), Wenger (1998) illustrates four interrelated components of learning. Emphasizing that these components define one another and are interconnected, he describes learning as intertwined with (a) experience/meaning, (b) practice/doing, (c) community/
belonging, and (d) identity/becoming. As noted earlier with the words knowledge and knowing, each noun here is paired with a verb to imply that these are continuously emerging activities and dynamic processes rather than only finished, static products. In the case of meaning, the active process – the verb – is meaning making or negotiating meaning.

First, experience is connected with individual and collective meaning making. That is, learning is an aspect of continuous negotiation and renegotiation of what individual and collective experience means. Second, practice, or doing, is a way to describe participation in shared history, resources, and worldviews that support learning as "mutual engagement in action" (Wenger, 1998, p. 5).

Third, community is tied with belonging, emphasizing the interplay of individual and collective co-constructions. Knowing is created as shared and valued pursuits are developed in community. Fourth, identity is linked with continuously changing selves. As individuals learn in community, they are developing stories of who they are becoming (Holland, Lachicotte, Skinner & Cain, 1998). Although they are interconnected and equally important components of learning, I focus primarily on the last two – community/belonging and identity/becoming – because my interest is to explore emerging identities and community membership in the context of teacher and professional developer learning in inquiry groups. I examine experience/meaning and practice/doing in the process of exploring community/belonging and identity/becoming. Since teacher learning is the aim of
professional learning communities, community/belonging and identity/becoming are central to framing a study of transformative professional development in professional learning communities.

*Belonging and Becoming*

To explore community/belonging and identity/becoming, I examine the constructs of community of practice and learning community, a specific kind of community of practice. First, I detail three dimensions of communities of practice and describe ways in which professional learning communities, described in chapter 1, can be considered communities of practice. Second, I examine learning communities and the ways that they give participants possibilities for community membership (belonging), identity transformation (becoming), and participation in negotiation of meaning (agency).

Learning communities can offer members heightened opportunities for inquiry, change, and negotiation by providing ample opportunities for three modes of belonging — engagement, imagination, and alignment. I also connect these modes of belonging to learning as identity transformation, or continuously becoming. Belonging and becoming, as well as power issues associated with a person's position in relation to community boundaries, are inextricably tied to that person's sense of agency and relationship with authority.
**Communities of Practice**

Not all groups are communities of practice. Wenger (1998) claims that three dimensions – mutual engagement, a joint enterprise, and a shared repertoire – create coherence that distinguishes a community of practice from communities defined by a common title, membership in an organization, a network of interactions, or shared location.

*Mutual engagement.* "Membership in a community of practice is a matter of mutual engagement …[that] defines the community" (Wenger, 1998, p. 73). Mutual engagement entails participants interacting with each other in ways that negotiate the meanings of their endeavor and build relationships with one another. These relationships can be harmonious, characterized by respect and trust, or they can be unpleasant, full of discord and conflict. Either way, if there is mutual engagement, the relationships may be part of a community of practice. Mutual engagement requires work and helps to create a community of practice out of a diverse group of people. Mutual engagement leads to developing a shared practice of abilities, or competencies, valued by the community.

*Joint enterprise.* A second source of cohesion for a community of practice is negotiating a communal, or joint, enterprise (Wenger, 1998). As they pursue their shared enterprise, participants figure out together how to respond to their situation. They also develop a sense of ownership of their practice. This does not mean uniformity, or even agreement, only communal negotiation. More than a
common goal, negotiating a joint enterprise creates mutual accountability that becomes part of the community’s practice. Participants develop mutual accountability. They hold themselves and each other accountable for norms of behavior, valuing what is important and knowing why, how to act, feel, and what to believe. Participants are also involved in negotiating these beliefs, norms, and values. Some aspects of accountability are articulated in policies and standards, others may involve implicit definitions of what it means to be good at something, how to treat one’s colleagues, when and how to share information, even whether or not it is acceptable to knit or eat during meetings.

*Shared repertoire.* A third feature of practice that creates a coherent community is a shared repertoire. This repertoire might include words, tools, actions, ideas, customs, methods, language used by members to make sense of the world, and styles that identify members as part of the community. This repertoire develops over time and is available to members of the community as a resource to continue to negotiate meanings, communicate, and sustain mutual engagement. Members of a community become invested in what they do and in their relationships with other members. Through this investment, individuals’ identities are linked to their sense of belonging to a community. Paradoxically, this means that, "it is not easy to become a radically new person in the same community of practice [and] it is not easy to transform oneself without the support of a community" (Wenger, 1998, p. 89).
The concept of communities of practice is integral to the framework for this study. To understand transformative professional development, it is important to recognize the contexts most likely to provide teachers and professional developers with opportunities for transformative learning. The most important, "personally transformative" learning involves membership in communities of practice (Wenger, 1998, p. 6). To discern whether inquiry groups can be communities of practice and thus sites for transformative learning, communities of practice need to be clearly defined.

As noted earlier, for professional development to have a meaningful impact on teachers' beliefs and classroom practice, teachers need ongoing opportunities to engage in collaborative conversations with colleagues that involve solving authentic problems of practice (e.g., Ball & Cohen, 1999; Thompson & Zeuli, 1999). Inquiry groups, as communities of practice, provide opportunities for participants to shape competencies valued by the community as well as develop collective outlooks, common language, and shared purposes. As participants become engaged in these joint pursuits their interest in being full members in these groups grows. At the same time, they increasingly identify with the work and values of the community. To understand transformative learning of teachers and professional developers, it is important to recognize how transformative learning and identity transformation function in communities of practice.
Communities of practice are part of teachers' and professional developers' daily work lives. In their work situations, teachers and professional developers belong to several communities of practice and these communities of practice mediate what they learn and what they do (Cobb, McClain, de Silva Lamberg, & Dean, 2003). Further, these multiple communities of practice are likely to have distinct, if not conflicting, values, beliefs, and practices (Wenger, 1998). Learning takes place all the time, not just when someone decides to cause, organize, or control it (Wenger, 1998). Activities in communities of practice, whether they are intentional or unintentional, formal or informal, mediate learning (Wenger, 1998). For example, students in classrooms learn a stated topic in ways structured by the setting and kinds of activities in which they engage (Brown et al., 1989). Instructional practices inform students about the nature of mathematics as much as the mathematical content. Similarly, teachers involved in professional development learn the practices, beliefs, and values about learning, knowledge, students, and pedagogy that underlie the way that professional development opportunity is structured. Thus, teachers' and professional developers' learning and sense of themselves are mediated by belonging to communities of practice.

Communities of practice also mediate the influence of organizations or control by people in authority (Wenger, 1998). Through engagement, interpersonal relations, and negotiation, communities interpret these institutional influences and hold "the key to real transformation – the kind that has real effects on people's
lives" (Wenger, 1998, p. 85). To understand professional developers' learning in inquiry groups, it is important to recognize the context of teachers' and professional developers' multimembership and how these communities are situated in the larger institutional context of schools and school district.

Since the work of teacher professional learning communities aims to improve teaching practice and learning for students, issues of personal and professional transformation are central. Later, I return to these issues in my discussion of identity. First, however, I look briefly at professional learning communities and examine whether they can be considered communities of practice.

**Professional Learning Communities as Communities of Practice**

Many professional learning communities, particularly ones working together over months and years, develop characteristics typical of communities of practice. Communities of practice are broader than short-term, closely defined activities and narrower than large-scale historical, social groups, such as a culture or nation (Wenger, 1998). Neither a one-time teacher workshop nor a school system can be considered a community of practice. While a community of practice may not recognize itself as such, there are a number of characteristics typical of communities of practice that indicate the presence of mutual engagement, joint enterprise, and a shared repertoire (Wenger, 1998).

In literature about professional learning communities, many of the same characteristics are mentioned or implied. Inquiry groups develop shared goals,
common language, and increasingly open, meaningful relationships (Hord, 1998; Lieberman & Miller, 2001; Thompson & Zeuli, 1999). Stokes (2001) describes a group of teachers as they collaboratively look at and critique their own practice, devise pedagogical and curricular changes to improve student learning, and together evaluate the efficacy of these improvements. In this case, teachers develop shared ways to engage in activities, build relationships, easily resume conversations begun at previous meetings, create their own jargon and develop a new, shared perspective on teaching and learning. For example, in Cognitively Guided Instruction participants create collective ways to assess the usefulness of their own and one another’s practices and develop common beliefs about students and learning (Franke et al., 1997). As well, Thompson and Zeuli (1999) depict several successful professional learning community programs and note that part of the struggle for teachers to "translate" initial understandings into practice "involved a shift in teachers' professional identity" (p. 360). From these brief examples it appears that professional learning communities can be communities of practice.

Learning Communities

A learning community is an especially dynamic, transformative type of community of practice. It is a community that places learning at the core of its enterprise (Wenger, 1998). Enhanced opportunities for belonging and becoming distinguish learning communities from other communities of practice.
A learning community offers a context in which members can create new knowledge and includes change as a part of members' identities (Wenger, 1998). A learning community attempts to extend beyond its boundaries and takes advantage of its members' participation in other communities of practice. Allowing experiences from other communities to cross borders and interact with its own practices provides possibilities of new experiences, new competencies, and new knowledge to emerge (Wenger, 1998).


**Engagement** involves serious participation and dedication to common goals (Nasir, 2002). Engagement in a community of practice requires at least peripheral inclusion in that community (Wenger, 1998). Also through engagement, relationships are built and individual identities are shaped by and differentiated from the group (Wenger, 1998). Members of a community, drawing on a common history, come to know and trust one another, developing shared competencies (Nasir, 2002). Finding at least a peripheral place within the community and knowing one’s trajectory in relation to the community are also important aspects of
engagement (Nasir, 2002). Through engagement, members identify themselves with what they do and invest themselves in relationships with others (Wenger, 1998). Investment in community activities encourages both the development of individual identities and community practices as they co-construct one another (Wenger, 1998). Engagement in the practices of a community is crucial to developing a sense of belonging to that community and fostering transformative learning.

*Imagination* allows persons to place their identities and practices in broader contexts (Wenger, 1998). It involves developing understandings of possibility (Nasir, 2002; Traugh, 2002). Through imagination, participants produce "images of the self and images of the world" that transcend engagement's narrow focus (Wenger, 1998, p. 177). Further, it is a social process, a way to belong to a community as together its members expand their horizon (Wenger, 1998). Thus, imagination allows members of learning communities to include other perspectives as they construct identities, new community competencies, and conceive of different communities with which they might identify (Wenger, 1998).

*Alignment*, a third mode of belonging, coordinates the activities of members of a community and connects the practice of one community with other communities (Wenger, 1998). For instance, through alignment, teachers in one school's math department are also part of the whole school or school district.

Alignment organizes the activities of community members and coordinates one
group's practices with enterprises of broader communities. Alignment may include complying with policy or following a school schedule. In this manner, individual teachers, not usually part of the community that created policy, curriculum, or schedule, can coordinate their practice. By aligning their practice with the institutions in which they practice, teachers become part of that broader system, assuming its styles and viewpoints. Combined with imagination, alignment can also involve striving toward an ideal or emulating a role model (Nasir, 2002). Investing in and identifying with such goals provides opportunities for new identities to emerge.

Power is another aspect of alignment and this includes self-determination, control over one's own actions and power to induce the alignment of others (Wenger, 1998). Alignment can also entail submission, negotiation, resistance and agency. To align oneself by submitting to a directive is different from negotiating how that directive will be shaped. In the first case one cedes power to authority; in the second, one claims authority and develops agency (Wenger, 1998). For instance, ceding authority, teachers can choose to compliantly follow a district's adopted curriculum (Gallucci, 2003; Remillard, 1999). Alternatively, teachers with a sense of their own agency can thoughtfully develop a "negotiated alignment" with the curriculum knowledgably adapting it to the needs of students (Gallucci, 2003). Further, an individual's position in relation to a community affects whether and in what ways that person aligns with, submits to, or resists community practices and
perspectives (Nasir, 2002; Wenger, 1998). Whether they have access to
full participation in a community – whether their voices are heard and considered
as meanings are negotiated or their cultural practices are given legitimacy –
influences whether individuals experience opportunities for alignment as chosen,
coercive, or marginalizing (Wenger, 1998).

Ample opportunities for engagement, imagination, and alignment are
essential for a community of practice to be a learning community and provide
transformative learning opportunities (Wenger, 1998). Taken together, engagement,
imagination, and alignment create conditions that enable participants to belong to a
community that places change and learning at the center of its enterprise. Next, I
examine ways that learning communities allow members to change themselves and
their practices.

*Identity and learning as becoming.* I look at relations between identity and
learning by describing several interrelated perspectives. First, although there is
debate about whether identity is dynamic and socially constructed or individual and
static (e.g., Bateson, 1994; Gee, 2001; Sfard & Prusak, 2005), in this dissertation I
understand identities as different in different contexts and at different times.
Second, identity involves story, narrative, or discourse (e.g., Connelly & Clandinin,
1999; Holland et al., 1998; Sfard & Prusak, 2005). Third, whether or not one has
control of one's own story – that is, the degree to which one has ownership of and
takes responsibility for, creating one's story – influences one's sense of agency and
relations with authority (e.g., Holland et al., 1998). Finally, learning is not an abstract end in itself. Making sense of one's world occurs in the service of identity formation (Wenger, 1998). In the case of teachers this includes developing teacher identities. Learning changes who one is becoming, makes life meaningful, and can be a personal and social resource.

Wenger (1998) links learning and identity by defining identity in terms of experience and participation in practice, that is, learning as becoming. Identity construction involves engagement with others who are more and less established members of a community. Nasir (2002) and Sfard and Prusak (2005) mention a contrasting psychological perspective in which identity is an individual experience that remains the same in different situations and at different times. At least partly claiming a relatively static view of identity, Palmer (1998) claims that individuals have a "true self" (p. 13). He describes this self as both fixed and fluid, combining one's inner, primal, spiritual, and even genetic, makeup with an "evolving nexus" of personal experiences (p. 13). Bateson (1994) explains the psychological view by claiming that American culture values an independent and autonomous identity. Holland et al. (1998) dispute this, claiming that Americans' views of identity are not consistent. While some Americans conceive of an independent identity, other Americans think of identity as interdependent and social.

Many writers hold a socio-cultural perspective about identity. Developing identity as an analytic lens for educational research, Gee (2001) defines identity as,
"being recognized as a certain kind of person" (p. 99). However, Gee qualifies this definition by acknowledging that the "kind of person" one is "recognized as being" is multiple and changes from one context to another or one time to the next. Bateson (1994) also suggests that identity is socially and culturally constructed. In many societies other than American culture, selfhood is viewed as part of a larger whole, and those societies place greater value on relationship, connection, and community (Bateson, 1994). Indeed, Freire (1998) holds "that my own unity and identity, in regard to others and to the world, constitutes my essential and irrepeable way of experiencing myself as a cultural, historical and unfinished being..." (p. 51). Drake, Spillane, and Hufferd-Ackles (2001) define teachers' identities as "their sense of self as well as their knowledge and beliefs, dispositions, interests, and orientation towards work and change" (p. 2). From a situative perspective, knowledge and beliefs, for example, are social constructs. Nasir (2002) views identity, developed by social processes and individuals engaged in "everyday cultural activity," as "a fluid construct... that shapes and is shaped by the social context" (p. 219). Wenger (1998) describes identity/becoming as a reciprocal, iterative, ongoing learning process that is both individual and social. Holland et al. (1998) view identity as socially and culturally constructed and claim that individuals negotiate these identities as agents in the construction process.

Gee (2001) connects identity with participation in Discourses (capitalization in original), or communities of practice. He emphasizes the importance of dialogue...
and how a person's experience is narrated. Bateson (1994) also points to the importance of narrative for learning. "Our species thinks in metaphors and learns through stories" (p. 11). Holland et al. (1998) emphasize that as people tell stories about themselves, they try to act in ways consistent with their narrative.

Sfard and Prusak (2005) describe identities as narratives, or stories, about a person as told by someone to someone. They suggest that the concept of identity may be a way to understand the "complex dialectic between learning and its sociocultural context" (Sfard & Prusak, 2005, p. 15). They raise concern that common language usage buries hidden assumptions and portrays the concept of identity as essentialist, having a nature independent of human action that is both "timeless and agentless" (Sfard & Prusak, 2005, p. 16). Critiquing phrases such as "being recognized as a certain kind of person" (Gee, 2001, p. 99) and "learning ... implies becoming a different person [and] involves the construction of identity" (Wenger, 1998, p. 151), Sfard and Prusak create definitions to make the notion of identity a more useful tool for understanding "how collective discourses shape personal worlds" (p. 15) and suggest that identities may be thought of as telling stories.

Sfard and Prusak (2005) emphasize that stories about persons are identities, not separate entities described by stories. Drake et al. (2001) claim that identities can be "understood as and through [emphasis added] stories" (p. 2). An identity narrative can entail telling oneself a story about oneself or in other words, reflective
thinking (Sfard & Prusak, 2005). It can involve people talking about a third party, such as a teacher telling a parent about a child (Sfard & Prusak, 2005). In a teacher inquiry group, a teacher who describes a classroom situation is telling a story that is, in part, a tale of his or her identity. As colleagues react to this description of practice, telling stories themselves, what they say also affects the teacher's identity story. Identity stories can change depending on who is the narrator and who is the story's recipient.

In terms of situated learning, defining identities as human generated narratives underlines at least two important ideas. First, especially significant stories describe a person's membership in, or exclusion from a community. Second, agency and the dynamic quality of identity are stressed. In chapter 3, I link narrative inquiry, this study's research methodology, with identities as telling stories.

In literature about professional learning communities, identity development is emerging as an important aspect of transformative teacher and professional developer learning. A number of educators describe the importance of attending to identity as part of teacher learning (e.g., Danielewicz, 2001; Drake et al., 2001; Nieto, 2003; Palmer, 1998; Schifter, 1996). There are a variety of reasons for attending to teacher identity. Describing oneself as a teacher leads to becoming more aware of the stance one takes toward teaching (Danielewicz, 2001). By articulating the kind of teacher one is, a teacher claims particular orientations.
Learning and changing one's teaching practice involves transforming one's professional identity (Drake et al., 2001). Quoting Maxine Greene, Mezirow (2000) writes, "It is actually through the process of effecting transformations that the human self is created and re-created" (Mezirow, 2000, p. 25). This may be true for the "teaching self" as well.

Palmer (1998, 2000) believes that teachers need to discover their deep identity. Palmer (1998) writes, "Identity lies in the intersection of the diverse forces that make up my life, and integrity lies in relating to those forces in ways that bring me wholeness and life rather than fragmentation and death" (p. 13). He follows this dramatic statement by saying that unless one teaches with integrity grounded in knowledge of one's true self, "... identity and integrity are diminished – and [one loses] the heart to teach" (Palmer, 1988, p. 16). Like Palmer, Freire (1998) claims that teachers must reveal themselves in the act of teaching. "As a consequence," he writes, "one of my major preoccupations is the approximation between what I say and what I do, between what I seem to be and what I am actually becoming" (Freire, 1998, p. 88).

Danielewicz (2001) places identity development at the center of her university teacher education courses. For her, identity is a continuous, socially constructed process in which becoming a teacher is "an identity forming process whereby individuals define themselves and are viewed by others as teachers" (p. 3). She strives to help her students become aware of and reflect on how they create
their teacher identity. Rather than simply acting like a teacher or playing a role, to be a "really good" teacher and persist despite our society's low regard for teaching, Danielewicz believes that "a greater investment" is needed ... one's identity must be on the line" (p. 3). She describes a "pedagogy of identity development" (p. 139) to enable her students to develop identities as teachers. This pedagogy includes many of the elements also described as essential to effective professional learning communities including rich discourse, critical dialogue, collaboration, and reflection.

In situated theory, identity is linked with learning and shaped in the interplay between dual processes: identifying with a community enterprise and its repertoire (identification) as well as having the ability to negotiate meanings, values and competencies that are important in that community (negotiability) (Wenger, 1998). Identification involves investing oneself in the work of a community and developing skills, values and styles that identify one as a member of that community (Wenger, 1998). Negotiability involves the degree to which one has personal and social power in the form of having a say, that is, the ability to negotiate meanings and shape community practices. In other words, agency, efficacy and how one positions oneself in relation to authority are all aspects of negotiability. Negotiability includes the ability to speak up and assert one's opinions, as well as having one's voice heard and listened to by other community
members. However, being unable to contribute can lead to developing a sense of not belonging and having little power or control.

Since the purpose of professional learning communities is to offer opportunities for transformative teacher and professional developer learning, understanding the interplay of learning and identity transformation is an important part of a framework for studying learning in inquiry groups. Identity is a socio-cultural process in which individuals' identities are continuously shaped by participation in community. Identity, conceived as telling stories, and is emerging as an important aspect of research about transformative teacher learning.

*Negotiating meaning: Agency and relationship with authority.* Being able to negotiate meanings in a community, what Wenger (1998) calls negotiability, involves an individual having legitimacy, confidence, and ability to influence, take responsibility for, and shape the practices of a community (Holland et al., 1998; Wenger, 1998). Negotiability involves ownership and agency and the shared construction of identities and social practices (Nasir, 2002). It is closely related to identification. Negotiability entails being able to shape practices adopted by a community and identification entails identifying with those practices.

Building on Wenger's (1998) definition of negotiability, I define agency as having control over the meanings and practices of a community in which one is invested. In this sense, when persons have agency they are able to negotiate, generate and shape practices that matter to them.
According to Cooney and Shealy (1997), the way teachers locate themselves in relation to authority is linked with their beliefs about the nature of knowledge, specifically mathematics, which in turn informs their pedagogy. Extending Cooney and Shealy’s reasoning about teachers, where professional developers and teacher leaders locate authority may be associated with their beliefs about the natures of learning and leadership and these beliefs may similarly shape their professional development practices. Thus, to understand professional developer learning and transformative professional development practices, the concepts of agency and locus of authority need to be part of this framework.

Summary. Developing social, situated learning theory as a framework for inquiry into inquiry groups, I focused on community/belonging and identity/becoming. Inquiry groups can become communities of practice, coherent groups engaged over time in a joint enterprise. In such groups, members learn, develop valued competencies, relationships, and shared values. Learning communities are special kinds of communities of practice, enhancing learning opportunities by encouraging engagement, imagination and alignment as members work and learn together. According to situated theory, learning, belonging to community, and identity transformation are intertwined processes. As members come to identify with a community's practices and values they also shape such practices by negotiating meanings, values, competencies, and endeavors. Being
able to fully participate in a learning community and negotiate what is considered competent and meaningful, also fosters members' agency.

*Inquiry Groups as Learning Communities*

Having developed social, situated learning theory as a framework for this study, I now examine inquiry groups as possible learning communities. Earlier I discussed professional learning communities as having the potential to be communities of practice. Here, I examine inquiry groups' potential to be a specific type of community of practice, a learning community. Learning communities offer opportunities for transformative learning (Wenger, 1998), the kind of learning needed for teachers and professional developers to substantively change their practices in ways that align with mathematics reform (Thompson & Zeuli, 1999). Enhanced opportunities for engagement, imagination, and alignment are essential for a community of practice to become a learning community (Wenger, 1998). Taken together, these modes of belonging create conditions that enable community members to change themselves and their practices. Learning communities also take advantage of members' participation in other communities of practice. As individuals share experiences and practices from other settings, these activities interact with the learning community's own practices providing possibilities for new experiences, new competencies, new knowledge and new identities to emerge.

Inquiry groups can function as learning communities by providing increased opportunities for belonging by creating space, time, and possibilities for
community members to (a) engage in valued activities and relationships, (b) imagine themselves as connected to broader communities and enterprises, and (c) align themselves to these broader communities through their actions (Nasir, 2002; Wenger, 1998). Inquiry group goals include learning from other communities, including from reform practitioners, teacher educators and educational research (Ball & Cohen, 1999; Cochran-Smith & Lytle, 2001). As in learning communities, members of inquiry groups examine their own and one another's practices and beliefs creating possibilities for new experiences, new competencies, new knowledge and new identities to emerge.

Next, in the second part of this literature review, I examine literature about the effectiveness, practices and content of professional learning communities.

Professional Learning Communities
or Inquiry Groups

Literature about professional learning communities focuses on four areas: (a) what content teachers need to study in inquiry groups (e.g., Ball & Cohen, 1999; Schifter & Fosnot, 1993); (b) how teachers need to work together to make sense of that content (e.g., Hord, 2004; Kruse et al., 1995); (c) necessary organizational conditions in schools and school districts to support and sustain professional learning communities (e.g., Hawley & Valli, 1999; Hord, 2004; Little, 2001); and (d) government and school district policies that enable inquiry groups to exist and function well (e.g., Darling-Hammond & Sykes, 1999; Thompson &
Zeuli, 1999). Often, literature combines two or more of these categories. While organizational and policy elements are critically important to the success of professional learning communities, they are not the primary foci of this review as my interest is to develop a framework for understanding teacher and professional developer learning in professional learning communities.

As context, I first, look at literature that demonstrates the effectiveness of professional learning communities in enabling transformative teacher learning. Then, I examine the practices and content of professional learning communities or inquiry groups.

*Effectiveness of Professional Learning Communities*

Research affirms important outcomes of teacher involvement in inquiry groups. A range of empirical studies link teacher participation in inquiry groups with improvement in (a) student learning and achievement, (b) teacher learning, (c) instructional practice, and (d) collaborative school culture. The studies mentioned below, though not exhaustive, are representative of the broader literature. As I have described previously, many of these studies focus on which components of inquiry groups are salient factors in their efficacy. Here, I mention studies that show these components are effective. While nearly all studies about teacher learning in specifically professional learning communities use qualitative research designs, it is worth noting that the few using quantitative or mixed method designs to examine teacher knowledge and student achievement (e.g., Garet et al., 2001; Harwell et al.,
2000; Hill, Rowan, & Ball, 2005), confirm results of the more plentiful empirical qualitative studies.

A growing body of literature provides evidence that in professional learning communities teachers' learning is linked to enhanced student understanding and achievement (e.g., Elmore, 2002; Harwell et al., 2000; Hord, 1997; Little, 2001; Stokes, 2001). Hill et al. (2005) use a mixed method design to look at how teacher professional learning communities focus on mathematical knowledge for teaching (MKT). They observe that when teachers' specialized knowledge for teaching mathematics increases through participation in professional learning communities, so does student achievement. Looking at schools with strong inquiry groups, Hord (1997) reports a number of positive student learning outcomes, including decreased drop-out rate, less absenteeism, academic gains in mathematics among many other subjects, and smaller achievement score differences between middle class European-American students and students from traditionally marginalized backgrounds. In a 10-year study of a large urban school district, analysis of teacher surveys and standardized student test scores shows improvement in student reading and mathematics when teachers participate in professional development that is characterized as a school culture of ongoing, frequent teacher engagement in collaborative learning with colleagues focused on subject content, on how students learn the subject, and instructional practices (Harwell et al., 2000).
Teachers engaged in inquiry groups learn subject matter and change their practice. In a quantitative study of more than 1000 teachers engaged in professional development, Garet et al. (2001) identify characteristics of professional learning communities that are related to teacher learning and instructional change. These researchers observe that small groups of teachers, meeting regularly for at least 1 year, engaged in dialogue and active learning with a content focus, are more likely to learn content concepts and skills themselves while improving classroom practice. Similarly, Ancess (2001) links collaborative teacher inquiry in three high schools with enhanced teacher learning. Hill et al. (2005) develop a measure of teachers' mathematical knowledge for teaching (MKT) and note that MKT increases as teachers work together to develop this specialized knowledge.

Other research connects improvement in instructional practice with participation in professional learning communities. In their work with Cognitively Guided Instruction, Franke et al. (1997), report significant teacher learning and powerful instructional improvement when teachers work together to better understand student thinking. Several studies stress the relationship between teacher learning and change in instructional practice as an outcome of ongoing participation in an inquiry group (e.g., Ancess, 2001; Garet et al., 2001; Hord, 2004; Manouchehri, 2001).
In addition, a number of studies link inquiry groups with creating a more productive, collaborative school culture and changing school organization. Ancess (2000) stresses that when high school teachers collaborate to improve student learning, their collaboration creates improvement not only in student outcomes and teaching practice, but also in school organization. A number of studies point to the self-sustaining nature of inquiry groups due to the support, satisfaction, and shared purpose that participants experience (e.g., Beatty, 1999; Fosnot, 1989; Hollins, McIntyre, DeBose, Hollins, & Towner, 2004; Kraft, 2002; Nieto, 2003). Several studies indicate that inquiry group participation has a role in developing teacher leadership and school reform (e.g., Cobb et al., 2003; Cochran-Smith et al., 1999; Darling-Hammond & McLaughlin, 1999; Greene, 2001; Little, 1995).

Kruse et al. (1995) describe increased teacher efficacy, individually and collectively, when teachers participate in professional learning communities. The authors suggest this leads teachers to make a personal commitment to teaching and students, and the community develops a collective sense of responsibility for improving student learning. This change in school culture is another benefit of inquiry group participation.

However, in Schifter and Fosnot's (1993) description of the Summermath program we may see some limits to inquiry group learning. In this program, teachers learn about how mathematics is learned by collaboratively solving
complex mathematics problems and then analyzing their thinking and solving process. Connections between beliefs about learning and the nature of knowledge are not explicitly examined. Over time and with the support of yearlong classroom coaching, some Summermath teachers change the way they choose problems and present mathematical concepts, making connections between their experience, learning, and the nature of knowledge. Others however, may rely on more superficial aspects of activities rather than the deeper intent of reform and transformation Thompson and Zeuli (1999) describe.

Teacher learning is crucially important for improving student achievement. Having discussed the effectiveness of professional learning communities, I turn now to literature describing professional learning communities. For most teachers, professional development involves attending conferences and workshops. However, the growing consensus is that participating in ongoing, collaborative professional learning communities is more likely to encourage and support teachers to make fundamental changes to improve their practice.

However, as Thompson and Zeuli (1999) stress, simply organizing teachers into teacher inquiry groups or professional learning communities does not necessarily create more effective professional development. The content and pedagogy of each professional learning community – what the group chooses to learn and how they learn it – must reflect conditions aimed at transforming, rather than tinkering with practice.
Next, I describe crucial aspects of inquiry groups as separate components. However, I do not imply that these processes are necessarily independent of one another. On the contrary, these aspects of transformative teacher learning are interdependent. One cannot encounter many places by traveling only one road. It is navigating the multifaceted enterprise of inquiry that creates a landscape on which meaningful professional learning can take place (Ball & Cohen, 1999; Lieberman & Miller, 2001).

**Practices of Inquiry Groups**

I focus first on elements of the practice or pedagogy of professional learning communities and then on their content (Ball & Cohen, 1999). The following practices are examined: collaboration, locating teacher learning in practice, building trust and making practice public, engaging in discourse, taking an inquiry stance on practice and reflection on practice.

**Collaboration**

Collaboration is a crucial element of transformative professional learning communities. Since knowledge is socially constructed, increasing opportunities for interaction enhances learning (e.g., Ernest, 1994; Hord, 2004; Putnam & Borko, 2000). In contrast to cooperation and collegiality, true collaboration is generative, communal work that enables co-construction of knowledge about students, subject matter, and practice (Kruse et al., 1995). One characteristic that distinguishes professional development programs where collaborative learning is carefully
cultivated is the participants' agreement that improving students' learning and their own teaching is their responsibility (e.g., Beatty, 1999; Hord, 1998; Kruse et al., 1995; Stokes, 2001; Traugh, 2000).

Not all of the ways that teachers work together are authentic, generative collaboration. Some may reinforce traditional views of learning and teaching and in some instances, create resistance to change (Thompson & Zeuli, 1999). When experience and competence "settle down into a state of locked-in congruence, then learning slows down, and practice becomes stale" (Wenger, 1998, p. 214). To be a learning community, a community's practice must be open to new experiences as a path to refining its competencies (Wenger, 1998).

Collaborative communities that transform participants' thinking and teaching are not free from disagreement, conflict, or discomfort (Achinstein, 2002). On the contrary, it is the act of questioning oneself and others that engenders the disequilibrium required to propel teachers to think in new ways (e.g., Manouchehri, 2001; Mezirow, 2000; Thompson & Zeuli, 1999). In communities of practice relationships are not necessarily harmonious; there can be tensions and conflict (Wenger, 1998).

In addition to creating the dilemmas that spur learning, collaboration provides the scaffolding necessary to support teachers as they make sense of new ideas (e.g., Ball & Cohen, 1999; Nieto, 2003; Schifter & Fosnot, 1993). New norms for professional relations and discourse provide the support needed for teachers to
experiment with new practices, share problems and mistakes with
colleagues, develop more extensive tools of observation of teaching and students,
and value critique (Ball & Cohen, 1999; Kruse et al., 1995).

Locating Teacher Learning in Practice

Locating teacher learning in practice is a second important practice of
professional learning communities (Ball & Cohen, 1999). That teacher learning
should be centered in teaching practice is grounded in research about the nature of
learning as situated and socially constructed (e.g., Cobb & Bowers, 1999; Lambert
creates authenticity, power, and relevance sufficient to transform classroom
instruction (Putnam & Borko, 2000). Without evidence grounded in practice,
teachers cannot make links between practice and student outcomes and have few
"hooks to pull new ideas into their workplace" (McLaughlin & Zarrow, 2001,
p. 96). Grounding teacher learning in practice echoes Dewey's (1904) call for
practitioners to shape practice based on observations and reflections on student
learning. When teachers develop the habit of continually examining and learning
from particulars of practice, especially investigating what students are learning,
they adapt materials and practices to meet students' needs and improve their
teaching (Ball & Cohen, 1999; Cochran-Smith & Lytle, 2001).

By locating teacher learning in practice, both educational research
knowledge and teachers' practical knowledge are valued. For Cochran-Smith and
Lytle (2001) "knowledge of practice" (pp. 47-48) assumes that knowledge is connected to the knower – not created and transmitted by an outside authority – and involves learning from both practice and research. In inquiry groups teachers make connections between ideas they glean from reading articles, looking at data, and their personal daily experience. In addition to locating teacher learning on the boundary of practice and research, this positioning in relation to authority enables participants to own and take responsibility for enhancing students' mathematical learning (Cooney & Shealy, 1997).

**Building Trust and Making Practice Public**

Building trust and encouraging teachers to make their practice public are linked aspects of engagement that facilitate transformative teacher learning in professional learning communities (Elmore, 2002; Hord, 2004; Kruse et al., 1995). In order to share openly with colleagues what they do, teachers must develop trust, mutual respect, and caring relations among themselves (Hord, 2004). Developing caring relations through making practice public enables teachers to find help, empathize with difficulties, praise successes, share support, tolerate disagreement, engage in debate, and learn practice of their own learning community and multiple classroom communities (Hord, 1998; Kruse et al., 1995). Building trust, then, provides support for teachers to engage in conversations and activities challenging enough to be transformative.
Many authors agree that making practice public entails teachers helping one another by observing, analyzing, and discussing specifics of each other's classroom practice for the purpose of instructional improvement and enhanced student learning (e.g., Elmore, 2002; Hawley & Valli, 1999; Renninger, Stein, Koenig, & Mabbott, 2006; Stein & Brown, 1997). Ball and Cohen (1999) describe the need to use artifacts of practice, such as classroom videos or samples of inquiry group members' students' work, to focus their conversations on specifics of real practice. Hawley and Valli (1999) suggest that solving real problems defined by gaps between goals and actual student performance is yet another way to share practice. Kruse et al. (1995) say de-privatizing practice increases teachers' sense of efficacy. In this way, teachers become change agents for and with one another (Hord, 2004).

Engaging in Discourse

Engaging in discourse also fosters transformative teacher learning. Discourse is thought of as a particular kind of dialogic conversation that includes listening with care, critical reflection, and the inclusion of many voices in an effort to deepen each person's understanding of diverse viewpoints and experiences (Danielewicz, 2001; Nieto, 2003). Discourse is a form of engagement that contributes to a community's coherence (Wenger, 1998). Communal discourse provides the socially constructed tools that frame a community's ways of thinking. By allowing participants to reach common understandings based on reasoned
judgment, it can be transformative (Mezirow, 2000). As they collaborate, teachers develop a shared vocabulary with which to articulate their reasoned judgments about practice, deepening their understanding (e.g., Ball & Cohen, 1999; Hord, 1997, 2004). This vocabulary is part of a discourse that shapes how teachers view learning, students, mathematics, and instructional practices. Through language, discourse shapes beliefs, values, and attitudes of members of a community. Such relationships are reciprocal since each participant also shapes the community, its discourse, and its values (e.g., Danielewicz, 2001; Mezirow, 2000; Putnam & Borko, 2000). Used in this sense, discourse is akin to Wenger's (1998) notion of negotiation of meaning.

However, without attention to dialogic structure, collaborative reflection, and questioning of assumptions, discourse can reflect mere cooperation (Kruse et al., 1995; Manouchehri, 2001). Rather than providing opportunities for growth and change, this insular conversation tends to reinforce old habits of thinking and practice (Manouchehri, 2001). Wenger (1998) warns that one limitation of engagement is its narrow focus on the work of one localized community. Discourse without questioning can become such an obstacle to learning when what is considered competent is so locally entrenched and part of the social fabric that other points of view go unnoticed or marginalized. Without multiple views, discourse cannot provide the dissonance or disequilibrium needed for transformative learning (Mezirow, 2000; Thompson & Zeuli, 1999).
Taking an Inquiry Stance

Taking an inquiry stance toward practice demands teachers take an active, open, and analytic posture toward their work by asking questions that push themselves and colleagues to think about practice, viewing it as dynamic, evolving, and a site for continuous improvement (Cochran-Smith & Lytle, 2001). Taking an inquiry stance means teachers work together to generate local knowledge, compare and contrast it with their interpretations of research and theory, and reflect on their practice (Cochran-Smith & Lytle, 2001). Dewey (1904) also urges teachers to appreciate both practice and theory.

To ask questions that explore new teaching and learning landscapes requires an inquiry stance. It involves raising, defining, and then collectively and iteratively solving problems about students, mathematics, teaching and learning that arise in local practice (Thompson & Zueli, 1999). For example, for teachers to understand how students from cultures different from their own learn and experience the world requires taking a questioning stance toward themselves and their instruction. It requires looking beyond taken for granted practices to imagine other viewpoints on those practices and holding conversations aimed at taking actions to benefit students (Hord, 2004).

Reflection

Reflection on practice is another basic practice of inquiry groups (e.g., Beatty, 1999). Like looking at images in a mirror, reflection allows teachers to
identify with practices while standing back to look at them critically. A continuous cycle of reflection and action is integral to teachers' transformative learning and creating new knowledge of practice (e.g., Ancess, 2000; Cochran-Smith & Lytle, 2001; Renninger et al., 2006). Moreover, "reflection is guided by action and action is guided by reflection" (Butler, 1996, p. 269). Additionally, Butler (1996) notes that to improve professional practice, public reflection on action is critical.

For Dewey (1933), "Active, persistent, and careful consideration of any belief or supposed form of knowledge in the light of the grounds that support it and the further conclusions to which it tends, constitutes reflective thought" (p. 9). He insists that conscious effort be made to support beliefs with evidence. As distilled by Rodgers (2002), Dewey describes four components of reflection. Reflection involves making meaning and coming to deeper understandings; it is systematic and rigorous; it happens through interaction with others; and, for it to be meaningful, personal and intellectual growth must be highly valued. Similarly, Freire's (1970) epistemological curiosity is a rigorous and collective method for critically uncovering complex meanings. Likewise, transformative learning involves systematic, critical dialogue and reflection (Mezirow, 2000).

As mentioned, locating teacher learning in practice is a central component of inquiry groups. However, reflecting on practice can, indeed should, happen outside of actual classroom situations (Ball & Cohen, 1999). The complexity, pace,
and competing demands of the classroom make it impossible to attend to
details with consistent depth (e.g., Ball & Cohen, 1999; Darling-Hammond, 1997;
Lieberman & Miller, 1999). To foster the critical thought needed to examine their
actions and assumptions, teachers need opportunities to step away from the
commotion and reflect (Ball & Cohen, 1999; Lieberman & Miller, 1999).

Ball and Cohen (1999) describe using "artifacts of practice" as the focus of
reflection's intellectual work (p. 14), including videotapes of lessons (e.g., Barnett
& Friedman, 1997; Carroll & Mumme, 2004; Seago, Mumme, & Branca, 2004),
examples of student work (e.g., Carini, 2002b), notes from observations of
colleagues, or curriculum materials. Other artifacts could consist of extensive
descriptions of students (Himley, 2002), teachers' questions about their practice
(Cochran-Smith & Lytle, 2001), collaborative lesson writing followed by group
observations, critique, and revision (e.g., Fernandez & Chokshi, 2002), conceptual
explorations of subject content and pedagogy (e.g., Franke et al., 1997;
Hammerman, 1995; Schifter & Fosnot, 1993), and student assessments (Nieto,
2003). Here, the purpose is to reflect on specific aspects of practice by stepping
back to imagine consequences of and alternatives for artifacts under discussion.

However, Zeichner (1996) makes the point that while reflection honors
teachers' knowledge and expertise, not all reflection serves the purpose of
improving teaching. "We need to move beyond the uncritical celebration of teacher
reflection ... and focus our attention on what kind of reflection teachers are
engaging in, what it is teachers are reflecting about, and how they are
going about it" (Zeichner, 1996, p. 207). Fendler (2003) summarizes literature that
critiques reflection as a tool for teachers to strengthen their practice. She lists six
themes describing

reflective practices that tend to undermine their intended purposes: the
privilege of university research over teacher research, an emphasis on
teaching techniques and classroom management, disregard of the social and
institutional context of teaching, ... individual reflection instead of
collaborative sharing... [that] serve[s] to reinforce existing beliefs rather
than challenge assumptions... [and] ignor[ing] social justice. (p. 16)

While Fendler (2003) raises serious issues, they can be addressed when
reflection is interwoven with other components of professional development
pedagogy described here. For example, by explicitly developing democratic group
norms to structure collaboration and discourse as well as creating a culture of
inquiry, participants can articulate and minimize positions of privilege that
university educators or other professional developers might have (Beatty, 1999;
Stokes, 2001). Collaborative sharing of personal reflection and making practice
public creates the possibility that unexamined personal assumptions will be either
interrogated by others or become visible in contrast to others' standpoints (Kruse et
al., 1995; Traugh, 2002). Teachers can also learn from reflecting on interweaving
personal reflection with collaborative sharing and learning from multiple
perspectives (Ball & Cohen, 1999; Beatty, 1999; Stigler & Hiebert, 1999). Finally,
since not all documentation of practice challenges teachers' beliefs and assumptions
nor creates the disequilibrium needed to stimulate transformative learning, it is important to choose artifacts that foster critical discourse to transform understanding and action (Ball & Cohen, 1999).

Dewey (1904) advises teachers to use learning from practice not as an end in itself with the short-term goal of acquiring familiarity and facility with the necessary "tools of teaching" (p. 249). Instead, he urges teachers to use their experience to connect theory and practice. That is, he suggests taking a longer view, looking beyond immediate goals. "The ultimate aim is to supply the intellectual method and material of good workmanship, instead of making on the spot, as it were, an efficient workman" (p. 250). In this way teachers can develop "workmanship" that responds flexibly to the complexities of classrooms, students, and teaching.

Brookfield (1995) further defines reflection by distinguishing between reflection and critical reflection. He proposes that to be critical, reflection must also look at ways that power underlies and distorts educational processes and "question assumptions and practices that seem to make our teaching lives easier but actually work against our own best long-term interests" (p. 530). Here Brookfield (1995) echoes Freire (1998) and Palmer (1998) by advocating for educators to examine their own roles and positions in relation to students and question the ways in which the system undermines or fosters learning for teachers and their students. I include critical reflection when I refer to reflection for the purpose of improving teaching
practice and student understanding. Coupled with inquiry over the span of one's career, reflection becomes a way for teachers to ground themselves in thoughtful practice as they make sense of changing school politics, culture and educational reform (Ball & Cohen, 1999; Cochran-Smith & Lytle, 2001).

In sum, reflection allows teachers to look at both the small and big picture, critically examining their own practice and also how their schools, district, and community foster or hinder student learning. Teachers can then engage in an ongoing cycle of action and reflection on that action, leading to continuous improvement in student learning, instruction, and schools.

For teachers to engage in transformative professional development and develop ownership of new ideas and practices about mathematics, learning, teaching and students, they need learning opportunities to involve activities substantively different from the workshops and courses to which they are accustomed. Practices in ongoing inquiry groups that create the disequilibrium and support needed for teachers to transform their practice include collaborating, locating teacher learning in practice, building trust and making practice public, engaging in discourse, taking an inquiry stance on practice and reflecting on practice.

Having focused on what Ball and Cohen (1999) call the "pedagogy" of professional development, I now examine what they call its "curriculum" (p. 6).
That is, I examine what literature holds to be the critical content of teacher inquiry groups aligned with mathematics reform.

**Content of Inquiry Groups**

In inquiry groups aligned with NCTM Standards (National Council of Mathematics, 1989, 1991, 2000), teachers deepen their knowledge of mathematics, students, teaching and learning as they become accountable to their inquiry group community for improving their practice and student achievement (e.g., Boaler, 2002b; Garet et al., 2001; Williams & Kirst, 2006). Five subjects teachers need to come to know in order to negotiate alignment with mathematics reform and develop an effective, responsive practice are: mathematics – meanings, connections, procedures and facts, as well as the discourse and reasoning of the field; pedagogy – not a bag of tricks or a prescription – but a repertoire developed through collaborative, reflective inquiry and rooted in content knowledge as well as experience; learning perspectives and theories of knowledge; children, both generally – e.g., developmental issues, common interests, likely difficulties – and in particular – e.g., each child's beliefs, capacities, and ways of learning; and finally, socio-cultural differences – e.g., gender, race, language and economic class (Ball & Cohen, 1999). Additionally, there is growing interest in the role of identity in transformative teacher learning.

To emphasize the interconnections between these topics of inquiry, I organize the content of inquiry groups into two main areas: (a) questioning beliefs
and assumptions about the nature of knowledge, learning, and teaching, including the relationship between beliefs and practice; and (b) teaching practice.

Beliefs and Assumptions

Questioning beliefs and assumptions about the nature of knowledge is an important aspect of transformative professional development (Cooney & Shealy, 1997; Franke et al., 1997). Teachers' and professional developers' beliefs about reality and knowledge shape their perceptions of the nature of mathematics, and these, in turn, inform their pedagogy and stance toward authority (Cooney & Shealy, 1997).

Cooney and Shealy (1997) describe three sets of beliefs and assumptions, or paradigms, regarding mathematics and the implications these paradigms have for practice and relations with authority. In the first, mathematics is a fixed, proven body of facts and procedures. From this point of view, teachers and the texts on which they rely unequivocally present information and procedures, giving learners ample opportunities to memorize, practice and demonstrate their accumulation of these truths on objective tests (Cooney & Shealy, 1997; Hiebert et al., 1997). From a second perspective, mathematics is a logical system of related, unchanging concepts, and learning is discovering ideas and developing increasingly sophisticated, logical understandings of mathematical structure (Cooney & Shealy, 1997). Using a curriculum that holds authority for what should be taught, teachers craft activities to actively engage learners in discovering established ideas and
acquiring conventional concepts (Cooney & Shealy, 1997) and evaluate
the logic of learners' methods, explanations, and results (Hiebert et al., 1997).
Mathematics in the third paradigm is an evolving, dynamic human construction
generating fallible, changeable models for understanding the world (Cooney &
Shealy, 1997). Teachers offer learners opportunities to collaboratively solve
relevant problems and think critically about their own and each other's reasoning
(Cooney & Shealy, 1997; Hiebert et al., 1997). Such learners are actively engaged
in a community whose practices resemble those of mathematicians, developing
increasingly complex concepts and attitudes akin to the culture of mathematics
(Boaler, 2000; Brown et al., 1989). Teachers also share with learners the authority
for determining the accuracy and logic of methods and solutions.

Teachers and teacher educators need to explicitly name and question
paradigmatic beliefs because without examining the paradigm informing teachers'
assumptions about reality, knowledge and learning, the other content areas of
professional development can become uncritical, self-congratulatory resistance to
describe traditional professional development as teaching general principles
(students learn mathematics better with manipulatives), and then teaching ways to
apply these ideas in the classroom (how to teach multiplication with Base 10
blocks). From a situative perspective, what appear to be general principles are
instead interrelated, specific practices that operate in similar ways in a variety of
situations (Putnam & Borko, 2000). Questioning beliefs and assumptions becomes an important way for inquiry group participants to develop ownership of new beliefs, practices and competencies thereby transforming themselves and their teaching.

Teaching Practice

This discussion of teaching practice is divided into two areas. First, I examine teacher learning of mathematics and its pedagogy. Second, I explore what professional development literature describes teachers need to know about students as learners and as members of diverse cultures.

Mathematics and pedagogy. Two interconnected core reasons are cited for mathematics teachers to strengthen their conceptual understanding of their discipline. First, without deep understanding of the underlying concepts and structures of mathematics, they can do little more than present algorithms, then test to see whether their students have acquired them (Ball & Cohen, 1999; Hill & Ball, 2004; Darling-Hammond, 1997; Schifter & Fosnot, 1993). Teachers cannot judge how well a student understands fundamental ideas if they themselves do not understand the concepts. Nor can they understand students' thinking. From a situated perspective, students in such classrooms learn less about mathematics than about how to succeed in school (Boaler 2002a; Brown et al., 1989). Embedded in a discipline's concepts are the ways a community of discourse reasons, communicates, and views a subject, so when teachers learn concepts, they also
learn important mathematical practices such as reasoning and communication (Ball & Cohen, 1999; Putnam & Borko, 2000).

Second, understanding mathematics is also connected with learning its pedagogy (Cooney & Shealy, 1997; Darling-Hammond, 1997; Hill et al., 2005; Ma, 1999). Teachers can learn conventions of mathematical discourse along with content (Cobb & Bowers, 1999; Putnam & Borko, 2000). From deep knowledge of mathematical discourse flows pedagogy needed to teach it. The term that Hill et al. (2005) use for mathematics pedagogy is Mathematical Knowledge for Teaching, or MKT. Citing Shulman (1986), the authors build on his concept of pedagogical content knowledge, which includes how to represent mathematical concepts and what makes specific topics difficult for students to learn. In their attempt to measure MKT proficiency, Hill et al. have articulated with great specificity what teachers need to know and be able to do in order to encourage student understanding. For instance, not only do teachers need to understand how to add three digit numbers, they need to be able to recognize whether a student's alternate methods are valid, or what a wrong answer might say about what a student does and does not understand. Further, teachers need to be able to respond with questions or new problems that will provoke students to reconsider or deepen their knowledge (Hill & Ball, 2004; Hill et al., 2005).

Absent from most professional development that aims to deepen teachers' mathematical understanding is an interrogation of what mathematics should be
included and what practices should be considered legitimately mathematical. Although traditional pedagogy is questioned, traditional school mathematics content is not examined from non-dominant cultural points of view (Apple, 1996, 2000; McLaren, 1989). Mathematics is conceived as school or scientific mathematics (Lave, 1988). Mathematical activity that occurs in other contexts does not count as real math (Lave, 1988). Accepting traditional school mathematics' scope and sequence fails to challenge the dominance of a Euro-American-centered view of what mathematical topics are necessary and sufficient for students (and therefore their teachers) to know. This undermines NCTM's tenet of "mathematics for all" (National Council of Teachers of Mathematics, 2000). By accepting the status quo, professional developers and teachers are aligning with the dominant culture's view of mathematics, thereby excluding or marginalizing other mathematical activities and persons who pursue them.

Inquiry group approaches to help teachers deepen their knowledge of mathematics and how to teach it have evolved in recent years. In the 1990s, by and large, teachers were asked to solve complex mathematics problems related to topics they were teaching. Out of such conversations about mathematics and problem solving practices, teachers discerned ways to help their students understand and express ideas (e.g., Schifter & Fosnot, 1993; Thompson & Zeuli, 1999). More recently, facilitators of teacher learning have involved teachers in analyzing classroom “cases” presented as written transcriptions of student discussion or short
clips of classroom videotape (e.g., Barnett & Friedman, 1997; Seago, 2004; Seago et al., 2004). Japanese lesson study, adapted to fit American educational constraints, is another example of teachers learning mathematics and pedagogy by understanding how specific students work on specific lessons (e.g., Fernandez & Chokshi, 2002; Stigler & Hiebert, 1999). Cases and lesson study grounded in NCTM standards give teachers opportunities to view mathematics teaching in a context larger than their own classroom or school and negotiate how to align their practice with a broader community.

**Students.** What teachers need to know about students as learners is both general and particular (Ball & Cohen, 1999). For instance, general knowledge of child development (Lambert & McCombs, 1998), children's interests (Carini, 2002c), theories of intelligences (Gardner, 1983; Goleman, 1995), and what tasks and ideas are likely to be difficult (Franke et al., 1997), needs to be coupled with particular knowledge about each student. To understand students' different ways of thinking and learning, teachers need to study children and learn to observe and question students in new ways (Carini, 2002a; 2002c; Himley, 2002; Thompson & Zeuli, 1999). Teachers must be able to discern each child's beliefs, how the child works, and how the child interacts with others (Carini, 2002c; Lambert & McCombs, 1998; Traugh, 2000). Knowing each student well, teachers can make clear, thoughtful decisions about how best to guide their learning (Ball & Cohen, 1999; Himley, 2002).
Another area for teacher learning about students comes from a social justice perspective (Greene, 2001). A growing body of literature describes teachers examining the influences of socio-cultural differences in ways that students interact, communicate, and learn (e.g., Irvine & York, 1995; Ladson-Billings, 1995; Neal, McCray, Webb-Johnson, & Bridgest, 2003). From this standpoint, teachers conceive of their work to meet the needs of all students as an effort to reform school as well as individual practice (e.g., Darling-Hammond, 1997; Nieto, 2003; Shields, 2003).

A starting place for teacher learning about students' cultural differences is an explicit agreement that some, especially poor and minority, children are being disadvantaged by the ways in which they are taught. Teachers need to engage with colleagues to find ways to better understand their own students' backgrounds so as not to perpetuate this discrimination. Moreover, teachers take it as their responsibility to change practices so they hold high expectations, recognize strengths, and meet the needs of all their students (Lieberman & Miller, 1999; Stokes, 2001). Possible areas for inquiry group teachers to explore are culturally responsive teaching (e.g., Gay, 2000; Ladson-Billings, 1995; Wlodkowiski & Ginsberg, 2003) and their anger at the injustices of poverty and racism their students face (Nieto, 2003).

In sum, by engaging in inquiry into the necessary content of inquiry groups, teachers are invited to negotiate their alignment with mathematics reform. They are
asked to question their beliefs and assumptions about the natures of mathematics and learning, deepen their knowledge of mathematics and its pedagogy, and better meet the needs of students in all their diversity. However, simply describing the necessary pedagogy and curriculum of transformative teacher learning does not make it clear how the components of such professional development programs function as a whole.

To understand what professional learning communities are, how they operate to make a difference for schools, teachers, and their students, and how professional developers learn to initiate and facilitate such inquiry groups, I depict four exemplary professional development programs. I use a framework that explores teacher learning programs as communities of practice. Then, to portray the look and feel of such programs I describe one of them in more detail.

*Examining Professional Development Programs*

To illustrate how elements needed to foster transformative professional development work together in a variety of ways, I chose four programs with distinct approaches. I do not suggest that these are the only exemplary programs from which to choose. Rather, since learning is situated and socially constructed, professional development will be different in different places, at different times, and with different participants. However, two things are consistent when teachers are challenged to question their practice and deepen their own and their students' learning. First, these programs' overarching goals are to improve student
understanding and create equal access to high quality learning opportunities for all students. Second, they create opportunities for teachers to participate in ongoing, collaborative, critically reflective professional learning communities.

**Community of Practice Framework**

To structure my descriptions I adapt a framework from Buysee, Sparkman, and Wesley (2003) for examining a "community of practice model" of teacher learning (p. 265). The authors identify a number of salient features of communities of practice that embody the basic tenets of situated theory and use those features to organize their descriptions of several specific teacher learning programs. I adapt their framework slightly to highlight the aspects of inquiry groups examined earlier. Since I have described the characteristics of communities of practice and elements of professional learning communities at length, here I briefly list the features of the framework I use to depict several exemplary teacher learning programs.

*Common Purposes and Goals* - Communities of practice develop a joint enterprise with common objectives and aims (Lave & Wenger, 1991; Wenger, 1998).

*Diverse Membership* - Communities of practice include members with a mixture of kinds and degrees of expertise. Learning is multi-directional, extending across levels of expertise (Buysee et al., 2003).
Participation - By working together regularly over long periods of time, members develop common history and a shared repertoire of practices, attitudes, perspectives, and styles (Wenger, 1998).

Participation Practices: Pedagogy of Professional Development - Details program practices that foster participants' critical reflection, relationship building, identity transformation, and coming to know.

Inquiry Focus: Content of Professional Development - Notes topics and practices at the center of the program that inquire into mathematics, students, learning, and/or teaching.

Connections with Larger Community - Communities of practice, positioned within constellations of communities of practice, afford members opportunities to identify with larger enterprises (Buysee et al., 2003; Wenger, 1998).

Reproduction Cycle: Changing Membership and Activities - Communities of practice allow new members to join and, over time, become central, contributing participants. At the same time, as meanings and activities are continuously renegotiated, communities modify or add new practices.

Exemplary Programs: Enacting Transformative Teacher Learning

In her review of research about professional development Borko (2004) characterizes research about professional development programs into three phases: first, research focused on individual participants' learning, for example, Summermath (Borko, 2004; Schifter & Fosnot, 1993; Thompson & Zeuli, 1999)
and Cognitively Guided Instruction (Franke et al., 1997; Thompson & Zeuli, 1999); second, research with a group focus, looking at how strong professional communities foster teacher learning, for instance Hord's (1998) depiction of Cottonwood Creek School or the QUASAR project (e.g., Stein & Brown, 1997); and third, research that has a dual focus, where both community participation and individual learning are explored.

I have chosen to depict programs with a dual focus because my research interest is also bi-focal. Using the framework adapted from Buysee et al. (2003), I briefly depict four professional development programs: M³ (Intuition, Invention, Interaction), BASRAC (Bay Area School Reform Collaborative), IMT (Investigating Mathematics Teaching), and three forms of inquiry communities at the school Stokes (2001) calls the Will Rodgers Learning Community School (see Table 1).

Each program shares the goal of improving teaching and learning. Each of the first three programs has a distinct method for creating the dissonance needed to encourage teachers to shift their thinking about students, subject matter, learning and teaching. In the fourth example three forms of interrelated inquiry strengthen and support one another to encourage teacher change. All have an explicitly sociocultural learning perspective and recognize communities of practice or professional learning communities as central to teacher learning.
Table 1

Descriptive Framework of Exemplary Programs

<table>
<thead>
<tr>
<th>Inquiry Group Characteristics &amp; Elements</th>
<th>M² (Intuition, Invention, Interaction)</th>
<th>BASRC (Bay Area Schools Reform Collaborative)</th>
<th>IMT (Investigating Mathematics Teaching)</th>
<th>Will Rodgers Learning Community School</th>
</tr>
</thead>
<tbody>
<tr>
<td>Common Purpose/Goal</td>
<td>Disseminate new curriculum</td>
<td>School-based reform in 118 Bay Area school districts</td>
<td>Deepen teachers' math knowledge</td>
<td>Improvement in school, student learning &amp; teaching</td>
</tr>
<tr>
<td></td>
<td>Improve teaching practice and strengthen elementary math content</td>
<td>Develop ways to address inequities using student data in cycle of inquiry</td>
<td>Support teachers to change practice &amp; enrich student learning</td>
<td>Practice change to enable equity in student learning &amp; success</td>
</tr>
<tr>
<td>Diverse Membership</td>
<td>Teacher-leader-curriculum-developer University researchers Public &amp; Catholic school teachers Years in project varied</td>
<td>Entire school faculty School administrators University partners</td>
<td>Teachers and university researchers Teachers from different districts</td>
<td>Whole faculty involved Small group action research Small group reflection on practice with outside critical friend</td>
</tr>
<tr>
<td>Participation</td>
<td>Two week summer seminar Monthly Saturday meetings during school year (1-5 years) Project staff &amp; teachers create agenda</td>
<td>Summer institutes Regular faculty inquiry meetings Regional prog evaluation with participating teachers Collaborative agenda</td>
<td>Meet bi-weekly for a year Agenda shifts from researcher created to collaborative agenda</td>
<td>3 forms of inquiry- schedules vary Collaborative agenda development 5 year program, regular meetings</td>
</tr>
</tbody>
</table>
### Table 1 (continued)

**Descriptive Framework of Exemplary Programs**

<table>
<thead>
<tr>
<th>Inquiry Group Characteristics &amp; Elements</th>
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<th>IMT (Investigating Mathematics Teaching)</th>
<th>Will Rodgers Learning Community School</th>
</tr>
</thead>
<tbody>
<tr>
<td>Participation Practices: Pedagogy of PD</td>
<td>Read &amp; discuss research</td>
<td>Create culture of inquiry</td>
<td>Reflective discourse</td>
<td>Analysis of assessments</td>
</tr>
<tr>
<td></td>
<td>Reflect on teacher videos</td>
<td>Discourse on practice</td>
<td>Discuss Ball videos</td>
<td>Analysis of student work</td>
</tr>
<tr>
<td></td>
<td>Share practice publicly</td>
<td>Develop inquiry stance &amp; culture</td>
<td>Reflective journal</td>
<td>Group discourse &amp; reflection</td>
</tr>
<tr>
<td>Inquiry Focus: Content of PD</td>
<td>Beliefs about learning &amp; teaching</td>
<td>Teacher research</td>
<td>Mathematics</td>
<td>Student learning &amp; outcomes</td>
</tr>
<tr>
<td></td>
<td>Instructional practice: math pedagogy &amp; content</td>
<td>Best practices</td>
<td>Student discourse and thinking</td>
<td>Teaching practice improvement</td>
</tr>
<tr>
<td></td>
<td>Design &amp; test lessons</td>
<td>Student outcomes &amp; school data</td>
<td>Pedagogy</td>
<td></td>
</tr>
<tr>
<td>Connections w/ Larger Community</td>
<td>Teachers increasingly identify with &amp; belong to M³ community</td>
<td>Participants identify with/belong to school inquiry community</td>
<td>Through Ball videos &amp; researchers</td>
<td>Teachers all belonged to 2 or more inquiry groups</td>
</tr>
<tr>
<td></td>
<td>Teachers participate in school communities with different norms and values</td>
<td>Regional evaluations</td>
<td>Shift professional identity</td>
<td>Connections between whole school, grade level teams, classrooms</td>
</tr>
<tr>
<td></td>
<td>Regional evaluations</td>
<td>Some participants involved in wider school community</td>
<td>Compare/contrast with school community</td>
<td></td>
</tr>
<tr>
<td>Reproduction cycle: Membership &amp; Activities</td>
<td>Teachers added each year Activities modified yearly with participant &amp; staff input</td>
<td>Include parents &amp; students Each new inquiry cycle generated by new questions</td>
<td>Activities shift from discussing videos to participants' practice</td>
<td>Inquiry methods and norms evolved over 5 years</td>
</tr>
<tr>
<td></td>
<td>Phase in new schools</td>
<td></td>
<td></td>
<td>New forms of inquiry developed</td>
</tr>
</tbody>
</table>

Adapted from Buysee, Sparkman, and Wesley (2003, p. 269).
The program I describe in greater detail focuses on three areas relevant to my study. The IMT program focuses on mathematics teaching and learning, inquiry group practices, and participants' experience of learning in a professional learning community.

Investigating Mathematics Teaching (IMT). Proposing that elementary teachers can learn more about mathematics and more deeply understand it through their teaching, Featherstone, Smith, Beasley, Corbin, and Shank (1995) described an inquiry group of seven elementary school teachers and three university researchers that met twice a month for a year. They engaged in structured activities centered around solving mathematics problems, viewing clips of videotapes of Deborah Ball teaching a third grade class and reading Ball's journal, as well as her students' journals. Participants discussed pedagogy, mathematics content and their efforts to teach in new ways. Researchers observed participant teachers' classes and interviewed teachers regularly. Teachers kept a journal in which they reflected on inquiry group meetings, classroom practice and experience, their feelings about mathematics, as well as successes and frustrations as they tried to teach mathematics more conceptually.

As their professional learning community developed trust and members formed relationships, discourse became progressively more centered about teachers' own practices (Featherstone et al., 1995). Teachers increasingly revealed their anxieties and attitudes about mathematics. They shared difficulties with
mathematics both in their own educational histories and in their classrooms. Teachers openly reflected on and struggled with differences between the ways they were taught mathematics and were accustomed to teaching it in contrast to the ways they wanted to teach. Thompson and Zeuli (1999) suggest this struggle "involve[s] a shift in teachers' professional identity" (p. 360). Public reflection led teachers to collaboratively solve problems of practice as they learned about and from student discourse and mathematical thinking. Teachers developed new relationships with and competencies in mathematics through learning with their students and each other.

In sum, I presented four professional development programs that ranged in size from 10 people to thousands of participants. These programs have differing goals, structures and approaches to fostering transformative teacher learning. These distinct approaches centered on disseminating an innovative curriculum, involving teachers in research about their students' learning and their practice, supporting teachers to learn mathematics through their teaching, and combining three, interrelated inquiries centered on analysis of student data, action research on pedagogy, and critical reflection about participants' underlying beliefs that inform their teaching practice. In each case professional learning communities were critical elements enabling transformative teacher learning. Although the content and specific tasks of these experiences varied, each program focused on teachers' responsibility for improving student learning. Each program also created situations
that challenged teachers' beliefs about learning, subject content, students' capabilities, and teaching practice. Teachers were challenged to reflect critically, solve problems arising in practice, and work with colleagues in new, collaborative ways. In professional learning communities participants increasingly held one another responsible for upholding the norms and values of the community and improving opportunities for learning for all students.

Conclusion of Literature Review

In this literature review I described a theoretical framework grounded in situated learning theory. Briefly, situated learning theory considers learning to be both individual and social. As members of a community negotiate its enterprise and develop a shared repertoire, membership in that community shapes participants' identities. Learning is intertwined with changes in a person's (a) participation in a community's social activities, (b) position and trajectory in relation to a community, (c) identification with a community's enterprise, goals, and values, and (d) ability to negotiate what a community considers to be meaningful and valued competencies.

In this dissertation I understand identities as dynamic, multiple and socially constructed. They are different in different contexts and at different times. Identities involve story. With Connelly and Clandinin (1999) I understand stories of practice and creation of personal practical knowledge to shape professional identities. I also view identities as telling stories (Sfard & Prusak, 2005). I define agency as being able to influence and negotiate meanings and practices in a
community to which one belongs and with which one identifies (e.g., Holland et al., 1998; Wenger, 1998). Agency also is being able to control one's own story. That is, the degree to which one has ownership of and takes responsibility for, creating one's story.

The second part of this review examined literature describing professional learning communities. I both reviewed the essential practices and content of inquiry groups and briefly sketched how aspects of a theoretical framework, grounded in situated theory, can structure and delineate ideas about inquiry groups. Using the lens of three modes of belonging and becoming, I noted which aspects of inquiry groups described in professional development literature can foster and be fostered by engagement, imagination, and alignment.

Collaboration, locating inquiry in practice, building trust to make practice public, and engaging in discourse are inquiry group practices that foster and result from engagement. Collaboration and building trust enable participants to create and maintain relationships. Locating teacher learning in practice and making such practice public creates opportunities for inquiry group members to align themselves with the community's enterprise.

Taking an inquiry stance toward practice, and creating a cycle of reflection and action are professional learning community practices that support and result from imagination. By taking an inquiry stance and reflecting on their practice inquiry group members open themselves to possibilities for alternate values,
worldviews, and practices as well as learning about new communities and practices with which to identify.

By building common language, meaning, and purpose, the curriculum studied in professional learning communities helps to foster alignment. With this professional learning community content, teachers question their beliefs about learning and teaching and examine teaching practice, including mathematics and students both as learners and as members of diverse cultures. Finally, to assure that teachers have a sense of ownership, agency, and responsibility as they align their practice with mathematics reform, facilitators of teacher learning must attend to power issues, encouraging teachers to develop a negotiated alignment through which they can feel a sense of ownership of and responsibility for elements of mathematics reform.

I turn now to the focus of my study. Given that workshops are still the prevailing model for teacher professional development and most professional developers' experience and background is primarily in workshop leadership, how do facilitators of teacher learning learn to initiate, design, facilitate, support, and sustain professional learning communities? Stein et al. (1999) note that most literature about professional learning communities focuses on: (a) how to design ongoing, collaborative, reflective, inquiry groups for teachers (e.g., Hord, 2004; Kruse et al., 1995; Loucks-Horsley, Hewson, Love, & Stiles, 1998); (b) teachers' experience and learning as they engage in these groups (e.g., Franke et al., 1997;
Lieberman & Miller, 2000, 2001; Schifter & Fosnot, 1993); or (c) challenges, dilemmas, and decisions faced by individual facilitators of teacher learning as they transform their practice from workshop leaders to facilitators of teacher professional learning communities (e.g., Mundry & Loucks-Horsley, 1991; Stein et al., 1999). There are also calls in professional development literature for professional development for professional developers as they learn to shift their practice to become effective facilitators of professional learning communities (e.g., Ball & Cohen, 1999; Little, 2001; Marchant, 2000; Thompson & Zeuli, 1999).

Here I look briefly at the two studies mentioned above that specifically explore professional developer learning. Mundry and Loucks-Horsely (1991) synthesize four case studies characterizing common dilemmas and decision points that professional developers face. These dilemmas involve choosing (a) to use a theoretical or pragmatic focus; (b) to work in depth with a few teachers or try to reach a large number of teachers despite their differing work contexts; and (c) to adopt a new curriculum or develop teacher capacity to generate curriculum. Stein et al. (1999) study the cases of four university-based educators in two different middle school settings as they engage in long-term efforts to design, support and encourage teacher learning in new ways. Based on their cross-case analysis, the researchers describe common challenges that professional developers are likely to encounter as they help teachers to shift to reform mathematics teaching practices. These challenges include (a) balancing the support of teachers with the questioning of
existing practices and beliefs, (b) expanding their professional development repertoires beyond workshops and courses, and (c) learning to initiate, design, facilitate and sustain professional learning communities in schools. The authors then suggest strategies to enhance professional development design.

In each of these studies the research focus was on individual professional developer learning, not on individual learning in the context of a professional development inquiry group. Both studies are case studies, analyzing professional developer learning from the "outside" rather than looking at professional developer learning through the "inside" perspectives of the professional developers themselves.

Missing from the literature about professional developer learning are studies that investigate inquiry groups of professional developers or describe how facilitators of teacher learning learn to initiate, design, facilitate, support, and sustain professional learning communities in the context of their practice and their own professional learning community. This study of professional development for professional developers attempts to address this absence in the literature.

This study explores ways that those responsible for professional development view their learning to become effective designers and facilitators of professional learning communities and adds to literature about professional developers' learning in the context of their practice and their own professional learning community. The purposes of this study are to:
1. investigate professional developers' learning, experience and practice in inquiry groups as well as interconnections among related professional developer and teacher leader learning communities;

2. suggest recommendations for practice by contributing to research about teacher learning, specifically professional developer learning, a topic largely missing from the literature; and

3. amplify professional developers' voices in the professional development field.

I focus on professional developers' narratives, using the concept of stories as identities (Sfard & Prusak, 2005). My interest is to understand in what ways transforming one's "professional developer identity" from a workshop leader to a facilitator of professional learning communities entails engaging with a community in inquiry group practices, imagining oneself as a part of a larger community committed to designing teacher inquiry groups in order to foster teacher learning and agency, and aligning one's beliefs, goals, and practices with the larger community of professional learning community facilitators.

I explore professional developers' perceptions of their learning through their experiences in two interrelated inquiry groups: an inquiry group of professional developers engaged in learning together about facilitating teacher learning in professional learning communities and a teacher leader professional learning community they facilitate. I use situated learning theory to frame my study in part
because the context in which one learns informs and shapes what is learned (Brown et al., 1989). I explore professional developers' experience of learning in a context similar to the context they are trying to foster with teachers.

Research Questions

To contribute to an understanding of how professional developers learn to transform their practice and initiate, design and facilitate effective teacher leader professional learning communities/inquiry groups, I ask the following question and sub-questions to frame my research agenda:

What are school district mathematics professional developers' experiences in professional learning communities, specifically in a professional developer inquiry group and in the teacher leader inquiry groups each facilitates?

1. What are participants' perceptions of their learning in professional developer and teacher leader inquiry groups?

2. What are participants' perceptions of practices in professional developer and teacher leader inquiry groups?

3. What are participants' perceptions of ways their participation in inquiry groups may be shaping their professional developer practices, identities, and agency?
CHAPTER III
METHODOLOGY AND DESIGN

In this chapter I describe methodology and a research design used to investigate my research questions. This chapter has two sections. In the first section I examine and explain the congruence of qualitative methodology with both the situative perspective that frames this study and my research questions. In the second section I describe how I enacted my research design. I detail participants, setting, researcher's role, data collection and analysis, limitations, and ethical considerations. However, in the tradition of narrative inquiry, as part of my researcher story of meaning (Connelly & Clandinin, 1999), I tell stories of some of my most important methodological and analytic decisions in chapter 4.

Research Perspective: Qualitative Methodology

Qualitative research is a process that situates inquirers in the world (Denzin & Lincoln, 2002). Researchers study and interpret things in their natural settings, attend to complex social interactions in daily life, make phenomena visible, and try to understand, describe and explain them (Marshall & Rossman, 1999) in terms of the "meanings people bring to them" (Denzin & Lincoln, 2002, p. 3). Qualitative research is concerned with context, details of "our 'taken for granted' worlds" (Bogdan & Biklen, 2003, p. 5) process rather than outcomes, and how different persons make sense of their experience. Qualitative methodology evolves in
flexible, responsive ways to the developing context of the study (Ely, Anzul, Friedman, Garner, & McCormack Steinmetz, 1991). Qualitative inquirers also attend to themselves as research instruments (Merriam, 1998). That is, they reflect on their assumptions, biases, interests, values, and beliefs, and how these viewpoints shape their inquiry.

Qualitative methodology is situated in a naturalistic (Ely et al., 1991) or constructivist (Guba & Lincoln, 1994) worldview. A constructivist perspective views reality as subjective, knowledge as situated, and learning as emergent, socially constructed, and influenced by cultural values and social constructions (Ely et al., 1991; Guba & Lincoln, 1994; Ritchie & Wilson, 2000). Knowledge is the dynamic creation of interactions in a particular time and place among persons and with their cultural and local environment (Ely et al., 1991).

Qualitative methodology is congruent with the situative perspective that frames this study. From a situative perspective knowledge is created and recreated in contexts that involve individuals interacting with other persons, activities, tools, and settings (Brown et al., 1989; Lave, 1988; Lave & Wenger, 1991), and learning is conceived as "changes in participation in socially organized activities..." (Borko, 2004, p. 4). Similarly, qualitative researchers (a) observe phenomena in natural, daily, lived-experience contexts that are not manipulated; (b) present participants' perspectives, voices, and the meanings they attribute to events; (c) adapt to emerging research content and processes throughout the study; (d) hold to basic
assumptions and recognize that qualitative methods can and do vary depending on context; and (e) reflect on their own position and perspectives and how these viewpoints affect the research process (Ely et al., 1991). As detailed in chapter 2, a situated perspective involves similar assumptions.

A qualitative methodology is also appropriate to investigate the evolving learning process of individuals in a social context, such as professional developers learning in an inquiry group of colleague facilitators. Qualitative researchers seek to investigate multi-layered situations that involve the interplay of contexts, the experience and actions of participants, and the meanings given by participants to their experiences (Bogdan & Biklen, 2003; Craig, 2006).

Research Design

Qualitative research is an umbrella term for a number of research methods and designs (Bogdan & Biklen, 2003; Ely et al., 1991). Here, I explain my decision to use narrative inquiry, rooted in phenomenology, to investigate my research questions. First, I briefly describe two other designs – case study and collaborative inquiry / participatory action research – that could be appropriate for this study and explain why I have not chosen them. Then, I examine narrative inquiry as the approach best suited for a study of professional developers learning to facilitate inquiry groups in the context of their own professional learning community.

Case study design could be appropriate to investigate questions of how professional developers come to understand the nature of professional development
and teacher learning in their work with mathematics teachers and one another. A case is an integrated, bounded system (Merriam, 1998; Stake, 2002), a unit of analysis and "a phenomenon of some sort occurring in a bounded context" (Miles & Huberman, 1994, p. 25). This study could be a case of professional developers' learning in the context of their practice and professional learning community.

However, case study design is not appropriate for all purposes of my research. For instance, as in the studies by Stein et al. (1999) and Mundry and Loucks-Horsley (1991), researchers doing case study research stand at a greater distance from the phenomenon their study than suits my purpose. Stake (2002) identifies specific cases that make sense of a larger phenomenon as instrumental case studies. For instance, Remillard (1999) uses case study design to look at the work of two teachers using a reform mathematics curriculum for the first time. She then generates a framework to understand how teachers learn about and enact curriculum. Rather than attempt to theorize about how professional developers learn, my purpose is to strengthen the voice of professional developers in the professional development field by depicting stories of their learning and practice from their perspectives. As I describe below, narrative inquiry's focus on telling and retelling lived experiences is well suited to this purpose because it aims to present experiences in the voices of participants.

Other possible designs for this study are participatory action research and collaborative inquiry. I discuss these closely related designs together since both
participatory action research and collaborative inquiry are experience-based learning processes. Kasl and Yorks (2002), however, distinguish between them. They say the former aims to improve participants' professional practice while it "focuses its learning goals on the [institutional or socio-political] system." They claim the purpose of the latter "is for members of the inquiry group to change themselves" (p. 5). Participatory action research also involves a continuous cycle of structured, data driven, collaborative reflection and action for the purpose of improving participants' professional practice (Kemmis & McTaggart, 2002). To strengthen participants' agency, these approaches also engage participants in shaping and developing aspects of the research including question, data collection, analysis, and interpretation.

Although one of my motivations for participating in an inquiry group with professional developers is to collaboratively reflect on and improve our professional development practice, the focus of this study is on a learning process and its relationship with practice. Further, extensive research collaboration with participants in this study would not be feasible given the energy and time constraints of their jobs. Therefore, I have chosen a design that provides openings for collaborative conversations with participants throughout the study about the meanings they give their learning and how they experience their practice, but allows for their time commitments to be flexible.
The purpose of narrative inquiry is to understand experience, and "experience... is the stories people live" and tell (Clandinin & Connelly, 1994, p. 415). Bateson (1994) writes, "Our species thinks in metaphors and learns through stories" (p. 11). Since "stories are the closest we can come to experience as we... tell of our experience," it makes sense to study human experience in the world through narrative inquiry (Clandinin & Connelly, 2000, p. 415). Narrative inquiry involves collecting and analyzing stories that people tell and retell as they live and relive their storied lives (Craig, 1997).

Clandinin and Connelly (2000) describe narrative inquiry by contrasting it with what they call the grand narrative, what Schön (1987) calls technical rationalism. In education, technical rationalism seeks to produce efficient, universal techniques for teaching, and in research it seeks to derive generalizations from empirical, often numerical, data. In contrast, narrative inquiry is situated within a constructivist, naturalistic worldview and focuses on lived experience with its ever-changing complexities. Reducing experiences to numerical data cannot capture hopes, dreams, wishes, intentions, along with activities and ideas – that is, lived experience (Clandinin & Connelly 2000). "Educators are interested in learning and teaching and how it takes place; they are interested in ... the values, attitudes, beliefs, social systems... and how they are all linked to learning and teaching. Educational researchers are, first, educators" (Clandinin & Connelly, 2000, p. xxii)
interested in how people compose and live their lives. Educational research seeks to understand learning and teaching by understanding people as they learn and teach in their natural settings (Bogdan & Biklen, 2003; Clandinin & Connelly, 2000). Narrative inquirers interested in education do this by gathering, layering, interweaving, telling and retelling stories of learners and teachers in the contexts in which they practice (Craig, 2006).

**Methodological Perspective and Framework**

Assumptions underlying narrative inquiry share an epistemological viewpoint with a situative perspective. Both view knowledge as continuously created and recreated by people in contexts that involve interacting with other persons, activities, tools, and settings (Brown et al., 1989; Lave, 1988; Lave & Wenger, 1991). In this study, a situative framework helped support narrative inquiry's ways of inquiring and making sense of data. Narrative inquiry strategies elicited meaningful data and provided powerful methods for interpreting its meanings. In both narrative inquiry and situated theory:

1. learning is what people do all the time as they experience and make sense of the world (Bateson, 1994; Clandinin & Connelly, 2000; Wenger, 1998);

2. learning shapes and is shaped by connections between context, practice, and social relations (Craig, 1997, 2006; Dewey, 1904; Lave, 1988; Lave & Wenger, 1991);
3. knowing is developed through experience and meaning making (Clandinin & Connelly, 2000; Dewey, 1938; Wenger, 1998);

4. learning involves interrelationships between reflection, action, and knowing (Dewey, 1933; Schön, 1987; Wenger, 1998) and narrative discourse has a central role in these relationships (Clandinin & Connelly, 2000; Craig, 2006);

5. experiences of difference at boundaries between communities are fertile grounds for learning (Bateson, 1994; Clandinin & Connelly, 2000; Wenger, 1998); and

6. identity development and human agency are central to learning (Boaler 2002a; Wenger, 1998) and identities can be conceived as telling and retelling stories (Clandinin & Connelly, 2000; Drake et al., 2001; Sfard & Prusak, 2005).

Clandinin and Connelly (2000) attend to context by thinking of a metaphorical three-dimensional inquiry space. An inquiry's dimensions are temporal (past, present, future), interactional (personal/inward and social/outward), and situational (physical place, boundaries and landscapes). In narrative studies inquirers attend to histories, current happenings, and future plans. They focus on personal experiences and meanings that individuals – participants and researcher – give them, as well as ways that social interactions shape such meanings.
Connelly and Clandinin (1999) also use space as a metaphor for school context. They describe schools and school districts as a narratively constructed professional knowledge landscape. This landscape is divided into in-classroom places — safe places for teachers to freely live their stories of practice — and out-of-classroom places that are full of theory-driven and policy-driven prescriptions meant to change students' and teachers' classroom experiences. Connelly and Clandinin call these prescriptions sacred stories. They refer to the hierarchy that mandates them as the conduit.

Stories are important aspects of both situated and narrative perspectives. Discourse, particularly stories, help newcomers learn what practices and experiences are valued in a community (Lave & Wenger, 1991). In education, narrative plays an important role in the ways teachers construct and reconstruct their personal practical knowledge as they face and resolve classroom dilemmas (Craig, 2006). Clarifying the term "personal practical knowledge," Craig (2006) explains that it means thinking of teachers as using their past experience and intentions for the future to hold, use, and produce knowledge to make decisions about current professional demands (p. 261). On the professional knowledge landscape teachers often tell "cover stories" about their practice when they are in out-of-classroom places, especially when their lived experience does not match the stories they hear being told about them. They save their "secret stories" for safe in-classroom places with their students and trusted colleagues (Connelly & Clandinin,
Connelly and Clandinin (1999) developed the term "stories to live by" to make a link between knowledge, context and identity. It is the term they use to refer to identities. In chapter 4 I often use these narrative inquiry terms.

From a situative perspective, to become full participating members, solve problems, and identify with community practices and values, newcomers must learn their community's stories and how to tell recognizable versions of these stories themselves (Lave & Wenger, 1991). Sfard and Prusak (2005) define identities as telling stories. In narrative inquiry stories are central, both as a method for understanding experiences and as the experiences being studied (Clandinin & Connelly, 2000). That is, participants and researchers together shape the stories that reveal and make sense of persons, their learning experiences and contexts (Craig, 1997).

Narrative inquiry and situated theory consider human agency as integral to learning and identity. The ability to negotiate meaning in a community influences a person's position within that community and shapes that person's identity (Wenger, 1998).

However, there are limits to the fit between narrative inquiry and situated theory. One limit, critical for this work, is the tension about where to place theory in a research project (Clandinin & Connelly, 2000). Some researchers start, as I have, with a theoretical framework to set off and structure ways to consider research questions, as well as gather and analyze data. Narrative inquirers,
however, often start with "the researcher's autobiographically oriented narrative associated with the research puzzle" (Clandinin & Connelly, 2000, p. 41). Tensions therefore arose over what Clandinin and Connelly might say was my formalistic literature review and where literature fits in a final product. I chose to follow a traditional qualitative dissertation approach with a full literature review preceding descriptions of methodology, data collection and analysis. In part, I did this because my choice of narrative inquiry as methodology grew out of my learning as I developed the literature review and proposal. Another reason I started with literature is that I began my research journey with deep interest in situated learning theory and found its framework provided organization and structure for my work.

As I write this dissertation's chapters describing methodology and findings, another tension is emerging. In which chapter should I describe my specific methodological and analytical decisions? Once again, I decided to follow a more traditional dissertation approach. I have chosen to present most major methodological decisions in this chapter along with an overview of my researcher journey.

Narrative inquiry intends to "create a new sense of meaning and significance" rather than make generalizable claims or develop theory (Clandinin & Connelly, 2000; p. 42). Thus, although there is congruence in epistemological assumptions between situated theory and narrative inquiry, I attended to tensions between them. While a situated framework provides a structure for my inquiry, I
continuously checked that it did not stifle or distort my sense of participants' unfolding stories. For instance, when my reading of transcripts yielded themes that mirrored situated theoretical constructs such as identity and agency, I re-read those transcripts specifically looking for contradictions or other ways of understanding the same stories and events.

*Exploring Professional Developer Learning with Narrative Inquiry*

Next, I address the question, "Why use narrative inquiry to explore professional developer learning in inquiry groups?" with three points. First, both narrative inquiry and participation in professional learning communities are effective ways for researcher and participants to learn about pedagogy, in this case facilitation of and learning in inquiry groups. Second, narrative inquiry and professional learning communities share ways of inquiring. Third, narrative inquiry places participants' voices along side the researcher's voice. In professional learning communities practitioners' personal practical knowledge has equal value with university generated educational research knowledge (Cochran-Smith & Lytle, 2001; Craig, 1997).

Teacher and professional developer inquiry groups have similar purposes to narrative inquiries in education. Since it is descriptive, interpretive, and textual, narrative inquiry is the best way to understand pedagogy (van Manen, 1990). Narrative inquiry uses written text as a tool for understanding the pedagogical meanings and significance for participants and researcher. Narrative inquiry is a
way to capture social interactions and contexts through the accounts people live and tell about these interactions (Craig, 2006). As these accounts change and perspectives shift over time, both storyteller and listener learn and change (Clandinin & Connelly, 2000). Understanding of the experience being studied emerges from a systematic, focused, reflective, collaborative dialogue (written and oral) between researcher and participants (e.g., Clandinin & Connelly, 2000; Craig, 2006). The purpose of inquiry groups is similar. They provide opportunities for teachers and professional developers to engage in systematic, focused, collaborative, reflective dialogue to consider learning and teaching practice from multiple points of view, broaden their repertoires, and strengthen their pedagogical decision-making (e.g., Ball & Cohen, 1999; Stokes, 2001; Thompson & Zeuli, 1999).

Narrative is both a way of pursuing an inquiry and it is also what is being studied (Clandinin & Connelly, 2000). Clandinin and Connelly (2000) explain that a narrative inquiry seeks to know how lives are lived and understood as stories. "People live stories, and in the telling of these stories, reaffirm them, modify them, and create new ones. Stories lived and told educate the self and others...." (Clandinin & Connelly, 2000, p. xxvi). Identity construction and reconstruction, a major component intertwined with learning (Wenger, 1998), also can be conceived as telling stories (Sfard & Prusak, 2005).
Methods for learning in narrative inquiry and professional learning communities are also similar. Reflection on practice, sharing and valuing different perspectives, and authentic collaboration are central components of both professional learning communities and narrative inquiry. Narrative inquiry depends on participants' telling and retelling their stories and engaging in reflective conversations with a researcher about what these stories come to mean over the course of their dialogue (e.g., Clandinin & Connelly, 2000; Craig, 1997). Narrative inquiry involves the researcher coming to know and build trusting relationships with participants over time, listening closely to their telling of the lived world (making their practices and viewpoints public), and collaboratively reflecting with them on how to interpret and present these stories (Clandinin & Connelly, 2000).

Inquiry groups, to be rich learning opportunities, develop trusting relationships over time, depends on participants' making their practice public and engaging in a collaborative, critically reflective dialogue around teaching and learning dilemmas they face (e.g., Kruse et al., 1995).

Narrative inquiry seeks to learn about something from the viewpoint of the persons experiencing that phenomenon (van Manen, 1990). To ensure that participants' voices and views are authentically represented in narrative inquiry, researchers consult and collaborate with participants about interpretations of their stories (Clandinin & Connelly, 2000; Craig, 2006). Although the researcher and participants have different roles throughout the inquiry and distinct voices in a
finished research text, their voices have equal status (Ritchie & Wilson, 2000).

Regarding narrative inquiry as a way for teachers, teacher educators, and educational researchers to generate knowledge of teaching and learning, Lyons and LaBoskey (2002) describe the growth of narrative as a way to "capture the situated complexities of teachers' work and classroom practice...." (p. 15). Weaving together a narrative of coming to know, practitioners' stories about learning and teaching allows voices of all characters, participants as well as researcher, to speak with clarity and power (Ritchie & Wilson, 2000).

In sum, narrative inquiry is an ideal methodology for an examination of professional developers learning in the context of inquiry groups. Narrative inquiry has been used extensively to study teachers' work and knowledge (Clandinin & Connelly, 2000; Richert, 2002). Narrative inquiry fits well, although not perfectly, with a framework based in situated theory (Richert, 2002). Additionally, the purposes and strategies of narrative inquiry and inquiry groups are quite similar. Finally, using a methodology that presents facilitators' experience from their point of view validates the authority of professional developers' voices in the field of professional development (Richert, 2002).

Design Strategies and Procedural Decisions

Next I describe my research strategies and present rationales for my procedural decisions. I first describe the context of the study, including setting and participants and my role as researcher. I then detail data collection methods and
sources of evidence followed by analysis techniques. Limitations and ways that I addressed them are next. I end this section with a discussion of ethical considerations.

Research Context

The research context is one with which I am very familiar and in which I am well known. For 4 years prior to this study I worked closely with two school district mathematics specialists, Cammie and Carol, this study's participants. Such familiarity afforded easy entry into the field (Ely et al., 1991); however, it also created potential unforeseen difficulties that I enumerate and address in sections on the role of researcher and limitations, as well as in chapter 4.

I met Cammie and Carol 4 years ago when, as part of my doctoral fellowship, I offered to work with them on teacher professional development. I started, at their suggestion, by observing one group of middle school mathematics teacher leaders. This group included one representative from nearly every middle school in a mid-size urban school district. Monthly meetings, planned and facilitated by Cammie and Carol, included discussions about teachers' concerns and questions, district policy and announcements about materials, workshops, and testing. For most of each meeting teachers engaged in workshop activities such as small group mathematics problem solving. After each meeting Cammie, Carol and

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1 Except for my own name, all names of persons, groups and locations are pseudonyms. For easier reading I use Cammie and Carol's names alphabetically. Placing Cammie's name first does not imply status or favor.
I would collaboratively reflect on the meeting and the sense teachers made of it. Our collaboration evolved into a professional developer inquiry group (PD inquiry group) focused on our own professional learning.

When we started to work together Cammie and Carol were unfamiliar with the experience of an inquiry group. They had never participated in one. They were trying to initiate collaborative teacher professional learning communities in middle and high school mathematics teams and departments, but their practice – the way they were encouraging and supporting teacher leaders to initiate these professional learning communities – was presenting the rationale, principles and techniques in workshop format. They were not feeling successful as truly collaborative communities failed to develop in many, even most, of the schools and teachers, for the most part, did not think of themselves as leaders.

The group of teacher leaders evolved over the next several years. Forming smaller subgroups, teacher leader participants chose topics focused on mathematics teaching and learning, middle school algebra, or studying differences among district schools due to issues such as class, race and language. Over time these subgroups became professional learning communities. Last year, the overall teacher leader group expanded to include high school teachers and the now named, Mathematics Teacher Leaders (MTL) – a considerably larger group – continues to meet every three to four weeks in subgroups focused on influencing district
curriculum decisions, shaping district assessment policies, and designing and facilitating professional development for their school and district colleagues.

In the last 2 years, Cammie, Carol and I have continued our collaboration and added two other professional developers, colleagues of Cammie and Carol, to our inquiry group, Elizabeth and Eleanor last year, and Iris during the year of this study. Together we plan, facilitate, and reflect on MTL meetings. Occasionally, we step back and look at a broader picture, such as reflecting on the purposes and goals of the MTL and then thinking together about whether our current structures and practices foster these purposes. This year we decided to read and discuss articles and books relevant to teacher learning and leading. Although the professional developer inquiry group has expanded, I have chosen to focus my study on Cammie and Carol's experiences. Elizabeth was out on leave until November 2006 and not available for this study. Eleanor is a consultant to the district and I want this study to focus on district-based professional developers. Neither of them attended PD inquiry group meetings during this study. Iris attended meetings for the first time as this study began. After describing the study setting, I visually depict participation of this study's participants in distinct, interrelated inquiry groups.

Setting

My study was situated in an urban public school district in a medium-sized city in the western United States. According to one of the study's participants
(personal communication, May 2005), this school district's demographic profile was one of increasing diversity; 20 years ago, students from minority ethnic/cultural groups comprised 24% of enrollment, compared to over 41% today. African-American students are the largest minority group, at 16%; Hispanic-American students were showing the fastest population growth, and comprised 12% of the student population. Over 80 languages other than English were represented, and over half of all district schools were eligible for federal Title I support due to high numbers of students from low-income families. Evidenced by its capacity to draw over 83% of eligible students to the public schools, this district, although struggling with budget difficulties, earned a national reputation as an urban district that still "works." However, student achievement by school, as measured by standardized test scores and by "criteria for what has come to be called 'authentic intellectual work'" (Secada & Adajian, 1997, p. 195), varied widely. While some schools were acknowledged to be exemplary, others were labeled as not making adequate yearly progress in the context of the federal No Child Left Behind (NCLB) Act of 2001.

There was a district-level office of professional development. Operating out of this central office, teachers from each discipline worked as curriculum specialists and professional developers. Working in this context, the mathematics specialist

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2 To preserve participant confidentiality and reduce the possibility of this school district being identified, I do not use my informant's name. Statistical information is based on school district records.
team (math team), which included Cammie and Carol, developed professional
development goals that responded to the growing student diversity and test score
disparities. Their work included adopting mathematics curricula that supported
NCTM Standards and creating professional development to support teachers as
they learned to use the adopted curriculum as it was intended. Their pedagogical
goals were to foster student engagement in problem solving and group work, as
well as to create more equitable access to high teacher expectations, quality
mathematics teaching, and learning outcomes in all schools. Further, the math team
explicitly recognized the need to develop mathematics teacher leadership across the
district. To this end, the math team created groups of teacher leaders and provided
these teachers with professional development, intending that they would share their
learning with school colleagues.

One of these teacher leader groups, as we have seen, evolved into the
Mathematics Teacher Leaders (MTL). It was comprised of mathematics teacher
representatives from nearly every middle and high school. The group of
approximately sixty teacher leaders was divided into several committees intended
to be inquiry groups that learned about specific aspects of mathematics education
directly relevant to school district policy. For example, when the school district
mandated 3 years of high school mathematics as a graduation requirement, one
committee took up the task of figuring out what the third year course should be,
with plans to make recommendations to the superintendent and school board. Each
MTL committee was organized and facilitated by at least one of the math team members and met approximately every three or four weeks throughout the school year. In some groups, teacher leader members co-planned and co-facilitated committee meetings with a math team facilitator. During the year of this study, there are four MTL inquiry groups: Passages, a new group, was looking at ways to ease students' passage from elementary to middle school and middle to high school. They focused on the three District curricula and looked closely at the algebra strand in each one. Terminal Course studied curricular options for a newly mandated requirement that all students complete 3 years of high school mathematics. Technology involved learning to use graphing calculators and other technologies with understanding and facility and then develop ways to support school colleagues to do the same. Curriculum Facilitators studied facilitation skills and newly adopted high school mathematics curriculum in order to facilitate professional learning communities of school colleagues and develop district assessments linked to curriculum. After their first meeting, the Facilitators group divided into Middle School Facilitators (MS Facilitators), focused only on the first year algebra course, and High School Facilitators (HS Facilitators), who frequently broke into subgroups according to course level and subject.

A central component of the research context is an inquiry group of professional developers (PD inquiry group) who work with MTL teacher leader groups (see Figure 1). We meet regularly, usually before and/or after MTL
meetings, to plan and reflect on facilitating MTL groups. We also discuss other aspects of our professional development practice as well as broader ideas about teaching, learning, leadership, and professional development.

![Diagram of interrelated inquiry groups]

Figure 1. Interrelated inquiry groups.³

Participants

Stake (1995) and Merriam (1998) suggest that in a qualitative study the choice of participants be purposeful. Merriam claims that purposeful sampling involves selecting information-rich situations or circumstances in order to choose a sample from which the most can be learned. Manouchehri (2001), in her study of

³ In Figure 1, abbreviation meanings are: PD: professional development; PDer: non-participant professional developer (in this study); TL: teacher leader; Group: inquiry group; HS Facilit: HS Facilitators.
teachers coaching one another, deliberately selected teachers to include several
grade levels, differences in how partners were chosen, and the comfort of teachers
with her presence. From many possible groups, Stokes (2001) purposefully chose
to examine inquiry groups in a school that developed three distinct kinds of teacher
learning communities over 5 years. Of the curriculum specialists with whom I have
worked, I purposely chose two mathematics specialists for this study. My teaching
field is mathematics so my experience in this discipline is most extensive. As a
member of the larger community of mathematics teachers, I am already familiar
with the discourse of that community. The two participants for this study were
chosen because of their strong working relationships with each other and their good
relationship with me. Each of them was willing and able to reflect deeply about her
own and teacher learning. They were also chosen because of their availability and
willingness to work with me through a time-consuming process.

Cammie and Carol were experienced middle school mathematics teachers
currently working on special assignment as curriculum specialists and professional
developers. They were chosen to be school district mathematics specialists because
they were identified as exemplary, reflective, innovative teachers. Cammie had
been in this position for about 9 years and Carol for 5 years. Until the year of this
study, Cammie and Carol worked almost exclusively with middle school teachers
and teacher leaders.
During the study year, Carol worked with high school teachers and teacher leaders, while Cammie continued to focus on middle school. They were part of a district-based team of four secondary and three elementary math specialists.

Cammie and Carol were responsible for ordering and coordinating curriculum materials and recommending to the school board which curriculum to adopt and purchase. They also provided all district mathematics teachers with professional development that encouraged and supported them to teach mathematics in line with NCTM Standards. They regularly met in schools with teams of middle school mathematics teachers and high school mathematics departments. They also developed, coordinated and led several district wide mathematics-focused professional development days each year. Further, they were expected to support and encourage teachers in how to teach and assess students of diverse abilities, ethnicities, races, languages and socio-economic backgrounds to achieve both mathematical understanding and adequate scores on annual standardized state tests. Although Cammie and Carol did not supervise teachers, they were also responsible for supporting individual teachers who found it difficult to teach mathematics well. Principals often collaborated with them around struggling teachers.

Cammie was a European-American woman in her mid-forties. She was married to a mathematics teacher. Several years after graduating from college,
Cammie returned to school for a master's degree that enabled her to become licensed to teach. Initially she taught elementary school in a wealthy California school district. In her second year as a teacher, Cammie was invited to join a nationally renowned mathematics professional development organization. While teaching full time, she worked with this organization for almost 20 years presenting summer workshops for teachers throughout the country. Cammie, encouraged to write by the professional development organization's leader, has also published several books for mathematics teachers. After moving to the city of this study, Cammie decided she preferred to teach in middle school in order to specialize in mathematics. After several years in middle school, she applied for and was hired as a mathematics specialist.

Carol, also European-American, was in her early fifties. She had recently completed her master's degree in education. Carol was a single mother with a child in college. Carol entered teaching after a number of other careers. As a caretaker of a private estate she lived for several years on an island with minimal amenities. She successfully managed a restaurant/bakery for which she cooked and baked. Throughout her own schooling and her multiple careers, Carol reflected on how she learned and what characteristics and practices made some of her teachers great. When she returned to school to become credentialed as a teacher, she already had a developing educational philosophy. In her early teaching career, Carol worked with strong principals and colleagues who supported her development as a teacher. She
taught different grade levels and developed integrated, multidisciplinary curriculum. Returning to school a second time, Carol took calculus as well as education courses that explored reform mathematics and assessment practices. Carol began working as a curriculum specialist at the same time that I began to work with Cammie and Carol, 4 years before this study began.

Researcher’s Role

I have been involved with these participants, in the setting I studied, for 5 years. I am an insider and a privileged insider at that. In the first year of our collaboration, Cammie, Carol and I focused my role as I worked with them and the school district. I worked with one group of teacher leaders that Cammie and Carol facilitated. My work centered on collaborating with Cammie and Carol although I occasionally coached individual teachers. Together we facilitated and reflected on our pedagogy with the teacher leader group. Cammie and Carol characterized our conversations as professional development – providing them with opportunities to reflect on and question their practice, try out new ways of working with teachers, and think about teacher learning in new ways. It was their characterization of our work together that led me to wonder about professional development for professional developers.

As Cammie, Carol and I initially worked together as a PD inquiry group, I tentatively reflected that their meetings with the middle school teacher leader group seemed a bit disjointed to me. One month they'd present a math problem to work on
in small groups. The next month they went over disaggregated achievement data and the month after that they looked at school district assessments. All were worthwhile activities, but aside from the announcements part of the meeting, there seemed to be little continuity. I described a middle school teacher inquiry group in which I had participated for nearly 8 years. I related how exciting it was for our middle school faculty of 17 teachers from all disciplines to become deeply collaborative and supportive of one another, and how each of us transformed our teaching practice without anyone suggesting we do so. I described my own turning point, when I started to think about and enact teaching in different ways. Cammie and Carol began – not without trepidation – to try out inquiry group processes with the group of teacher leaders.

It is these experiences of learning and practice that interested me as a researcher – puzzling out professional developers' experiences of learning and practice in the context of participation in a collaborative, reflective inquiry group of professional developers. I chose to inquire about learning in community, an experience I was instrumental in initiating, in a community in which I had worked and developed relationships for 4 years.

My insider status carried the possibility of several issues and potential pitfalls. In this section, I describe tensions to which I paid systematic attention. In the sections on data collection and analysis I presented several narrative inquiry research methods for dealing with such issues.
The first issue was the difficulty of differentiating Cammie and Carol's perspectives from one another and from my own. I worked hard to hear Cammie and Carol's stories clearly without weaving into them my own memories of our work together. I tried to safeguard against the possibility that my voice — my researcher voice, my doctoral-candidate-well-versed-in-the-literature voice, or my experienced educator voice — might overpower or suppress Cammie and/or Carol's voices. Craig (1997), describing her research on beginning teacher knowledge development, raises a similar question. "The possibility of my seasoned voice stifling [the beginning teacher]'s developing pedagogical voice loomed" (p. 61). Craig's solution is to frame their work as collaboration to investigate the study's topic. Having a well-established collaboration with Cammie and Carol, my solution was similar.

A second tension regarded my relationships with Cammie and Carol. My researcher role created tensions and affected our personal and professional relationships. Although I was sensitive to our relationships, trying to keep focused on my role as researcher made this challenging. Cammie and Carol at times were uncomfortable with my role and I experienced them drawing away for a while. As I relate in chapter 4, they also used the safe space created by our PD inquiry group to address their concerns. I reflected on whether my research choices are colored by concerns about asking Cammie or Carol difficult questions or presenting difficult interpretations for their input. Although I hesitated sometimes, I found that sharing
my thoughts with them and asking for their input helped me clarify their point of view. I tried to discern whether Cammie and/or Carol, because we are friends and colleagues, changed, elaborated or disguised their true experience stories to accommodate what they see as my purposes or biases.

My role as member of the professional developer inquiry group and my role as researcher created a third, dialectic tension. I reflected on how my contributions to our ongoing collaboration changed as I took on the role of investigating that collaboration. In chapter 4 I share some of that reflection. To authentically present Cammie and Carol's responses to, or stories about, my own participation, I use their words and actions to tell the story.

Finally, since my assumptions and beliefs about inquiry groups frame my research and shape my practice, I need to detail them. My own experience with inquiry groups shaped my practice with students, teachers and professional developers, as well as my research agenda. As a mathematics teacher, I was fortunate to participate in an inquiry group from 1985 through 1994 with my middle school colleagues. The group, facilitated by our principal, met for 2 hours weekly to reflect on our practice. We looked at and discussed student work, observed and described students in elaborate, precise detail, and examined our curriculum and assessment practices. I, and each of my colleagues, changed how and what we taught, how we viewed learning, and how we understood and
described our students; I transformed my practice. Shaped by this powerful, professional experience, my beliefs and values about teacher learning are:

1. I believe participation in professional learning communities can promote learning opportunities for professional developers, teachers and students that, for example, include reflection and discourse around complex problems.

2. To improve mathematics teaching and student learning, I, along with many educators, believe that schools and teachers need to provide opportunities for students that are substantively different from their own school experiences. That is, students need to solve and engage in discourse around complex, contextualized mathematics problems in order to construct and reconstruct their understanding of mathematical ideas.

3. To be able to transform their teaching practice, I, along with a growing number of educators, argue that teachers need opportunities to be involved in transformative professional development. To learn to teach in new ways, teachers need to be involved in new kinds of teacher learning activities. Instead of workshops, they need to engage with their colleagues in discourse about their own practice, including subject matter, pedagogy, students, and learning. Teachers need occasions to become members of a community of educators who share social constructivist beliefs and values about learning and teaching. Professional developers, as teachers of teachers, similarly need to transform their practice by participating in activities that reflect the ways they want teachers and students to
learn. Professional learning communities / inquiry groups provide such learning opportunities for teachers and professional developers.

4. Effective inquiry groups develop over months and years. They are not a quick fix to educational or societal problems. Rather, I assume that for educational change to be valuable and lasting, it must be constructed and reconstructed over time. It involves changes in participation in practitioner communities where members learn and teach in new ways.

5. I believe that teachers and teaching practice are central components of mathematics education reform. Teachers' knowledge and voices must be respected and valued for educational improvement to happen. Inquiry groups strengthen teachers' sense of authority and agency by encouraging them to solve problems of practice, using their own professional, practical knowledge developed in concert with colleagues.

6. I assume teachers are always becoming teachers, continuously learning and improving practice. Inquiry groups provide teachers and professional developers with time, encouragement, and support to reflect on, re-imagine and transform their practice. Just as learning to teach well takes time and continuous effort on the part of teachers, learning to initiate, design, facilitate and support professional learning communities takes time and continuous effort on the part of professional developers.
Because of my own positive experience as well as experiences I witnessed with colleagues and other teachers, I maintain that inquiry groups are essential components of educational reform, increased student understanding of mathematics, access to high-quality education for and inclusion of all students. Thus, professional developers need opportunities to learn to facilitate inquiry groups by participating in professional learning communities themselves.

Data Collection

Narrative inquiry is a complex, iterative process. Data collection and analysis are interwoven and inform one another. Thus, while I describe collection and analysis in this dissertation separately, in practice they were concurrent processes. van Manen (1990) stresses the need to be open to possibilities as phenomenological research unfolds. Therefore, as this study progressed, I found I needed to adapt my proposed plan of action in order to probe the meanings Cammie and Carol give to their participation, practices and learning in inquiry groups.

To capture Cammie and Carol's perspectives about inquiry group learning, practices, and participation I used the following strategies to collect data: (a) three individual, in-depth, semi-structured interviews separately with Cammie and with Carol, (b) naturally occurring informal communications, face to face, via telephone and email, with Cammie and Carol, together and separately, about their work, (c) recordings and observations of meetings of the PD inquiry group and (d)
observations of two different teacher leader inquiry groups, one facilitated by Cammie and the other by Carol. Below, I detail each strategy along with its rationale, as well as ways I recorded and organized data. I also describe resources I used to record and organize data across several collection strategies.

*Interviews.* This study relied in large part on collecting data through interviews. Altogether, I conducted six interviews over the course of this study. Interviewing fits well with both a situated learning framework and a qualitative, narrative methodology. Kvale (1992) delineates the connections between a situated, socially constructed view of knowledge and qualitative interviews. Kvale emphasizes that knowledge is contextual, interrelational, linguistic, conversational, and narrative. Similarly, interviews occur in particular interpersonal contexts and the meanings created depend on the local nature of that context. Kvale defines interviews as interrelational because they are exchanges of perspectives, or views, between persons. Meanings are created and re-created through language and interviews provide linguistic data. Interviews are essentially conversations and knowledge is socially constructed through such dialogues. Knowledge comes to life in storytelling and interviews are opportunities for people to narrate stories about their lives. Clandinin and Connelly (1994, 2000) add that in telling and retelling such stories, participants live and relive their storied lives.

Every study occurs in the midst of an ongoing story (Clandinin & Connelly, 2000). Along with location and personal and social interaction, temporality is one
of the three dimensions in Clandinin and Connelly's (2000) construct of inquiry space. In this case, Cammie and Carol worked with teachers before this study and will most likely continue to work with them after it is over. Further, I worked with the participants for 4 years before the study and hope to continue our collaboration afterwards. To understand Cammie and Carol’s perspectives on inquiry group learning, then, it is important to include a temporal dimension in the interviews by eliciting their memories of past experiences and visions for future inquiry group participation.

I used life-story interviews to elicit data for this study that included questions about Cammie and Carol’s past, present and future. A person's identity can be understood both as stories and through stories (Drake et al., 2001; McAdams, Diamond, de St. Aubin, & Mansfield, 1997; Sfard & Prusak, 2005). Further, when teachers choose to change their previous practices, they also transform who they are as learners and teachers (Drake et al., 2001; Wenger, 1998). As teachers of teachers, professional developers may have similar experiences. Largely through these interviews I came to know some of the ways these professional developers learned and changed practices and identities from leaders of workshops to facilitators of inquiry groups. In addition to constructing storied professional lives, stories are lenses through which Cammie and Carol viewed their practices (Craig, 1997; Drake et al., 2001).
The life-story interview proved to be a useful way to elicit identity stories (Drake et al., 2001; McAdams et al., 1997). Through these stories participants' beliefs, dispositions, feelings and actions can be understood as integrated systems (Drake et al., 2001). Interviews in this study were based on and adapted from life-story interviews used by Drake et al. (2001) who in turn, adapted their life-story interviews from McAdams et al. (1997). Although Drake and colleagues used these questions in one 2-hour interview, I chose to spread the questions out over three interviews. I decided to do this based in part on my knowledge of, and relationship with, Cammie and Carol. As I anticipated, they responded with long, thoughtful, in-depth stories. Each interview lasted at least 2 hours and sometimes felt a bit rushed toward the end. See Appendix for interview protocols.

To delve into my assumptions, biases and stance regarding inquiry groups I wrote, in advance of the interviews, my own responses to the interview questions. My primary purpose – as much as possible – was to bring my own experiences to the surface and set aside, or bracket, my beliefs and any pre-judgments while I listened to stories Cammie and Carol told.

The first interview with Cammie took place on August 30. Carol's was September 7. We explored how their professional development practices evolved. I elicited each person's stories of experiences with learning and teaching in schools as well as early professional development experiences. Cammie and Carol's views
of their development as a professional developers emerged. I asked Cammie and Carol for their stories of critical events in their lives as students, teachers and professional developers (Drake et al., 2001). These early stories provided rich data about Cammie and Carol's values and beliefs about learning and teachings as well as important information about context.

Taking a different focus, the second interview (Cammie: November 9; Carol: November 3) focused on their experiences of learning and professional development in inquiry groups and other contexts. I asked for stories about specific challenges they faced as facilitators of teacher learning as well as turning points in their lives as professional developers (Drake et al., 2001). Cammie and Carol's turning point stories were especially powerful. I also asked each participant to reflect on important influences in their professional developer stories. Cammie, once she started talking about positive influences, kept adding additional people and groups with whom she learned and worked. It seemed that this was a meaningful question to her.

In the third interviews (Cammie: December 13, Carol: December 14 and 274), I asked Cammie and Carol about dilemmas and tensions they live with in their professional development lives. Here, I used concepts and dilemmas described by Mundry and Loucks-Horsley (1991) to craft interview questions not found in Drake et al. (2001). Additionally, in this interview, I invited Cammie and Carol to

4 To accommodate Carol's schedule we completed this interview in two parts.
speculate about where their work with teachers was going by asking them to imagine positive and negative alternative futures (Drake et al., 2001).

Due to my desire to elicit stories that were specific and situated in time and place, questions were lengthy. Rather than asking prompts one by one, I gave participants a written copy of each question, one at a time. Both Cammie and Carol read along as I asked the questions and occasionally referred to it as they responded. Only when an element asked in the question did not emerge in a participant's story did I prompt them. In the "hand-out version" of each question I used bullets to set off each specific prompt to help guide participants' answers and help me keep track of what follow-up questions to ask.

At the end of Interview #2, Cammie asked whether she could have a copy of the interview questions in advance. She said that trying to answer on the spur of the moment was difficult and she wanted time to think about the questions. After consulting with Carol, I forwarded Interview #3 questions to both of them a few days in advance of our scheduled interview time.

Informal communication. As noted, narrative inquiry is an iterative process. I planned to take advantage of naturally occurring opportunities for informal conversations with Cammie and Carol. This turned out to be somewhat problematic. Cammie and Carol led very hectic, busy professional lives and it was often hard to find time for a phone call or to get email responses without being intrusive and burdensome. I tried scheduling regular 15-minute conversation times,
but neither Cammie nor Carol found that possible to sustain. Instead, I relied on adding questions to the end of each interview thereby taking advantage of time they had already set aside for conversations with me to get most of the clarifications I sought. I questioned them about moves and decisions I saw them make in teacher leader inquiry group meetings. I asked for clarification about things they had said during previous interviews or PD inquiry group meetings in order to check my understanding of their perceptions.

Clandinin and Connelly (2000) describe sharing interim texts – preliminary descriptions and interpretations – to validate these texts by negotiating meanings with the participants. Since this study seeks to present participants' experiences from their perspectives, reliability (or trustworthiness), can be thought of as consistencies in participants' stories over time. Validity (or credibility), comes from each participant's recognition of her voice and views in a researcher's interim texts. Once I began to work with story data (see the analysis section, below), I shared sections of my preliminary research texts with Cammie and Carol to check with them for validity of meanings and for any concerns they had about confidentiality. In the limitations section, I address issues of trustworthiness and credibility more fully. Except in the case of email, where the "conversation" was already in a written form, I took field notes either during or immediately after the few informal communications we had and entered them into the researcher data log.
Observations of professional developer inquiry group. I was a participant-observer in five 3-hour meetings of professional developer inquiry group (September 12, October 10, November 2, November 29, 2006, and January 5, 2007). Meetings were digitally audio-taped and transcribed. I also took field notes and tried to pay particular attention to Cammie and Carol's engagement by noting posture, body language, and other non-verbal cues.

Observations of teacher leader inquiry groups. Between August 28 and December 16, 2006 I attended four 2-hour meetings of the Passages teacher leader group facilitated by Cammie and five 2-hour meetings of the HS Facilitators group facilitated by Carol. I took extensive field notes during each meeting focusing on Cammie and Carol's actions and words. I only noted what teacher leaders were doing to establish context. Cammie co-facilitated Passages with one of her math team colleagues, Iris. I noted actions, statements and choices that Cammie or Carol made during each meeting. These notes provoked new questions to ask them. These questions sought to uncover new aspects of Cammie and Carol's stories or delve further into their points of view about inquiry group learning, professional development, or themselves as professional developers. These questions became opportunities for Cammie and Carol to retell parts of previous stories, adding to the data's trustworthiness. In my proposal I included a table that predicted which data collection strategy would address which research questions. In truth, the stories Cammie and Carol told and retold throughout this study often included elements of
all of my research questions. Sometimes their response to an interview question surprised me by addressing a different research question than I anticipated. For instance, Cammie's turning point story in Interview #2 is a vivid depiction of how she views her learning. I did not anticipate that views of learning would be addressed by that question. Table 2 depicts each data collection strategy as it addresses corresponding research questions.

Table 2

Data Collection Strategies and Research Questions

<table>
<thead>
<tr>
<th>Collection Strategy</th>
<th>Research Sub-question</th>
<th>a) What are participants' perceptions of their learning in professional developer and teacher leader inquiry groups?</th>
<th>b) What are participants' perceptions of practices in professional developer and teacher leader inquiry groups?</th>
<th>c) What are participants' perceptions of ways their participation in inquiry groups shapes their PD practices, identities, and agency?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interview #1</td>
<td>√</td>
<td></td>
<td></td>
<td>√</td>
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<tr>
<td>Interview #2</td>
<td>√</td>
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<tr>
<td>Interview #3</td>
<td></td>
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<tr>
<td>Informal Communication</td>
<td>√</td>
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</tr>
<tr>
<td>Observe PD group</td>
<td>√</td>
<td>√</td>
<td></td>
<td>√</td>
</tr>
<tr>
<td>Observe TL groups</td>
<td></td>
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<td>√</td>
<td></td>
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</tbody>
</table>
Data collection resources. I used the following data collection resources for recording and organizing data: digital audio recording, transcription, field notes, a researcher data log, and a researcher memo log. A professional transcriptionist transcribed all audio recordings. I listened to each tape as I read the transcript and, based on field notes, make adjustments when the transcriptionist did not hear what was said clearly, or could not tell who was talking during a meeting. I take up the issue of transcription as analysis in the data analysis section. I took field notes during or immediately after all meetings and interviews and included them in an ongoing researcher's data log. Using Word documents I created separate files for each interview and meeting transcript. Each entry was dated and labeled (e.g., Cammie IntV #1, PD Meeting #4). Transcript lines were numbered and a large margin created on one side of the document. I printed the data log and used these margins for coding the data.

I also kept four kinds of researcher's memos as separate Word documents. Entries were dated and files labeled as reflection, follow-up, analytic, or methodological. Reflection memos include reflections about my role, feelings, tensions, dilemmas, choices and ethical concerns as I moved between participating in the field and stepping back to look at data. I wrote reflection memos after interviews and professional developer inquiry group meetings. References to meetings, conversations, and other field encounters were dated and labeled. I
continued to keep reflection memos throughout data collection and analysis. An example of a reflection memo appears in chapter 4.

Follow-up memos included ideas in the data that suggested a need to gather further data. Here I developed new questions to ask and ways to approach specific topics. As needed, I wrote follow-up memos after reading sections of transcripts or after interviews, observations, or informal conversations.

Analytic memos included notes about emerging patterns, themes, contradictions, and ideas that seemed to be missing. Analytic memos became more numerous after all data was collected and I was reading transcripts for the second, third, or fourth time. Ideas for initial interim research texts began to take shape in analytic memos.

In late December I realized that some of my memos, filed as reflection or analytic memos, were actually addressing methodology. I created a new folder and filed methodology memos separately. I used methodological, analytic and reflection memos to reconstruct the story of my analysis.

Data Analysis

Borko (2004), discussing the value of a situative perspective for professional development research, uses the metaphor of a bi- or multi-focal lens. She describes learning as having both individual and socio-cultural features. "Situative perspectives provide a powerful research tool, enabling researchers to focus attention on individual teachers as learners and on their participation in
professional learning communities” (p. 4). She claims that research from a situative perspective allows for multiple units of analysis—individuals and group. In a comparable study looking at mathematics teacher development Rogoff (cited in Stein & Brown, 1997) claims that "the unit of analysis shifts from the individual teacher to the social practice in which teachers engage and learning is redefined as transformations in the ways in which teachers participate in these social practices" (p. 159). In my study, I focused on the lived experiences of two individual professional developers, Cammie and Carol, as they participated in the social practices of professional developer and teacher leader inquiry groups. My unit of analysis was the individual in a social context.

Narrative inquiry is an iterative process. Field texts are created to describe experiences, depict events and record stories (Clandinin & Connelly, 2000). Moving from field texts to research texts, a researcher asks “questions of meaning and social significance” (Clandinin & Connelly, 1994, p. 423). Craig (2006) describes partnered stories, such as stories of teachers/teacher stories. The stories of teachers are ones that teachers hear being told and are expected to tell about learning and teaching in schools and teacher stories are learning and teaching stories that teachers tell and retell as they live and relive their own experiences. Partnered stories, although sometimes contradictory, can be held side by side to understand the complexity of lived experience on the professional knowledge landscape. Connelly and Clandinin (1999) call the stories expected of teachers,
sacred stories. Teachers, they say, tell cover stories to match what they perceive to be expected stories and secret stories to portray their lived experience. In this study, as we see in chapter 4, stories of professional development told by District administrators clashed with Cammie and Carol’s professional development stories and at times impinged on stories they live by as facilitators of teacher learning and teacher leading.

Rereading my proposal in preparation for writing this dissertation, I realized that there was a tension, perhaps even a contradiction, in my proposed analysis methods. I proposed to follow narrative inquiry methodology by looking for narrative threads, tensions, and plotlines. I also said I would borrow techniques from grounded theory and code data for themes, categories, dimensions and characteristics. This turned out to be problematic for me. I started by using grounded theory techniques and found myself losing sight of narrative methodology.

Along with narrative inquiry methods, I initially borrowed techniques from grounded theory to analyze interview transcripts and field notes (Miles & Huberman, 1994; Strauss & Corbin, 1994, 1998). First, I read through each text to get a general sense of meaning. Then I read and re-read these field texts looking closely for, and coding, patterns and themes that emerged. I constantly compared emerging patterns and themes with those found in earlier field texts. Some initial themes that emerged included belonging (e.g., to PD inquiry group, math team,
wider community of professional developers), identities (e.g., Carol talked a
great deal about her new role as high school mathematics specialist, both
participants talked about their frustrations with requirements imposed by
supervisors), and exerting agency (conversations about when to stand up and when
to operate under cover).

However, I found when I was coding that it was difficult to attend to
broader narrative threads and stories within and across participants' experience or
to create what Clandinin and Connelly (2000) call storied accounts of these
experiences. Although some themes that emerged through coding were important in
telling Cammie and Carol's stories, it was not until I began to look at stories that I
was able to develop storied accounts of Cammie and Carol's lived experiences.

From field texts – transcripts of interviews and meetings as well as field
notes – I looked for Cammie and Carol's most salient stories. Using only their own
words, I organized their stories into preliminary research texts. (I called these texts
"story data" and further explain story data below). I shared these texts with Cammie
and Carol and asked for their responses. At first, Cammie and Carol's comments
tended to focus on ways their spoken language appeared "ungrammatical" or
"inarticulate" on the page. However, I found that contacting them a few days after
sharing interim texts sometimes elicited more substantive negotiations of meanings.
For example, Carol was concerned that the title I had chosen using some of her
most powerful words for one of her stories, made her appear too negative and
critical of a colleague. When I chose a different phrase from her story to use in the title, she was much more comfortable with my presentation of the whole story.

Despite ongoing collaboration with Cammie and Carol, it is important to acknowledge that as the researcher, I ultimately made choices that shaped field texts into research texts. I chose which stories were most representative or most salient to present to Cammie and Carol for their feedback. When Cammie and Carol wanted to alter their transcripted words to make them more grammatical, I explained the value of hearing their spoken words and the credibility their actual language gave to this dissertation.

When I decided to look for story data, I needed to define "story" and find a way to analyze stories that was congruent with narrative inquiry and my situative framework. Next, I briefly discuss my definition of "story."

In narrative inquiry and other research literature, the words narrative and story are used to mean many of the same things. Different authors seem to prefer one and other authors use the other. Ritchie and Wilson (2000) use narrative to describe a research methodology or a compilation of related stories. They use the word story to denote the accounts teachers and students tell about their lived experience of learning and teaching in schools. Craig (1997), Craig and Olson (2002), Clandinin and Connelly (2000), and Connelly and Clandinin (1999) use story more interchangeably with narrative. Lyons and LaBoskey (2002) use narrative. The noun, narrative, and the verb, to narrate, are both used. People tell
narratives and narratives are collaborative inquiries that involve narrating one's experiences. Similarly, Craig, Olson, Connelly, and Clandinin use story as a noun to mean narrative discourses and storying as a verb to mean telling and retelling experiences as a way to socially make meaning and make sense of those experiences. Sfard and Prusak (2005) seem to use story and telling stories in many similar ways. Sfard and Prusak describe identity as relational and discursive. That is, identities are telling stories. Rather than static over time, identities involve a dynamic process of telling "stories about persons" (Sfard & Prusak, 2005, p. 14). Identities are socio-cultural and situated in time and space. Stories capture the dynamic process of identifying and changing practices (learning) because they are "discursive counterparts of ... lived experiences" (Sfard & Prusak, 2005, p. 17). I defined stories for this study as accounts of actions and events in which Cammie and/or Carol are protagonists and/or narrators.

To choose story data, I first focused on interview transcripts. Stories told in interviews were more detailed and coherent than stories told in PD inquiry group meetings. Often, stories told in meetings were abridged retellings of stories told in interviews. Certain stories stood out, either due to repetition, intensity of emotion, or importance of context. They practically begged to be included in this research account. For example, at every PD inquiry group meeting and during most interviews, Cammie and Carol narrated tensions with supervisors or colleagues who told stories of professional development practice that were very different from
Cammie and Carol's professional development stories. Another recurring story was about how much Cammie and Carol valued being part of the PD inquiry group. Although I focused on interviews, I continued to read through the transcripts of meetings to look for data that contradicted stories I chose for my preliminary research text.

To analyze story data, I adapted an exercise, from Clandinin and Connelly's doctoral classes, as described in Lyons and LaBoskey (2002). I decided to read each salient story in three ways. After each reading, I wrote a brief analytic memo. First, I attempted to recover meaning. I read ethnographically, descriptively, and from participant's perspective. I tried to leave out my own interpretations, bias, and meanings, simply reporting the meanings the story had for the storyteller. Second, I reconstructed meaning. I read the story from my researcher perspective. I explored what the story said in terms of my research questions. I added meanings, questions and critiques that came to my mind as I read the story. Third, I read at the boundaries. Clandinin, Connelly, and Chan (2002) here refer to reductionist and formalist boundaries. For my work, I looked at how each story rubbed against the "grand narratives" of traditional learning, teaching, professional development and leadership on the one hand, and, on the other hand, how the story rubbed at the edges of socio-cultural learning theory, my framework.

Other researcher choices are subtler. In general, the ways in which transcripts of recordings are organized shaped meanings that are created as
researchers move from field texts to research texts. Ochs (1979) points out that recording and transcribing are not neutral activities. How an interaction is transcribed responds "to cultural biases and itself biases readings and inferences" (p. 51). Socio-cultural norms and expectations about temporality, priority, sequence, significance, relevance, and relative power of speakers in a conversation are influenced by the ways the transcript presents the conversation on the page. Because English is read from top to bottom and from left to right, what is placed above and/or on the left is assumed to precede what is below or on the right. Similarly, what is placed to the right or below is assumed to respond to what is above or on the left. The speaker placed above or leftmost is often assumed to initiate, control and direct the conversation. Placing non-verbal behavior in brackets tends to separate actions from the words that are often uttered simultaneously and give greater standing to verbal communications. Thus, it is important to attend to ways in which transcripts of recordings are organized. In the case of PD inquiry group meetings, Cammie and Carol sometimes spoke at the same time or alternated telling parts of a shared story, interrupting one another in a mutually comfortable give and take. To indicate that they were talking together in the transcript was tricky. I alternated speakers in mid-sentence, but still failed to fully convey the sense of "telling together." How to indicate cadence and rhythm of each person's speech, especially pauses, was also hard. I instructed the transcriptionist to record
pauses by using and ellipsis and to record long pauses with the number of seconds of silence. However, as I moved from field to research text, I realized using an ellipsis was confusing. Instead, I used dashes to indicate pauses because the ellipsis conventionally shows missing text.

From stories that Cammie and Carol told more than once, I sometimes used several re-told stories to create one coherent narrative. I also chose stories that seemed to involve strong emotions and stories that Cammie or Carol claimed were important to their development as facilitators of teacher learning. Some of these stories were about Cammie and Carol’s experiences as learners, including incidents they related from elementary or high school. Other stories involved their experiences teaching in classrooms or leading professional development prior to their work with professional learning communities. I also included Cammie and Carol’s stories about facilitating inquiry groups. I then looked again for themes and narratives in the story data and coded these preliminary texts. As I wrote later research texts, I added elements from PD inquiry group meeting transcripts to add richness and examples of experiences-in-action. That is, unlike interviews in which Cammie or Carol talked about their experiences, PD meetings provided examples of what Cammie and Carol did and how they interacted in context.

Using the notion of a three dimensional inquiry space (Clandinin & Connelly, 2000), I looked for storylines and themes that located Cammie and
Carol's stories in specific settings and times as well as described their interactions ranging from personal to social. Throughout analysis I thought about a situative framework. I was alert to words and stories that indicated – or showed the absence of – belonging, community, ownership, authority, agency, becoming, identity and change. Most importantly, I tried to stay open to contradictions and alternate possibilities, as well as different themes that emerged from field texts.

Preliminary research texts, or story data, were then reconstructed as research texts. To analyze these stories, I began by looking for words, phrases and ideas that participants emphasized or used often. I noted categories, patterns and themes within and across participants' experiences and wrote codes in story data margins. To be aware of identity and community as possible themes, I attended to comments that were "I" statements (e.g., how Cammie and Carol described themselves, their actions or roles), and descriptions of their relations with the math team, teacher leader groups they facilitated or our professional developer group, respectively. Since people often use metaphors to describe their work and tell their stories (Bateson, 1994; Clandinin & Connelly, 2000; Lakoff & Johnson, 1980), I paid attention to Cammie and Carol's metaphors.

For example, Cammie said she appreciated being "pushed" to challenge her practices or assumptions. At other times, she used the phrase "push back" in the context of resisting or disagreeing with supervisors. She also used that phrase to
describe a conversation that she and Carol had with me during the fourth meeting of the PD inquiry group. "Push back," then, seemed to involve a power difference between two sides of a dialogue, with the person pushing back needing to exert force in order to claim more equal status with the person being resisted or disagreed with. To use these metaphors as examples, I developed and then confirmed my perceptions of Cammie's definitions of "push" and "push back" by noting when Cammie used these metaphors, and examining both the setting and context in which they were used. When I checked with Cammie by sharing my tentative understanding of "push back" with her, she pushed back on my interpretation. In an email she wrote,

Push back has nuances depending on the context. In general, I mean it to imply disagreement. When I push back on you or [Carol], it means just that. ... I see the issue differently and am sharing that difference. Sometimes when I push back with [our supervisors] it means the same. But at other times, when the idea ... presented by ... someone ... with position power and [is] a bad idea that will make no sense to teachers and probably anger them, then I push back ... with greater fervor, commitment and passion because I know how devastating bad ideas can sometimes be. ... I push back harder ... not necessarily to claim more equal status but yes, to resist.

In narrative inquiry, “collaboration occurs from beginning to end, plotlines are continuously revised as consultation takes place over written materials and as further field texts are collected to develop points of importance...” (Clandinin & Connelly, 1994, p. 423). I shared initial research texts with participants and, as the "push-back" story illustrates, we negotiated meanings that resulted in ongoing revisions.
Clandinin and Connelly (1994) discuss the importance of the “emotional and ethical” relationship between researcher and participants as well as between researcher and inquiry (p. 423). In this case, I value my relationships with Cammie and Carol and intend to maintain these relationships after the study’s conclusion. I am also mindful of my research purposes and intended audience and these ideas shape the choices I make as I write this final research account. Other intricacies of this complex personal and research relationship include authentically depicting own role, depicting Cammie and Carol's perceptions of my role, and describing my experiences of Cammie and Carol and the situations we experience together. I attended to the dialectic tensions involved in expressing my own researcher's voice in an inquiry intended to portray participants’ experiences and embody their voices.

**Timeline for Study**

I started to collect data on August 28, 2006, and finished collection on January 5, 2007. Initial data analysis began with data collection, and further analysis and dissertation writing occurred between mid-January 2007 and August 2008. Table 3 details this timeline. In scheduling interviews I was as accommodating as possible to participants' busy schedules.
Table 3

Timeline for Study

<table>
<thead>
<tr>
<th></th>
<th>Contacted participants, arranged interviews, obtained signed consent</th>
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<tbody>
<tr>
<td>July-August 15, 2006</td>
<td>Contacted participants, arranged interviews, obtained signed consent</td>
</tr>
<tr>
<td>August 15-31</td>
<td>Wrote my answers to and refined interview questions</td>
</tr>
<tr>
<td></td>
<td>Wrote all I knew/believed about Cammie and Carol</td>
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<tr>
<td>September</td>
<td>1st Interviews: Cammie (Aug 30), Carol (Sept 7)</td>
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<tr>
<td></td>
<td>1st PD Inquiry Group Meeting (9/12) Participant Observation</td>
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<tr>
<td></td>
<td>1st Teacher Leader Meetings Observations (Aug 28, Sep 14, Sep 21)</td>
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<tr>
<td>October</td>
<td>2nd PD Inquiry Group Meeting Participant Observation (Oct 10)</td>
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<tr>
<td></td>
<td>Teacher Leader Meetings Observations (Oct 5, Oct 12, Oct 26)</td>
</tr>
<tr>
<td>November</td>
<td>3rd &amp; 4th PD Inquiry Group Meetings Participant Observation (Nov 2, Nov 28)</td>
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<td></td>
<td>2nd Interviews: Carol (Nov 3) &amp; Cammie (Nov 9)</td>
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<tr>
<td></td>
<td>Teacher Leader Meeting Observations (Nov 14, Nov 16)</td>
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<tr>
<td>December</td>
<td>3rd Interview: Cammie (Dec13), Carol (Dec 14 &amp; 27)</td>
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<td></td>
<td>4th Teacher Leader Meetings Observations (Dec 14)</td>
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<tr>
<td>January 2007</td>
<td>5th PD Inquiry Group Meeting Participant Observation (Jan 5)</td>
</tr>
<tr>
<td>January 2007 – August 2008</td>
<td>Completed Further Analysis and Wrote Dissertation</td>
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</table>

**Limitations**

Like other qualitative methods, determining the soundness of narrative inquiry does not rely on validity, reliability, and generalizability (Clandinin & Connelly, 2000). Clandinin and Connelly (2000) caution against using such words meant for other forms of research. They suggest terms borrowed from grounded
theory including credibility from the perspective of participants, transferability of findings that readers decide fit other contexts, trustworthiness that accounts for consistency in the data, dependability that addresses continuous change of research context, and confirmability of the researcher's observations and interpretations by others (Strauss & Corbin, 1994). Actions that help to establish research credibility include prolonged engagement in the field, search for negative cases and contradictory evidence, peer debriefing, and checking with the people involved (Ely et al., 1991).

A limitation of this study was its compressed timeframe. In narrative inquiry researchers frequently participate in participants' lives and work for longer periods of time, sometimes years (Clandinin & Connelly, 2000). In this study there were several practical constraints on my timeline including availability of participants and committee members. My familiarity with this study's situation and participants helped mitigate this limitation by avoiding the need for an initial "get-to-know-you" period. The in-depth nature of this study also addressed its shortened timeline. For instance, just counting the data collected via audio, there were more than 12 hours of interview recordings and transcripts and 15 hours of professional developer inquiry meeting recordings and transcripts.

Continuous collaboration with participants, a characteristic of narrative inquiry, lowered the risk of misinterpreting what Cammie or Carol meant, or misrepresenting stories of their experiences. I shared significant parts of interim
research texts with them and asked them to validate their accuracy. To address my concern that Cammie or Carol might shape parts of their stories based on their relationship with me – for example, by trying to tailor their storytelling to fit their perceptions of my research interests or beliefs about inquiry groups – I repeatedly reminded them that it was their experiences and perspectives that I wanted to learn. I also asked similar questions at different times, and looked for consistencies or inconsistencies in their stories, and repetitions of ideas, words or phrases. I kept track of similarities and differences in their responses in follow-up questions and analytic memos.

This study was limited to the perceptions of two professional developers in the context of one urban school district and my interpretations. The depth and quantity of field text materials forced me to limit the number of participants. Further, it focused on professional developer and teacher learning in only one content area, mathematics. It may not be applicable to other professional developers or teacher educators working in other contexts. However, generalization is not the goal of qualitative research (Lesh, Lovitts, & Kelly, 2000). In the concept of transferability, it is the reader – by interpreting thick, credible, internally coherent description – who decides whether findings from one study seem in some way transferable to another context (Marshall & Rossman, 1999; Strauss & Corbin, 1994). Research texts that are richly detailed and supported by evidence may invite
readers to make connections between findings and their own contexts (Guba & Lincoln, 1994).

Narrative inquiry frequently relates the experiences of a single individual (Clandinin & Connelly, 2000; Craig, 1997). Similarities with and differences from professional developer and teacher learning in other disciplines can be topics for subsequent research. I believe this study's stories have sufficient depth and coherence for readers in other contexts to be able to make use of these findings in their own ways. There is enough evidence gathered to contribute to professional development practice and professional developers' learning. Limiting this study to the perceptions of two other persons allowed me to present their stories with greater detail, raising their voices and professional developers' authority in the discipline.

Trustworthiness develops from multiple conversations about the same topics and recognition of consistencies and inconsistencies in stories as they are told and retold (Clandinin & Connelly, 2000). As mentioned, a number of stories arose in meetings and interviews repeatedly. Looking at the nuanced differences between versions, if I found what I thought was a contradiction, I asked Cammie or Carol a follow-up question for clarification. I chose from among repeated stories, the ones that seemed most representative and clearly told. Occasionally, I wove parts of two versions together.

Due to its iterative nature, narrative inquiry ensures dependability through continuous revisions to reflect changing research contexts (Clandinin & Connelly,
Over the course of this study, for instance, tensions that Cammie, Carol and other curriculum specialists experienced with their supervisors and District administration grew more pronounced. When this study began I did not imagine that this tension would become an important example of agency stories in this research. Since in narrative inquiry the research account develops over time, differences between administrators' stories of professional development and professional development stories told by Cammie and Carol came to the fore. That is, over time I was able to differentiate between Cammie and Carol’s secret stories and cover stories.

In addition to collaboration with participants, consulting other researchers—in this case my advisor and other committee members as well as a support network of other doctoral students—about my interpretations of data and methodological decisions helped confirm interpretations in research texts (Clandinin & Connelly, 2000). I shared parts of early drafts with one of my doctoral colleagues, also experienced with professional development and inquiry groups, and attended to her suggestions of areas that needed more depth or clarity.

Although Cammie and Carol were extremely busy throughout this study, they were also very generous with their time. They patiently explained their views repeatedly and made time for extensive interviews. In fact the only time constraints that impinged on my study were when it was difficult to arrange for informal conversations to clarify previous statements. Once I began to share what I was
writing, Cammie and Carol seemed eager to read and comment on my findings and analysis.

Ethical Considerations

To ensure that ethical considerations were addressed, I obtained Human Subjects approval from the public school district involved in this study on March 20, 2006. PSU HSSRC approval was granted on August 9, 2006. Before collecting data I obtained written, informed consent from both participants. I also obtained written consent from Iris, the other professional developer in the professional development inquiry group. All names of persons, places, and groups used in this study are pseudonyms, except my own. I masked identifying personal attributes and some school district characteristics. Whenever possible, I avoided using names at all. Recordings and transcripts remain stored in a locked cabinet in my home office, labeled only with participants' pseudonyms. I have the only access to the recordings. Recordings and consent forms will be kept for 3 years and then destroyed.

In addition to institutional ethical considerations, throughout a narrative study there is a need to attend to ethical considerations that involve relationships with participants. As in a friendship, researchers "need to consult [their] consciences about [their] responsibilities as narrative inquirers in a participatory relationship" (Clandinin & Connelly, 2000, p. 172). I addressed some of these considerations in my description of the researcher's role. As issues emerged
throughout the study, I used my reflection journal and conversations with participants, when appropriate. I also consulted my advisor or support group for help in negotiating these issues in a respectful, ethical manner. To find a balance in this final research text between an impersonal, objectivist report and an overly intimate account (Clandinin & Connelly, 2000), I shared interim texts with participants. Sharing interim texts with my advisor and support network also helped establish this balance.

In this chapter, I described the methodology of a study about professional developers' perceptions of their learning in inquiry groups using qualitative methodology. I used narrative inquiry design because it was congruent with situative perspectives and theory. Further, many narrative inquiry strategies were similar to processes used in inquiry groups. Participants were two experienced teachers and professional developers who were curriculum specialists and facilitators of teacher learning in a mid-size urban school district. I worked with these two women for nearly 5 years. Since I was deeply embedded in the research context, my role as researcher was complex and, to ensure credibility, it required careful reflection throughout. Strategies for collecting and organizing data included three audio-recorded life-story interviews with each participant and audio-recorded observations of five professional developer inquiry group meetings. I observed and took field notes of teacher inquiry groups facilitated by participants for the purpose of generating further questions to ask them. Analytic strategies used narrative
inquiry's iterative techniques of writing interim research texts, sharing this story data with participants, collaborating to develop full, rich stories of participants' experiences and further analyzing these stories. I collected data from late August 2006 to January 2007. I completed analysis and writing in August 2008. Limitations of this study include its compressed timeframe, its limited sample of two participants, and that it only examines professional developer learning in one discipline.
CHAPTER IV
FINDINGS AND ANALYSIS

In this chapter, I present my analysis of Cammie and Carol's stories. I focus on three narrative themes that emerge from analysis of the data and use a situative perspective to clarify our understanding of these themes. Cammie and Carol told stories of learning, teaching and facilitation practice in interviews and professional development (PD) inquiry group meetings. From their stories, I first consider Cammie and Carol's narratives of learning. Second, I examine their narratives of professional identities, or stories to live by. Third, I look at their narratives of exerting agency. In each section, I point to ways that Cammie and Carol perceive inquiry groups as providing generative and nurturing contexts for learning, shaping identities and exerting agency. Learning, shaping identities and exerting agency actually are intertwined and interrelated (Wenger, 1998). However, to be able to deeply examine each construct, I first look at each one individually and then explore their interconnections.

Learning in Inquiry Groups

From the situative perspective that frames this study, learning involves changes in participation. Learning is conceived as participating in a certain community, gradually changing from peripheral newcomer to central old-timer or from novice to influential expert in that community's valued competencies, norms
and discourse (Lave & Wenger, 1991; Sfard, 1998). That is, change in participation involves changes in practices. Becoming a full member of a community also entails increasing involvement in negotiating meanings and practices of that community (Wenger, 1998). This section focuses on changes in participation as learning.

Wenger (1998) describes different experiences of being on the periphery of a community. Being a newcomer with an inbound trajectory may mean making mistakes, not understanding jargon or not yet having developed valued competencies, but such non-participation can be experienced as an opportunity for learning. However, when one is marginalized by other community members, an experience of non-participation dominates and it is unclear whether one will become a central community member in the future.

Developing new competencies can be viewed as learning new practices (Lave & Wenger, 1991). By *practice* I am talking about more than concrete activities. With Wenger (1998), my "use of the term does not reflect a dichotomy between the practical and the theoretical, ideals and reality, or talking and doing" (p. 48). Practice includes them all and thus, includes beliefs, values, activities, relationships and perspectives.

Changes in participation can be seen in changes in confidence. It can also be noted when one changes one's practices to align with a community's valued competencies (Wenger, 1998). That is, as a person's participation changes from
peripheral to more central in a community, that person becomes more expert in the community's valued practices, better able to describe such practices and articulate their importance.

Wenger (1998) further claims that learning communities are contexts in which members negotiate meanings and practices. He writes that a learning community,

is a good context to explore radically new insights.... [and] leading-edge learning, which requires a strong bond of communal competence along with a deep respect for the particularity of [individual] experience. When these conditions are in place, communities of practice are a privileged locus for the creation of knowledge. (p. 214)

That is, such communities are nurturing contexts and fertile grounds for learning, or creating knowledge.

Changes in Participation

Cammie and Carol’s stories of learning, teaching and professional development depict ways in which they saw their participation in professional learning communities, or inquiry groups to have changed. They each described changing from being newcomers to inquiry groups to becoming competent, confident, expert facilitators. I start by exploring Cammie and Carol’s experiences of being on the periphery and follow that with their perceptions of becoming more central members of an inquiry group facilitators' community.
Cammie described her participation as a novice inquiry group facilitator by contrasting it with becoming a skilled practitioner. As she began to work with teachers and teacher leaders in inquiry groups instead of leading workshops for them, Cammie had a mixture of feelings.

I was both excited by the idea, because it resonated so deeply. And I think I was probably a little bit intimidated by it because it was so ill defined. I had no idea, not having been part of a professional learning community myself, in the way that I understand them now, I couldn’t envision what it would look like. So that felt uncomfortable because you [were] kind of walking into uncharted territory.

Lack of confidence and understanding are markers of newcomer status (Wenger, 1998). Cammie’s use of the word "intimidated" seems to signal her tentativeness and point to her perception of discomfort, or lack of confidence, as a newcomer to inquiry groups. Before she participated in an inquiry group – in this case, the PD inquiry group – Cammie claimed to be unclear about what inquiry groups entailed. From her perspective they were "ill-defined." Cammie said she could not "envision," or imagine, how to facilitate inquiry groups because she had never been "part of a professional learning community" herself. For her, inquiry groups were "uncharted territory." In other words, she felt she was a newcomer and unfamiliar with the terrain of inquiry group practices. Describing her practice before we started to work together, Cammie said,

Many years ago it was like, "Okay, we’re gonna come in, you’re coming to us, we’re gonna workshop you." ... Make it a verb. And y’know, "we’re the
experts and we’re going to tell you what to do, and you’re going to maybe take it back to your schools, or maybe not.”

In a different conversation Cammie shared more detail about her former practice.

It used to be us [professional developers] working, to come up with these sessions that people would go to, this little smorgasbord of, you can go to this unit workshop and you can go to this little workshop on this band aid kind of thing.

From Cammie’s perspective, her practices at that time were not inquiry group practices – she was leading workshops – and she claimed she did not know what competencies she would need to develop to become an inquiry group facilitator. Still, her excitement about trying to create teacher inquiry groups – "I was ... excited by the idea, because it resonated so deeply" – helped to make her what Lave and Wenger (1991) call a legitimate newcomer on the periphery of a community of inquiry group facilitators.

The context of Carol’s early experiences with inquiry groups was different from Cammie’s, although, like Cammie, she was a newcomer to inquiry groups. Carol was newly assigned to the District professional development office in the same year that she and Cammie were questioning their workshop practice and becoming facilitators of inquiry groups. Previously, she taught middle school mathematics for many years. From Carol’s perspective, Cammie was an expert professional developer. She viewed me as experienced with inquiry groups. When she told me about our early meetings, Carol underscored her sense of being a
novice by saying, "I felt like such a baby, beginner back then. ... and you guys were so smart, you and Cammie."

Carol portrayed her initial participation as giving rise to discomfort and self-doubt. Describing her first year on the job Carol told stories of difficult early experiences on the periphery of two communities: District professional developers and inquiry group facilitators. In one story, Carol seemed to feel marginalized by another District professional developer. In her attempt to facilitate a meeting of her colleagues she experienced being ignored by someone who was "completely impossible to work with. In a meeting ... if I facilitated it, [this colleague] completely would disrespect me as a facilitator and talk right over me." Carol's perception that she was being "disrespected" and "talked over," or interrupted and ignored, seems to show that she perceived herself as being on the margins of her new community of District professional developers. Further,

It made me feel very insecure, very, very insecure, very worthless, like, you know, I'm not good enough to do this job. It made me feel disrespected, so, like, you know, [I] must not be respect-worthy.

... I think confidence is really important. I think it really made me lack confidence and not be as good as I could be, for a while. ... It's very unsupportive behavior, undermining. ... It just like makes my stomach upset to think of how [this colleague] was the first years that I was there.

Carol apparently experienced this co-worker's behavior as pointing out her own lack of competence, or her outsider status. She felt "worthless" and "not good enough," to be part of the professional developer community. She said she was
"...very insecure, very, very insecure" and she "...lacked confidence and was not... as good as [she] could be." That is, she evidently experienced self-doubt and questioned her own abilities or value to the professional developer community. Carol's vehemence, showing the degree of pain she seemed to feel at the time, was highlighted by her use of the word, "very" four times in one sentence as well as her physical discomfort when she recalled this story.

However, reflecting from her present perspective, Carol recognized that her lack of confidence and sense of not being good enough to do her job was not entirely someone else's fault. She added that her colleague had "not made me lack confidence. I mean, nobody can make you lack confidence. I realize that." Perhaps, we can also infer that being on the periphery of a new community was a difficult place for Carol to be. We can perhaps surmise that her experience of her colleague's behavior may have compounded and provided Carol with a way to portray her perception of not-belonging, or non-participation.

In referring to an experience with a different colleague, Carol told another story of peripheral participation in District professional developer and inquiry group facilitator communities. Carol was to co-facilitate a teacher leader meeting with this colleague. She seemed to experience this colleague as keeping her on the periphery when she was trying to move to a more central position. To plan the part of the meeting she was to facilitate, Carol wanted
to make this idea of looking at student work feel really valuable to the teachers. And I didn't see the value so much either [the way] the consultant did it. So I was kind of trying to tweak what she did and try to figure out a way...teachers would walk away saying, "This [is] cool, I get this... I get why this is important." So, I spent a bunch of time looking at student work and stuff and kinda tweaked some things to make it more specific to math, more specific to the actual problem that we were looking at. And, I felt like, like I owned it, okay. You know it wasn't the consultant's thing that I'm doing, it's like my thing that I'm doing.

Carol described altering a prescribed exercise accepted by the professional development community in order to help teachers see its value to their practice. She changed, or "tweaked," some things to make the activity more relevant to participants. That is, Carol appeared to be developing new practices to try to improve teacher learning in this specific context. As she finished her planning, Carol claimed to "own" her work because she had created something new. Ownership of meaning and contributing to a community's artifacts are indications of a person's investment in and increasingly central participation in that community (Wenger, 1998). As she learned, creating a new process for looking at student work and figuring out how to best facilitate, Carol apparently made a bid to be considered a more expert, integral community member.

When she finished facilitating her part of that teacher leader meeting Carol "felt like I did a really good job, I actually felt really good about it." Yet near the end of the meeting, her co-facilitator publicly critiqued Carol's facilitation in the interest of "trying to make the idea of facilitation 'transparent' [for the teacher leaders]." Carol felt "like she was disrespecting me in front of 20 teachers that I'm
trying to gain respect with. ... I felt good about it and then I felt slammed down for doing that." Note again Carol's use of vehement, powerful words, such as "disrespected" and "slammed down." From her point of view she was being told that she had overstepped, she was still a beginner who "has trouble with facilitating."

Once again Carol seemed to experience a colleague as keeping her on the periphery when she was trying to move to a more central position in the professional developer community. There is a difference, however, between these two experiences of non-participation. In this case her colleague's intention was to provide a learning experience by "trying to make the idea of facilitation 'transparent.'" It seems that Carol recognized this when, speaking from her current perspective, she said, "I also think that [this story] goes to show my lack of confidence and the power I let, [my colleague], have over me. ... I certainly have moved on...." As we will see in her stories of becoming an expert facilitator, Carol not only "moved on" but also she presumably moved in to the center of the facilitator community.

In both of these examples Carol's use of the words respect and disrespect seems important. As we will see again in the identity section that follows, Carol highly valued respect. In her job, she highly valued the respect that she had for teachers and teacher leaders with whom she worked. For Carol, it seems that to be respected by colleagues was also an important indicator not only of self-worth and
competence, but also of having learned enough to be included as a member of a community.

Becoming Experienced Experts Central to the Facilitator Community

We have seen that Cammie and Carol told stories of when we first started to work with inquiry groups. In those stories Cammie and Carol described themselves as novice inquiry group facilitators. Here, I explore their stories of later experiences with inquiry groups. In these stories Cammie and Carol shared experiences of their growing expertise with inquiry group practices and their senses of becoming increasingly central members in a community of inquiry group facilitators. They told stories about ways that they moved into both the PD inquiry group and identified with the wider community of inquiry group facilitators. By "identified with the wider community" I refer to being able to imagine belonging to a broader, or generalized, community of inquiry group facilitators. Wenger (1998) claims that with imagination and a sense of belonging we can develop an ability to "[locate] our engagement in broader systems... [and conceive] of the multiple ... contexts for our practices" (p. 185). I explore this concept of imagination more fully in the identity section that follows.

Lave and Wenger (1991) describe increasing experience and competence as markers of becoming central members in a community of practice. During this study Cammie viewed herself as having become more experienced and competent with inquiry group facilitation practices, making her a more central member of that
community. When, as we saw earlier, Cammie said, "I had no idea, not having been part of a professional learning community myself, in the way that I understand them now..." her phrase, "I understand them now," implies that now she believes that she does understand inquiry groups. Later in the same conversation Cammie elaborated her perception of learning by describing ways her current practice differed from her earlier practice of leading workshops.

[Inquiry groups] completely changed how I approached professional development. It completely changed it. ... our leadership groups, are charged with specific work that is co-constructed by us and developed and implemented and carried out by us, collaboratively. ... [On] professional development days [now] where the work's really clearly laid out by the leaders, the teacher leaders, who are working with their peers during the PD days. ... So how [w]hat happens now is really, really different from how it used to happen. ... I think I'm a lot more collaborative now. I mean my style has always been to wanna, be in control of the things that I'm responsible for doing. But I think this [experience with inquiry groups] has caused me to turn a lot more stuff over to teachers.

In a PD inquiry group conversation, when Cammie was reflecting on the multi-year development of mathematics teacher leader inquiry groups, she also talked about changing practices and learning. "Then... we shifted that culture and we really took these interesting baby steps towards trying to develop [inquiry] group[s] where participants [i.e., teacher leaders] actually drove what was going on." Cammie noted that she, Carol, other mathematics specialist colleagues and teacher leaders were learning to become leaders together.

I think we're getting better, us and the teacher leaders are getting better at becoming leaders .... We built a, a foundation, if you will, of collaboration,
so that, kind of regardless of the task, a critical mass of teachers now, they come together and they go for it.

She contrasted this distributed leadership with her earlier belief that "we're the experts" and her former practice of "tapping on the same 10 people year after year after year," by emphasizing, "And that’s changed so much." In her current practice Cammie found they had developed a "foundation of collaboration," or baseline expectation of working together, among a much larger group, that she called "a critical mass," of teacher leaders who "come together," or collaborate, to "go for it," or facilitate, their own and colleagues' learning. Here, Cammie viewed her current practice, in which teacher leaders were "getting better at becoming leaders" as involving what Hord (1997) calls, "shared leadership," an attribute of professional learning communities (p. 2).

Cammie evidently experienced her current inquiry group practice as very different from leading workshops, in which workshop leaders were "the experts and [were] going to tell [participants] what" activities would be "good for" them to learn. She claimed her practice was "completely changed." Some changes she mentioned included developing specific inquiry group topics and tasks with teacher leader participants, having teacher leaders share their inquiry group work with the larger mathematics teacher community on District professional development days, giving teacher leader participants more responsibilities and sharing leadership with them. Here, we might surmise that the "stuff" she turned over to teachers referred to
work in curriculum and professional development (areas for which, as a mathematics specialist, Cammie was "responsible for doing").

Stated in other terms, Cammie perceived ways she had become more competent in valued inquiry group competencies. For instance, she now claimed to be "a lot more collaborative." Collaboration and collaborative problem solving are central characteristics of inquiry group practices (Hawley & Valli, 1999; Kruse et al., 1995). Additionally, Cammie apparently now felt that she involved teacher leaders in defining what their learning should entail ("the work's really clearly laid out by ... the teacher leaders"). Hawley and Valli (1999) include in their design principles for effective professional learning communities, or inquiry groups, that teacher participants need to be involved in "the identification of what they need to learn and ... in the development of the learning opportunity and the process to be used" (p. 139). Thus, Cammie's practice of involving teachers in creating their own learning opportunities is an important trait of inquiry groups.

When, in a faintly disparaging tone, Cammie used the language, "we're gonna workshop you," and "you can go to this little workshop on this band aid kind of thing" to describe her former practice, she also seemingly revealed how her viewpoint about leading workshops had changed. Expressing the values and views of a community indicates membership in that community (Wenger, 1998), and

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5 This phrase was part of a longer quote in the section, *Novice inquiry group facilitators on the periphery.*
Cammie's phrases indicated that now she valued workshops less than formerly. We can also perhaps infer from her stories of engagement with her current inquiry group practice, that she valued ongoing inquiry groups as an avenue for teacher learning more than workshops. Taken with Cammie's emphasis on having teachers involved in shaping ("driving") both tasks and learning processes, it seems she now valued doing work with teachers rather than doing to them what she thought they needed. In sum, Cammie seemed to perceive that she had learned to be a more competent inquiry group facilitator and, in this way, presumably felt more like a more central member of a community of inquiry group facilitators.

Like Cammie, Carol contrasted stories of being a novice and on the margins with stories showing that in her view she was becoming a more central participant in both the District professional development community and the community of inquiry group facilitators. In response to an interview question that asked for a "turning point in your understanding of teacher learning," Carol referred to two conference presentations that she helped to plan and facilitate. The first presentation that she and I developed, based on our inquiry group work, was for a state teacher educator conference. We created slides connecting and highlighting similarities among practices of inquiry group facilitation and facilitation of student learning in classrooms. For example, in the slides we developed we highlighted similar practices such as solving problems collaboratively, questioning beliefs and practices, developing inquiry strategies and reflecting on practice and evaluating
the learning process. Carol, Cammie and I created the second presentation for a national mathematics supervisor conference. It was based in part on the first one and focused on building teacher leadership through inquiry group participation.

Carol claimed to have become more articulate and confident as she created the two presentations. Being able to explain a community's practices and espouse its values, or claim ownership of the community's discourse and meanings, are signs of more central membership in that community (Wenger, 1998). Confidence is also an indicator of changing participation and membership in a community (Wenger, 1998).

Carol started her turning point story with the statement: "I was uncomfortable with the model of delivery for a lot of professional development." Here, she was referring to the workshop model that prevailed when she began to work as a District professional developer. In contrast, as we collaborated to develop the conference presentation about facilitating teacher leader inquiry groups, Carol found, that "it helped me, you know, drawing those parallels between teachers to students and professional developers to teachers, working with teachers, that there really isn't a lot of difference, that you still want good instructional practices." As she spoke, she opened her laptop computer to slides of our second presentation. Carol referred to a slide that showed three concentric circles. The innermost circle represented a classroom with a teacher facilitating as students collaborated to solve mathematics problems. The next, or middle, circle represented an inquiry group
facilitator facilitating an inquiry group of teacher leaders as they collaboratively solved problems of classroom teaching and learning. That is, they focused on the innermost circle. The outer circle represented our own PD inquiry group, where we reflected on our work of facilitating teacher leader inquiry groups. Supported by research she read to prepare for the presentations and our PD inquiry group conversations, Carol said she felt more confident about being able to explain her educational values and practices.

Like I think I intuitively know stuff and [working on the presentations] help[ed] me like solidify that intuitiveness by looking at research that supports it and it makes me be stronger in, like making a pitch for ... how I want to do something. I feel like I have a ground to stand on, not just, "This is what I want 'cause..." ...I mean it just makes me more confident....

For Carol, there was power in creating a diagram for the presentation slides. "Putting that kind of thinking into a diagram is really helpful." Note her use of the verbs "to help" and "to support." In these examples it seems that Carol is saying that working on these presentations helped her to learn and change her practices. That is, she perceived her discourse changed as she was able to justify her intuition. Carol claimed that her confidence grew as she was better able to articulate, or "make a pitch for," her understanding of inquiry group learning. Carol's sense of increasing confidence is an indication that she felt her participation in the community of inquiry group facilitators had changed. After creating those presentations, she felt she was able to articulate more clearly what she believed good professional development entailed. Carol's story seems to indicate that she felt
her participation was moving from being peripheral in a community of inquiry group facilitators to becoming a more central member.

Another example showing Carol’s sense that she was becoming a more central member in a community of facilitators involved interconnections between her work in the PD inquiry group and her facilitation of a teacher leader inquiry group. Carol, Cammie and I met in the PD inquiry group after each teacher leader meeting and described what each teacher leader inquiry group had discussed. At first, Carol apparently felt like a novice:

I just remember the first year we started doing inquiry groups and we would meet together after the meetings, and like I would tell you guys about what I did. God, I felt like such a baby, beginner back then.

Carol replayed her memories of our conversations this way:

I’d go, "Well, we did this. And then they said and then we did this, and then they said this," and (changing her voice to indicate change of speaker) "Oh, well, what did you say then?" "I didn’t say anything." "Well, why not?"

According to Carol, her new practices included using what she learned as a member of the PD inquiry group to improve her facilitation practice. In other words, she developed competencies valued by an inquiry group community.

I come, go out of [the PD inquiry group meeting], and go, "Oh, I should have said this," or that came up or whatever. You know, "I should have pushed harder on that." And I think I do that better now, you know. … It was like, and I don’t know if it was you that taught me that, I could go back and fix it. … [I could put] something on the table that followed up that part that I … didn’t do something with at the time. So that idea of, it’s not just in the moment when you are facilitating, if you’re working with a group, an ongoing group of people, that you can come back and re-look at stuff that you did and, you know, do a better job with it, instead of just leaving it.
Carol felt she developed new practices in part based on PD inquiry group conversations. Here, Carol remarked on opportunities that arose because she was facilitating an "ongoing" group. She was differentiating facilitating inquiry groups that met regularly over time from leading short-term workshops. One new practice involved being able to "re-look" at past conversations, that is, to reflect on or raise issues from a previous meeting, in order to "push harder," "follow up," or "do a better job" when the teacher leader inquiry group met again.

From Carol's standpoint, and similar to Cammie's perspective described earlier, another new practice involved sharing leadership with the groups' participants. Carol remarked that because "part of the norms were to go over what we had done the previous time" when she went "back to the group" she felt "not like I was the leader of the group, but it's just like we all could have said anything at that point." Carol seems to be saying that although she had a different role than the teachers, they operated as equals. She seems to have felt that each member of the group could assume responsibility, or leadership, for encouraging their co-participants to reflect on and improve practice. Hord (1997) claims that shared leadership is a characteristic of professional learning communities, or inquiry groups.
In a different conversation Carol elaborated her notion that in inquiry groups, unlike in workshop oriented professional development, leadership was shared. Sharing leadership was another new practice.

It is a different model ... with the inquiry work.... It's like from the workshop model to the, I mean, it's not like we are guessing what [teacher leaders] need. We are finding out from them what they want, what will help them with their work, we are working together, ...they bring the struggles and problems and we work together to help them with those. We all work together to help with those, all the teachers, all the teacher leaders.

In a subsequent section that looks at agency, we will further explore the shared, or distributed, leadership that Carol described. For now, it is important to note Carol's sense that in inquiry groups "we all work together" and that she "was not the leader" were significant indications that she perceived herself to be learning, changing her practices and becoming a more central member of a facilitators' community.

A third example of Carol's perception that she was becoming a more central member of a community of facilitators involved an early experience as an inquiry group facilitator. She worked with a group of math teacher leaders that "focused around the whole idea of algebra in middle school." The State assessment for "sixth grade was [testing] at really high levels for algebra," and Carol "was concerned because we didn’t have ... strong algebra work in sixth grade." Initially, teacher leaders in the group wanted to "prove to the state that it was not okay that sixth graders should being doing algebra, that they were too young. And instead they
proved to themselves, that, yes they could do algebra in sixth grade." Carol continued,

What we did was ... The writing of the three week unit, took place over about four months. The teachers were incredibly committed. We met at our regular scheduled meeting times, and then we met many other times in addition to that. They came in and did extra work. They owned every single piece of the work. ... What we finally did, is we presented it at one of our district-wide professional development days [to] all the sixth grade math teachers.

Carol concluded her story by saying that she believed that the experience "was great professional development for every single one of us. ... And, I think for me... it was good professional development as a facilitator."

In her story, Carol for the most part described what teacher leader members of the inquiry group did, rather than discussing her own facilitator moves. That is, she described the result of her facilitation, rather than how she facilitated the group. However, we do have her words to show that she considered this experience to be successful or "great professional development for every single one of us." From her sense of success we can perhaps deduce that Carol felt more confident and that she was becoming more expert in inquiry group facilitation practices. That is, we can perhaps construe that Carol perceived her participation in the inquiry group facilitator community had changed and as a successful facilitator, she was becoming a more central community member.
Inquiry Groups as Nurturing Contexts for Changing Participation and Practices

To this point, we have observed Cammie and Carol's learning in their perceptions of change in their practices, growth in their facilitation competencies, and movement toward full membership in a community of inquiry group facilitators. Wenger (1998) claims that becoming a full community member also involves negotiating that community's practices and meanings. He also says that learning communities, such as inquiry groups, are fertile ground for such negotiation.

In the context of the PD inquiry group, Cammie and Carol perceived changes in the ways in which they questioned one another's practice. Questioning one another is both an inquiry group practice (Cochran-Smith & Lytle, 2001) and, through mutual engagement and negotiating meaning, evidence of changing participation and more central community membership (Wenger, 1998). As they moved from novice to experienced facilitators, Cammie and Carol described their growing comfort with and appreciation of such questioning in the context of the PD inquiry group. Each of them, at different times, recalled the same story of questioning one another's practice. That both Cammie and Carol independently told and retold this story indicates its importance in their individual and shared stories of learning to become inquiry group facilitators in the context of the PD inquiry group.
Cammie told the story during the fifth PD inquiry group meeting of the year. She recalled, "Remember how you [Carol] used to say that we would press you at the beginning [of our inquiry group work]... and you would think like, 'Well, why didn't I think of that?" Cammie's perception was that she and Carol would "feel like, 'Oh, I did it wrong. Oh, I should have done it this way.'" Cammie contrasted this with her present attitude. "I appreciate that we can press each other and it's not defensive at all. When you guys ask me questions it really helps me think...." It appears that in Cammie's view, questioning practice initially felt like criticism that put her on the defensive. However, over time it apparently became a welcome way for her to negotiate and improve practice. Further, she seemingly recognized that this negotiation of facilitation practices was itself a continuously negotiated practice when she said, "we're getting better at raising questions with one another that do help push our practice." Cammie's use of the words "press" and "push" seems her way of indicating that our questioning of and engagement with one another in the PD inquiry group was, and continued to be, a factor in encouraging her to change her practices, that is, to learn. Additionally, the word "push" can indicate movement. Perhaps, we can interpret her words to mean that in her view PD inquiry group conversations shaped hers and Carol's practices as well as helped move the two of them into more central positions in a community of facilitators.
We looked at Carol's version of the story previously. She told it during our third interview.

...the first year we started doing inquiry groups and we would meet together after the [teacher leader] meetings. ... I'd go, "Well, we did this. And then they said and then we did this, and then they said this," and (changing her voice to indicate changing speakers) "Oh, well, what did you say then?" "I didn’t say anything." "Well, why not?"

Leaving those meetings Carol said she would think, "'Oh, I should have said this,' or 'I should have pushed harder on that.'" Carol also indicated that she valued the way our mutual engagement, questioning one another and negotiating valued practices helped her to improve her facilitation practice. She recalled learning that "I could go back and fix it." Based on our PD inquiry group conversations Carol remembered "going back to the [teacher leader] group and... putting something on the table that followed up." She claimed to have realized that "if you're working with a group, an ongoing group of people, that you can come back and re-look at stuff that you did and, you know, do a better job with it," thereby "moving the conversation further."

Carol evidently appreciated the opportunity that ongoing inquiry groups afforded for "going back" and "doing a better job." Like Cammie, she likened doing a better job at the next meeting, or improving practice, to moving forward. She also used a metaphor of movement to denote learning for herself and the teacher leaders in the context of inquiry groups.
Another significant example of Cammie and Carol’s appreciation of the fertile ground for learning found in inquiry groups occurred during our fourth PD inquiry group meeting of the year. Engaging in the practices of questioning and negotiation, Cammie and Carol challenged my role in the group. After I gave Cammie, Carol and Iris a list of agenda items that I'd gleaned from listening to transcripts of previous PD inquiry group meetings, Cammie and Carol questioned and challenged me in several ways. They objected to my use of language. Carol did not "know where all this list came from... not all of these [items] are in my memory. ... I'm having a problem with the language." Cammie joined her by illustrating specific items from the list.

OK so, work with principals. That's something we say. Algebra issues, I totally agree. ... You discuss how teacher leaders are furthering shift to culture of collaboration taking a questioning stance towards practice. That is Susan-speak. That is not Carol or Cammie speak.

Through her examples Cammie made clear that she and Carol thought using the jargon of educational research was not an appropriate practice in our PD inquiry group. For instance, "taking a questioning stance toward practice" was derived from Cochran-Smith and Lytle's (2001) phrase, "taking an inquiry stance on practice" (p. 45). Cammie also raised issues of status and power.

Cammie: Well, you know I think what gets, what gets dicey here, and I don’t know if dicey is the right word, but what gets tricky is that when we come to these meetings ... and so when you do things like this, like write up the ideas, it's really helpful in some ways. But on the other hand, it then gives you status and power because it's your words and your agenda, even though it may not be – like you say, it comes from the transcripts and I
believe you – but what comes across is like ... so these are things that we should be doing.

Cammie then questioned my location in the community.

Cammie: and that's the dicey thing about this, is that are you part of the group, are you researching?

Susan: Yes, to both.

Cammie: And so there's a rub there, there's a tension there.

Susan: Yes, there is.

Cammie: So that's what I am highlighting is the tension, so it's uncomfortable sometimes.

Susan: Yeah, and for me, too, which may be why it's been more awkward this year than in the past....

Cammie: I hear you, and what I appreciate about this group is that we can push back on each other. . .

Susan: Totally, I do, too.

Cammie: And not do it personally. ...

Carol: Yeah, I appreciate the, the, that we can be honest.

Cammie: Yeah, I do, too. I think that's really important.

Carol: It's hard sometimes.

Susan: I do, too. I really appreciate it. Just, you guys keep me in my place.

In this conversation Cammie and Carol challenged my current role and position in the PD group. They questioned whether I was a full member of the group - "are you part of the group, are you researching?" Although phrased as a
question, Cammie may have been observing that, from her perspective, my work was focused on research rather than on facilitating an inquiry group with teacher leaders.

Further, they perceived that I was using one language "Susan-speak," or educational research jargon, while they continued to describe their practice in "Cammie- or Carol-speak," a language of practitioners. In so doing they staked out the center of our practitioner group for themselves. They apparently saw themselves as central PD inquiry group members with greater experience, expertise and immediate practical needs than I had in my researcher role. Discourse is a kind of practice and indicates membership in a particular community (Wenger, 1998). Thus we can perhaps surmise that they thought I was becoming a member of a different (researcher) community and a more peripheral member of the PD inquiry group. Cammie and Carol put me "in my place." Defining the group as being of and for working professional developers, they helped me recognize that my position was no longer central to the enterprise of the group. Cammie called the conversation "dicey" and "tricky." Carol called it "hard." Years before, when we started working together, Cammie and Carol, considered themselves newcomers to facilitating inquiry groups, or in Carol's words, "baby, beginner[s]," and considered me an inquiry group expert. In the year of this study, by taking the risk to question the legitimacy of my discourse practices, that is, my place in the group, they were moving the conversation and the group, as Carol said in relation to another group,
"further." We were all learning about inquiry groups in general, and, as we became research participants and researcher, it appeared that Cammie and Carol, as well as I, felt we learned about our inquiry group in particular. At the same time it seems they appreciated that we were renegotiating our changing positions, or participation, in the community.

It seems important to note that although Cammie and Carol experienced this conversation as "tricky" and difficult, they also appreciated that in this context they were able to raise such delicate issues. It appears that Cammie and Carol experienced – and "appreciated," or valued – our inquiry group as a nurturing place where we could "push back on each other," "be honest," and address issues of power and status, without fear that comments would be taken "personally."

Finally, Cammie and Carol claimed their understanding of inquiry groups occurred in the context of participating in such a group. When Cammie said, "I had no idea, not having been part of a professional learning community myself, in the way that I understand them now," we can, perhaps, construe that she felt she learned about them by participating ("being part of") inquiry groups. Similarly, when Carol described PD inquiry group conversations that led her to go "back and re-look at stuff" in the teacher leader inquiry group and "do a better job with it," perhaps we can deduce that she viewed such conversations as helping her learn to become a better facilitator. Put another way, Cammie and Carol seemed to feel that
they learned to be competent inquiry group facilitators as they participated in a PD inquiry group.

Cammie and Carol each perceived our PD inquiry group as a generative environment in which they learned, improved their facilitation practices and articulated new understandings through negotiating meanings and valued competencies. Overall, they perceived their practices to have shifted from planning workshops full of activities that were "good for teachers" to providing resources that facilitated teachers sharing their "struggles," learning together and collaborating to solve important, relevant problems. Through such activities Cammie and Carol felt they had – in terms of the situative theoretical framework that frames this study – moved from peripheral to full members of a community of inquiry group facilitators. Further, from their perspectives, Cammie and Carol recognized that teacher leaders had similar, or as Carol might say, "parallel" opportunities for learning, competency and negotiation in the contexts of their teacher leader inquiry groups.

In sum, looking at learning as changes in participation and location (peripheral to central) in a community, we have explored Cammie and Carol’s experiences of learning in inquiry groups.

In this context, Cammie and Carol also mentioned a number of practices they claimed to have learned as they became increasingly expert inquiry group facilitators. That is, they described a number of practices that they perceived to be
inquiry group practices. Among the practices that Cammie and/or Carol described were: meeting regularly over long periods of time; shared responsibility for negotiating learning content and processes; sharing and collaboratively solving problems of practice; reflecting on, questioning and improving practice; and shared leadership. One other practice was demonstrated in Cammie and Carol’s actions. When they challenged my position in the PD inquiry group, Cammie described my sharing a list of agenda items as giving me status and power. From this we can surmise that Cammie (and probably Carol, since she was also an active part of the conversation), viewed equity of status and power among inquiry group members to be an important characteristic of inquiry groups.

We further looked at their perspectives that inquiry groups can provide nurturing learning contexts for themselves, as well as for teacher leaders with whom they worked. We observed their perceptions that before collaborating in the PD inquiry group and facilitating teacher leader inquiry groups, they saw themselves on the periphery of a community of inquiry group facilitators. We then noted that gradually, as Cammie and Carol learned these facilitation practices, they felt they became more expert, central community members.

Learning is described by a number of researchers as connected to identity – in this case, professional identity. Claiming that learning transforms the ways we participate in the world by jointly changing identities, practices and communities, Wenger (1998) writes, "Learning ... changes who we are by changing our ability to
participate, to belong, to negotiate meaning" (p. 226). As we become members of a new community, learning its valued skills and perspectives, that learning "transforms who we are and what we can do" (Wenger, 1998, p. 215). Nasir (2002) claims that as part of a "socially distributed, interpersonal process" (p. 240), "learning creates identity, and identity creates learning" (p. 239). She explains, "new skills support the construction of more engaged identity" and "... increasing identification with an activity or with a community ... motivates new learning" (Nasir, 2002, p. 240). Connelly and Clandinin (1999) assert that stories of practice and creation of personal practical knowledge shape professional identities. They call identities, "stories to live by" (p. 4). Learning is thus linked with constructing new identities. In the next section I look at Cammie and Carol's experiences of changing and sustaining professional identities in the context of inquiry group participation.

Shaping and Sustaining Identities

Chase (2005) identifies one of the approaches to narrative inquiry as highlighting "'identity work' that people engage in as they construct selves within specific institutional, organizational, discursive, and local cultural contexts" (p. 658). Connelly and Clandinin (1999) describe identities as narratively constructed with histories that "take shape as life unfolds" (p. 95). Wenger (1998) says that our "experiences of participation" become "replayable memories," or stories, and over time we generalize these memories as a trajectory "that we ... can construe as"
identity (p. 88). That is, as we tell stories of our experiences to ourselves and others, we come to perceive them as a coherent narrative that we interpret as our sense of identity. From the situative perspective that frames this study, constructing identities also involves negotiating with other community members meanings of one's lived experience. This negotiation involves a process of mutual construction of community and identities (Wenger, 1998).

With Sfard and Prusak (2005) I consider identities as multiple, dynamic, interwoven narratives. Thus, I use the plural term, "identities," whenever grammatically practical, rather than the singular "identity," to refer to an individual's "stories to live by" (p. 4), a phrase Connelly and Clandinin (1999) created to link narratives, knowing, context and identities.

What could be called identity stories do not always depict identities explicitly. Instead, accounts of a person's membership in a particular community may reveal their identities (Wenger, 1998). This membership may also be seen when a storyteller's view of a situation or the world reflects that community's worldview (Sfard & Prusak, 2005). Overall, as one becomes a member of a community, one comes to invest in and identify with that community's practices — for example, its beliefs, values, activities, relationships or perspectives (Wenger, 1998). A statement such as, "I am a teacher," can reveal belonging to a community of teachers just as it indicates teacher identities. Thus, we may find evidence of identities by looking at community membership and we can observe such
membership by finding such things as community relationships, activities, viewpoints, beliefs, values or activities in which a person invests his or her self.

Specifically, Wenger (1998) points out three modes of community membership or belonging: engagement, imagination and alignment. Engagement that involves investment in a community is a dimension of identities. Engagement may include such things as being involved in community activities, developing valued competencies or practices, feeling confident about such practices, building relationships with other community members or negotiating meanings. Thus, considering oneself engaged in these ways in a community may reveal perceptions of community belonging and identities.

Indicators of imagination may include such things as new visions of the possible, aspirations, desires, goals or identification with a larger community – for example, identification with a broader community of teachers beyond one's own school or district. These forms of imagination may reveal perceptions of community belonging and identities.

As one becomes a member of a community, one's views come to agree more with that community's worldviews. Stories revealing such things as a person's assumptions, beliefs, values or perspectives, as markers of alignment, can point to perceptions of community belonging and identities.

Calling identity construction a "dual process," Wenger (1998) writes, "identities form in [the] tension between our investment in various forms of
belonging and our ability to negotiate the meanings that matter in those contexts" (p. 188). That is, when one has a say in creating community values and meanings, one is likely to invest in and identify with that community. Wenger also claims that because they keep alive the tension between what a community values as competent practices and each individual's lived experience, learning communities – in our case, inquiry groups – are rich contexts in which members can change and sustain their identities or stories they live by. In sum, to show a person's perceptions of identities we can look for his or her perceptions of community membership, engagement with relationships, ownership of or investment in community beliefs, perspectives, values, or activities. It can also be seen in a person's perceptions of being able to negotiate what practices and meanings that a community considers valuable.

Cammie and Carol's stories illustrate ways that, from their perspectives, participation in and facilitation of inquiry groups not only supported them to learn - discussed earlier - but also such participation and facilitation helped them to shape and sustain new identities. First, I reviewed what this study's framework says about identity so we can use that framework to help us understand themes that emerge from the data. Next, I look at Cammie and Carol's lived experiences of changing or shaping identities. Last, I look at ways that Cammie and Carol viewed participation in and facilitation of inquiry groups as helping them to construct mutually held
practices, including beliefs, activities, relationships and values as ways to support and sustain their new identities.

In Cammie and Carol’s stories we find not only learning, described in the previous section as changes in participation, but also evidence of their perceptions of changing identities. My focus in this section is on Cammie and Carol’s perceptions of shaping new professional identities. I explore their sense of community belonging by looking at their perceptions of engagement, imagination and alignment. First, I look at Cammie and Carol’s stories of relocation from one community to another. Each of them moved from a different community to become an increasingly central member of a professional developer inquiry group and an accomplished facilitator of teacher leader inquiry groups. Then, I look at ways that Cammie and Carol’s stories reveal practices – e.g., perspectives, relationships, beliefs, values or activities – that they hold in common and suggest that these common practices indicate mutual community membership. I finally point to ways they perceive – in the context of inquiry groups – that confirming this shared repertoire of practices may help to sustain their new professional identities.

*Stories of Changing Community Memberships*

Wenger (1998) underscores the importance of community membership to changing and sustaining identities by stating, "it is not easy to become a ...new person in the same community of practice. Conversely, it is not easy to transform oneself without the support of a community..." (p. 89). That is, in a community
where one is well known it is difficult to change identities. Hence, to develop new stories to live by, it is helpful to become a member of a new community. In the learning section I explored Cammie and Carol's perceptions of changing participation from peripheral to full members of a community of inquiry group facilitators. Here, I focus on their perceptions of relocation from one community to a different community. That is, to explore Cammie and Carol's changing identities, or stories to live by, I look at evidence of their experiences of changing community memberships. I describe Cammie and Carol's stories of movement from membership in previous communities to the new-to-them community of inquiry group facilitators as evidenced by their engagement, imagination and alignment. I start by looking at stories in which Cammie and Carol describe their former community memberships, or identities. In the following segment I look at their experiences of relocation to a community of inquiry group facilitators. Taken together, these two segments trace Cammie and Carol's perceptions of individual journeys to mutual community membership and engagement in a joint enterprise of participating in and facilitating inquiry groups.

Communities Cammie and Carol Came From

Cammie's tales of changing membership describe how, by participating in a PD inquiry group, she changed her stories to live by from being a workshop provider to becoming facilitator of ongoing, collaborative inquiry groups. We can find evidence of Cammie's sense of changing identities in her relocation from a
community of workshop leaders to a community of inquiry group facilitators.

Here, I first explore her stories of identification with a professional development community of workshop providers.

For years Cammie identified herself as a workshop leader in a community of professional developers, identifying globally as she experienced her membership locally (Wenger, 1998). That is, Cammie identified herself as a member of a specific professional developer organization and, at the same time, perceived that she was a member of a broader community of professional developers who led workshops. She recalled, "When I started doing [professional development] a number of years ago, there wasn't that much out there.... You do workshops sort of thing and you'd go to [supervisor/professional developer conferences] and people talked about these workshops you do." Cammie was aware of the influence her membership in the professional development community had on her. She said, "A lot of people ... supported me in a lot of different ways in my career as a professional developer..." and that one "organization... really pushed me and helped shape me as a professional developer...." Working with these nationally respected professional developers and organizations, Cammie developed a repertoire of "appropriate" activities "that seemed to be ... good [activities] for teachers to engage in." She "would pull [out] things like...a contained activity I could do in ... one 2-hour chunk and teachers could take it back if they wanted to or not." Here, Cammie described her experience of workshops as offering isolated,
disconnected activities. Ball and Cohen (1999) characterized staff development workshops as "intellectually superficial, disconnected from deep issues of curriculum and learning, fragmented, and non-cumulative" (pp. 3-4). When she said that she learned how to "do workshops" by taking what was "out there," or presented at professional developers' conferences, Cammie revealed her sense of membership in and identification with the larger professional developer community. At the same time, when she said that one "organization ... helped shape me as a professional developer," Cammie suggested that her membership in one specific (i.e., local) organization influenced her professional development practices. In sum, we have seen that Cammie perceived that she belonged to a workshop leader community by looking at her stories of engagement with workshop activities, relationships, perspectives and values.

As she relocated to an inquiry group facilitator community, Cammie said that she found some of its valued practices were similar to those she had learned as a workshop leader. When she worked with workshop oriented professional development organizations, Cammie engaged in "lots of collegial conversations" with her colleague professional developers. For example, she recalled, "I can remember sitting around at a retreat talking about whether or not you should teach algorithms to third graders.... it wasn't a, 'It's right or wrong' sort of thing. There was genuine inquiry into that question." Cammie claimed that from these conversations she "learn[ed] how to ask good questions, how to engage in collegial
conversation with peers [and] colleagues, [and] how to facilitate that." From her perspective these experiences and skills and "all the other folks with whom I have learned over time," helped Cammie to be "receptive to what you were saying, ... ready to hear what you said," and able to "[get] what you were saying," about inquiry group practices. Cammie claimed that recognizing that some inquiry group practices, such as ongoing, reflective conversations with colleagues about significant educational problems (e.g., Ball & Cohen, 1999; Cochran-Smith & Lytle, 2001) were familiar to her helped Cammie start her journey from a professional development workshop community to an inquiry group facilitator community. We will explore Cammie's journey more fully after we look at Carol's earlier community membership experiences.

Carol also told stories of relocation from one community to another and revealed her perceptions of changing identities from classroom teacher to facilitator of teacher learning in inquiry groups. Although Carol does not explicitly name them, it appears from her stories that she is describing two concomitant, interconnected relocations. In the same year that the PD inquiry group developed and began to explore inquiry groups, Carol moved from the classroom to work in the District professional development office. Carol perceived one of her relocations to be moving from a teacher community to a community of workshop-oriented professional developers. Over the course of that year, as she and Cammie began to work with inquiry groups, Carol felt an accompanying relocation as she also
became a member of a community of inquiry group facilitators. First, I explore Carol's stories of membership in a community of classroom teachers who value providing their students with opportunities for active, hands-on exploration and inquiry.

To describe herself as a teacher, Carol referred to her own learning experiences as providing a basis for her educational beliefs and classroom practices. For example, her college story, "I remember ... studying kinesiology for a while. And how it didn't make any sense to me at all... studying it out of a book and stuff," was followed by her story of inquiry and active learning.

One [thing] that ... really stands out for me, is chopping wood. And that's why I related it to kinesiology. The lever arm and everything? ...

I was learning by doing. And I would do something and I'd think, "Hmmm, how could I, you know, chop this wood easier?" ... I'd go do a little research, and that could be looking in a book, talking to people, getting help, you know, watching someone. And then I would... get better and more efficient at doing those things. ... I'm out chopping wood one day, and suddenly, it's like, "Ohhhh kinesiology! I get it now!"

Carol's hands-on experience of a lever's physics evidently helped her make sense of something she had studied years earlier. From her use of the word "suddenly" and her exclamatory emphasis she seems to have experienced the power of active exploration and reflective inquiry as she asked herself questions and found resources aimed at improving her wood-chopping practice.

Carol finished her kinesiology story by connecting it to her perspectives and practices as a teacher.
And during that time ... I was thinking, "If I ever teach, I want to teach like this learning is for me. I don't want to teach like learning has been, like how school has been for me." I want[ed] to teach like *this* learning has been for me. By doing it, by experiencing it, by, you know, actually putting hands on things.

For emphasis, she told a story about herself through someone else's eyes.

I remember an administrator saying about me as a teacher ... "She's amazing, you know, in a 42 minute class period she pulls out the manipulatives every day." ... It was really hard to do it logistically, but my beliefs were so strong, that I believe that that's how kids learn, that I was gonna make it happen, no matter what the constraints were in my teaching day.

In other words, giving children opportunities to inquire about, actively explore and experience new ideas were important aspects of Carol's teacher stories to live by.

Another aspect of Carol's teacher stories to live by, or teacher identities, which she claimed grew out of her own experiences, was her compassion and "empathy for kids." She recalled a high school experience:

I'd walk into my geometry class every day and [my teacher] would make comments about my appearance. He'd say, "Ohhhhh, look. Miss Bayer wore a skirt today! Nice legs!"...every day he would point me out to the class. I would always try to slink by him to my desk without being noticed, and kind of shrink down in my chair.

Viewed from her present perspective, Carol recognized that her difficulties in that class were partly a result of her teacher's actions.

I could not learn in that class. .... In retrospect, I think I had the hardest time, because I was trying to disappear in that class. My big thing was to not be noticed. To be able to get through a class without him saying
something like that to me, was my goal. I think [I] was so distracted that I couldn't think about what I was supposed to be learning.

Carol kept that experience in mind as she worked with students.

I think [my experience in geometry class] helps me as a teacher to think about what kids bring with them to the classroom, what gets in the way of their learning.... That behavior from the teacher totally got in the way of my learning. And just thinking about kids, like you know, what do I do that could get in the way of their learning? But also, what other things in their life are getting in the way of their learning? So [what] can you ... emphasize [sic] with them about? .... So, [that experience] just help[ed] me have empathy for kids.

Here again we see evidence that Carol felt her experiences as a learner influenced her teacher stories to live by, or identities. By the time she left teaching in a classroom for the District professional development office, it seems, from her emphatic tone – "I want[ed] to teach like this learning has been for me" – and her emotional language – "slink," "shrink" and "I could not learn" – that Carol perceived herself as having strongly held educational beliefs and values. She evidently believed that students learn best when they have opportunities for active, experiential learning in a classroom where the teacher understands students' needs and backgrounds. In sum, we saw Carol's perception of identification with a certain kind of teacher community by looking at her stories of engagement with specific kinds of teaching practices, including activities and beliefs.

In this section we examined the communities with which Cammie and Carol claimed to identify before and at the beginning of their work together. Cammie perceived herself as a member in a community of workshop leaders. Carol claimed
membership in a community of experiential, empathetic mathematics teachers. I turn now to their stories of relocation to a community of inquiry group facilitators. 

Becoming Members of an Inquiry Group Facilitator Community

Recall that membership in a community involves engagement, imagination and alignment (Wenger, 1998). Here, I explore evidence that, from their perspectives, Cammie and Carol’s identities involved increasing engagement with inquiry groups, ability to imagine goals, purposes or membership in a broader facilitator community and alignment of their practices with practices they considered to be inquiry group practices.

We can see Cammie’s perceptions of changing professional identities by observing her initial reluctance to engage in inquiry group practices. For example, she recalled that in the beginning, "I think I was probably resistant." This statement seems to show Cammie's sense that her professional self was at stake. She "probably knew in my hearts of hearts" that workshops were not "effective in reaching our goals ...which was [that] we wanted a powerful learning group, teachers who were really effective leaders in their schools, who were great practitioners." Still, she said she balked at changing her former practice because to do so meant admitting to herself, "What!? What I've been doing this whole time has not been effective?" In other words, Cammie found it initially difficult to engage in practices she associated with inquiry group facilitation.
In a different conversation Cammie recalled "some of the ... ways that we resisted." She remembered how she and Carol had previously vehemently declared, "Homework?! [Teacher leaders] will never do homework. We wouldn't assign it and [they] won't do it. There is no way we are doing that." Cammie continued telling the story from her present perspective:

It is just hilarious to see that is what we do all the time now, and they are perfectly happy to. They assign homework to themselves now.... [Another example was] frequency of meeting. .... "No way, they will never meet more regularly. You know, we can't ask them to do that." And they really have met more regularly.

At another time Cammie compared her current practice with our early work together.

...that tells me something about the cultural shift that we've made in the secondary [teacher leaders] group, ...you know, 4 years ago, when [we] first met with Susan and she said, "Why don't you give 'em things to do between the meetings, like homework" and we said, "You're out of your freaking gourd, there's no way they'll ever do that."

From her present perspective, Cammie considered it "hilarious" to recall the practices – such as expecting teacher leaders to do inquiry related work between meetings or meet more frequently – that she and they do "all the time now," but that she considered impossible when she identified herself as belonging to a community of workshop leaders. Although "homework" is apparently Cammie's term, in the professional learning community, or inquiry group, literature there are many descriptions of participants bringing work they did between meetings to share with their colleagues at subsequent meetings (e.g., McLaughlin & Zarrow, 2001;
Stokes, 2001; Thompson & Zeuli, 1999). Similarly, the nature of ongoing inquiry groups requires meeting regularly over time rather than for occasional workshop sessions (Ball & Cohen, 1999; Hord, 1997; Kruse et al., 1995). Her use of the word "hilarious" to describe, from her present perspective, her viewpoint back then, in addition to calling the changes she and colleagues made a "cultural shift," seem indications of how far Cammie perceived that she, her colleagues and teacher leaders had traveled from a workshop-oriented professional development community to engagement and location in an inquiry group community.

As Carol moved from classroom to District professional development office, she too had initial difficulty engaging in her new community. Carol told stories of some difficult experiences during her first year as a mathematics specialist. As she created and re-created her professional developer stories to live by, Carol felt like it was hard for her to become a valued member of that community.

Recall her story, examined when we looked at learning, in which Carol felt marginalized by one of her colleagues, who, during meetings of District professional developers,

 completamente would disrespect me as a facilitator and talk right over me. ... It just like makes my stomach upset to think of how she was the first years that I was there. It made me feel very insecure, very, very insecure, very worthless, like...I'm not good enough to do this job. [I felt] disrespected, ... [and I] lack[ed] confidence.
When Carol said she was "talked over," or ignored, we can understand that she felt she was being kept from fully contributing to community discourse. In other words, she felt she was not being allowed to contribute to, or engage in, negotiating meanings and practices that this community valued. She seems to have thought that she was considered "worthless" as a participant and she felt "insecure" about her place in the District professional development community. These are indications that Carol may have felt unwelcome and kept from fully engaging in, or in other words kept on the margins of, the District professional developer community. Wenger (1998) claims that being kept on the margins of a community creates an experience of non-participation, that is, a sense of not belonging. That sense of non-acceptance contributes to not identifying with that community.

In another story we looked at earlier, Carol portrayed co-facilitating with a different colleague. Carol described how she "tweaked" a consultant's materials "to make this idea of looking at student work feel really valuable to the teachers." When she finished planning, Carol "felt like, like I owned it, okay. You know it wasn't the consultant's thing that I'm doing, it's like my thing that I'm doing." In Carol's view, after she facilitated her part of the teacher leaders meeting, her colleague publically critiqued her facilitation skills.

I know that I wasn't myself the first year that I was in this position. [My colleague] was trying to make me into her likeness. And for me to be myself and real and genuine – I felt like I did do it that time – 'cause I made the stuff my own and I wasn't using someone else's. I felt good about it and then I felt slammed down for doing that.
When Carol said she felt she was "myself and real and genuine" because she "made the stuff my own and I wasn't using someone else's," she seems to have felt that she had engaged in her new community's practices and "felt slammed down for doing that," or discouraged from engaging. As a result, Carol said, "I know that I wasn't myself the first year that I was in this position." Carol did not feel like she could "be myself and real and genuine." That is, she did not yet feel engaged in, or feel as if she belonged to, the new community in which she was working.

Telling stories of her second year as a District mathematics specialist, Carol claimed an extended experience helped her to feel more engaged in a community of inquiry group facilitators and able to make a transition from her teacher identities to facilitator identities. In contrast to the first year, Carol claimed this experience enabled her to feel "stronger" and "more confident." That is, according to Carol, through these experiences – which she viewed as a turning point in her story of professional development – she began to make a transition from her teacher identities to facilitator identities.

During an interview, when asked to describe a turning point in her professional development practice, Carol told a story about her engagement in the PD inquiry group as we developed two presentations for teacher educator conferences. This story illustrates ways that, as she began to participate in and
facilitate inquiry groups, Carol sensed that inquiry group practices aligned more closely with her educational practices, including her perspectives and values, than workshops did.

Reflecting on our work to create the two presentations Carol said,

Personally for me, doing the diagram [for the presentation slides], putting that kind of thinking into a diagram is really helpful. I mean, I think it gave me, like I think I intuitively know stuff and it helps me like solidify that intuitiveness by looking at research that supports it and it makes me be stronger in, like making a pitch for, how I want to do something. I feel like I have a ground to stand on, not just, "This is what I want 'cause, cause..." I mean it just makes me more confident....

After looking at research in preparation for developing the first conference presentation, Carol illustrated her understanding by creating slides that listed practices similar to both classrooms and inquiry groups. Among these practices were solving problems collaboratively, questioning beliefs and practice, reflecting on practice and developing inquiry strategies. For a second presentation recall that Cammie, Carol and I created a diagram that showed three concentric circles. The innermost circle represented a teacher and students collaborating to solve problems in a mathematics classroom. The middle circle depicted a teacher leader inquiry group where teachers and a facilitator collaborated to solve problems involving the innermost circle – the classroom. The outer circle represented the PD inquiry group in which Cammie, Carol and I focused our inquiry on solving problems to do with the middle circle that is, facilitating teacher leader inquiry groups. Carol said that she could explain that there were "parallels between teachers to students and
professional developers working with teachers, that there really isn't a lot of
difference, that you still want good instructional practices," although "the
difference is the nuances of working with adult learners." Engaging in this PD
inquiry group activity – i.e., thinking about how to create a diagram representing
"parallel" practices – Carol said she was able to articulate that her ways of working
with teacher leaders resembled her classroom practices. That is, Carol found
similarities between what she considered to be effective classroom pedagogy and
effective facilitation of teacher learning. While Carol does not make this connection
explicitly, her perceptions of similarity – or "parallels" – may well have helped her
to identify with and feel a part of an inquiry group facilitator community. Further,
planning these presentations in the context of this new kind of professional
developer meeting – the PD inquiry group – Carol seemed to feel she was able to
contribute to shaping ways in which professional development was described and
practiced as the Mathematics Teacher Leaders (MTL) meetings moved from
workshops toward inquiry groups.

By looking at their stories of changing beliefs, perspectives, activities and
relationships we have seen Cammie and Carol's perceptions of becoming engaged
in an inquiry group community. Both Cammie and Carol also told stories that
provide evidence of their perceptions that they were able to imagine themselves as
facilitators of inquiry groups. With Wenger (1998), I view imagination as for
example, being able to step back and picture one's experience, locate one's
"engagement in broader systems," or contexts, or explore new ways of doing things (p. 185). In this way, imagination emphasizes creativity and "generating new relations through time and space that become constitutive of the self" (p. 177).

Through participation in the PD inquiry group, it appears that Cammie came to see that not only her practices changed – as we saw in the earlier section on learning – but also felt she changed how she imagined, or pictured, her professional identities. Cammie asserted, "I had no idea, not having been part of a professional learning community myself, in the way that I understand them now, I couldn't envision what it would look like." That is, until she experienced membership in "a professional learning community," or inquiry group, Cammie said she could not foresee how to initiate, design, facilitate or sustain inquiry groups of teacher leaders. Here, it appears she was not only talking about learning and changing practices, she was also talking about her professional identities by describing her difficulty imagining a shift from belonging to a community of professional developers who led workshops to becoming a member of a community of inquiry group facilitators.

*Imagining* new ways to organize MTL meetings is a sign of Cammie's perception of her shift from belonging to a community of workshop leaders to identifying with inquiry group facilitators. Examining her practice in the PD inquiry group and entertaining "questions and suggestions to help us see that there were other possibilities for" the mathematics teacher leaders group, Cammie
claimed, "hit me in the gut in a very powerful way." When she said that being able to "see...other possibilities" – or imagine – potential activities to encourage and support teacher learning was "powerful" and hit her "in the gut," Cammie seems to be talking about how she responded from the core of her being, or sense of her professional self, to these newly imagined possibilities.

At the year's first PD inquiry group meeting Cammie told a story of the history of the PD inquiry group and changes in MTL inquiry groups through the years. Finishing her story she said,

Like this is one of the things I like about this [PD inquiry] group, is that you can stop and look back and say, "Yeah. That's where we were." And look at y'know where we're going, and look at how fast. This is, this is what I really love about this group, is the chance to just to take time out and reflect, and just kind of say, "Wow; this is amazing where we've gone." Because it helps me to be clearer about where we're going, and why we are doing this.

By using the verb, "to look," Cammie explicitly claimed that she created a picture of her experience. She said she stopped, took "time out," looked back and reflected on the group's history. Here, indicators of imagination include stepping back to picture one's experience and thinking about relations through time. Further, when she said, "it helps me to be clearer about where we're going," she seems to be saying that she can now imagine new ways to do things in the future.

Looking at Carol's story of preparing for two conference presentations, told above, through a conceptual lens of imagination, we can see that Carol, by reading research and creating a diagram, felt she was able to imagine how her experiences
as a teacher and her educational beliefs could be continued as she worked with adults. That is, although she claimed to have sensed these connections earlier — "I intuitively know stuff" — when she created the diagram, she said it helped her to "solidify that intuitiveness." In other words, Carol apparently meant that she was literally able to get a picture of — or imagine — what these connections were. Carol was "generating new images" of her professional self "through time..." (Wenger, 1998, p. 177). It seems that her image of parallel practices helped Carol bridge her previous teacher experience with her then-current experience as a facilitator. In this way, it seems she found that inquiry group work helped ground her beliefs in her current practice and aligned better with her professional self than workshops did.

We found evidence of Cammie and Carol's perceptions of belonging by examining their stories of increasingly being able to picture — or imagine — themselves as members of an inquiry group facilitator community.

Wenger (1998) claims that, with alignment the identity of a group can become part of the identities of participants. Identifying with a new community involves aligning one's beliefs and perspectives, that is, practices, with those valued by the community (Wenger, 1998). Further, by coordinating practices through alignment, participants can "become connected ... and part of something big because [they] do what it takes to play [their] part" in a broader effort or organization (p. 179). Choosing to align one's practices with a wider community can increase one's sense of efficacy and awareness of the possible. However, when
alignment involves blind acceptance of directives or coercion, it can be disempowering. Further, when it involves submitting to prescriptive mandates, it can take away one's ability to act on one's own experience or negotiate one's place in a larger system. In so doing, forced alignment can be a "violation of our sense of self that crushes our identity" (p. 181).

Characteristics of alignment can include creating a shared vision or focus by negotiating and bringing together perspectives or working collaboratively toward a common purpose (Wenger, 1998). That is, alignment can involve convincing, encouraging, or unifying a community. In addition, it can involve operationalizing, or creating procedures and structures for carrying out community goals. However, alignment can also involve imposing one's perspectives or using power and authority to attain one's ends (Wenger, 1998).

Cammie and Carol told numerous stories of ways they negotiated practices that they associated with inquiry group facilitation. They also, as we will see later, told stories of being coerced and disempowered. Here, I focus on their stories of alignment with inquiry group practices as a mode of belonging to illustrate their sense of membership in and identification with a community of inquiry group facilitators. Although Cammie and Carol rarely explicitly called their practices inquiry group facilitation practices, we did consider our PD group and the teacher leader groups to be professional learning communities, or inquiry groups. From this we can construe that when Cammie and Carol described our work together or their
work with teacher leader groups, they viewed their practices as inquiry group facilitation practices.

From the contrasts she drew between her former practice as a workshop leader and her current practice as a facilitator of teacher leader inquiry groups, we can surmise that Cammie perceived her practice had become more aligned with what she considered to be inquiry group facilitation practices. Recall that when she described her transition from workshop leader to inquiry group facilitator, Cammie said, "I had no idea, not having been part of a professional learning community myself, in the way that I understand them now." Her phrase, "the way I understand them now," seems to imply two things: first, that she now sees herself as a member of a professional learning community, or inquiry group; and second, that now she understands – and probably uses – inquiry group practices. Initially Cammie resisted admitting to herself, "What!? What I've been doing this whole time has not been effective?" She contrasted her former attitudes about specific activities such as "Homework?! They [teacher leaders] will never do homework. We wouldn't assign it and [they] won't do it. There is no way we are doing that," with her present perspective:

It is just hilarious to see that is what we do all the time now, and they [teacher leaders] are perfectly happy to. They assign homework to themselves now.... [Another example was] frequency of meeting. .... "No way, they will never meet more regularly. You know, we can't ask them to do that." And they really have met more regularly.
In these passages Cammie claims that now teacher leaders in groups she facilitates assign themselves homework and meet more regularly. Her use of the word "hilarious" seems to convey her sense of a distinct before-and-after contrast. Further, since she considered her present work to be facilitation of inquiry groups when she said these were practices "we do all the time now," we can perhaps gather that she regarded regular meetings and homework to be inquiry group practices. That is, she viewed her practices to be more aligned with inquiry group practices.

Cammie also characterized the contrasts between her former workshop practice and her current facilitation in other ways. Cammie claimed that her perspectives about teachers changed as she moved from membership in a community of workshop leaders to an inquiry group facilitator community. As a workshop leader Cammie said she believed she needed to give teacher leaders "something that is going to be good for them," such as techniques that would improve their practice. She was "figuring out what it was they needed, ostensibly. … y'know, doing PD to them." Her use of the word, "ostensibly," seems to imply that from her present vantage point as a facilitator of inquiry groups Cammie now questioned whether she was able to truly know what participants in workshops really needed. That is, she seemed to feel her perspective was no longer aligned with a workshop leader community.

Further, Cammie seemed to regard her current perspective as aligned with an inquiry group facilitator community. Cammie said that as she became an inquiry
group facilitator she realized that teachers and teacher leaders "can solve important problems in education." Here again we see that Cammie has drawn a contrast between workshops and inquiry groups. From her current perspective, rather than "figure out" what she thought teacher leaders "needed" to be doing or learning, she appreciated that they could work on significant educational issues. Cammie seemed to consider believing, as she now did, that teachers and teacher leaders could collaboratively solve problems important to their practice, was an inquiry group practice. Holding beliefs in concert with a community's beliefs is a marker of alignment (Wenger, 1998).

Cammie also claimed that she changed her views about agency and leadership. "If you are going to develop [teachers'] agency, they had to be involved in learning together. And they had to be driving this bus, instead of us saying this is what you are going to do every time…" To characterize the changes in her practice and beliefs Cammie said that she and her colleagues "shifted that culture and we really took these interesting baby steps towards trying to develop a, the group where participants actually drove what was going on." When Cammie said that she and her colleagues had "shifted that culture," she is evidently talking about change. Cammie's use of the phrase "develop a group" can be understood, because of context, to mean an inquiry group. Putting it differently, Hawley and Valli (1999) include in their list of effective professional development design principles the need to "Involve … teachers in the identification of their learning needs and… the
development of the learning opportunity and/or process to be used" (p. 139).

Contrasting her current practice with the stressful days of trying to figure out what teacher leaders needed, Cammie said, "it's not the same angst about what do we do at the [next] meeting, because it's not me coming up with what it is we are supposed to do. The group's already decided what we are supposed to do." Here again we can see Cammie aligning her views away from those she perceived as workshop perspectives toward views she considered to be inquiry group views.

Cammie saw her current practice as well-aligned with the practices, values and beliefs of facilitators of inquiry groups. For example, when Cammie used the words "instead of" in the sentence, "[teacher leader participants] had to be driving this bus, instead of us saying this is what you are going to do every time," she seemed to be making a contrast between inquiry group facilitation and her workshop experience. Her assertion that teachers needed to be "driving this bus" and deciding what "we are supposed to do" seemed to be describing her work with teacher leaders as participant-driven inquiry (Darling-Hammond & McLaughlin, 1995), an important characteristic of inquiry groups.

When she started to work at the District office, Carol felt that her lived experiences of learning and her teaching stories to live by did not align well with the values and practices of the District professional development community. The workshop nature of professional development that Carol found as a District mathematics specialist caused her to feel "uncomfortable with the model of
delivery for a lot of professional development." Workshop stories that Carol heard being told did not align with her own professional stories to live by and seem initially to have led her to feel not fully connected to the District professional development community. During an interview Carol's description of how a current colleague worked with teachers may give us insight into a model of facilitation more aligned with Carol's perspective.

I love the way she honors teachers. She honors the work of teachers. She holds them in high regard and values them and I think that is so very important. ... She believes in teachers. She believes that they will rise to the level and they do every time for her. She doesn't set up group norms, she doesn't do this and that, she does things in a really less intrusive way, as far as like, it is not that she just doesn't like address that issue at all, but she does it in a different way than like, "Okay, what are the norms of behavior gonna be?" Like she just starts right into the content and then has people do like a process check partway through and they have to reflect on a few things and score, you know, how do they think it is going from a 1 to 5. It's just fascinating just how simply that changes behavior without having to say, you know, in fact it changes behavior more than saying these are the norms, y'know, this is how we – we are going to be respectful, we are going to listen, we are doing to do, di, di. It is like, well, I really want to give it a 5. I want to get a 5 there. And, am I being a 5? You know. So, I mean, her style really fits kind of my style. She is very serious about her work, but she's less formal and seeing that in her made me feel more comfortable that way, like y'know, because as I was being told to be more formal and all that stuff. Trusting that... the same mathematics [will] come up, sometimes at different levels, like that one class that I did was all high school that went into a lot deeper mathematics than maybe it did in middle school, but the big ideas always came through....

In this passage Carol mentioned that her colleague's "less formal" approach seemed more congruent with Carol's own style and "made me feel more comfortable." By "less formal" Carol appears to mean that, for instance, rather than
using explicit, structured protocols such as generating a list of norms, or interaction rules for participants to abide by, a common workshop practice, this colleague created more organic – "less intrusive" – opportunities for participants to reflect on and improve how they collaborated.

Further, Carol emphasized her colleague's "trust in teachers" as a facilitation practice she admired. When Carol described her experience of facilitating a teacher leader inquiry group that was, in Carol's view, highly successful, she similarly emphasized her own trust and appreciation for teacher leaders and their work. Carol and a group of teacher leaders developed a sixth grade algebra unit that Carol felt was appreciated by her colleagues and by participant teacher leaders.

When we first began the inquiry work, this was second year when we did that, when we worked together as groups to, about something that we, that came from the team of teachers that they wanted to pursue. And our group was focused around the whole idea of algebra in middle school. And the first year we did that, we looked at [one unit from the curriculum] about algebra. The second year I proposed that, well, that [since] sixth grade was being tested [by the State] at really high levels for algebra. ... And so, I was concerned about kids not being prepared because ... the curriculum doesn't use very much good algebra work, good strong algebra work in sixth grade. So, this group came together to kinda, to prove to the state, they wanted to prove to the state that it was not okay that sixth graders should being doing algebra, that they were too young. And instead they proved to themselves, that, yes they could do algebra in sixth grade. And, so what we did was, [we wrote] the three week unit, took place over about four months. The teachers were incredibly committed. We met, at our regular scheduled meeting times, and then we met many other times in addition to that. They came in and did extra work. They owned every single piece of the work.

We presented it at one of our district-wide professional development days. We had all the sixth grade mathematics teachers attend a session for this new algebra unit. And ... each person on our team did part of the
presentation. And every single person did a fabulous job. .... That particular day was just incredible. Like the feedback that we got from teachers, the ownership that the group of teachers that wrote it had, the support they gave me ... by doing this.

We looked at Carol's story about sixth grade algebra in the last section where it was an example of her learning and growing centrality in a community of inquiry group facilitators. Recall that Carol's teacher identities entailed involving students "doing" hands-on inquiry. Carol's extended facilitation experience with this teacher leader inquiry group shows her perception of becoming a member in a community of facilitators, specifically as a facilitator who involved teachers in "doing" hands-on inquiry. The hands-on activity in which this inquiry group engaged was curriculum development. Carol listed specific practices that, because she was describing them as part of an inquiry group, she seemed to regard as inquiry group practices. These practices included, participants "proved to themselves" or negotiated a group perspective; "teachers were incredibly committed;" teacher leaders "came in and did extra work;" and "[t]hey owned every single piece of the work."

This story illustrates Carol's growing sense of belonging not only through her engagement in the PD and teacher leader inquiry groups, but also in ways that her facilitation increasingly aligned with inquiry group practices. For instance, Carol claimed that "we worked together as groups to, about something that we, that came from the team of teachers that they wanted to pursue...." That is, unlike
workshops in which a leader usually presents a generic activity that, in Cammie's words, will be "good for them," Carol emphasized that her work shifted to eliciting and supporting topics of interest generated by teachers. Carol "trusted the teachers to do a good job" with the curriculum and she thought that "made it [a much] richer unit than I could have written by myself." Inquiry group participants need opportunities to shape the content and process of their work together (Darling-Hammond & McLaughlin, 1995; Hawley & Valli, 1999). Further, Carol claimed that teacher leaders "proved to themselves" that sixth graders could, indeed, handle algebra. That is, in her view, participants integrated different perspectives and created a shared belief, a sign of both inquiry (Cochran-Smith & Lytle, 2001) and alignment (Wenger, 1998). In addition, she felt that the teacher leaders "owned every single piece of the work." Pointing to ownership of meaning implies that, from Carol's perspective, teacher leaders were involved in negotiating and generating meanings and practices. This too, is a characteristic of ongoing learning communities (Wenger, 1998).

Carol felt successful or in other words, "It was great professional development for every single one of us that participated in it." We can construe that Carol felt like she belonged to the inquiry group facilitator community because she was telling this story in the context of "when we first began the inquiry work." Carol perceived other inquiry group practices embodied in her work with this group of teacher leaders. Among these practices were negotiating community views by
discussing different perspectives see Stokes, 2001), collaborative work involving student learning and curriculum (see Kruse et al., 1995) and building trust and respect among colleagues (see Hord, 1997).

Recall also Carol's description of the diagrams she created for conference presentations about our work with teacher leader inquiry groups. She depicted "parallels between teachers to students and professional developers working with teachers...." In one "parallel" with her work with students, Carol encouraged and facilitated the teacher leaders' involvement in "doing" something – in this case writing curriculum. In another "parallel" with her classroom pedagogy, Carol emphasized, "[E]veryone had a lot of respect for one another." In a different conversation, describing her professional self, Carol revealed the value she placed on creating positive relations. "As a teacher, a facilitator ... I think about my trust in teachers, my belief in their being able to do things, my respect for teachers, the way I'm genuine and honest about things." Carol's emphasis on "trusting teachers to do a good job" and mutual respect can be seen as examples of the importance she placed on building positive relationships with and among the teacher leaders just as she did with students in the classroom. In the context of participation in and facilitation of inquiry groups Carol apparently felt she was joining a community in which she was able to align her professional developer stories to live by with her beliefs and values about learning and teaching.
Two brief examples of Cammie and Carol's perceptions of *alignment* with inquiry group practices occurred during the second PD inquiry group meeting. Recall that alignment can involve creating procedures and structures for carrying out community goals (Wenger, 1998), in other words operationalizing them. The first example came after Cammie asked the group to help her define purposes for one of the teacher leader inquiry groups. This group was formed at the start of the year to deal with a new topic.

Cammie: And that, the more that we can define [the work of the Passages group], the more that we can operationalize it, the better everyone's gonna be. …

Susan: Okay.

Cammie: And maybe by the end of this year we [will be able to] say okay so here's all the stuff that's happened so far … and the efforts were worthwhile.

In the second example Cammie had just presented her initial plan for a teacher leader inquiry group meeting and the group was engaged in clarifying and refining her plan.

Cammie: … Those are the guiding questions.

Carol: But. Your, your, your group task, are there gonna be like, posters around the room with those on there and these [referring to a list Cammie had distributed as part of a task card] look like all of these will be on sentence strips and they'll [teacher leaders will] go "this goes here" so like (cough) develops strategies to deal with the gap on understanding basic multiplication, division, facts as they head into sixth grade, where does that go under? See I'm trying to operationalize your idea.
In the first example Cammie explicitly talked about defining an inquiry group's goals in order to operationalize, or find ways to work toward them. In the second instance, Carol, in an effort to understand Cammie's tentative plan for an inquiry group meeting, explained that her questioning was in the service of figuring out how to structure, or operationalize, that plan. Because these conversations took place in the context of the PD inquiry group, we can surmise that Cammie and Carol considered operationalizing goals and plans to be inquiry group practices. Thus, we can construe that both Cammie and Carol saw their work as aligned with inquiry group practices. Overall, from exploring their perceptions of aligning perspectives, beliefs, styles and activities with what they regarded as inquiry group practices, we can infer that they felt they identified with and belonged to a community of inquiry group facilitators.

From their stories depicting participation in and facilitation of inquiry groups it appears that Cammie and Carol considered that they were becoming members in and identifying with an inquiry group facilitator community. Their stories illustrate their relocation to and increasing sense of belonging to a community of inquiry group facilitators through engagement in inquiry group relationships and practices, abilities to imagine possibilities and connections, and alignment with inquiry group facilitation practices and perspectives.
Sustaining Professional Identities: Sharing and Confirming Stories to Live By

Recall that Wenger (1998) emphasizes the importance of community membership to changing and sustaining identities by stating, "it is not easy to become a ... new person in the same community of practice. Conversely, it is not easy to transform oneself without the support of a community..." (p. 89). In the last section we looked at Cammie and Carol's perceptions of their relocations to an inquiry group facilitator community as a way to detect their perceptions of their changing stories to live by, or their sense of reshaping their professional identities. Next, we focus on the role that community support can play in sustaining identities.

Connelly and Clandinin (1999) claim that "stories to live by are communally sustained as people support one another through confirmation of their beliefs, values, and actions and as they share stories and recollections" (p. 101). Constructing identities involves mutual shaping of both identities and community as participants negotiate meanings of their lived experience (Wenger, 1998). Further, in a community of practice participants develop a shared repertoire of practices, such as, among other things, beliefs, values, perspectives, relationships and activities (Wenger, 1998). We have observed that beliefs, values, perspectives, relationships and activities can be markers for identities. Thus as community participants negotiate meanings, their participation shapes their identities and they come to claim mutual relationships as well as similar beliefs, values, perspectives
and activities. This repertoire of practices can form a foundation for the kinds of mutual confirmation described by Connelly and Clandinin (1999) that can communally sustain identities. As participants come to identify with a community, sharing stories of practice can confirm and sustain one another's identities.

By looking at PD inquiry group conversations we can uncover evidence that Cammie and Carol sensed that inquiry group participation supported them, or helped to sustain their professional identities. Looking at their stories from a theoretical vantage point, we can find evidence that, as they shared and confirmed one another's values, beliefs, views and activities, they felt participation in the PD inquiry group helped to sustain their professional identities. In this section, I first explore evidence of Cammie and Carol's mutually held practices, including beliefs, values, perspectives, activities or engagement in relationships. Then, I present examples of PD inquiry group conversations in which Cammie and Carol told stories involving such mutual beliefs, values, relationships or activities and seemed to have their practices affirmed by the group. Taken together, this shared repertoire and their mutual confirmations can be construed as helping to sustain Cammie and Carol's professional identities. Although they do not always explicitly say so, by sharing stories and confirming their mutually negotiated practices – in the context of the PD inquiry group and in other collegial conversations – Cammie and Carol's conversations seem to point to their perception that they sustained one another's professional identities as facilitators of inquiry groups.
Intertwined Stories Build a Foundation for Mutual Confirmation

From a situative perspective, members of the same overlapping communities of practice, come to share a repertoire of practices (Wenger, 1998). Although they had different ways of expressing their perspectives about practice, it seems that Cammie and Carol's stories to live by are, at heart, quite similar. These commonalities evidently provided Cammie and Carol with a foundation on which to base their confirmations of one another's practices, including activities, beliefs, values, relationships or perspectives.

To illustrate their shared repertoire of practices I look at three examples of Cammie and Carol's intertwined stories. First, I look at stories that reveal Cammie and Carol's views of improving mathematics instruction in the District. Second, I look at stories that describe the importance, in their views, for facilitators to attend to participants' feelings and relationships. Third, I look at stories portraying perspectives about teachers' capacities that Cammie and Carol have come to share. In each example I analyze ways their stories indicate they held common beliefs, values, goals, activities or perspectives, thereby providing a foundation from which they could, as Connelly and Clandinin (1999) put it, share, confirm and communally sustain one another's professional identities.

I first look at Cammie's and then Carol's stories that depict their desires to center inquiry group professional development with teachers and teacher leaders around explicitly examining and improving mathematics teaching practice in
participants' classrooms and the District as a whole. Cammie would have liked
to add to her professional stories to live by more tales of facilitating teacher and
teacher leader groups working to improve instruction and student learning in their
own classrooms and the District. She lamented that teacher leaders, as a result of
spending time in their inquiry groups doing tasks that responded to District
prescriptions and mandates, were less able to focus in a sustained, explicit way on
their own instructional practices. "And each year [the teacher leader inquiry
groups] took a slightly different form. It morphed a little bit every year. .... There's
some external pieces that force the leadership group to change and be responsive."
By "external pieces," Cammie meant factors outside of the inquiry groups
themselves. She was talking about District mandates influencing inquiry group
tasks. This is in contrast to her belief, described earlier and explored below, that
participants needed to be involved in developing and directing inquiry group
content and processes.

In response to an interview question asking about her vision of a positive
future, Cammie referred to teacher leader inquiry groups becoming engaged in
ongoing reflective inquiry around mathematics teaching practice. She said,

I can't help but think if everyone in the district was organized around the
idea of having high quality instruction in every single classroom, with every
single teacher, every single day that these kinds of conversations would be
happening on a regular basis. [It] would be a part of how you do business. It
would change the cultures of schools.
Teacher leaders' opportunities to share their secret, classroom stories of practice were constrained by needing to deal with District mandates. Cammie's use of the words "force the leadership group to change" apparently means that in her view inquiry group topic changes sometimes were prescribed rather than freely chosen by participants. Further, it appears from Cammie's standpoint that being "responsive" to such forces placed limits on "these kinds of conversations," that is, inquiry groups focused on participants' mathematics teaching. It seems she felt that changing or "morph[ing]" every year to address these mandated topics was a diversion from developing a school and District culture in which inquiry groups focused on improving participants' practice and their students' mathematics learning were a common ("every single day"), accepted ("how you do business") part of the educational landscape.

Just as Cammie wished she could find more time to work with teacher leaders more explicitly around their own mathematics instructional practices, Carol wanted to tell more facilitator stories focused on mathematics and mathematics pedagogy. In response to the same interview question about a positive future, Carol said,

Carol: I also would like to see [District] professional development shift to be around mathematics. Right now it seems like it's, it's a lot about process. It's a lot about how to be a facilitator. It's a lot about just the logistics of implementing this curriculum, and it's not so much about mathematics really. And I'd love to facilitate discussions about mathematics. I think that's really fun, and I would love to do it with high school teachers who think
they know mathematics, because I think I could get high school teachers
to see math in some different ways.

Susan: Such as?

Carol: I don't think they see connections. I don't think they see a lot of stuff.

I don't think they see a lot of the visual stuff. They are very abstract.

Susan: Symbolic?

Carol: Mmm hmm [yes]. It's like doing the math and not really getting it.
Like how I did for years. And then like teaching helped me, teaching middle
school, trying to make it accessible to younger kids, I had to figure out
different ways to look at it and connect it. And I think high school teachers,
not all, but many of them have been teaching that same abstract way as
always and they think that's what knowing mathematics is. And I don't think
they have a very deep understanding of it. And I don't mean to be
disrespectful to them.

Carol imagined working more directly with teachers and teacher leaders
around mathematics subject matter. Describing what "teachers need to know," Ball
and Cohen (1999) assert "teachers would need to understand the subject matter they
teach, in ways quite different from those they learned as students. For example,
they need to know meanings and connections, not just procedures and information"
(p. 7). Carol claimed that many high schools teachers did not "see connections" or
"a lot of visual stuff." Carol evidently felt that as a result of not seeing "a lot of
stuff" their teaching repertoire was limited to "teaching that same abstract way as
always." It appears that Carol wanted her stories to live by to include helping
teachers to understand mathematical ideas more deeply so that they could "figure
out different ways to look at it and connect it" for their students, or in other words, improve their mathematics pedagogy.

Although Cammie wanted to foreground instructional practices and Carol wanted to focus on subject matter, their stories to live by had much in common. As a mathematics specialist, Cammie wanted to focus on pedagogy to improve mathematics learning and teaching. Carol wanted to focus on mathematics to improve teachers' abilities to understand and teach mathematics well. They had a mutual purpose of improving mathematics instruction and learning and a parallel vision of ways that inquiry group practices could further their common goals.

In a second example of their entwined stories and common perspectives, Cammie and Carol both valued attention to feelings and relationships in order to enhance learning. Professional learning communities, or inquiry groups, can develop increasingly open, meaningful relationships (Hord, 1998; Stokes, 2001; Thompson & Zeuli, 1999). Once again Cammie and Carol expressed their similar views in somewhat different ways. Cammie's stories to live by included the importance of creating a positive learning environment. She described a supportive learning environment when she recalled a teacher she admired who created "an environment where you were going to be nurtured. You would be allowed to blossom and grow and become the most amazing person you could become." At other times she emphasized, "the learning environment matters. It is absolutely critical. .... Nothing is learned without emotion. Right? And you can do things as
an adult that make or break that environment." For instance, describing her work with teachers and teacher leaders on different occasions, she claimed that "making sure that everyone has a voice" was crucial [and] "things are said with respect is incredibly important." She was concerned that without attention to an "environment ... that allows people space and time to think and reflect and to be and to breathe and to grow, you just don't get as much out of it," because participants might be "shut down." In Cammie's estimation as a facilitator of and participant in inquiry group communities, practices that helped create a positive learning environment were highly valuable.

To indicate her commitment to supporting participants emotionally, Carol emphasized the importance of creating positive relationships. Recall her high school teacher, mentioned earlier, who embarrassed her in front of the class. In Carol's story she "would always try to slink by him to my desk without being noticed, and kind of shrink down in my chair. ...this is all retrospect. I could not learn in that class." As we have seen, in part from that experience Carol developed teaching stories to live by that included "empathy for kids." As a teacher she used that story to question, "what do I do that could get in the way of [students'] learning? But also, what other things in their life are getting in the way of their learning?"

Carol's empathetic teacher stories to live by evolved as she worked with adults. For her, one characteristic of success was when inquiry group participants
"had a lot of respect for one another." When Carol described a successful experience as a solo professional developer, she also focused on her relationships with participants. "I was so excited ... I said, 'I have 22 new friends – new best friends. ... It was good feelings and powerful mathematics.... We laughed a lot, and learned a lot...." Similarly, in our third interview Carol used relational terms to describe her shift from middle school to high school mathematics specialist during the year of this study. "I have a ton of middle school teacher friends that I don't hardly ever see anymore.... And, so now, like I think I've developed some really good relationships with teachers in high school." To describe engagement with others in a community, a characteristic of community membership, Carol talked about friendships. From this we can surmise the importance Carol placed on developing positive relationships.

Again, they evidenced similar perspectives. Cammie talked about creating a positive learning environment and Carol described developing positive interpersonal relationships. Both of them strove to create a "safe space" and good, respectful relationships so that teachers and teacher leaders could be open about their practice and reveal the stories they live by. Cammie's use of the phrase "shut down" to indicate a pitfall of not attending to environment is akin to Carol's experience of "slinking," "shrinking" and being unable to learn in a class without attention to positive relationships. Cammie's phrase "make or break" the environment is reminiscent of Carol's questions about what "gets in the way" of
learning. Sharing the value of attending to creating a safe space for developing positive relationships created common ground so that, as we will see later, when they shared stories of practice, it appears that Cammie and Carol could perceive they were sustaining one another's stories to live by.

In a third example, Cammie and Carol held common views about the capabilities of teachers and teacher leaders. For Cammie, inquiry group work, really made me think about what my beliefs are about teachers and about their capabilities. ... that teachers have capacity to solve the problems we're all grappling with collectively. They have the expertise and the answers in themselves, if you will, [to solve] some really important problems in math education.

From this realization Cammie came to "really want the group to drive what's happening, rather than [me saying] 'Here's what the work is gonna be, here's how [I] think we should do this,' cause [I] think they'll be able to figure it out."

Describing her current practice she claimed that, "the work is more clearly defined. The teachers are much more involved in driving it. We're figuring out what to do together at the next meeting during our current meeting." She wanted teacher leaders to "drive the bus" of their own learning in inquiry groups. Cammie's metaphor of teacher leaders driving their own learning experiences is one I will return to in the section on agency. Here, it represents a common inquiry group practice (Darling-Hammond & McLaughlin, 1995) and a belief in teachers' capabilities that she and Carol held in common.
To describe her views of teacher leader capacities, Carol emphasized her respect for teachers, her assumption that they do the best job they know how to do, and her admiration for the knowledge and passion they bring to inquiry group meetings as well as to their classrooms. Describing a colleague facilitator, Carol revealed her own values, practices and stories she lives by:

I love the way she honors teachers. She honors the work of teachers. She holds them in high regard and values them and I think that is so very important.... She believes in teachers. She believes that they will rise to the level and they do every time.

Carol's professional stories to live by repeatedly stressed the importance of believing in teachers' abilities to foster their own and one another's learning. Writing the sixth grade curriculum unit Carol "trusted the teachers to do a good job." Describing herself "as a ... facilitator," Carol said, "I think about my trust in teachers, my belief in their being able to do things, my respect for teachers...." In these ways Carol showed she thought of teachers and teacher leaders as capable and competent.

Although Cammie talked about teacher leaders' "capacity to solve educational problems" and used the metaphor that teacher leaders need to "drive the bus" because they can "figure it out," while Carol talked about "trusting," "valuing," and "respecting" teachers, they seem to share a belief in teachers' and teacher leaders' capabilities. Their entwined stories to live by involved views that included trust that teachers and teacher leaders could and would rise to high
expectations – "rise to the level" – and work to create solutions to important educational problems. Holding similar beliefs in the capacities of teachers and teacher leaders helped Cammie and Carol create a base from which, as described below, they perceived that as they told stories of practice, they felt their professional identities as facilitators of inquiry groups confirmed and sustained.

From their intertwined stories Cammie and Carol seemed to hold parallel perspectives that allowed them to look together in the same direction. They each wanted to create professional development that helped to improve teachers' and teacher leaders' pedagogy and understanding of mathematics. They both valued attention to creating supportive learning environments and positive relationships with members of inquiry groups they facilitate. They viewed teachers and teacher leaders with respect and considered them capable of collaboratively solving important problems. Overall, by looking together in the same direction Cammie and Carol created a shared vision that appears to have been a foundation for a sense that they were confirming and sustaining one another's professional identities.

Sustaining Identities by Sharing and Confirming Stories of Practice

Having illustrated several of Cammie and Carol's intertwined stories or parallel practices, that is, mutually held beliefs, values, perspectives and/or activities, I now turn to evidence that, in the context of the PD inquiry group, they shared stories involving such practices and the group responded with confirmation and support. As previously mentioned, identities are mutually sustained "as people
support one another through confirmation of their beliefs, values, and actions [by sharing] stories and recollections" (Connelly & Clandinin, 1999, p. 101). In this way, Cammie and Carol's stories – told in PD inquiry group conversations – seem to point to their perceptions of having their professional identities sustained in the context of inquiry groups, especially the PD inquiry group.

At times, sharing or confirmation was brief. It happened almost in passing. At other times, it was woven into a long conversation. I start with some of the brief confirmations that usually happened at the beginning or end of meetings.

Cammie and Carol looked forward to PD inquiry group meetings. They found in these meetings opportunities to take stock, reflect on practice and support one another. At the start of our second PD inquiry group meeting Carol requested, "Can we do a go-around about how we feel being at this meeting?" Cammie responded by asking, "Would you like to start?" Carol said, "I've been holding my breath for this meeting. I'm so excited to be here." Cammie commented in a similar vein, "I'm glad to be here. I need this time and this space." In contrast, they described District work as "shooting [them] over the edge." Although brief, by starting a meeting by publically appreciating the PD inquiry group's worth to them, Cammie and Carol confirmed one another's values. Further, we can construe from their statements that they perceived the PD inquiry group helped to support and sustain them when they felt they were feeling stressed, or "shooting over the edge," at work.
Toward the end of a PD inquiry group meeting in early January, as we were beginning to wrap up, Carol suggested, "Wait, we need to reflect for a minute. I want us all to reflect for a minute [about] this meeting that we just did. How did you guys like this meeting?" Cammie and Carol briefly negotiated about the reflection. Cammie said, "I would rather ask a different question [than] about whether or not we liked it, because I don't think it matters how much we liked it." Carol responded, "Like it or not. How was this meeting for you?" Cammie replied, "Yeah. I appreciate that we can press each other and it's not defensive at all. When you guys ask me questions it really helps me think ... we're getting better at raising questions with one another that do help push our practice." Cochran-Smith and Lytle (2001) assert that questioning or taking an inquiry stance toward practice is a vital component of inquiry groups. In addition to the explicit affirmation of inquiry group practices – pressing one another to question and improve practice – Cammie's "yeah" also appears to be a quick confirmation that Carol has understood her and she, Cammie, is satisfied with their negotiation about what question to ask. Carol also affirmed that the meeting had value for her after a particularly stressful period at work. "I'm thinking again. I'm really excited about that. And, because I was making some connections and just thinking about different things. .... I thought the conversation was great."
At a different meeting, when Cammie was recounting some of the history of mathematics teacher leader inquiry groups in the District, Carol noted, "You seem very passionate about it.... It's nice to see you so passionate."

In response Cammie declared,

I do feel passionate about it. ... Like this is one of the things I like about this [PD inquiry] group, is that you can stop and look back and say, "Yeah. That's where we were." And look at y'know where we're going, and look at how fast. This is, this is what I really love about this group, is the chance to just to take time out and reflect and just kind of say, "Wow, this is amazing." ... it helps me to be clearer about where we're going, and why we are doing this...

What's happened with this group [of teacher leaders] is like the bright part in the work that we do. It's the 'cause it's so, it's just so [expletive] hard otherwise.

In this brief exchange, Carol observed and affirmed Cammie's passion, or delight and pride, in her inquiry group work with teacher leaders and with PD colleagues. Cammie responded by first confirming Carol's observation and then crediting opportunities for reflection in the PD inquiry group for giving her the time to gain perspective and re-focus direction of her work. Cammie also shared her image of inquiry group work as a "bright light for me, that keeps me going."

Cammie's metaphor of a "bright light" can be interpreted to mean that despite job challenges ("it's just so ... hard otherwise"), Cammie perceived her self – that is, her professional identities – sustained ("keeps me going,") by participation in the PD and facilitation of teacher leader inquiry groups.
Another very brief way in which Cammie and Carol confirmed one another's practice was by thanking one another and the group as a whole. This usually occurred after one person shared a story of practice and the group questioned, discussed, and perhaps made suggestions. For example, the end of a lengthy conversation about the next teacher leader meeting Cammie and Iris were planning, went this way:

Carol: Okay you guys are over time.

Cammie: We are.

Iris: Yeah, sorry.

Cammie: Thank you for your input. That was very helpful.

At the end of another long conversation about planning a meeting with principals – a discussion that we will shortly examine further – during which several suggestions were offered, Carol thanked the group by saying, "I could do that, it's really helpful for me to get feedback .... Thank you. That was really helpful."

It may appear from these brief examples that Cammie and Carol were being merely polite, and perhaps that was all that they consciously intended. However, although not big, these appreciations likely helped to confirm that Cammie and Carol valued one another and their collaboration in the PD inquiry group. These brief encounters also suggest that Cammie and Carol perceived that inquiry group
conversations were important to shaping and confirming their practices. In different terms, they felt that PD inquiry group discussions helped to sustain their identities.

Other examples of Cammie and Carol's perceptions of the PD inquiry group's mutual confirmation of practices - such as beliefs, values, perspectives, relationships or activities - were longer and more complex. According to Connelly and Clandinin (1999) sharing stories of practice and engaging in meaningful conversations about them tend to confirm and sustain stories to live by, or professional identities. For Cammie and Carol these confirmations usually started with one member of the group sharing a story of practice. Sometimes, these stories were about what happened at past meetings or tentative plans for upcoming meetings with teacher leaders or others. At other times, these stories involved relationships with colleagues. In the first example below Cammie shared a plan for an upcoming meeting about which she still had questions. In a second example Carol described her difficulties planning a principals' meeting with one of her colleagues.

The first conversation began with Cammie describing an overview of a plan for the next meeting of a group of teacher leaders. This teacher leader inquiry group was new. That is, the overarching topic they were exploring – finding ways to support students through transitions from elementary school to middle school and middle school to high school – had not been an explicit inquiry group topic before
the year of this study. After describing the tentative plan for an early-in-the-year meeting and entertaining initial questions and suggestions from the group, Cammie raised an issue she wanted help thinking through.

Cammie: We needed teacher input about [the group's topic and how to proceed for the year] so, so my worry about this is, so I guess I want some feedback about this idea from you guys and my worry about it is that it's not, and I wanna choose my word carefully, it's not a sanctioned group in the way that [some of the other inquiry groups are] sanctioned group[s] by the admin[istration]. And so, I'm really cognizant of how the most successful efforts are bottom up with top down support. And this one is ... sort of groundbreaking work with respect to this transition stuff and it feels really ill-defined and so I don't want it to be a waste of time.

After further clarification about the plan Cammie had presented, Carol returned to Cammie's question.

Carol: So I, I just wanna say though, that one of the things that you said Cammie was the top down bottom up thing that you guys don't have the support. I would disagree with that a little bit, I think that the district really wants the transitions figured out. They've, remember? they gave us that directive a year ago ... I think they really want the transitions figured out, that, that's really a buzz word so you guys can't, you know, I think it if you do figure it out maybe you'll be rich and famous, but I do think you have support for it.

Susan: And I also remember that the sixth grade algebra unit was sanctioned by nobody. But it was an example of teachers and mathematics specialists stepping up and taking charge. The same thing happened last year around those district-wide assessments. You stepped up and said okay you want district-wide assessments? We're not gonna do it the way you think we're gonna do it but we are gonna do it.

Cammie: Well, they didn't even tell us to do district-wide assessments, we saw it coming down the pike ... and we said we're gonna do it. They didn't make us do it. Yeah.

Susan: Yeah.
Carol: I was actually kind of going to say the same thing, like the sixth grade algebra wasn't sanctioned by anybody and that took on a life of its own, it was very powerful.

Susan: That's right, that's right.

Recounting past successes with sixth grade algebra and district-wide assessments, the group confirmed the value of their practices with teacher leaders. In so doing participants helped sustain one another's professional identities.

Cammie raised her concern that without official District support the outcome of the new inquiry group might be "a waste of time." She questioned her own practice, an inquiry group activity (Cochran-Smith & Lytle, 2001). Specifically, if their suggestions might be ignored by District administrators, Cammie did not want to encourage teacher leaders' efforts to define and figure out how better to support students through difficult transitions. In response, Carol and I used examples from past mutual inquiry group experiences to suggest that what Cammie was planning had the potential, in Carol's words, to be "very powerful." By telling stories of inquiry groups with similar unauthorized beginnings and positive outcomes, the PD inquiry group confirmed for Cammie the value of encouraging teacher leaders to take responsibility for an exploration ("stepping up and taking charge") that could be important to the District. Carol also added that the District did, in fact, value the work Cammie was proposing to do with this inquiry group. At least, according to Carol, they used "buzz words" to say they valued it and had previously authorized such a mandate ("directive"). Carol also seemed to both be trying to lighten the
load of a difficult task and underline her point that the topic of Cammie's inquiry group had value, by using humor. "If you do figure it out maybe you'll be rich and famous."

Cammie responded to my second example by enhancing it. She claimed that administration "didn't even tell us to do district-wide assessments, we saw it coming down the pike ... and we said we're gonna do it. They didn't make us do it. Yeah." That is, from her point of view developing district-wide assessments was "even" more "not sanctioned" than I had suggested. From her statement with its final "yeah," Cammie seemed to signal her agreement and her view that this conversation affirmed the value of her work with this new teacher leader inquiry group. This was one of the conversations – explored above – that ended with Cammie's explicit appreciation for the PD inquiry group's help. Cammie ended the discussion by saying, "Thank you for your input, that was very helpful."

Cammie never directly said that this discussion sustained her professional identities. However, if we view the conversation through the theoretical lens provided by Connelly and Clandinin (1999), we can perhaps construe that since she apparently felt her practice was confirmed, on some level she also might have perceived the discussion to have helped to sustain her professional identities.

In a second example, Carol seemed to perceive that her professional identities were sustained through support and confirmation of her stories of practice, including beliefs, values and activities. At the second PD inquiry group
meeting Carol asked for help with two interconnected things – planning a meeting and working with a colleague. She was scheduled to facilitate part of a principals' meeting with a member of the District professional developer team who was not part of the PD inquiry group. Carol had spent several frustrating hours with her trying to plan that meeting. As Carol put it, "there is a tension in style between [a colleague] and myself." The transcript excerpts that follow, while lengthy, are a small portion of the inquiry group's dialogue on the subject. These excerpts are intended to illustrate how such negotiations of meaning can unfold so that the analysis that follows can be rich and meaningful.

To describe some of the differences in practices and values, Carol recounted the planning conversation with her colleague.

What I'm frustrated with is like [my colleague] is always saying she wants to give them time to talk to each other. And I'm like, yeah but it needs to be structured because if it's not structured you hear one or two voices. ... like she says, she wants to let them talk but she's the talking head when she gets up in front of the principals, that's what she does. She talks a lot. I want to facilitate a discussion and that's what I said, I want to facilitate a discussion...

Carol: I could do, "Okay, a quick write for 5 minutes," don't even give them time to talk about, or maybe give 'em 2 minutes to talk about it, or like I said, do a dyad. "Oh dyads, they're dumb" – this is [my colleague talking], you know?...

Carol: [My colleague] wants to do a presentation on it, you know, just kind of capturing the key points about [a proposal]. But then she has this three page

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6 To protect confidentiality, I have tried to mask the topic of their planning and the identity of Carol's co-facilitator.
thing. And I, and I think this is a good plan, just kind of talk through the big
pieces of it. And then say, here, read this 3 page thing. And you know it's in the
nitty gritty of it and they could read through it all. So then, she wants them to talk
about what is, what is this, that we're putting out in front of you. What is it? …
What is the proposal? … But I think that that's a weird question to put out there. I
thought, what I thought of doing is, "What do you see are the positive aspects of
this and do you see any drawbacks with this?" And those would get the proposal
out there because if I saw, if I said the positive, what I thought one positive aspect
and we went around, you'd (indicating one of the people in the PD inquiry group)
probably say something I didn't notice and (nodding to another person in the room)
you'd say something else that I didn't notice and then if [I] said what are some
possible drawbacks? You'd [say] something I didn't. I would learn from each of you
that way without saying, "Okay what is the proposal?"

Susan: Well, and that's an analysis of what the proposal is.

Cammie: Yeah. And that's a better way to do it than just.

Susan: I think it's demeaning to say, "So did you read it, did you understand
it?" … So I think that asking them to analyze it… is a much better way to
do it.

Carol: [My colleague] totally can't see that.

Carol asked for help in thinking about her plan for the principals' meeting
and at the same time how to address the differences between her colleague and
herself. She and her co-facilitator had distinct, often incompatible, perspectives
about how to approach their section of the meeting. "It's just the time it takes to argue with her, like today, and ... I don't have the solution, I don't have the perfect solution [for a meeting design].

One of the questions Cammie asked was,

Is it worth trying to work this through with her at this point or is it better to cut your losses at this meeting, either you dig your heels in and say we're doing it my way, or you say okay we're doing it your way?

Initially, this question went unanswered. However, the group returned to it toward the end of their conversation. The group first worked to refine Carol's questions and structure the discussion.

Carol: I'm thinking that talking those [questions] through, and you could do that like, you could do it in groups of four ... so that everybody gets a voice, and it gets done a lot faster. Do the, what did I say, what was the question?

Cammie: I think the advantages and the drawbacks.

Carol: Advantages,

Cammie: Yeah you could do it as a Group Task, it would make life a lot easier.

Carol: Uh, huh.

Cammie: And we introduced them to that in August....

Carol: I actually think that's a great idea.

Cammie: Because then I would ask, after they've made public the advantages and the drawbacks, then I would ask the question, can you support this if we can address these drawbacks? Or what is it that you need to support this?
Susan: And you might wanna make that third question almost separate.

Carol: Well yeah, I know, that's what I, yeah.

Susan: So the first two are the task, the advantages and the, whatever it was.

Cammie: drawbacks

Susan: drawbacks

Cammie: Are you saying to separate those?

Susan: No, keep those two and then separate the "What do we need to do to [address the drawbacks]?" because that's a summarizing question.

Carol: Right. Uh huh....

Carol: Third question is "What do you need [to have changed so you can] support this?"

After the questions were clarified further, Carol asked Cammie, "Can you help me do this task card?" and Cammie responded, "Yeah, it's simple, I'd be happy to do it." After more conversation, Carol was satisfied with the new design for the principal's meeting. Iris then returned to the issue Cammie raised earlier of Carol's co-facilitator for the meeting.

Iris: And what you're gonna have to do with [your colleague], [is to say] "This is what we're gonna do."

Cammie: Uh, huh.

Susan: Yeah.

Carol: I could do that. It's really helpful for me to get feedback 'cause like I'm sitting there talking to her and she's like looking at me like I'm crazy.
And to get feedback from you guys is really helpful because like I don't know if I'm crazy. Sometimes I am.

Iris: But it's like you said she's, she doesn't recognize herself as a talking head, but she is a talking head. And she doesn't wanna do that, so. You're not crazy, you're just Carol.

Carol: Thank you. That was really helpful.

In this conversation it appears Carol perceived she was supported in several ways. In the context of the PD inquiry group she voiced her frustrations to an understanding audience. She presented contrasts between her practices and her colleague's practices. She shared her initial ideas for a meeting plan and got positive feedback and direct help in honing those ideas. She also received support for ways to approach her colleague that validated her own approach to – that is, activities for – the meeting.

Carol pointed out several disparities between her and her colleague's perspectives. For example, Carol wanted to facilitate a discussion among participants while her colleague was likely to lecture, or be a "talking head;" Carol wanted to ask questions to elicit principals' understandings of a 3 page précis of the proposal without, as her colleague's questions seemed to suggest, directly questioning their reading comprehension; and she wanted a discussion to be structured, with principals taking turns speaking rather than simply asking them to talk together and taking the chance that a few voices might dominate. Carol's ideas, such as engaging participants in conversation and structuring a discussion so every
voice is heard, are common inquiry group practices that build group trust and openness (Hord, 1997; Kruse et al., 1995).

The PD inquiry group confirmed Carol's perspectives and activities. Cammie responded to Carol's proposed "advantages" and "drawbacks" questions by saying, "That's a better way to do it...." I suggested that Carol's questions asked participants to analyze what they read and Carol elaborated by explaining how such a discussion would also provide opportunities for participants to share their understandings of the précis. Carol's response that her co-facilitator "totally can't see that," suggests that first, in Carol's view the PD inquiry group did "see" the value of Carol's practices and second, Carol was still wondering how to deal with her differences with her colleague. That is, Carol seemed to feel that her values and practices were confirmed by the group while still soliciting their support.

The PD inquiry group continued to work to refine Carol's questions and structure the discussion. In so doing they supported Carol's ideas by building on them. That is, they negotiated meanings as they developed a shared repertoire of practices. This negotiation can be thought of as an example of mutual construction of community and individuals (Wenger, 1998). Together, the group came up with a third, summarizing question and developed a group task structure for the discussion. A group task is a facilitating practice that ensures participants have an equal voice in a conversation and that issues of inequity and accountability can be addressed. Activities that ensure equity and accountability are important inquiry
group practices (Cochran-Smith & Lytle, 2001). In a related instance of mutual negotiation and confirmation of practices, Carol built on Cammie's suggested group task practice by asking Cammie directly for help in creating a task card (part of a group task) and Cammie readily agreed to help. Here, Carol seemed to be confirming Cammie's expertise and Cammie offered Carol support.

The group discussion then returned to Carol's concern about how to approach her colleague. Here we see some of the strongest affirmations of Carol's identities as a competent facilitator. Cammie asked whether arguing with this colleague was "worth" it. Iris suggested that Carol should stand firm by telling this colleague that she had completed the meeting plan and it was no longer negotiable. Cammie and I agreed and Carol said she "could do that." Importantly, Carol added, "to get feedback from you guys is really helpful because like I don't know if I'm crazy." Carol seemed to be saying that she felt better able to stand up to her colleague after getting the PD inquiry group's endorsement and confirmation of her practices. That is, Carol seemed to experience her professional identities confirmed and sustained through this conversation. Her final comment – "Thank you. That was really helpful." – closes the conversation, gratefully conveying her apparent sense of being supported and sustained.

Cammie and Carol's stories illustrate their experiences of having their professional identities sustained in the context of inquiry groups, especially the PD inquiry group. As we have seen, identities are mutually sustained "as people
support one another through confirmation of their beliefs, values, and actions [by sharing] stories and recollections" (Connelly & Clandinin, 1999, p. 101).
Cammie, Carol and their colleagues shared stories involving their practices – e.g., beliefs, values, relationships, perspectives, or activities – and from Cammie and Carol's perspectives, participants in the PD inquiry group responded with confirmation and support, mutually sustaining one another's identities.

Summary: Shaping and Sustaining Identities

Cammie and Carol both describe ways that, from their points of view, participation in and facilitation of inquiry groups helped them to change their stories to live by, or professional identities. Cammie moved from membership in a workshop-oriented professional developers' community to becoming a member of a community of inquiry group facilitators. Carol moved from being a member of a teacher community through an uncomfortable beginning as a peripheral member of a workshop leaders' community to becoming, with Cammie, a member of an inquiry group facilitators' community. From a situative perspective, their lived-experiences of changes in community memberships can be thought of as their perceptions of changes in professional identities.

As members of the same overlapping communities, including the PD inquiry group, Cammie and Carol's stories became intertwined. As they participated together they came to share a repertoire of practices, such as activities, values and perspectives. Throughout this section we have seen Cammie and Carol...
describe many such practices that, because they describe them in the context of inquiry groups, it seems they regard as inquiry group practices. These practices include: collaborate to solve problems important to mathematics education, improve instruction and enhance student learning; structure discussions so that all voices are heard (e.g., "go-around," "task card," "dyad," "quick write"); question beliefs and practice; reflect on practice; develop inquiry strategies; develop shared goals; create procedures and structures for carrying out community goals; build trust and respect among participants; expect participants to negotiate their own learning agenda and shape the processes used ("drive the bus"); integrate different perspectives, negotiate shared practices as well as generate and own shared meanings; honor the decisions and choices of the group; meet regularly over long periods of time; and do (home)work between meetings. Holding such practices in common became a foundation on which Cammie and Carol could build mutual confirmation of such practices. As they told stories in the PD inquiry group confirming these shared practices, Cammie and Carol apparently felt their professional identities were sustained.

According to Wenger (1998), identities are evidence of what practices and meanings matter to us. However, identification does not necessarily mean that one is able to negotiate and shape such meanings and practices. In addition to identification, other aspects of belonging or membership involve being able to have a say about what practices are valuable and experiencing ownership of the
meanings and practices with which one identifies. As we will explore further in the next section about agency, an important aspect of Cammie and Carol's shared repertoire was their collaborative negotiation and ownership of meanings and practices.

*Agency: Stories of Negotiation and Shaping Practices*

Building on Wenger's (1998) definition of negotiability, I discuss agency as situated in the context of a community in which one is invested and with which one identifies. In such a context I characterize agency as influence one has over that community's meanings and practices. In this sense, exerting agency involves being able to negotiate, take responsibility for, generate and shape one's own and the community's practices. It can involve enlisting the collaboration of others or owning the negotiated meanings of a community. Wenger further claims that there is tension between a community's valued practices and individuals' experiences of competence and identities. In other terms, rather than being static, agency can be pictured as a "dance of agency" which involves interplay between a community's established practices and individuals collectively engaged in creating new practices or modifying established ones (Pickering as cited in Boaler, 2002a, p. 116). Boaler also described agency as how actively one relates to knowing. That is, whether one sees one's role only as using established practices in contrast to engaging, playing with or creating new knowledge (personal communication, K. Best, March 6,
Similarly, agency has been portrayed as improvisation when faced with problematic situations (Holland et al., 1998). Agency, then, can be thought of as persons and communities operating along a continuum with standard practices or established ways of knowing at one end and innovations at the other end. Thus, in a dance of agency, individuals and communities actively engage or improvise with standard practices as they negotiate or invent practices in evolving situations.

Agency stories do not always depict agency explicitly. Instead, they may portray a person's ability to influence what happens in a group or a storyteller's ability to generate new meanings or practices in a particular community. Thus, we may find evidence of exerting agency by looking at stories portraying a person's ability to generate or improvise practices, or negotiate, influence or claim ownership of meanings. Stories that uncover authority, influence, authorship, autonomy, a sense of control, responsibility, questioning, having a voice, creativity, generativity, choice, confidence, or ownership are ways a narrator may reveal agency. Agency stories can also include situations that describe not exercising or being unable to exert agency – for example, feeling coerced, controlled, unconfident, powerless or following imposed or established rules rather than being inventive, generative or exercising choice.

Working in the context of schools, Connelly and Clandinin (1999) seem to point out issues of agency when they define several kinds of stories that arise on the "professional knowledge landscape" or educational context (p. 2). As we have seen,
they divide this landscape into two kinds of spaces: an out-of-classroom space
"filled with knowledge funneled into the school system for the purpose of altering
teachers' and children's classroom lives" through imposed, theory-driven
prescriptions and an in-classroom space in which teachers and their students "are
free to live stories of practice" (p. 2). They use the term "sacred stories" to describe
such educational mandates and they use the term "conduit" for the funnel through
which sacred stories are delivered from policy makers through administrators to
teachers (p. 3). They describe classrooms as safe havens where teachers are able to
engage in their own stories of practice, saying that these stories are generally
"secret stories," shared only with their students and trusted colleagues (p. 3).
Teachers whose secret stories differ from sacred stories around them can create
"cover stories" that seem to align with accepted stories of school while allowing
these teachers to "sustain their teacher stories" (p. 3). To connect these ideas from a
school context to the context of this study, we can think of the metaphor of
parallels that Carol described in the previous section. Specifically, Carol described
"parallels" she saw between experiences of teachers and students in classroom and
school contexts and experiences of facilitators and teacher leaders in professional
development, specifically inquiry group, contexts. Using Connelly and Clandinin's
constructs, then, we can see inquiry group facilitators' secret stories as expressing
ways they experience their agency being fostered or sustained. Similarly, we can
view sacred stories and the conduit as representing policy mandates that may
discourage or constrain facilitators' sense of agency.

To make sense of data concerning a dance of agency, we need to look at the
context or community in which it is being enacted. That is, one might feel
confident, influential and generative in one community while experiencing a sense
of being unable to contribute or negotiate meanings in a different community. For
example, a teacher might tell secret stories of confidence and creativity in relation
to the classroom while experiencing constraining sacred stories being told in the
school around him or her. Similarly, as we will see, it appears that for Cammie and
Carol, their abilities to exert agency felt different in inquiry groups from their
experience in other contexts in which they worked.

In this section, I look at examples from Cammie and Carol's individual and
shared stories of learning, teaching and professional development. As we have seen
in previous sections, Cammie and Carol each relocated from a different community
in which they had felt competent, generative and influential to a new-to-them
community of inquiry group facilitators. As novice members in an inquiry group
community, they initially experienced being peripheral or feeling unsure about
what practices were valued and their own competencies. As they moved toward full
membership in that community, Cammie and Carol increasingly felt like they were
able to negotiate meanings and shape valued practices, that is, exert agency in that
context. We can learn of Cammie and Carol's perceptions of exerting agency by
looking at stories in which they did or did not improvise or play with standard practices or did or did not negotiate with the tension between a community's valued competencies and their own experiences of competence. To begin with, I examine Cammie and Carol's perceptions of first, exerting agency and second, feeling encouraged and sustained, in the context of inquiry groups, to exert agency. Then, I explore ways that Cammie and Carol experienced having their exertion of agency discouraged.

*Agency Exerted and Encouraged*

Cammie and Carol told five kinds of stories about ways that they felt they exerted agency and ways inquiry group participation encouraged and sustained their ability to do so. The first three kinds of stories usually occurred in the context of the PD inquiry group while the last two kinds of stories were largely set in the context of teacher leader inquiry groups. Cammie and Carol described ways that in the context of inquiry groups, they: (a) shaped and reshaped their own professional developer practices; (b) negotiated what practices were valued competencies; (c) supported each other when they felt their agency was being discouraged; (d) encouraged teacher agency; and (e) helped to modify District mandates in ways that enabled agency for themselves or the teacher leaders with whom they worked. There was more emphasis in some stories on their sense of exerting agency and in other stories they focused more on ways that inquiry groups helped them to exert agency. In many stories the two were intertwined.
In writing about agency, Pickering (as cited in Boaler, 2002a) describes creating bridges between standard or established practices and practices that are modified or improvised to fit new situations. Thus, I suggest that one sign of exerting personal agency is choosing to change or reshape one’s practices. Cammie and Carol told many stories of shaping and reshaping their practices. To establish context and contrast, I first look at their stories of initial difficulties exerting agency. Then, I look at ways that, by choosing to shape or reshape their own practices, Cammie and Carol perceived that they were exerting agency.

Cammie's agency stories of shaping and re-shaping her own practice contrasted with her views of the ways she was taught. Cammie's story about her teacher education graduate school experience indicated that in graduate teacher education courses she changed the ways she worked from following established practices to learning to improvise practices to fit new situations. Although this example does not take place in the context of inquiry groups, it informs our understanding of a basic tension Cammie says she experienced when called on to improvise and generate new or modified practices across many contexts.

My schooling was definitely middle class where you're rule bound, taught to follow, do as I do, that sort of thing. Going through school I’d always been taught standard algorithms.... So my grounding as a teacher was in this notion about teaching algorithms. But when I went to Graduate School... my teacher education professors never taught [me] to become a teacher to teach algorithms. Quite the opposite.
...When I first started teaching I was looking for that from my professors and from other teachers in the school. Just tell me how to do it and I'll do it sort of thing. And it really bugged me when they would say things like, "Well, you just need more experience with it. Here, try some of this out and then see what you think." Oh, I was so mad they wouldn't tell me. ...

I had to learn to trust myself, to ask my own questions, to think critically about things because I don't think I was taught that growing up. And so I had to be aware of how my background had shaped me as a teacher, as a teacher leader and as a professional developer. It helps me to understand my bias and how I approach things when I'm thinking about structuring professional development for others, or encouraging others to support their colleagues.

Cammie claimed that her educational background led her to want to follow rules, to expect to teach by following given, established practices and, similarly, to teach students to follow standard mathematical algorithms. That is, she was not expected nor did she expect herself to exert personal or communal agency. In graduate school she experienced "the opposite." She was expected to "trust" herself to "try some of this out," that is, to improvise practices. Cammie says she learned to ask "her own questions," most likely about what practices she thought worked well, and to "think critically" – or critically reflect on her practice – rather than becoming "a teacher to teach algorithms." When Cammie described how being asked to improvise "bugged" her and made her "so mad," we can suppose that the degree of agency she was being asked to exert at first frustrated her or made her feel uncomfortable. Although she did not label it as such, Cammie's perception was that her teacher agency changed in graduate school as she engaged evolving classroom
contexts and learned to dance along the continuum away from following rules and doing as she was told toward improvisation and generativity. Calling it her "bias," Cammie said that she continued to be aware of her background and tendency to want to move the dance of agency toward following rules as she planned professional development, such as inquiry groups, for teacher leaders. When she said that it "helped" her to recognize this tendency, it seems she may have meant that it helped her to include more improvisation in her own facilitation practice and in ways that she supported teacher leaders to work with other teachers.

Cammie's stories of changing her practice from workshop leader to inquiry group facilitator are striking examples of her perception that she exerted agency by reshaping practice. We examined these stories earlier in terms of learning and identity. Cammie's stories of initially resisting what she perceived as radical changes to her practice and then making such changes willingly, indicates that despite the initial tension she experienced, she felt that she chose to change her practice. That is, she experienced exerting agency. "I think I was probably resistant, because it's like, 'What? What I've been doing this whole time has not been effective?'" In fact, we can look at her resistance itself as an attempt to negotiate which practices would be considered valued competencies in her community. For two brief examples Cammie said,

I remember you describing how these professional communities would work and how in between meetings teachers would do homework, and we
were like, "Homework?! They will never do homework. We wouldn't assign it and they they'll, won't do it. There is no way we are doing that. . . .

You said that you have to meet more regularly. "No way, they will never meet more regularly. You know, we can't ask them to do that."

Cammie claimed that she argued against assigning homework between meetings or meeting more often because she thought such practices would not be effective since teacher leaders would not agree. Inquiry groups characteristically meet regularly for substantial blocks of time to allow ongoing, in depth discussions to develop (Ball & Cohen, 1999; Thompson & Zeuli, 1999) Viewed from her present perspective Cammie described how at the time she was asserting her agency by advocating for "what I thought I knew to do. That's what I thought professional development was about, you know."

However, despite her initial resistance, Cammie described reshaping her practice in ways that were meaningful to her. No one coerced her to change her practice. Recall that to align one's practices by submitting to certain rules is different from negotiating how those practices will be shaped. In the first case one cedes power to authority; in the second case, one claims authority and exerts agency (Wenger, 1998). Cammie evidently felt she exerted agency by reshaping her practice because in her "heart of hearts" she recognized that inquiry groups would be more "effective practice for what we stated our goals were, which was we wanted a powerful learning group, you know, teachers who were really effective leaders...." She claimed that she chose to change her practice.
I mean, y'know, it threw me into a little bit of disequilibrium, which allowed me to be open to changing my practice. And so I was both excited by the idea, because it resonated so deeply. And I think I was probably a little bit intimidated by it because it was so ill defined.

When Cammie said she was "open to changing" her practice and "excited by the idea, because it resonated so deeply," she was asserting that it was her choice to change her practices from workshop leader to inquiry group facilitator. Choosing to change one's practice is a marker for exerting agency.

It is important to underscore that Cammie's stories of reshaping her practice were set in the context of the PD inquiry group. The resistance stories above were part of Cammie's response to an interview question asking her to describe a turning point in her practice as a professional developer. Cammie recalled,

I can think of an event, was a meeting that I had with you and Carol when we were sitting around the round table at [District] office. ... And those were still the times leading up to that point where we would, y'know, we would have a middle school math [meeting] coming up, and it would be like, okay, what are we gonna do. (breathlessly) We have to do something that is going to be good for them; it is going to push them; they can take it back to their teachers. But it was always us, y'know, figuring out what it is was they needed, ostensibly. Y'know, doing PD to them, PD du jour. ... So you sat down with us, and you asked us questions and made suggestions to help us see that there were other possibilities for the potential of this group. ... I think you were trying to put us in disequilibrium to help us see what it was we were doing and not doing with that group, that the practice that we were doing was not particularly effective practice for what we stated out goals were, which was we wanted a powerful learning group, you know teachers who were really effective leaders in their schools, who were great practitioners, but. You asked us questions to help us realize that our current mode of providing professional development, you know the workshop du jour, really wasn't getting us where we wanted to go. So I don't know what you asked us. I don't remember what you said anymore. It's just too, just too many years ago now.
Here we can see Cammie setting the scene, "a meeting that I had with you and Carol when we were sitting around the round table at [District] office." Her specificity about where we sat seems to establish that for Cammie the context was memorable and important. Interestingly, this contrasts with her lack of specificity about what was said. She did recall the gist of our conversation, "questions to help us realize that our current mode of providing professional development, you know the workshop du jour, really wasn't getting us where we wanted to go." Note that Cammie remembered being asked questions that led her to learn about inquiry groups – "put us in disequilibrium to help us see" –and, as previously discussed, decide to reshape her practice. That is, she did not recall being told what to do, but instead perceived opportunities, or encouragement, to "realize" that there "were other possibilities for the potential of this group" and for reshaping her practices, or exerting agency.

When Carol related stories about the year she started to work at the District office, she described, as we have seen, several instances where she experienced that her agency was constrained. I re-examine one of these stories to highlight Carol's perception that she was trying to exert agency, or making a bid to negotiate what practices were useful and valuable. I then look at another familiar story in which Carol claimed that through inquiry group participation she was able to exert agency with greater confidence.
I was wanting to make this idea of looking at student work feel really valuable to the teachers. I was kind of trying to tweak what [our consultant] did and try to figure out a way ... teachers would walk away saying, "This [is] cool, I get this. I get why this is important." So, I spent a bunch of time looking at student work and stuff and kinda tweaked some things to make it more specific to math, more specific to the actual problem that we were looking at. And, I felt like, like I owned it, okay. You know it wasn't the consultant's thing that I'm doing, it's like my thing that I'm doing.

One way to look at the dance of agency is to observe the tension between one's own experience of what practices are valuable — that is, what works to accomplish one's goals — and what practices a community considers are standard, established and valued. In this case Carol says that she found the established practice — "the consultant's thing" — was not as effective as it could have been. Carol expressed her critique in two ways. First, she claimed that she wanted teachers to find it valuable, implying that in its original form they might not see its value. Second, Carol did not think that the established procedure would work well because it was not specific enough to the context — mathematics and the particular problem — in which the teachers were working. Carol then "spent a bunch of time" modifying the consultant's procedure for looking at student work. That is, she felt she exerted agency by changing a practice and claiming — by using her more specific version with teachers — that it was more valuable than the original. Additionally, Carol claimed to feel that she "owned it." Ownership of meaning is another characteristic of exerting agency (Wenger, 1998).
In this instance it appears that Carol experienced her attempt to exert agency as being undermined.

I felt like I did do it that time – 'cause I made the stuff my own and I wasn't using someone else's. I felt good about it and then I felt slammed down for doing that. I also think that goes to show my lack of confidence and the power I let ... [my colleague], have over me.

In saying that she felt "slammed down" and let her colleague have power over her, Carol expressed her sense of having her agency be discouraged. Feeling pressured or coerced is a sign that one perceives one's agency is being limited (Wenger, 1998) in relation to a community's established practice (Boaler, 2002a). Further, a sense of confidence is a characteristic of agency; by saying she lacked confidence, Carol was apparently indicating that she felt discouraged from shifting the agency dance away from following standard practices.

Yet, Carol also told stories of experiences in which she felt encouraged or supported to exert agency. The following year, as part of our PD inquiry group work, Carol and I developed a presentation for a conference about our inquiry group work with teacher leaders. The year after that – the third year of our collaboration – Carol, Cammie and I, again in the PD inquiry group context, created a presentation for a different conference, in part based on the first presentation.

As we collaborated in the PD inquiry group to develop the conference presentations about facilitating teacher leader inquiry groups, Carol found that "it
helped me, you know, drawing those parallels between teachers to students and professional developers to teachers, working with teachers, that there really isn’t a lot of difference, that you still want good instructional practices." Supported by research she read to prepare for the presentations and by our PD inquiry group conversations, Carol felt more confident about being able to explain her educational values and practices.

Like I think I intuitively know stuff and [working on the presentations] help[ed] me like solidify that intuitiveness by looking at research that supports it and it makes me be stronger in, like making a pitch for, how I want to do something. I feel like I have a ground to stand on, not just, "This is what I want 'cause..." I mean it just makes me more confident....

When Carol claimed that working on the presentations and "looking at research" helped her to become "stronger in ... making a pitch for" how she "want[ed] to do something," we can perhaps interpret this phrase to mean she felt better able to articulate what practices she thought were valuable. In other words, she experienced exerting agency by negotiating and owning meanings. Being able to negotiate and claim ownership of meanings are signs of exerting agency (Wenger, 1998). Carol also said she gained a sense of confidence, another marker for agency. Although she did not name the PD inquiry group explicitly, Carol claimed, as we have noted, that preparing these presentations, which occurred in the context of PD inquiry group conversations, helped her to become more articulate about her inquiry group practice. That is, we can gather that Carol, by
owning meanings and practices, felt better able to exert agency in the context of her PD inquiry group participation.

**Negotiating Practice**

When the PD inquiry group met during the year of this study, members frequently described and reflected on previous teacher leader inquiry group meetings or planned for upcoming meetings. Here, I examine two examples of PD inquiry group conversations in which, in Cammie and Carol's views, they and other participants collaborated and negotiated which practices were valued or collectively reshaped practice. At our fifth PD inquiry group meeting Cammie told a story about an inquiry group meeting of middle school teacher leaders, focused around supporting other middle school teachers who were teaching algebra using the New HS Curriculum, and posed a question about her practice. Since the conversation was quite long I share a few excerpts to provide context, then present part of the dialogue relevant to negotiating practice.

[We] kind of laid out, so here are the tasks we have to get done tonight. And then I said, oh, I forgot to get the computers. You guys figure it out, about how we are going to do it, and I'll be back, and I left. And that was a little bit of a strategic move, because I wanted to see what would happen. ...

What ended up happening is that there were two people in particular who ended up working together on planning the [next two] district-wide algebra meeting[s]. ... Which is fine, 'cause they have a structure where the first hour is about a special topic that's been identified as vexing for teachers at large, and then the rest, the second hour is about planning the next chapter that's, collaboratively planning the next chapter that's coming up.
Thom and Bill ended up planning the two district MS algebra meetings. So I sat down with that group, because Thom's been really clear about how ... [as a new teacher leader] he doesn't really know what he is doing. ... And he gets a lot out of this group. He gets a lot [of] support for himself. So, in this group you have some people who are really taking on leadership and going for it, and other people who are consuming professional development for themselves and not really doing a whole lot in terms of leadership.

Cammie sat down with this small group, listened to their conversation for a few minutes and realized that they were off task, "and I'm looking at the clock thinking okay, we've got half an hour or 40 minutes or something here to plan these two meetings, and you guys are just off doing this stuff." Cammie then described how she quietly enlisted another teacher leader to join the group and help complete the planning. Iris asked:

Iris: How did Thom and Bill get put together?

Cammie: Beats me.

Susan: You were out of the room.

Iris: Oh, so this is a choice of their. . .

Cammie: So yeah, so that wasn't, not that I would have separated them per se. I mean it's fine if they work together, but it just brings up about, so what does leadership mean. They've done this now, enough now in small groups that as facilitating these meetings, that I assumed that they would do what they've done for these other planning meetings which is they would look at the topic, they would think about a protocol or a way that they wanted to structure it to get at it, and then talk through the details, because that's what they have done in the past. Those two guys did none of that....

Cammie then reflected on her facilitation choices:

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7 Pseudonyms.
And my discomfort was not about the fact that I had said, okay, we’ve got these things, figure it out. I think that was a fine choice, even though it did have some clear disadvantages, drawbacks, because I, because I trust the group to do it. Yet when I saw them together I did have this kind of, oh, [expletive], in the pit of my stomach....

After additional reflection and discussion in the PD inquiry group about Cammie’s facilitation and how the meeting went, Carol returned to the issue of leadership.

Carol: I guess, my question is, and this is, I think it's called a hypothetical question maybe, but like Bill has been on the leadership team as long as I can remember. He is a total flake. He's terrible at facilitation. He's terrible at planning. He hasn't gotten any better. He sometimes says kind of insightful things at meetings if you can keep him in check, like when you have good facilitators in your group, you know? So, you know, and I think that we have really done a really good job about trusting teachers, like to rise to the occasion. I think we've done that really, really well. And he's never risen. ... So, what do you do with that?

Cammie: So you got to press him. I mean, he’s, and he is aware of it, too. Like when he talked about his learning edges at the last meeting, that's exactly what he talked about, that he – I want to actually pull it up. ... Here it is. OK, so he said, he says, "when I plan I have the parts, but putting the right parts and the most efficient parts together is a struggle for me."

Susan: And I actually, I’m hearing that sometimes he doesn’t even have the parts.

Carol: I think he doesn’t have the parts often. I think he, I think he really lacks confidence. Like he does the thing, like at district presentations, like he'll co-facilitate. He'll just sit there and giggle and make jokes, and I don’t think it's, I don’t think it is to demean a person, his co-facilitator. I think he's really nervous.

Cammie: Really uncomfortable.

Carol: He's very uncomfortable so he acts like a kid....
Susan: So this is an interesting conversation to me, because it is about, it's about so what do you do when somebody, you know, that you have been trusting for a long time isn't rising and how do you help them get past the, "Oh, yeah, I know I am not good at that," place and really think about changing, think about really learning whatever it is. And at what point do you say, "Well, you don't seem to be willing to do this, at this point in your life."

Cammie: Well, I don't know if it is a matter, okay, so, so I would say it's fair to cut somebody loose if we've done everything that we can do to support them as leaders, and I'm not convinced I have done that with this group. I know what my style is in terms of developing leadership, but there's some people who need more explicit feedback. A lot of times we will debrief these things and peop.. everything comes out as far as I'm concerned. It's all said. It's all put on the table, but whether or not you choose to learn it, is a different story, or, or can even hear it is a different story.

Carol: Or it doesn't apply to me.

Cammie: Yeah.

Susan: That's a piece of hearing [inaudible].

Cammie: So I don't know. Maybe I need to do some things differently. Maybe I need to say to Bill this is what I've noticed. This is what, where we're going or what we need to do, you know. For this meeting we have identified these two areas. Part of your responsibility is to sit down and think about a protocol that we could use to elicit these ideas. I'm happy to do that with you, but the expectation is that you do it, we write it up together, you're there on time, you've thought it through and you actually follow the plan, and then we talk about how it went.

Susan: And, what if that doesn't happen?

Cammie: And then we have to decide if we cut him loose or not, I mean.

Susan: But he needs, if you are going to do everything that you can, he needs to know in advance consequence, possible consequences.

Cammie: Is it about consequences?
Susan: Well, that’s probably not the right word.

Cammie: I mean, do you want to cut people loose like Thorn.

Carol: Oh, yeah, and he's new, though.

Cammie: Right, he is brand new.

Carol: And you don't see a lot of promise there, but...

Cammie: Right.

Susan: But people have surprised us before.

Carol: ...OK, I'm drawing the parallel between principals, leadership, instructional leaders and us, leadership leaders.

Susan: Leaders of leaders.

Carol: Leaders of leaders, that principals are afraid to push teachers, afraid to call teachers on their stuff, right. That's the culture of schools. It is like, yeah, you know, you try to remove barriers so that good teachers can flourish and stuff and they flourish and you go, "Great." But then you have this teacher that's really struggling and you keep checking off the thing, and you know... 

Susan: Which thing, the evaluation?

Carol: The evaluation that says you know, they're still on, because like I don't want to take this guy on because it'd be really hard. It's an implicit, it's implicit.

Susan: It's a norm but it's implicit.

Cammie: Yeah, that's right.

Carol: Teachers are allowed to become good teachers, you know, that's great. ... They're choosing to ... to work hard to be a good teacher. You're choosing to push yourself outside of that comfort range and try new things .... Bill is not doing any of that, and we are implicit in letting him not do it.
Cammie: Complicit.

Carol: Complicit, thank you, that’s the word…

Carol: But yeah, because I know, because I'm guilty of that with Bill.

Cammie: It is like Horace’s compromise.

Carol: Well, it's like I keep, kept with Bill, like going, You know he has some stuff to offer, he does, and if you can kind of keep in check and he doesn’t like go off and do all this whacky stuff, he does okay. But he's never stepped up to facilitating a meeting.

Cammie: Well, he has, but he just doesn’t follow through.

Carol: Well, that’s what I mean. That's what I mean, he's never stepped up to actually do it. Like I'll go meet him and plan with him, and then he comes, and even when he comes and he is on time and he is ready to facilitate. I have to facilitate the meeting because he doesn’t.

Susan: So, so the word complicit made me think about what you were saying about supporting the other discipline [specialist] teams. There is a complicity if you don't speak up about the process for [curriculum] adoptions [that administrators are forcing them to follow]. There's, and I’m fascinated when you talk about that implicit norm of [teachers] getting checked off. It's like social promotion, right, which is another implicit norm in some places.

Cammie: (under her breath) This is so interesting.

Susan: What we're talking about here are those hidden taken for granted things, and we're beginning to name a few, that are structuring the way instruction happens.

As the conversation continued a number of other examples of the "implicit norm" were mentioned.

Susan: I almost wonder, and then I hear you all talking about how in some schools, y'know, I’ve heard you talk about worrying that even the leadership group, not everybody’s instruction is great. Last time, I think we talked
about fidelity, you know. And, um. So I'm wondering about this accountability, this not holding people accountable, and where. There is power there, because what you're also talking about is holding principals accountable.

Cammie: Well, and principals, like you said, principals don't press poor teachers. Directors don't press [the superintendent].

Carol: Directors don't press principals.

Cammie: Directors don't press principals. It's just, it's insidious, in the whole culture of the system.

After a short digression Cammie returned to the original issue of facilitating teacher leadership.

Cammie: I think that’s really interesting, okay. So what I need your help in, and not today but maybe at our next meeting, is I want to talk more about how you press leaders. How do you coach leaders, particularly poor leaders? I need help in that. How do I press Bill? And how do I decide when to press Thorn? All that kind of stuff, and how do I press [a different teacher], who's really quick to have the answer and she's done with it. How do I press her to dive deeper?

In this conversation PD group participants developed, through their negotiations of meaning, several insights about their own and District practices as well as what practices they valued. For one, Cammie and Carol evidently realized that in order to foster teacher leadership part of their responsibility was to "press," or urge, teacher leaders to "choos[e] to push [themselves] outside of that comfort range and try new things." Second, they also negotiated the value of holding themselves accountable for supporting teacher leaders. Finally, they observed a
pattern, a culture of practitioners and supervisors not holding one another accountable for improving practice.

First, Cammie and Carol seemed to recognize that they had not sufficiently encouraged Bill to push himself to try to learn new competencies, or valued practices such as planning and facilitating. Carol said,

Bill is not doing any of that, and we are implicit in letting him not do it.

Cammie: Complicit.

Carol: Complicit, thank you, that’s the word.

A little later in the conversation Carol added, "I know, because I'm guilty of that with Bill." Cammie said she needed to give more explicit feedback to some teacher leaders. "I know what my style is in terms of developing leadership, but there's some people who need more explicit feedback." She suggested specific feedback she might give Bill. "Bill this is what I've noticed," and then clearly outlining what was expected of him. Here, Cammie and Carol were beginning to negotiate what practices were valuable – or effective – in encouraging a struggling teacher leader to lead.

A second insight involved accountability. In my role as inquiry group participant I asked a two part question. The first part asked how to go about encouraging teacher leaders to learn and change practice. The second part asked about when do you, as Cammie said, "cut somebody loose?" In other words, how do you know when to ask someone to leave the leadership group? Cammie
responded by saying that first she had to do more to "support" or "coach" such teacher leaders.

Cammie appeared to be talking about her own accountability as a – in Carol's words – "leadership leader." That is, it seems that Cammie was unwilling to hold Bill accountable until she felt that she had fulfilled her responsibilities to "press" and support him to become a better teacher leader. In this case Cammie apparently was negotiating about meanings of leadership and accountability and, at the same time, she showed that she placed a priority – a value – on her own responsibility before she called the question on one of the teacher leaders.

A third perception that developed from the PD group's negotiation of the meaning of leadership involved looking at a bigger picture in the District. This insight recognized that not holding others accountable was systemic.

Carol: OK, I'm drawing the parallel between principals, leadership, instructional leaders and us, leadership leaders.

Susan: Leaders of leaders.

Carol: Leaders of leaders, that principals are afraid to push teachers, afraid to call teachers on their stuff, right. That's the culture of schools....

Cammie: Well, and principals, like you said, principals don't press poor teachers. Directors don't press [the superintendent].

Carol: Directors don't press principals.

Cammie: Directors don't press principals. It's just, it's insidious, in the whole culture of the system.
Through negotiation of meaning and value, the group realized that there was an implicit norm that discouraged people in the District from holding one another accountable for learning to act in effective ways. While they did not explicitly refer to this collaborative realization as negotiation, Cammie and Carol gave the impression as the discussion unfolded, that this evolving insight was important. That is, they seemed to feel a new valued perspective and new meanings were developing. Cammie indicated both that it felt new and valuable to her when she said to herself, "This is so interesting." We can also see that Cammie and Carol perceived the conversation as generating a new perspective, or negotiating practice, in the repetitions in their dialogue about who did not press whom. Echoing one another, their dialogue became animated. Perhaps, they experienced it as putting questions about their own accountability into perspective. Additionally, Cammie returned to negotiating her own practice by asking that the group help her "to talk more about how you press leaders." By asking the group for help in negotiating and improvising more effective practices, it appears that Cammie saw an opportunity to create valued practices that would help her and encourage teacher leaders to become stronger leaders.

In this example of PD inquiry group conversation we can see a collective dance of agency. In their view, Cammie, Carol and their colleagues questioned the established practice of ignoring issues of struggling or ineffective teachers, teacher leaders, and others. That is, by making an implicit norm explicit these facilitators
were exerting agency. When Cammie asked the group to help her improve her practice, she was also exerting agency by expressing her desire for the group to help her reshape her own practice and negotiate what practices the group should consider valuable.

In the next example of negotiating practices we can again observe Cammie, Carol and others in the PD inquiry group discussing which practices members of this community considered valuable. During the fourth PD inquiry meeting of the year, they examined the differences between the roles and tasks teacher leaders in the MS and HS Facilitator Groups were being asked to take on during the year of this study. Below are excerpts of a much longer conversation.

Carol: I have to say one thing that is a huge difference, though. Do you mind if I talk for a minute more, or three? So this whole thing highlights the difference, because we're not asking these people – you're asking middle school teachers to do something different than we are asking these [high school] teachers to do. We are asking these [high school] teachers to go back and be leaders in their building and collaborate in their building. We're, and the stuff that's going on with middle school is more district wide. Every one of the comments that you had said was a district-wide thing. . .

Cammie: That's right.

Carol: Which strangely enough, it's far less threatening.

Cammie: It's a lot easier, a lot easier.

Carol: It's really hard to facilitate in your own building. . .

Susan: Do [MS teacher leaders] facilitate groups in their schools?

Cammie: No, most of them don't. . . Well, we're not asking them this year.
Susan: No, I know we are not.

Cammie: It is not structured at all to ask them that.

Susan: I know, I know.

Cammie: Which is a problem and a loss for the middle school, because they have, particularly with like the eighth grade kids who are now struggling. I mean, these guys who are facilitating the New HS Curriculum algebra kids in middle school, they're dealing with largely the cream of the crop, right. So no wonder life is a bed of roses in some respects for them. But we haven't asked them to deal with the MS Curriculum and the really hard issues, because we are dealing with getting New HS Curriculum going and [the] Passages\(^8\) [inquiry group]. We have to figure that out.

Carol: ... So the, the district-wide assessments are pushing on that [school-based teacher collaboration focused on instruction]. Do you want, I guess so do you want to, is that a part of like the Passages group? ... 

Cammie: Well, we don't have. The problem with middle, like with high school, you have all your high schools represented with New HS Curriculum. With middle, some [teacher leaders] are New HS Curriculum [facilitators] and some are Passages. ... There is no one [inquiry] group that encompasses all the sixth, seventh, and eighth grade teacher [leaders]. So they all have slightly different focuses which makes it a lot trickier to push on.

Carol: What if you did a little bit of work around District-wide assessment with them?

Cammie: We can, it's just that's part of what gets tricky, you know, those poster[s] we [the Passages group] made with all the stuff that we're doing, we have already pushed things aside that we want to do.

Carol: Right, oh, I know.

Cammie: It is like we are bringing one more thing and then it takes you away from your focus. It's so... 

\(^8\) Members of the Passages inquiry group included elementary, middle and high school teacher leaders focused on easing student transitions from elementary to middle and middle to high school.
Carol: Oh, no, I know.

Cammie: It's a real tension.

Carol: The whole thing that we were talking about, the whole business, like, because I have been doing some business with the facilitators, high school business, and there's not enough time for it. And then, yeah, anyway...

Cammie: Yeah, you're right. I appreciate the effort to think about how to put them together. I don't know, I don't know that that's an issue that we're going to solve this year without some serious thinking about restructuring and goals and new groups and all that stuff. I don't know that it's realistic to tackle it, but I think it is really important to think about, to figure out how we are going to do this next year, particularly with the more K-8s.

Carol: Well, there's that.

This discussion could be characterized as negotiating competing values. That is, Cammie and Carol each seemed to value when teacher leaders facilitated collaboration among their school colleagues and, at the same time, they seemed to value when the agenda for an inquiry group was crafted by participants. According to Hawley and Valli (1999), effective inquiry groups often involve both participant-driven learning (Darling-Hammond & McLaughlin, 1995) and school situated collaboration focused on improving instruction and student learning. In some circumstances these valued inquiry group practices probably would not compete, but it seems that, from Cammie and Carol's perspectives, in this instance it was necessary to choose between them.

Out of a conversation about the differences between what middle and high school teacher leaders were being asked to do, it became clear that Cammie and
Carol realized that high school teacher leaders were being asked to "be leaders ... and collaborate" with their school colleagues while middle school teacher leaders (because there were far fewer algebra teachers in middle schools), were working with eighth grade algebra teachers from across the District. When Cammie said the decrease in school based collaboration was "a problem and a loss for the middle school," she was making a statement of value. She was evidently placing value on having teacher leaders facilitate collaborative groups, that is, inquiry groups, in their own "buildings," or schools, in order to examine "really hard issues," or solve educational problems. She mentioned the example, "eighth grade kids who are now struggling."

Carol suggested that there might be a way for some middle school teacher leaders to lead and collaborate with their school colleagues in examining instruction. She recounted that having teachers collaboratively discuss student results from "district-wide assessments" was an effective way to "[push] on that [school-based teacher collaboration focused on instruction]," and then Carol asked, "Do you want, I guess so do you want to, is that a part of like the Passages group?"

Here, it seems that Carol's hesitation – "I guess" – and rephrasing of her question from "do you want to" to "is that a part of," may indicate that she wanted to negotiate a practice in a way that respected Cammie's leadership of the Passages group. At first it seemed she was going to make a suggestion on the order of "why don't you try this?" As she reworked her sentence it appeared to be asking a
question about whether that suggestion would be appropriate. A little later in
the conversation Carol was more direct, "What if you did a little bit of work around
District-wide assessment with them?"

Cammie's response indicated that she experienced Carol's question as being
"tricky" and embodying "a tension." This gave the impression that she was
weighing alternatives. Her priorities seemed to involve practices that she felt were,
in this situation, disparate and it seems that she felt pulled in different directions.
On the one hand, Cammie apparently saw the value of collaborating with teacher
leaders to focus on assessment and instruction so they could use these ideas to
collaborate with school colleagues. On the other hand, she seemed to value the
priorities the Passages group set, rather than "push[ing] things aside" by
introducing a new activity. The Passages group had developed its own agenda for
the year and depicted it in "those poster[s] we [the Passages group] made with all
the stuff that we're doing." To introduce assessment work would be "like we are
bringing one more thing and then it takes you away from your focus." In other
words, Cammie wanted to continue to concentrate on the group's chosen "focus," or
agenda. It appears that Cammie felt concerned about suggesting a new activity that
could "take ... away from" teacher leaders' choices. However, when she said that
she wanted to consider how to incorporate more in-school collaboration the next
year, Cammie indicated that she also valued that activity. "I think it is really
important to think about, to figure out how we are going to do this next year...." In
this way, it appears that Cammie was showing that she, as well as Carol, valued the practice of school based, instruction-focused collaboration even though she preferred to continue with the teacher leaders' chosen focus. Here then is an example where negotiation took place without consensus being reached. "I appreciate the effort to think about how to put them together. I don’t know, I don’t know that that’s an issue that we’re going to solve this year."

Cammie and Carol seemed to experience exerting agency in this discussion. For example, Cammie's use of the words "issue" and "solve" seem to show that she experienced this discussion as problem solving, or in other words, negotiation. Being able to negotiate is a marker for exerting agency. Carol's perceptions of exerting agency seem less apparent. However, by repeating her suggestion that Cammie could introduce District wide assessments, taken with Carol's assenting phrases after Cammie raised disagreements or issues – "Right, oh, I know" and "Well, there's that" – it appears that Carol, too, experienced their conversation as negotiation.

Support When Presented with Constraints

Cammie and Carol perceived that, in the context of the PD inquiry group, participants supported one another's valued practices when they felt those practices were being constrained by others. Recall the PD inquiry group conversation from their second meeting of the year – discussed in the previous section about identity – in which Carol asked for help to plan a principals' meeting she was to facilitate with
a colleague who was not part of the PD inquiry group. That colleague disagreed with Carol's approach. Carol and her colleague had a long planning discussion, which Carol characterized as an argument.

Carol: So planning [the principals' meeting] with her is really, really frustrating for me 'cause we go around in circles like this. And she's seen me present a thousand times, she knows I'm not a talking head, she knows I facilitate, and yet every time we sit down to plan we argue.

The PD inquiry group supported and collaboratively refined Carol's initial facilitation ideas into a plan that Carol was confident about using. At the end of their planning discussion the group returned to the issue Carol raised about how to deal with her co-facilitator.

Iris: And what you're gonna have to do with [this colleague is say], "This is what we're gonna do."

Cammie: Uh, huh.

Susan: Yeah.

Carol: I could do that. It's really helpful for me to get feedback 'cause like I'm sitting there talking to her and she's like looking at me like I'm crazy. And to get feedback from you guys is really helpful because like I don't know if I'm crazy. Sometimes I am.

Iris: But it's like you said she's, she doesn't recognize herself as a talking head, but she is a talking head. And she doesn't wanna do that, so. You're not crazy, you're just Carol.

Cammie: (laughs) Thanks for clarifying this time (laughs).

Carol: Thank you. That was really helpful.
Carol felt frustrated by what she considered to be her colleague's arguing for a plan that involved "talking head[s]", or lecturing, when Carol wanted to negotiate or collaborate to modify or generate new ways of working with them. Carol seemed to feel that her ability to exert agency was being constrained by being unable to negotiate with her co-facilitator. She felt they were going "around in circles," or in other words, not getting their planning done. When Carol said, "she's like looking at me like I'm crazy," and "I don't know if I'm crazy. Sometimes I am," Carol was claiming that what she felt was her colleague's quarreling caused her to wonder whether her ideas were sound. Perhaps, Carol felt it undermined her confidence. By collaborating with Carol to refine her initial plan, the PD inquiry group validated her practices. By assuring her that she needed to just tell her colleague how they were going to facilitate, rather than continue to argue, the group supported her to deal with the constraints she was experiencing. Carol thanked the group for affirming her valued practices and helping her to be more confident about asserting their worth – that is, exerting agency – when she worked with her co-facilitator. Her thanks gives the sense that she felt the group supported her when she sensed her agency was being constrained.

At the same meeting Cammie also raised a perceived constraint and asked for the PD inquiry group's help to deal with it. Cammie was concerned about the new Passages inquiry group that she and Iris co-facilitated. Recall that the focus of
this group was to find ways to support students during the difficult transitions from elementary school to middle school and from middle school to high school.

Cammie: My worry about it is that, I wanna choose my word carefully, [the Passages group is] not a sanctioned group in the way that, if you are a MS or HS Facilitator that is a sanctioned group by the [District administration].

Later in the conversation she added,

Cammie: And so, I'm really cognizant of how the most successful efforts are bottom up with top down support. ...it feels like this is sort of groundbreaking work with respect to this transition stuff and it feels really ill-defined and so I don't want it to be a waste of time.

After further discussion to clarify her concerns, the group recalled some of its history together as a way to encourage Cammie with her work.

Carol: I just wanna say though, that one of the things that you said Cammie was, that you guys don't have the support. I would disagree with that a little bit, I think that the district really wants the transitions figured out... that's really a buzz word. ... They gave us that directive a year ago ... I think they really want the transitions figured out....

Susan: I also remember ... the sixth grade algebra unit was sanctioned by nobody.

Cammie: Uh, hmm.

Susan: But it was an example of teachers ... stepping up and taking charge.

Cammie: Uh, hmm.

Susan: The same thing happened last year around those District wide assessments. You stepped up and said okay you want District wide assessments? We're not gonna do it the way you think we're gonna do it but we are gonna do it.
Cammie: Well, they didn’t even tell us to do District wide assessments, we saw it coming down the pike with [common curriculum] assignments and we said we’re gonna do it.

Susan: Oh, [common curriculum] assignments, whatever.

Cammie: They didn't make us do it. Yeah.

Susan: Yeah.

Carol: Yeah I was actually kind of going to say the same thing, like the sixth grade algebra wasn’t sanctioned by anybody and that took on a life of its own, it was very powerful.

Cammie claimed to be concerned that the Passages inquiry group's work might be "a waste of time" because this teacher leader inquiry group was "breaking new ground," that is, generating new ideas, or exerting agency, but their task was not "sanctioned," that is, approved and supported by the District. In other words she worried that at some point the District might constrain, by rejecting or undermining, the work teacher leaders in the Passages inquiry group accomplished. Cammie apparently recognized this group's project as a "bottom up" – teacher leader and facilitator initiated – effort and she was concerned about not having "top down" – District – support for it.

Here again the PD inquiry group found ways to support a colleague in the face of a perceived, possible constraint to exerting agency. Carol responded to Cammie's concern by reminding her that District administration was interested in the topic of this project. "The district really wants the transitions figured out. ...they gave us that directive a year ago." Additionally, Susan and Carol related a
story of past experience about generating new ideas and practices – creating the sixth grade algebra curriculum unit. Susan reminded Cammie that being successful was not necessarily dependent on being sanctioned, while Carol seemed to assure her that this work could be "powerful." The words "stepping up," "taking charge" and "powerful" all seem to connote a sense of exerting agency. In this way, the PD inquiry group conversation encouraged Cammie to continue her generative, collaborative work.

After recounting past successes and encouraging Cammie and Iris, her co-facilitator, to continue to figure out with the teacher leader group, in Iris' words, "what is it now that we're gonna move the district with," the PD inquiry group conversation turned to collaboratively planning the next Passages meeting. It seems that Cammie perceived this recounting of history as supporting her to continue to break new ground, or exert agency. We can see this when she joined in the activity of describing past experiences in which a facilitator and teacher leader initiated inquiry group activity – District wide assessments – was successful, as well as in her realization, "They didn't make us do it. Yeah." Further, by moving right into planning the next meeting, rather than continuing to pursue the issue of the group not being "sanctioned," it seems that Cammie's may have felt that her concern was allayed by the inquiry group's support.
From their perspectives, Cammie and Carol's practice with teacher leaders reflected the value they placed on encouraging teachers and teacher leaders to exert agency. Here, we examine Cammie and Carol's perceptions of their work with teacher leader inquiry groups. We observe their perceptions that as they facilitated inquiry groups they encouraged teacher leaders to exert agency. We also look at ways that Cammie and Carol view such work with teacher leaders as exerting agency themselves. Cammie told and re-told stories where teacher leaders "drove" their learning and leading. In her story about shifting from workshop leader to facilitator of inquiry groups, a story we have examined in terms of learning and identity, Cammie also focused on fostering teacher agency.

You [Susan] asked us questions to help us realize that our current mode of providing professional development, you know the workshop du jour, really wasn't getting us where we wanted to go. ... What you said resonated with respect to thinking about how, if teachers are going to be, if you are going to develop their agency, per se, that they had to be involved in learning together. And they had to be driving this bus, instead of us saying this is what you are going to do every time sort of thing. And that notion really resonated because I recognized the truth in what you said. You know, it hit me in the gut in a very powerful way. It was a very key moment.

Cammie's metaphor that teachers and teacher leaders need to be "driving this bus" apparently incorporates several meanings pertaining to agency, including taking responsibility, negotiating meanings and choosing to shape and reshape practices. Her metaphor seems to convey the idea of teachers and teacher leaders taking responsibility for collaboratively learning, or "learning together." It also
suggests that, from Cammie's perspective, teachers and teacher leaders need to be involved in negotiating how that learning is shaped, rather than having Cammie and her colleagues decide "this is what you are going to do every time." One design principle Hawley and Valli (1999) include in describing effective professional learning is the need for participants to identify their learning needs and be involved in developing the learning processes used.

For Cammie, driving the bus seems to be an important metaphor for exerting agency because she used it in several stories over the course of this study. Describing, and apparently critiquing, her workshop practice Cammie said:

I would come up with an appropriate activity that seemed to be a good activity for teachers to engage in. Such as, oh, we played [a] game. ... It was a contained activity I could do in that one 2-hour chunk and teachers could take it back if they wanted to or not. But it wasn't in service of anything larger. It wasn't part of a thread of something that was tying the work together. It wasn't, it also wasn't driven by teachers.

Cammie used her driving metaphor again when she described her current practice with teacher leader inquiry groups. "The work is more clearly defined. The teachers are much more involved in driving it. We're kind of figuring out ... what to do together at the next meeting during our current meeting." Here, Cammie portrayed teacher leaders in inquiry groups as generating and shaping, or as she said, "defining," their learning content and processes by planning their agenda at previous meetings. In Cammie's view, teacher leaders were choosing to change practices by shaping their own learning. From a situative perspective, changing
one's practice is a sign of exerting agency. Thus, we can construe that Cammie viewed teacher leaders as exerting agency.

On another occasion, in recounting the evolution of teacher leader inquiry groups over several years, Cammie said, "...we shifted that culture and we really took these interesting baby steps towards trying to develop a, the group where participants actually, drove what was going on." A little later she continued,

I think we're getting better, and when I say, "we," I don't mean just "us, we" in this room, but I think "us" and the teacher leaders are getting better at...becoming leaders in the face of these changes, that that there's enough, that there, we built a, a foundation, if you will, of collaboration, so that, kind of regardless of the task with a critical mass of teachers now, they come together and they go for it.

In these passages Cammie seems to be connecting exerting agency (in the form of collaborating to solve problems "in the face of changes"), and leadership. When she called it a cultural shift, Cammie seemed to recognize that differences between workshops and participant-driven inquiry groups involved major changes while she also apparently acknowledged that these changes were incremental by using the phrase, "baby steps." When Cammie used the words, "becoming leaders," and "go for it," we can surmise she was indicating that, in her opinion, teacher leaders as well as Cammie and her facilitator colleagues were learning to, or "getting better at," exerting agency. When she emphasized that there was a "foundation of collaboration" among teacher leaders and facilitators, Cammie
seemed to be saying that leadership, or exerting agency, in these contexts was a communal, as well as individual, effort.

In telling stories of encouraging teacher leaders to exert agency Cammie seems to also be narrating tales of exerting her own agency. First, when she said she changed her practice from leading workshops to facilitating inquiry groups – for example, from presenting a "contained activity" to encouraging participants to "drive the bus" – she was indicating that she chose to reshape old and generate new practices. Choosing to reshape and generate new practices are signs of exerting agency. Further, when Cammie connected leadership and exerting agency, she was negotiating and owning meanings of leadership. Negotiating and owning meanings are also characteristics of exerting agency. Last, it appears that Cammie considered inquiry groups – in this case, teacher leader inquiry groups – to be contexts that fostered and encouraged participants to exert agency. Her statements at a PD inquiry group meeting, "I think we're getting better, and when I say, 'we,' I don't mean just 'us, we' in this room, but I think 'us' and the teacher leaders are getting better at...becoming leaders" and "we built a, a foundation, if you will, of collaboration" seem to indicate that Cammie believed that participation in ongoing, collaborative inquiry groups helped to foster leadership, or exerting agency, for herself, her colleagues and teacher leaders alike.

Carol also told stories of supporting teacher leaders to exert agency. In the story we have seen before about a teacher leader inquiry group developing an
algebra unit for sixth graders, Carol perceived that participants exerted agency. This inquiry group examined and shaped the way a state mandate for increasing algebra understanding among sixth graders was enacted. Despite initial resistance ("they wanted to prove to the state that it was not okay that sixth graders should be doing algebra"), Carol and teacher leaders generated new curriculum. Carol claimed that the teacher leaders showed commitment. ("The teachers were incredibly committed. We met, at our regular scheduled meeting times, and then we met many other times in addition to that. They came in and did extra work."). She also thought they showed ownership ("They owned every single piece of the work"). Additionally, from Carol's viewpoint group members were involved in negotiating goals and the means for accomplishing them ("I feel like everybody had total buy-in"). Generativity, ownership, and the ability to negotiate are all markers of exerting agency. Carol thought that this experience was "was great professional development for every single one of us that participated in it." In other words, Carol highly valued the ways that she and the teacher leaders successfully created new practices, or exerted agency.

Looking at it from a somewhat different perspective, Carol recognized that the teacher leader participants shifted from feeling coerced – a sign of reduced personal agency – to exerting agency. The State was testing sixth graders "at really high levels for algebra," and the inquiry group felt that "it was not okay that sixth graders should be doing algebra, that they were too young." However, once they
"proved to themselves, that, yes they could do algebra in sixth grade," the group chose to create new practices and shared them with all the other sixth grade mathematics teachers in the District. By proving to themselves the need for more sixth grade algebra and choosing to generate new practices, in this case, curriculum, Carol, as group facilitator, seemed to recognize that teacher leaders were exerting agency rather than simply complying with established State expectations for practice.

One of the ways that Carol contrasted workshops and inquiry groups was by emphasizing the kind of leadership involved. Like Cammie, Carol seemed to connect leadership and exerting agency. Here we can look at leadership as being able to negotiate meanings and which practices a community should value.

It is a different model and what we've seen in the last couple of years with the work we've done, with the inquiry work, with the ... the secondary mathematics teacher leaders in this last year is that working as a part of it, you know, on the ground floor, that it's working. [The teachers] are buying in....

It's like from the workshop model to the, kind of, I mean ... we are working together, you know, the teachers are – it's not like we are guessing what they need. We are finding out from them what they want, what will help them with their work, and working together. And they're, they're, they bring the struggles and problems and we work together to help them with those. We all work together to help with those, all the teachers, all the teacher leaders. So it goes from the "Hi, we are going to tell you blah, blah, blah, blah, how to do this, that and the other thing," to shared leadership. In this passage Carol spoke about teacher leaders exerting agency. Being able to negotiate what community practices to value is an aspect of owning meaning (Wenger, 1998), or exerting agency. When Carol said she and her
colleagues were "finding out from" teacher leaders "what they want, what will help them with their work," she was apparently claiming that teacher leaders negotiated and shaped their learning experiences. Carol was emphatic about the collaborative, inclusive nature of her work with teacher leaders to solve problems of practice, that is, to negotiate meanings and practices. Her emphasis seems clear in her repetition of phrases such as, "we work together to help," "we all work together to help" and "all the teachers, all the teacher leaders." Carol called the process of encouraging all participants to negotiate practices by collaboratively determining their learning agenda and solving problems of practice, "shared leadership." Wenger claims that ownership of meaning can be shared and when it is shared "can widen participation ... and thus increase ownership for all participants" (p. 200). From a situative perspective we can surmise that, for Carol, leadership involved the ability to negotiate and in her view, inquiry group practices encouraged all participants to do so.

Carol's stories of encouraging teacher leaders to exert agency, like Cammie's, also seem to point to her perceptions of exerting agency herself. It appears that Carol felt that she had learned to facilitate in new ways. That is, she chose to change ways that she facilitated. We can see her view of reshaping her practice in her use of the words "from" and "to" in the related statements, "It's like from the workshop model to the ... it goes from the 'Hi, we are going to tell you blah, blah, blah, blah, how to do this, that and the other thing,' to shared
leadership." Choosing to reshape or change practice is an indication of exerting agency. Additionally, when Carol described "shared leadership" as leadership that is inclusive and shared, we can see in her repetition of words such as, "together" and "all" that she seemed to include herself as a leader, that is, a person exerting agency. Her stories of shared leadership, like Cammie's, take place in the context of teacher leader inquiry groups and, also like Cammie, this seems to indicate that Carol viewed inquiry groups as contexts that fostered and supported her as well as teacher leaders to exert agency.

Modifying Mandates

Shaping one's practice, generating new practices or negotiating modified practices are indicators of exerting agency (Boaler, 2002a; Wenger, 1998). When they told stories of instructional mandates imposed by District administration – what Connelly and Clandinin (1999) call sacred stories – Cammie and Carol often narrated ways that teacher leader inquiry groups modified such directives in ways that Cammie, Carol and, from their viewpoints, teacher leaders also seemed to perceive as improvements to mandated policies. Carol and Cammie also perceived that creating such modifications fostered their own and teacher leaders' agency. Further, by involving teacher leaders in reshaping mandates, Cammie and Carol seemed to recognize that rather than experiencing such directives as being imposed by a different, District administrator community, the practices they negotiated could be owned and valued by members of the teacher leader community. When
practices are imposed on a community, its members can experience their sense
of agency as being constrained, whereas modifying or generating new practices can
be experienced as exerting agency.

The math team anticipated District mandates and, in the context of inquiry
groups, Cammie and Carol found ways to include teacher leaders in shaping how
prescriptions were implemented in mathematics classrooms. Modifying or shaping
practices is a characteristic of exerting agency. For example, in her second
interview Cammie said,

So professional development takes so many forms now. If we look at our
leadership groups, that's one form where they are charged with specific
work that is co-constructed by us and developed and implemented and
carried out to the district by us, collaboratively. So there's that work. There's
the work at professional development days ... [now] where the work's really
clearly laid out by the leaders, the teacher leaders, who are working with
their peers during the PD days. So, yeah, do I have input on that? Of course.
Am I a liaison between the administration and teachers? Of course. So there
are certain things that we have to do, because that's our mandate but we're
given an awful lot of flexibility about how to do that.

In this passage Cammie claimed that teacher leaders collaboratively
responded to "specific work" with which they were "charged," that is they
responded to District mandates in innovative ways. She described her "liaison" role
as communicating District administration's instructional expectations to teacher
leaders, collaborating with teacher leaders to co-construct – or take responsibility
for shaping – how these sacred stories would be enacted, and then sharing with
teacher leaders the responsibility for communicating ("carried out") the modified
mandates with other teachers in the District on professional development days.

Cammie also indicated her perception that the math team and teacher leaders played a role in shaping how District mandates were enacted when she acknowledged that they had "an awful lot of flexibility" in "how to do," or implement, District prescriptions.

At our first PD inquiry group meeting Cammie reflected on the history of teacher leader inquiry groups as they responded to changes in District policies. We have explored parts of this passage earlier. Here, the purpose is to look at evidence that Cammie experienced and perceived teacher leader inquiry groups as helping to modify or shape District policies.

... each year that we do that, it took a slightly different form, and it morphed a little bit every year, and so I feel that its morphing again this year, because we have this high school adoption, because we actually have these K-8's now, ... so, because it, there's some external pieces that force the leadership group to change and be responsive, keeping these big picture things in mind. And so, I think we're getting better...and when I say, "we," I don't mean just "us, we" in this room, but I think "us" and the teacher leaders are getting better at, becoming leaders in the face of these changes...that that there's enough, that there, we built a, a foundation, if you will, of collaboration, so that, kind of regardless of the task with a critical mass of teachers now...they come together and they go for it. Some of the elements of the collaborative cultures that have developed in one group, come with them to the next group, so like I remember when we, we did like this whole numbers, we had to write number sense warm-ups for the MS curriculum, that was like 2 years ago, or 3 years ago now. It was a small group.... Thank God that's done. It was a small number of people who did it but, then when it came time to like, revise the stan..., oh then then we had to write the standard, revise the standards, and then we had to figure out how the standards aligned to, the new standards aligned to these lessons, and then we had to write these [district-wide] assessments. So these tasks
have changed and shifted and morphed over time, but the leadership continues to grow. It's like a ground swell. It's like a wave....

So I'm looking at our work last year with [district-wide] assessments and how, how powerful that particular group was, whatever my group was called, I forget, I don't think it was called [district-wide] assessments, but that is what we ended up doing all year. At any rate, how powerful and empowered they [be]came, and how they have just, so stepped up again and again and again.... I don't know where my point was.

Susan: That you so enjoyed this group.

Cammie: No, I was going back to what you were saying, Carol, about, you were talking about, what were you talking about?

Carol: It was (indiscernible)...(laughter)

Cammie: Oh! It was the, Susan's question about the balance between the tasks and the bigger picture, okay, so that's the long, long ramble. I apologize for that.

Susan: No, that's fine.

Cammie: The point being that, I think we're getting better at balancing the two within our groups. We're doing a lot of tasks and a lot of hard work and getting a lot of stuff done, but, this attention to the bigger picture still, is definitely happening.

Carol: And I think the participants, are becoming aware of the power of doing the task. Like, they're, they're, they used to, I think they used to think they were doing this task to help other teachers.

Cammie: Right.

Carol: And now they're getting, that in doing this task, it's great PD for them. And, and they're doing this task that hopefully will help out other teachers as well. But they get, they are starting to really get that the actual doing of it is a big part of it, I think.

Cammie: Which is why so many of them say, "Can I be a part of this group?"
In this discussion, which followed one of the conversations about participant-driven inquiry groups, explored earlier, Cammie recounted a number of District policies — or mandates — that were shaped, or modified, by teacher leader inquiry groups. She used the verb, "morph" to indicate that as policies were added or changed, teacher leader groups changed their focus, or "task." Cammie emphasized teacher leaders' sense of empowerment, or exerting agency, as they modified District policies. ("...how powerful and empowered they [be]came, and how they have just, so stepped up again and again and again") Her phrase "stepped up again and again" seems to indicate that she saw teacher leaders extending their sense of empowerment by choosing to be involved in further projects. That is, she saw them choosing to enact new practices, a marker of exerting agency.

In the conversation that followed Cammie's "ramble," we can observe that Carol and Cammie perceived that "doing [these] task[s]" not only fostered teacher leader learning — Carol called it PD — and agency, it also "hopefully will help out other teachers as well." We can perhaps surmise that here the phrase "help out other teachers" involved modifying policies so that they would be experienced by teachers in the District as useful rather than coercive.

As we saw in the last section, there were also times when Cammie, Carol and their colleagues anticipated directives before they were prescribed. Then, with teacher leaders, Cammie or Carol created versions of such policies that they seemed to perceive as being better than the expected mandate.
Susan: I also remember ... the sixth grade algebra unit was sanctioned by nobody.

Cammie: Uh, hmm.

Susan: But it was an example of teachers ... stepping up and taking charge.

Cammie: Uh, hmm.

Susan: The same thing happened last year around those District wide assessments. You stepped up and said okay you want District wide assessments? We’re not gonna do it the way you think we’re gonna do it but we are gonna do it.

Cammie: Well, they didn’t even tell us to do District wide assessments, we saw it coming down the pike with [common curriculum] assignments and we said we’re gonna do it.

Susan: Oh, [common curriculum] assignments, whatever.

Cammie: They didn't make us do it. Yeah.

Susan: Yeah.

Carol: Yeah I was actually kind of going to say the same thing, like the sixth grade algebra wasn’t sanctioned by anybody and that took on a life of its own, it was very powerful.

It is especially evident that Cammie perceived that she, her colleagues and teacher leaders anticipated District mandates when she said, "Well, they didn’t even tell us to do District wide assessments, we saw it coming down the pike... and we said we’re gonna do it." Recall also that in Carol's story about a teacher leader inquiry group creating sixth grade algebra curriculum she anticipated a mandate by observing the State's mathematics test. Carol explained the origin and evolution of this inquiry group this way:
We worked together as groups to, about something that we, that came from the team of teachers that they wanted to pursue. And our group was focused around the whole idea of algebra in middle school. And the first year we did that, we looked at [one unit from the curriculum] about algebra. The second year I proposed that, well, that the state had lowered their algebra expectations down to lower grades, to sixth grade was being tested at really high levels for algebra. ... And so, I was concerned about kids not being prepared because we didn’t have a good, we didn’t have any, the curriculum doesn’t use very much good algebra work, good strong algebra work in sixth grade.

Carol described noticing that the sixth grade State mathematics test expected "really high levels [of] algebra." Since she felt that the curriculum did not provide "good strong algebra work in sixth grade," Carol was concerned that students were not "being prepared" well. That is, based on her reading of the State test, Carol anticipated that District expectations, or mandates, were likely to change. Her response was to suggest – "I proposed" – to the teacher leader inquiry group that had chosen to focus "around the whole idea of algebra in middle school" that they needed to explore these possible changes. As we have seen, the result of their exploration was to enhance the curriculum by writing an algebra unit for sixth graders. When she interpreted the meaning of the State test and proposed a new course for the inquiry group she facilitated, Carol seems to have felt she was anticipating a mandate and experienced exerting her own agency.

Summary: Exerting and Encouraging Agency

In sum, Cammie and Carol described ways that in the context of inquiry groups, they exerted agency and encouraged one another, their colleagues and
teacher leaders to exert agency. For evidence we looked at five kinds of stories that Cammie and Carol told. They told stories in which they: (a) shaped and reshaped their own professional developer practices; (b) negotiated what practices were valued competencies; (c) supported each other when they felt their agency was being discouraged; (d) encouraged teacher agency; and (e) helped to modify District mandates in ways that enabled agency for themselves and/or the teacher leaders with whom they worked. Overall, we saw that Cammie and Carol perceived exerting agency to be an important characteristic of inquiry group participation. Although as we have seen, Cammie and Carol perceived many experiences of exerting agency, they also told stories of having their ability to exert agency curtailed.

**Agency Constrained**

In this section so far we have examined ways that Cammie and Carol experienced exerting agency. Now, we turn to situations in which they perceived their agency as being constrained. Connelly and Clandinin (1999) use the term "sacred stories" to describe "imposed prescriptions" such as "implementation strategies, …research findings, policy statements, plans, [and] improvement schemes" that are funneled down the "conduit" in an effort to apply such policies and standardized plans to schools, teachers and classrooms (p. 2). When meanings developed in one community are imposed on members of a different community – such as District or school administrators imposing policies on facilitators, teacher
leaders or teachers – it is difficult for members of that latter community to feel a sense of ownership of meanings and practices because they were not involved in negotiating them (Wenger, 1998). Wenger claims the experience of group members who are feeling imposed upon can be one of non-participation and they can perceive their agency to be constrained. Further, Wenger claims there is a close connection between an ability to negotiate, or exert agency, and identities. When one experiences a sense of not belonging or non-participation, it can lead one to not identify with a community, its work, meanings and practices. Cammie and Carol, who as we have seen, identified strongly with a community of professional developers who facilitate inquiry groups, seemed to perceive some actions taken by District administrators as changing, without their participation or input, practices and meanings in the community in which they worked. At times this led them to question whether they still belonged to or could continue to identify with their changing professional community. In the past Cammie, Carol and their colleagues were able to anticipate and modify new policies even before they were fully formulated and, as Connelly and Clandinin (1999) would say, funneled down the conduit. We have seen this kind of agency in stories explored earlier, such as when a group of teacher leaders wrote a sixth grade algebra curriculum unit. However, in their stories describing the growth of the District administrative conduit, Cammie and Carol perceived that this was becoming more difficult to do. When
administrators told competing stories about the shape of their work, Cammie, Carol and their colleagues found they had diminished opportunity to shape their practice.

Cammie and Carol felt that being responsive to anticipated prescriptions became more difficult as District administration sought to standardize programs, texts, and decision-making processes. District administrative hierarchy increased as a new superintendent put several levels of administrators in charge of curriculum specialist teams. Using Connelly and Clandinin's (1999) terms, Cammie and Carol saw a more robust conduit develop and perceived that sacred stories funneled down this conduit constrained their ability to generate or improvise practices, that is, to exert agency.

Cammie and Carol had been accustomed to negotiating and shaping their practice, setting priorities, deciding what professional development was needed and even finding outside funding for their work. From their perspectives, their relationship with District administration was complex – sometimes constraining their abilities to exert agency and sometimes offering support. However, during the course of this study, Cammie and Carol seemed to feel that their ability to exert agency was increasingly curtailed.

What follows are stories in which, from Cammie and/or Carol's perspectives, administrators constrained their agency. First, however, is an exploration of their sense of having more nuanced relationships with District
administrators. Then, I examine Cammie and Carol's stories of ways administrators' views of what their jobs should be and how they should do them competed with their own views. Third, I explore stories in which Cammie and/or Carol claimed to feel undervalued or underestimated by administrators. Last, I look at stories in which Cammie and Carol perceived they were being kept from negotiating policies about mathematics education in the District.

**Complex Relations with Administrators**

Although as we will see in most of this section, Cammie and Carol experienced their agency and autonomy being curtailed by administrators, they – particularly Cammie – also acknowledged ways in which they felt supported by administrators. From Cammie and Carol’s perspectives sacred stories – new policies and mandates aimed at increasing student achievement – came through the District’s conduit; sometimes these policies provided support for the math team's work, and sometimes they threatened to constrain the team's activities and how they were enacted.

During her third interview Cammie elaborated on her views of the math team's complex relationship with administration. In the past, when she and her colleagues had less direct supervision, Cammie perceived that their work was less visible and lacked administrative support. She also felt that she and her colleagues had greater freedom and responsibility to generate and improvise professional development practices, or exert agency.
Susan: I'm hearing going through a lot of your stories is how over the last several years, since the superintendent came in, that, in her effort to make things better, best of intentions, she has really constrained your work, and not just you personally, but. And that it has to in some ways, to your way of thinking, undermined your work.

Cammie: In some ways it has. I mean, in some ways it supported it, and in some ways it's undermined it. It's not clean.

Susan: How has it supported it?

Cammie: Before she came along, we used to operate in the crawlspace. I've talked to you about this before.

Susan: Yeah. Under the radar is what you've said in the past.

Cammie: Under the radar, under the radar all the time. We got what needed to get done with teachers. We always had ways to work with teachers, mostly through our grants that we wrote and got, that were not, didn't come from the senior management team. These were things that we saw the need and we wrote the grant – y'know, [we] involved the senior management team, but. And they were perfectly happy to sign off because it looked good, got money for the district ostensibly, they didn't have to manage it, y'know, we got things done. And that was a positive. The downside was that we weren't on anybody's radar screen so that we actually could support one another. So it was hard. This was the era of two minutes with the administrators, so they had no idea what we were doing.

Susan: So you didn't have the in-school support from administration.

Cammie: No, we didn't have a lot of it. I mean, they didn't know, they didn't know who we were. They didn't know what we did. Now they know who we are and what we do ....

When Cammie compared her past and present relationships, she made distinctions between different kinds of administrators. She claimed that in the past when she and her colleagues were "under the radar," school administrators – presumably principals and assistant principals – had little idea of what Cammie and
her colleagues were doing and did not offer much support for their efforts with mathematics teachers. At the same time, Cammie perceived that "the senior management team," or District administration, supported their work by allowing Cammie and her colleagues more freedom and responsibility to exert agency. For example, they wrote grants and designed professional development programs – "we always had ways to work with teachers." From Cammie's standpoint they had opportunities in the past to shape their practice, or exert agency. District administrators were "happy to sign off" on funding the math team found and "they didn't have to manage it." The phrase "sign off" seems to mean that Cammie found the administration did not look closely at what programs the math team initiated with the money. Cammie claimed that when they operated in the crawlspace they decided what "to get done with teachers." Saying that administrators "didn't have to manage" seems to indicate that, unlike with their current supervisors, their practice was not closely supervised or controlled.

Now, in contrast, Cammie claimed that her work and that of her colleagues had become visible and had the attention of administration. As we will see in Carol's story about her supervisors' reactions to meeting with the chief of high schools and visiting a teacher to offer resources – discussed in the next section about competing stories – Carol too appeared to be saying that her supervisors had taken notice of and were trying to control her practice. Cammie apparently viewed their present greater visibility as a mixed blessing – "in some ways it supported it,
and in some ways it's undermined it." Cammie claimed to see both benefits and
disadvantages from their increased visibility. On the one hand, administrators,
particularly some school administrators, were able to support the work they did
with teachers. On the other hand, Cammie and Carol seemed to be saying some
administrators, particularly those who worked at the District level, constrained, or
"undermined," their ability to shape their own practice, or exert agency.

At the fifth PD inquiry group meeting as a discussion about a research
article circled back to conversation about administrative decisions that participants
felt were "not best for kids ... or teachers," Cammie reflected on the math team's
relationship with their supervisors.

Cammie: Well, it seems like it is all a power grab.

Susan: What's a power grab?

Cammie: Who's in charge. I mean, we're pushing back against our bosses, if
you will, because they have some stupid ideas and they're afraid to push
back on the superintendent. And it's really interesting when you push back
on them, because sometimes they agree and they get it and they back down
and they change their minds, and other times they don't. So it forces you to
going underground, back into the crawlspace.

In this passage Cammie's use of the phrase, "power grab" seems to imply
that she saw her supervisors taking power away – grabbing – from Cammie and her
colleagues. That is, she perceived administrators were taking power by constraining
them from shaping their practice, or exerting agency. However, she also
acknowledged that at times her supervisors were open to negotiation or "push
back," saying "sometimes they agree and they get it and they back down and they change their minds." Cammie apparently perceived her agency was constrained when her supervisors refused to negotiate practices – "other times they don't." Her perception is underscored by her images of hiding "underground," "in the crawlspace" or "under the radar all the time."

Cammie and Carol seemed to feel they struggled with a dance of agency throughout this study. Occasionally they exerted their agency, claimed expertise by questioning supervisors' dictates, while at other times they said they resorted to telling cover stories and kept their secret stories among themselves. The push and pull between secret stories and cover stories is what they referred to on separate occasions when Cammie, speaking first, followed by Carol, said:

Cammie: It's really interesting when you push back on [our supervisors], because [sometimes]... they get it and they back down and they change their minds, and other times they don’t. So it forces you to go underground, back into the crawlspace.

Carol: I'm doing my job and [my supervisor's] telling me that I can't do my job, or she's telling me not to tell her what I do, because I didn't have to tell her what I was doing. I just thought she might want to know.

When Cammie said "push back," she was apparently indicating that sometimes she and her colleagues questioned their supervisors, or exerted their agency. From her point of view when supervisors understood and decided to not enforce a policy the math team disagreed with, Cammie experienced their initiative as supported. When supervisors were adamant, it seems Cammie felt the team
decided to tell cover stories and operate more secretly in the "crawlspace."

Similarly, Carol's phrase "I didn't have to tell her what I was doing," seems to imply that she was prepared to be more secretive as well. That is, when she felt her agency constrained, Carol saw one option was "not to tell her what I do," or in Connelly and Clandinin's (1999) terms, tell cover stories and keep her secret stories to herself.

*Competing Stories of Practice*

In their stories of administrators holding different views from their own perspectives about what their jobs entailed, Cammie and Carol showed that they perceived their ability to exert agency was being constrained. During her first interview Carol reflected on the first week of school.

Carol: I'm really frustrated right now because [our supervisors] are telling us what to do with our time, you know we can't do the work we need to do. ... I'm so frustrated.

Susan: Say more, if you want.

Carol: Just that, right now I need to be working with teachers, getting materials out to teachers. And they're making me sit in meetings for four days out of five.

In this short passage Carol claimed to be frustrated by her supervisors. She had specific ideas about what her practice should entail during the first week of school. She felt she needed to be out in the schools, making sure teachers had the mathematics materials they needed. From her viewpoint, her supervisors told a
competing story. They wanted Carol to attend meetings instead. Phrases like, "telling us what to do" and "making me sit in meetings" seem to imply that Carol felt coerced to conform to her supervisors' vision of her job, or in other words she felt her ability to shape her own practice was constrained.

In another example, at the first PD meeting of the year Cammie, Carol and Iris were discussing the work they needed to do and remarked that they tried to help one another because their jobs felt stressful.

Cammie: I really am trying to take things off your plate.

Carol: My point.

[Laughter]

Cammie: Yeah, y'know we both try to take care of each other because you just see the other person is so stressed. "Oh, my God, [our supervisor] wants me at this meeting, I have so much to do." She doesn't get it.

Iris: I think what you brought up, Carol, was, I think, is actually the essence of the frustration at [our] office.

Carol: Uh huh.

Iris: Is these people are telling us to do things with no understanding how horrible it is to be out [of the schools and in meetings] the first week of school, when, when you have all these transitions going on in the district. And they don't understand.

Later in the same conversation Cammie elaborated Iris' statement, "they don't understand," by being more specific about what she perceived their administrators did not understand.
Cammie: You know what I think is partly going on is that [our supervisors] are getting better at defining their roles in some very specific and focused ways. And they are not dealing with everything. Like [our supervisor] said to me, when I said, "You know, I am going to be coming in and out of this coaching [workshop] thing and I am not gonna be doing it the whole time," and she is like, "What do you have to do?" I just said, "Well," and I start reading it down, and she's like, she started to talk to me about, about prioritizing it. I was like, "No, ... that is not the point. Of course I know how to triage. Of course I am going to do the things that are most urgent first."

Iris: Mmm hmm.

Cammie: But, but I think it, it's a dual issue of them not understanding the scope of the work that we have done and continue to take on, number one. Our work is not narrow. It is not focused.

Carol: Mmm hmm.

Cammie: It is huge. It is comprehensive. It is complex. And that is part of what has moved us to where we are within the district.

Carol: Mmm. Mmm hmm.

Cammie: And number two, we don’t have people we can delegate to, unlike them.

In this PD inquiry group conversation we can discern several ways that Cammie and Carol perceived their supervisors held a different view of their jobs than they did. They claim their supervisor told them to attend a workshop when they felt that they needed to be in schools, supporting teachers during the first week of school. Their repetition of "she doesn't get it" and "they don’t understand" can be understood as pointing to competing views of what Cammie, Carol and their colleagues were responsible for doing.
When Cammie described the breadth of their job and compared it with her supervisors' "defining their roles in some very specific and focused ways," she may be saying that the supervisors assumed that she, Carol and their colleagues had similarly narrowly focused responsibilities. However, from her perspective their job was "not narrow... not focused. ... It is huge. It is comprehensive. It is complex." Further, Cammie seemed to value this complexity and credited it with having "moved us to where we are within the district." From her use of the word, "moved" to seemingly imply progress, Cammie apparently felt the math team had helped to improve mathematics professional development in the District. Carol's several "Mmm hmms" seem to indicate that she held similar perceptions.

Carol related another story in which she found her agency constrained by her supervisors' competing stories and limits they imposed. Unlike some of the other stories we have looked at, in this story Carol did shape her own practice and then faced unpleasant consequences. In her third interview she told a story of being censured and constrained by two supervisors for what she thought of as productive and generative work.

Carol: So the tension that I'm feeling today and probably on and off all fall, is the tension between the work I do – I feel like my job is to support teachers. That's the bottom line. That's what I do, is to listen to teachers, to fend for them, to listen, hear them and support them. And that could be like going out to their classroom, meeting with them and just listening to their story sometimes, or just hearing them. That could be it, because they need a voice. [Sigh] It could involve talking to the chief of high schools to talk about how some teachers are being undermined by others in the high schools by lack of professionalism and by a principal's not being able to
support [them]. ... So, yesterday [colleagues] and I met with the chief of high schools. And we really wanted to talk to her about what's going on. Anyway they were having their holiday party and [our supervisors] were down there. And they thought we were there for the party. When they find out that we're meeting with [the chief of high schools], they're like, "What?!"

Later that day Carol visited with a struggling special education teacher.

Carol provided some mathematics resources and helped her to work through some of the difficulties she faced.

So I did that, and then I went home, and I thought, oh, this was a good day, you know. I finally got out there to see [a special education teacher]. She felt so much better after talking to me. She's just been real stressed. And it's great talking to [chief of high schools], you know. It's like all in support of our teachers. I felt really good. So I get home, and by the time I get home there's a letter from [my supervisor], an email from [my supervisor], that kind of reprimands me for going out and working with an individual teacher, by saying, you know, you're not supposed to go out unless we tell you you can. ...

[My supervisor] had sent me an email about the same teacher about, I don't know, a long time ago ... "See what you can provide for this teacher." So along the way the teacher's come in and I have given her materials for different grade levels. Given her different resources. But she really wanted me to come out and meet with her and kind of try and make a plan, and so I did. So basically [my supervisor] told me to go work with her, and then I get reprimanded for doing it. It kind of pisses me off. .... I'm doing my job and she's telling me that I can't do my job, or she's telling me not to tell her what I do, because I didn't have to tell her what I was doing. I just thought she might want to know. .... So I'm thinking she is pissed that we were talking to [the chief of high schools], and that's why she's responding that way.

[The next day, when I got to the office] I walk in, "[Your other supervisor] is looking for you. Where have you been? [He] has been asking for you. He has been here five times looking for you." Oh, okay. So I go to [his] office .... [He] does this in a really nice way, but he says, "So, I thought, y'know when I saw you guys yesterday at the District Main Office, I thought you
were going to the [holiday] party." ... You know, he's really nice about it, but then he's like, well, "Why were you meeting with [the chief of high schools]?" And ... I am like, "Well, I said she wanted to know about what's going on with math. She's getting phone calls from people and you know, she doesn't know what the answers are. She wanted to talk to us about that. And we talked to her about some research. We talked to her about problem-based learning. We talked about the adoption process, what we're doing to support teachers, dah, dah, di, dah." And so, you know, and he's like, "We need to be at the table at those conversations. You need to let us know when you know when you're going to be talking to anybody." ... And he's, "Well, you can't go and talk to her. You have to take one of us with you because, you know, things get misconstrued and, you know, you have to be very careful about what you say. Like what are you saying? You can't, we're not going to say it right." So, upshot is everything I did yesterday was, I was slapped on the hand for, doing my job. And it really makes me mad. And it's all about power with them. I don't think it is about power with us. I don't think it is with me. I think it's just about me wanting to do my job....

In Carol's story she and her colleagues initiated a meeting with the person in charge of high schools and later the same day Carol chose to visit a teacher to offer resources and support. Carol described these collaborative actions in ways that show she thought of them as generative. She evidently valued them because they advocated for and encouraged teachers. "I feel like my job is to support teachers. That's the bottom line." In other words, she was dancing away from established procedures toward exerting personal agency.

In this story Carol was not being asked by supervisors to follow specific procedures but she felt she was being told that her autonomy needed to be reigned in. In other words, her supervisors were being prescriptive instead of prescriptive. From Carol's viewpoint they wanted more control of how she used her time or shaped her practice. That is, from her perspective, her supervisors were trying to
constrain her ability to improvise practices, or exercise agency. When she said, "it's all about power with them," she was apparently saying that her supervisors were trying to force her compliance with practices they valued, for instance asking for their permission before meeting with someone. Carol had little or no hand in negotiating such policies and it seems she experienced her agency being constrained for reasons more to do with control, in her words, "power," and less to do with the point of her job, which in her view was to support teachers. In other words, Carol perceived her stories of practice were about supporting teachers and her supervisors' competing stories were about power.

In her third interview Cammie told a story that contrasted District administration's sacred stories about how curriculum materials should be chosen with a collaborative process she and her colleagues had developed in the past. In her story Cammie perceived that her agency was probably going to be constrained.

We know we're overdue for [a middle school curriculum] adoption. We've been talking with the [administrators] about this, and could see this becoming a reality in the next couple of years. Which means we need to start the process of thinking about how we want to do this now. Because this is a process that I envision will take a year to a year and a half to do, to do it right. Right? So I'm very concerned that they are going to say, yeah, it's your turn and you are going to do it in the same way we've done it [with other content area teams]. Here's your constraints. This is what you can do. This is what you can't do. You will be consistent with these other departments. You will, y'know ...will decide which five sets of materials we're going to look at. We'll put them in the room. Everyone will come and look at them and then we will decide and end of, end of story. So I think that is just a disaster waiting to happen. ... I'm very concerned about that particular process coming up. When you look at the kinds of professional development, things that are being done in the name of professional
development for these other content areas with respect to [their] adoptions, it basically amounts to putting teachers in a room and telling them this is the way it is. So I'm worried about that.

Later in the same interview Cammie elaborated.

Cammie: Yeah, the [adoption] process. Because part of what happens with us, it was the [specialists] in charge of the process. Now it's the [administrators] in charge of the process and the [specialists] are supposed to be the little minions and carry this out. ... You know, the process isn't as important to them. They don't see it as professional development. They see it as getting a task done.

Susan: Right, and, and you're not saying that it is not a task.

Cammie: No, but it's way more than just a task. Right. So, yeah, I don't trust that they're going to say that we can do what we want, especially with, the superintendent's push is for much more uniformity in the name of equity than ever. And it's playing out in all sorts of arenas....

From Cammie's story we can infer that, from her perspective, a long, ongoing collaborative learning process – e.g., an inquiry group – was needed to work with teachers and teacher leaders to choose a new curriculum. She thought of it as "professional development." Cammie also described what she saw as administrators' competing story – that curriculum adoption was a task to be accomplished quickly and not necessarily in a participatory fashion. Cammie perceived that administrators were now "in charge" and that she and her colleagues had little power to shape the process. They were considered "little minions."

Cammie's choice of words seems to say that Cammie experienced the power administration had over her and she felt belittled by having such limits imposed on her ability to negotiate and generate practices.
Moreover, Cammie directly said that she expected administrators to constrain her efforts to shape the process, that is, to exert agency. "Here's your constraints. This is what you can do. This is what you can't do." Cammie also referred to a "push," by the superintendent toward "consistency" and "uniformity"—or standardization—of practices. That is, according to Cammie, the most powerful person in the District demanded that Cammie and her colleagues follow established, rather than negotiated or improvised, practices. In a dance of agency, following established practices is a move away from personal or collaborative creation, that is, agency (Boaler, 2002a). By eliminating the possibility of negotiation, demanding alignment to established practices can create a sense of non-participation (Wenger, 1998), or constrained agency.

Cammie and Carol apparently faced difficult choices. Perhaps, this is what they referred to when they talked about feeling stressed. Should they stand up and risk consequences of supervisors' disapproval? Should they acquiesce and risk finding themselves in an environment that does not support their professional identities and agency?

At the end of the conversation in which Cammie was concerned that she would have to undertake a curriculum adoption process she characterized as "a disaster waiting to happen," Cammie revealed just how difficult she experienced the constraints on her agency to be.
So that's why I'm concerned that even though we may have, we can set forth a clear plan, that she's going to say no because she knows that if other content areas hear that, Oh, well, they're doing it differently in math, they get to have a representative from every school and they get this longer process and blah, blah, blah, blah, she'll eat crow.

Susan: She this time being the superintendent or the directors?

Cammie: The superintendent. The directors are simply carrying out her, her wishes. That is clearer than anything to me now. She's, the superintendent used to have a much larger inner circle. It's tiny. She makes decisions. She expects other people to operationalize them. And you better, when she says jump, you better say how high.

Susan: Wow. What do you think – well, I don't want to get off there. OK, What might you do?

Cammie: Quit.

Susan: Might you?

Cammie: Yeah, I might. You know, I have to, I see people who, whose autonomy has been severely curtailed in other content areas, and they're paying a pretty heavy emotional price for that. And I have to decide where I draw my line in the sand.

From Cammie and Carol's perspectives administrators increasingly wanted to control what they did. In this passage Cammie seemed to be saying that as constraints increased she realized she did not want to cross her "line in the sand."

Drawing a line in the sand can be thought of as creating a safe space in which she was able to exert agency. Cammie evidently did not want to pay the "heavy emotional price" that could come when her safe space was breached and her agency was curtailed. Being able to negotiate "refers to the ability, facility, and legitimacy to contribute to, take responsibility for, and shape the meanings that matter within"
a community (Wenger, 1998, p. 197). Having one's ideas ignored can indicate a lack of such legitimacy. In this way it can lead to developing an identity of non-participation. Recall that experiences of not belonging or non-participation in a community can make it difficult to identify with that community, its work, meanings and practices. In this context, we can look at Cammie's thoughts of quitting as an indication that she could envision a time when she would be unable to identify with the District's community of mathematics professional developers, a community that she had helped to create and in which she had participated as a central member for many years.

Feeling Undervalued and Underestimated

Another way that Cammie and Carol indicated that they experienced a sense of non-participation was by telling stories of feeling undervalued or underestimated by supervisors. One brief example of feeling undervalued can be seen in Cammie's previous tale about competing curriculum adoption stories. When she said, "part of what happens with us, it was the [specialists] in charge of the process. Now it's the [administrators] in charge of the process and the [specialists] are supposed to be the little minions and carry this out," it seems that Cammie felt that unlike the past when she and her colleagues were "in charge," now she felt she was considered "little," or belittled, and a "minion," or subservient. In other words, rather than being considered a generative participant in negotiating a process, as Cammie seems to have considered herself, her supervisors, from her perspective thought she
and her colleagues were "supposed to" follow the practices established and
standardized by administrators.

An additional example of feeling underestimated arose in Cammie's
conversation with her supervisor when her supervisor suggested that Cammie
should prioritize her many tasks.

Like [our supervisor] said to me, when I said, "You know, I am going to be
coming in and out of this coaching [workshop] thing and I am not gonna be
doing it the whole time," and she is like, "What do you have to do?" I just
said, "Well," and I start reading it down, and she's like, she started to talk to
me about, about prioritizing it. I was like, "No, ... that is not the point. Of
course I know how to triage. Of course I am going to do the things that are
most urgent first."

Iris: Mmm hmm.

Cammie: But, but I think it, it's a dual issue of them not understanding the
scope of the work that we have done and continue to take on, number one.
Our work is not narrow. It is not focused.

Carol: Mmm hmm.

Cammie: It is huge. It is comprehensive. It is complex. And that is part of
what has moved us to where we are within the district.

When Cammie replied to her supervisor's suggestion by stating that "of
course" she knew how to "triage," she seemed to be saying that her supervisor did
not know Cammie and underestimated her capabilities. Further, we can construe
Cammie's suggestion that her supervisors did not appreciate how comprehensive
her and her colleague's job was, to be another indication that she and Carol ("Mmm
hmm") felt their competence and effectiveness was being underestimated. It also
can be construed that they perceived that their supervisors did not recognize that their work "moved" the District forward. We can perhaps understand this to mean that Cammie and Carol sensed their effectiveness was being undervalued.

In Cammie's third interview she told another story of feeling undervalued by District administrators.

Cammie: The administration really, I don't think. It's like, they have conflicting beliefs about us, you know.

Susan: Yeah.

Cammie: They have no idea how smart we really are. [Laughter]

Susan: Say that again.

Cammie: They have no idea how smart we really are.

Susan: And competent.

Cammie: And competent, they just, they just don't.

Here again we can see Cammie's sense that administrators underestimated Cammie and her colleagues. Although, her acknowledgement that administrators "have conflicting beliefs about us," recalls her sense that the math team's relationship with administrators was complex, Cammie felt that their intelligence and competence were not appreciated. In fact, Cammie felt "they have no idea."

Prevented from Negotiating

When policies affected mathematics education, it appears that Cammie and Carol perceived that they and their colleagues wanted to be part of the
conversation. That is, they wanted to help negotiate mandates that would affect their practice and the work mathematics teachers did in their classrooms. The ability to negotiate in a community can lead to ownership of meaning (Wenger, 1998) and a sense of agency. Conversely, being unable to negotiate can lead to a sense of being marginalized and can be understood as constraining agency.

Carol described her sense of being unable to negotiate about District mandates in a conversation about administrators' new prescribed process for choosing curriculum texts.

What they're doing, which is like having to be forced to do something that you don't believe in, or that you believe – not even that you don't believe in, but that you believe is wrong. ... And the more, the more I am in this job I think ... I just to have to like keep my mouth shut sometimes, because I think what's going on is wrong.

Carol started by saying she felt she was being coerced ("forced") to comply with a policy with which she disagreed ("don't believe in"). She became more emphatic when she amended her statement, moving from a negative — what she did not believe — to a positive belief ("believe is wrong"). From her statement that she "just [has] to keep [her] mouth shut," it appears that Carol felt precluded from negotiating, or even revealing, her strong disagreement about the administration's process. Feeling like she was being coerced and silenced, are two ways that Carol apparently showed her perception that she felt unable to negotiate, or in other words, her agency was being constrained.
In another example, Cammie and Carol indicated they felt their agency was constrained by being excluded from conversations in which policies affecting mathematics education in the District were negotiated. At the fourth PD inquiry group meeting the conversation turned to issues of first year algebra.

Iris: Well, now I'm even more worried about it knowing that these principal committees are going on.

Cammie: And who's on the committees. So let's fill in Susan. Do you want to do that?

Iris: So yesterday at our math [team] meeting with [our supervisor] – that was yesterday, right – he told us about these K-8 subcommittees, or whatever, these principal committees. And one of the issues is about structures and the issue of algebra and it has me worried, because you asked [indicating Cammie] if one of the directors who's been pushing all kids, all eighth graders to be in algebra is on that committee. And he said yes, which worries me because we don't have a voice in that group. And I mean, I don't know if they want to hear our voice. I just hope it is not based upon their recommendation that a decision will be made.

Cammie: Right, because [a certain principal]'s the chair, which concerns me.

Iris: Which concerns me big time for any math decisions, because she doesn't know math.....

Carol: What I'm afraid is going to happen is just exactly what's been happening to us and when I say us I mean you all. You guys are having to clean up the mess that is being created by administration constantly. That's what your job has been these last 2 years.

Iris: Well, they're not letting us into the decision making.

Carol: Right. They're, it's like they are not letting you into the decision making. You are not part of the thinking of it. You just have to make it happen and you have to clean up their mess.
Here, Cammie, Carol and Iris described their perception that they might not be allowed to negotiate an important policy regarding mathematics learning in the District. They used the words, "concern," "worry," and "afraid" to invoke their anxiety about being kept from participating in the decisions. They used phrases like "we don’t have a voice," "I don’t know if they want to hear our voice," "not letting you into the decision making," and "not part of the thinking of it," which seem to mean that they felt they would be excluded from negotiating, or in other words marginalized. Since being able to negotiate is a mark of exerting agency, we can understand these phrases to mean they felt their agency was going to be curtailed. Further, they appeared to resent their exclusion from policy development. When Carol said they would need to, "clean up the mess that is being created by administration" and echoed that phrase later, it appeared that she perceived policy decisions about mathematics learning made solely by administrators – without the math team’s input – created unnecessarily difficult situations that Cammie, Carol and their colleagues had to repair.

In sum, despite recognizing that administrators sometimes and in some ways supported them in their work, Cammie and Carol told stories in which their agency was increasingly constrained by supervisors and District policies. They experienced their ability to exert agency was curtailed when their supervisors told stories that were different from their own views of their work. When they perceived administrators undervalued or underestimated their competency, Cammie and Carol
also felt their agency was constrained. Accustomed to being consulted and having a say in District policies regarding mathematics education, as well as the shape and scope of their jobs, Cammie and Carol sensed that their abilities to exert agency in the form of negotiating such policies or shaping the nature and scope of their jobs was increasingly restricted.

Summary: Agency

In this section we first examined five kinds of stories that Cammie and Carol told of ways they experienced and perceived exerting agency in the context of inquiry groups.

1. They felt they shaped and reshaped their own professional developer practices in the PD inquiry group, as well as in contexts in which they facilitated groups of teachers, teacher leaders, or principals.

2. They perceived that they negotiated what practices were valued competencies among themselves and with teacher leaders.

3. Cammie and Carol also felt that they supported each other when they experienced their agency was being constrained.

4. Cammie and Carol seemed to feel they exerted agency by fostering teacher agency.

5. Finally, by finding ways to modify District mandates they seemed to experience exerting their own agency and apparently believed they enabled teacher leaders with whom they worked to exert agency as well.
Although they acknowledged that their relationships with administration were complex – occasionally supportive and sometimes undermining – certainly Cammie and Carol perceived their supervisors and other administrators constrained their abilities to exert agency. Cammie and Carol claimed that administrators told competing stories of what their job was and how it should be enacted. A commonality among their stories of constraints is an appearance that, from Cammie and Carol’s perspectives, administrators did not understand or support their collaborative approach to teacher learning and leadership. For instance, rather than a lengthy process that centered around teacher learning, administrators viewed curriculum adoption as a task to be dealt with quickly. Further, Cammie and Carol felt that their abilities were underestimated and their contributions to mathematics education were undervalued. For two examples, they felt they were not considered "smart" and supervisors wanted to be in control of who Carol – and presumably Cammie, too – talked to. From Cammie and Carol’s perspectives they were not consulted by administrators or allowed to negotiate policies that affected mathematics education in the District. In one illustration, administrators did not seek out Cammie and Carol’s and their colleagues’ expertise as they began to create policies for first year algebra. Rather than collaborate and share leadership, from Carol and Cammie’s perspectives, administrators preferred to impose policies – sacred stories – on the work that Cammie, Carol and their colleagues did with teachers and teacher leaders.
Learning, Identities and Agency: Intertwined and Interdependent

To analyze this study's data, I first teased apart three components of situative theory: learning, shaping identities and exerting agency. However, these components, along with practice, or doing, and meaning making, are intertwined and inseparable (Wenger, 1998). Wenger regards them as "deeply interconnected and mutually defining" (p. 5). Next, I summarize interrelationships among Cammie and Carol’s views of learning, constructing identities and exerting agency in the context of inquiry groups that have threaded throughout this analysis.

Interdependence of Learning, Identities and Agency

A number of researchers assert that learning and identities are closely connected. We considered learning as changes in participation within a community. Learning involved changing practices and moving from a community’s periphery toward its center. We conceptualized shaping identities as changes in membership between communities and identification with a community’s practices. Wenger (1998) says that as we learn a community's valued skills and perspectives, learning "transforms who we are and what we can do" (p. 215). Nasir (2002) even more directly claims, "learning creates identity, and identity creates learning" (p. 239). Connelly and Clandinin (1999) link learning and identities when they assert that stories of practice and creation of personal practical knowledge shape professional identities.
Further, shaping identities and exerting agency are intimately linked (Boaler, 2002a; Wenger, 1998). According to Wenger (1998), identities are evidence of what practices and meanings matter to us. Identifying with certain practices and meanings is a sign of membership in a particular community. However, in addition to identification, other aspects of belonging involve being able to influence or contribute to what practices are considered valuable and feeling ownership of meanings and practices with which one identifies (Wenger, 1998).

We considered exerting agency in terms of being able to negotiate practices and meanings in a community. Thus, being able to have a say in what practices are valued as competent and how a community understands experience are signs of exerting agency and contribute to identifying with that community. Further, exerting agency in a community involves what Boaler (2002a), building on Pickering's (as cited in Boaler, 2002a) term, calls a "collective engaged in the 'dance of agency'" (p. 8). For example, Boaler observed participants (in her case mathematics students) collaboratively negotiating between using standard practices and generating new or modifying established practices to fit new contexts. Boaler also claimed that participants developed identities as learners willing to engage in such negotiation.

Learning and exerting agency are also connected. Boaler (2002a) found that mathematics students in discussion oriented classes who could "contribute to the judgment of validity, and to generate questions and ideas ... were developing very
different relationships with the knowledge they encountered" than students in traditional classrooms (p. 6). That is, students who exerted agency were becoming more central participants in a community of active learners. Wenger (1998) asserts that learning depends on being able to negotiate. In other words, being able to exert agency is necessary for learning to occur.

An implication of the interconnection of learning, shaping identities and exerting agency and their mutual definition is that they are also interdependent. Visually, this interdependence might look like Figure 2.

We can find evidence of such interdependence in Cammie and Carol's stories. Cammie's narrative of becoming an inquiry group facilitator involved the interdependence of all three components. For example, when Cammie described being initially "resistant" to changing her workshop practices as she moved into the inquiry group facilitator community – that is, learning – we surmised that, in part, her reluctance to change seemed related to her sense of herself as a competent

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**Figure 2.** Interdependence of learning, shaping identities and exerting agency.

We can find evidence of such interdependence in Cammie and Carol's stories. Cammie's narrative of becoming an inquiry group facilitator involved the interdependence of all three components. For example, when Cammie described being initially "resistant" to changing her workshop practices as she moved into the inquiry group facilitator community – that is, learning – we surmised that, in part, her reluctance to change seemed related to her sense of herself as a competent
workshop leader. However, we saw that Cammie realized, in the contexts of the PD and teacher leader inquiry groups, that they and other teacher leaders needed to "drive the bus" of their own learning and leading. Specifically, as Cammie learned that she did not need to plan "something that is going to be good for them," but instead could rely on teachers' and teacher leaders' "capacity" to collaboratively "solve educational problems," she came to identify with these inquiry group practices. She saw herself as a facilitator who encouraged participants to "figure out what we're doing at this meeting at the end of the last one." In sum, as Cammie exerted agency by negotiating new-to-her inquiry group practices, (e.g., values, beliefs, activities and relationships) she came to see herself as a member, an increasingly central member, of an inquiry group facilitator community. That is, as she learned inquiry group practices, became a more central community member and negotiated (exerted agency) in the PD inquiry group what those practices would look like, Cammie increasingly identified with that community and its practices. She was becoming, in her own eyes, an experienced, expert facilitator.

Carol's narrative, while different, also illustrates the interdependence of learning, identities and exerting agency. When Carol started to work in the District office she found it difficult, at first, to become a member of that professional development community. She said she was "uncomfortable" with the workshop "model" of teacher learning. That is, she did not identify with the practices of District professional developer community. Further, she felt that she was kept on
the margins of that community and was not able to negotiate – or have a say in
– the community's beliefs, values and activities.

Although Carol seemed to already hold teaching values and beliefs that she
thought of as "parallel" to inquiry group practices – fostering positive relationships
and learning through hands on exploration are two such classroom-based examples
– she learned ways to facilitate inquiry group conversations among adults through
participation in PD inquiry group discussions. For instance, she recalled describing
to the PD inquiry group what happened in a teacher leader inquiry group meeting
and being asked,

"Oh, well, what did you say then?" "I didn’t say anything." "Well, why
not?" … I come, go out of [the PD inquiry group meeting], and go, "Oh, I
should have said this" or "that came up" or whatever. You know, I should
have pushed harder on that.

As she and Cammie became more central members of the community and shifted
their practice to inquiry group facilitation, Carol was able, in the context of the PD
inquiry group, to negotiate the shape and value of these "parallel" practices. That is,
she exerted agency. At the same time she learned how to generate facilitation
practices that worked with adults and identified with a community of inquiry group
facilitators.

In sum, Cammie and Carol’s stories illustrate ways that learning, shaping
identities and exerting agency are intertwined. More importantly, their stories seem
to illustrate that these three components are interdependent.
Implications of Interdependence

A logical implication of the interdependence of learning, shaping identities and exerting agency is that when one of these components is fostered or encouraged, one or both of the other components are also supported and nurtured. A second, related implication is that when one of these elements is constrained or discouraged one or both of the other areas are likewise inhibited. We have seen examples from Cammie and Carol’s stories that illustrate each of these assertions. Although they did not explicitly discuss the interdependence of learning, shaping identities and exerting agency in terms of how fostering or constraining one component encourages or discourages one or both of the other components, Cammie and Carol’s stories seem to illustrate this reciprocity.

Fostering and Encouraging Learning, Shaping Identities and Agency

When they described being encouraged to become facilitators of inquiry groups – that is, to learn new practices – Cammie and Carol portrayed that they also experienced being able to exert agency and reshape their professional identities. Recall that Cammie described a turning point in her professional development story when she recounted her relocation from a workshop leader community to an inquiry group facilitator community:

You [Susan] sat down with us, and you asked us questions and made suggestions to help us see that there were other possibilities for the potential of this [teacher] group. … I think you were trying to put us in disequilibrium to help us see what it was we were doing and not doing with that group, that the practice that we were doing was not particularly
effective practice for what we stated our goals were, which was we wanted a powerful learning group, you know teachers who were really effective leaders in their schools, who were great practitioners, but. You asked us questions to help us realize that our current mode of providing professional development, you know the workshop du jour, really wasn’t getting us where we wanted to go.

As Cammie remembered our conversation, she recalled being asked questions that led her to learn about inquiry groups. "... questions to help us realize that our current mode of providing professional development, you know the workshop du jour, really wasn’t getting us where we wanted to go." She said it "put us in disequilibrium to help us see" the need to reshape her practice. Cammie did not recall being told what to do, or even being told that she was expected to change her practices. Instead, she perceived being encouraged to "realize," or learn, "other possibilities for the potential of this group" that could result from reshaping her practices. Recall Cammie's stories of initial resistance. ("Homework?! [Teacher leaders] will never do homework. We wouldn't assign it and [they] won't do it. There is no way we are doing that."). As she told the story years later from her perspective as an expert inquiry group facilitator, Cammie showed that she and teacher leaders had changed their practices. ("It is just hilarious to see that is what we do all the time now, and they are perfectly happy to. They assign homework to themselves now."). That is, as her participation changed, Cammie negotiated ways to reshape her practices. Choosing to reshape one's practices is an indication of exerting agency. In other words, as Cammie felt encouraged to learn inquiry group
practices, she also experienced being able to exert agency in the form of choosing to reshape her practices.

Further, we saw that as she was encouraged to learn about inquiry groups, Cammie also came to identify herself as a member of a community of inquiry group facilitators rather than as a leader who presented a "workshop du jour." That is, as she learned inquiry group practices, Cammie also felt encouraged to move from membership in a workshop leader community to an inquiry group facilitator community. Recalling her feelings before participating in the PD inquiry group Cammie said:

I was probably a little bit intimidated by it [facilitating inquiry groups], because it was so ill defined. I had no idea, not having been part of a professional learning community myself, in the way that I understand them now, I couldn't envision what it would look like.

From her phrase, "the way that I understand them now," we can surmise that now Cammie does understand inquiry group practices and considers herself a member of a facilitator community.

Many of Cammie's stories about her own learning, teaching and professional development were told in the context of the PD inquiry group. We can see in her stories not only interrelations among learning, shaping identities and exerting agency, noted earlier, but also how fostering one component - in this case, learning - enabled Cammie to reshape her professional identities and exert agency.
Further, it seems noteworthy that Cammie's experience provides an example, in the context of the PD inquiry group, of what she later came to call encouraging teacher leader participants to "drive the bus" of their own learning and leading. Cammie and her fellow PD inquiry group members continuously negotiated meanings and practices. That is, from her point of view, Cammie and her colleagues were engaged in an ongoing process of questioning, discussing and negotiating new practices, becoming increasingly competent with them and coming to value and identify with such practices. In other words, Cammie and her colleagues were continuously exerting agency, learning and reshaping their identities.

In Carol's case, there were other PD inquiry group examples when fostering one component enabled development in one or both of the others. Carol's story of creating two presentations about inquiry groups comes to mind. She said that as she learned and collaborated in the PD inquiry group to create these presentations, her sense of growing confidence, or exerting agency, was encouraged. In the next example I turn from the PD inquiry group to the context of a teacher leader inquiry group. I do this in part to call attention to another aspect of what Carol might call "parallel" processes between the PD inquiry group and teacher leader inquiry groups.

Carol's story about developing a sixth grade algebra curriculum unit, abbreviated below, illustrates her sense that providing opportunities for teacher
leaders to exert agency also encouraged them to learn and reshape professional identities.

This was second year when we did [inquiry work], when we worked together as groups to, about something that we, that came from the team of teachers that they wanted to pursue. And our group was focused around the whole idea of algebra in middle school. And the first year we did that, we looked at [one unit from the curriculum] about algebra. The second year ... [since] sixth grade was being tested [by the State] at really high levels for algebra. ... I was concerned about kids not being prepared because ... the curriculum doesn't use very much good algebra work, good strong algebra work in sixth grade. So, this group came together to kinda, to prove to the state that it was not okay that sixth graders should being doing algebra, that they were too young. And instead they proved to themselves, that, yes they could do algebra in sixth grade. And, so what we did was, [we wrote] the three week unit [and] ... We presented it at one of our district-wide professional development days.

We can see examples in this passage of Carol's sense that working in this inquiry group helped to foster teacher leaders' agency. First, she recalled that the inquiry topic was generated by the "team of teachers" involved. Second, teachers were set to "prove to the state," that sixth grade was too early for students to learn algebra. We can surmise that these teacher leaders felt empowered to respond to a state mandate and that Carol supported them in their exploration of sixth grade students' algebra readiness. Saying they "proved to themselves" that algebra was an appropriate sixth grade topic is an indication that Carol believed that teacher leaders had learned enough about algebra and/or sixth graders to change their practices (beliefs).
Further, we can construe that some teachers in this group may have also reshaped their sense of professional identities to include becoming teacher leaders. Describing their presentation of the algebra unit they created to all the other sixth grade mathematics teachers, Carol emphasized participants' competence and the ownership teacher leaders had of their community meanings.

We presented it at one of our district-wide professional development days. We had all the sixth grade math teachers attend a session for this new algebra unit. And, we, each person on our team, and we had some weak links on our team, but each person on our team did part of the presentation. And every single person did a fabulous job. ... That particular day was just incredible. Like the feedback that we got from teachers, the ownership that the group of teachers that wrote it had.

Carol indicated participants' growing competence – that is, learning – by saying that everyone, even "weak links," assumed leadership roles and "did a fabulous job." By describing their ownership and investment in community practices, Carol also suggested participants' identification with such practices. In this case then, in Carol's view, she seems to have encouraged teacher leaders' sense of exerting agency and felt that participants were also learning and reshaping professional identities.

Several things seem important to notice here. First, in both Cammie and Carol's stories of fostering one component – learning, shaping identities or exerting agency – we saw that they also felt that one or both of the other components were enabled to grow. Second, Cammie's story took place in the PD inquiry group, while the context of Carol's story was a teacher leader group. Given that these contexts
were different, it seems that the interdependence of learning, shaping identities and exerting agency involved what Carol might call "parallel" processes in the two contexts.

Third, two inquiry group practices seem to stand out as crucial. The first was, in Carol's words, sharing leadership, or, to use Cammie's image, encouraging participants to "drive this bus." There was a belief and norm that participants and facilitator were working as a team of equals, albeit with different roles. That is, each member of the team could and did contribute to learning, shaping identities and exerting agency for every member of the group. We saw this in Cammie's sense that she chose to change her practices based on her experience as a participant in inquiry group discussions. She felt she was neither told by an expert to change nor told how to change. In Carol's story we can see such equality in her emphasis on each participant's contributions, commitment and full participation.

The second practice of note is the norm that participants were expected to continuously question, negotiate and collaboratively reshape community practices and meanings. For one example, Cammie said that her practice of "workshop du jour" was questioned in a way that led her to better understand inquiry groups as a route to fostering teacher learning and leading. She recalled,

We wanted a powerful learning group, you know teachers who were really effective leaders in their schools, who were great practitioners, but. You asked us questions to help us realize that our current mode of providing professional development, you know the workshop du jour, really wasn’t getting us where we wanted to go.
In Carol's story of teacher leaders questioning the State's algebra expectations for sixth graders we can surmise that their inquiry led them to question some of their own assumptions and eventually change their perspectives. These two practices seemed important to Cammie and Carol, since over the course of this study they repeatedly mentioned shared leadership and described continuously questioning, negotiating and reshaping practices. Next, we turn to what seemed to happen when one component – learning, shaping identities or exerting agency – was constrained.

**Constraining and Inhibiting Learning, Shaping Identities and Agency**

When Cammie and Carol experienced their ability to exert agency and shape their professional development work being constrained, we saw evidence that they also found it difficult to identify with professional development practices in which they had little or no say. Further, we also saw evidence that in some cases they did not change their practices to meet their supervisors' expectations. That is, they chose to not learn practices instituted by supervisors. Granted, choosing to not learn is also a way to exert personal agency. However, in this case, I mean that their ability to negotiate the shape of their own work was constrained. That is, Cammie and Carol felt their abilities to negotiate and identify were inhibited in the context of the community and practices their supervisors dictated.

Two brief examples seem to exemplify Cammie and Carol's views that constraining agency also inhibited learning new practices. Recall that Cammie and
Carol seemed to feel they struggled with a dance of agency throughout this study. Occasionally, they exerted their agency and claimed expertise by questioning supervisors' dictates. At other times they said they resorted to what amounted to telling cover stories and keeping their secret stories among themselves. Cammie and Carol, at separate times, said similar things about how they dealt with their supervisors. Each of them apparently indicated that they did not change their practices – at least, not in ways they thought their supervisors expected – when they experienced their ability to exert agency was constrained.

Cammie: It's really interesting when you push back on [our supervisors], because [sometimes]... they get it and they back down and they change their minds, and other times they don't. So it forces you to go underground, back into the crawlspace.

Carol: I'm doing my job and [my supervisor's] telling me that I can't do my job, or she's telling me not to tell her what I do, because I didn't have to tell her what I was doing. I just thought she might want to know.

When Cammie said "push back," she apparently indicated that sometimes she and her colleagues questioned their supervisors, or tried to exert their agency. From her point of view when supervisors understood and decided to not enforce a policy the math team disagreed with, Cammie experienced their initiative as supported. That is, she felt they were able to negotiate, or exert agency. When supervisors were adamant and prevented negotiation, it seems Cammie felt the team decided to tell cover stories and operate more secretively in the "crawlspace."

In either case, it seems Cammie implied that she and her colleagues did not change
their practices with teachers and teacher leaders. In other words, they did not always choose to learn practices that their supervisors demanded. What changed was whether or not they let their supervisors know about their actions. Apparently, what Cammie felt she and her colleagues learned was how to avoid some of her supervisors' mandates. At the same time, she neither identified with these prescribed practices nor the community their supervisors developed.

Similarly, Carol's phrase "I didn't have to tell her what I was doing," seems to imply that she was prepared to be more secretive as well. That is, when she felt her agency constrained, Carol saw one option was "not to tell her what I do," or in Connelly and Clandinin's (1999) terms, tell cover stories and share her secret stories in safer contexts. In this case, too, we saw Carol was not willing to change her practice with teachers and teacher leaders. Carol seemed to choose to continue with practices in which she was invested and could contribute to, rather than learning new practices that her supervisors might have preferred.

With the next example, we look at ways that constraining one's ability to exert agency seems to inhibit one's ability to identify with, or belong to, a community. We can see Cammie's sense that at some point in the future, she might find that her ability to exert agency would be so constrained that she would be unable to identify with the professional development community in which she worked. Referring to "the superintendent's push ... for much more uniformity in the name of equity than ever ... in all sorts of arenas," she said,
Cammie: The superintendent. ... She makes decisions. She expects other people to operationalize them. And you better, when she says jump, you better say how high.

Susan: ... What might you do?

Cammie: Quit.

Susan: Might you?

Cammie: Yeah, I might. You know, I have to, I see people who, whose autonomy has been severely curtailed in other content areas, and they're paying a pretty heavy emotional price for that. And I have to decide where I draw my line in the sand.

In this passage Cammie alluded to the "emotional price" her professional development colleagues were paying as a result of having to follow District standardized procedures. We can, perhaps, interpret this to mean that, in her view, Cammie's colleagues were unable to negotiate practices because the superintendent wanted "uniformity." We can also surmise that, from Cammie's perspective, they experienced what Wenger (1998) calls identities of non-participation, or marginalization. Further, it seems that Cammie was concerned that she might also feel marginalized in a community engaged in practices created by the superintendent and her supervisors. Feeling she no longer belonged, or in other words, no longer identified with, this possible new community that valued standardization, Cammie feared she would "have to ... draw my line in the sand" and "quit" her job.
In Carol's stories about the first year she worked in the District office, we can find another example of how, when one experiences one's agency constrained, it can also inhibit one's ability to identify with and feel a part of a community. Recall Carol's early story about facilitating with a colleague. She "tweaked" a consultant's materials "to make this idea of looking at student work feel really valuable to the teachers." When she finished planning, Carol "felt like, like I owned it, okay. You know it wasn't the consultant's thing that I'm doing, it's like my thing that I'm doing." In Carol's view, after she facilitated her part of the teacher leaders meeting, her colleague publically critiqued her facilitation skills.

I know that I wasn't myself the first year that I was in this position. ... And for me to be myself and real and genuine – I felt like I did do it that time – 'cause I made the stuff my own and I wasn't using someone else's. I felt good about it and then I felt slammed down for doing that.

In this case we can see Carol felt she exerted agency when she renegotiated the meaning of a "consultant's thing," or procedure, for looking at student work. She said she "felt like I owned it." Being able to negotiate and have ownership of meaning are signs of exerting agency and identifying with those meanings. However, because her colleague critiqued her facilitation of what she considered to be her own procedure, Carol felt "slammed down." Carol did not feel like she could "be myself and real and genuine." That is, she did not feel like she had the ability to negotiate, or exert agency.
In another example, we saw that from Cammie's perspective throughout this study, workshops, a context in which participants were not expected to exert agency, also did not promote learning and leading as effectively as did inquiry groups. Cammie's description of leading workshops, told from her present perspective, may give us a hint that she now thought that teachers' agency and learning were constrained in a workshop setting. Presumably, Carol felt similarly, since she claimed to be uncomfortable with the workshop model. As a workshop leader, Cammie said she believed she needed to give teacher leaders "something that is going to be good for them," such as techniques that would improve their practice. She was "figuring out what it was they needed, ostensibly. ... y'know, doing PD to them." Her phrase "doing PD to them" seems to imply that workshop participants were not expected to negotiate practices and meanings. That is, they were not expected to exert agency. Additionally, Cammie said that She "would pull [out] things like...a contained activity I could do in ... one 2-hour chunk and teachers could take it back if they wanted to or not." Perhaps, we can interpret Cammie's phrase "take it back" to mean that participants might change their classroom practice, or in other terms, teacher might learn new classroom activities. If that is so, then it seems that Cammie felt that it was also likely that teachers would not choose to learn or change their practice. Although she did not make an explicit connection between workshop participants not exerting agency and not learning, we can recall that Cammie felt that providing workshops was "not
particularly effective practice for what we stated our goals were, which was we wanted a powerful learning group, you know teachers who were really effective leaders in their schools, who were great practitioners." That is, Cammie seemed to feel that workshops where participants were not expected to exert agency also did not effectively promote learning and leading.

In sum, from Cammie and Carol's stories it seems that learning, shaping identities, and exerting agency are intertwined and interdependent. Additionally, we saw evidence that fostering one of these components seemed to encourage one or both of the others. Further, it appeared that constraining one of these components inhibited the growth of one or both of the other components.

Summary

To summarize, I return to the research questions that guided this study. These questions were:

What are school district mathematics professional developers' experiences in professional learning communities, specifically in a professional developer inquiry group and in the teacher leader inquiry groups each facilitates?

1. What are participants' perceptions of their learning in professional developer and teacher leader inquiry groups?

2. What are participants' perceptions of practices in professional developer and teacher leader inquiry groups?
3. What are participants' perceptions of ways participation in inquiry groups may be shaping their professional developer practices, identities and agency?

Perceptions of Learning

Cammie and Carol related many stories in which they described changing their participation from novices in an inquiry group facilitator community to becoming increasingly expert, central community members as they learned new practices (i.e., changed beliefs, values, activities, relationships or perspectives). They described examples of learning in the context of the PD inquiry group and in the contexts of the teacher leader inquiry groups they facilitated. They talked about changes in their beliefs (e.g., teachers will do "homework" between meetings) and values (e.g., facilitators should "share leadership" and teacher leaders need to "drive this bus" of their own learning and leading). They described new ways they interacted with teachers and teacher leaders to promote learning and leading (e.g., from leading one time workshops to facilitating ongoing, collaborative inquiry groups). Cammie and Carol's stories also included ways their relationships with teachers and teacher leaders shifted. For instance, they changed from presenting to teachers "something that is going to be good for them" so as to improve mathematics teaching practice, to feeling like they were not leaders of a group but operating more as equals who negotiated their agenda together. They also discussed changing their outlook about teacher capacities. For example, they changed their
outlook that they, as professional developers, needed to figure out what teachers needed to do improve student mathematics learning, to recognizing that teachers had "expertise and the answers in themselves" to collaboratively solve "some really important problems in math education."

Perceptions of Inquiry Group Practices

Cammie and Carol revealed their views of inquiry group practices in interviews and during PD inquiry group conversations in which they reflected on past meetings that they facilitated and planned future meetings. We saw that these practices were ones with which Cammie and Carol came to identify as they became members of an inquiry group facilitator community. A number of these practices were mentioned in the previous section about their perceptions of learning in inquiry groups, including such activities as assigning homework and meeting regularly over ongoing periods of time. Creating a safe, respectful learning environment and holding high expectations for capacities of teachers and teacher leaders were also mentioned. Further, Cammie and Carol came to view the practices of reflecting on and questioning their own and one another's practice to be integral to inquiry groups. They talked about being "pushed," "pressed" and helped to continuously improve their practice. They also discussed ways to "push" teachers and teacher leaders. They considered such reflection and questioning to help members hold one another accountable for learning and improvement.
Two other practices, however, seemed to be especially important to Cammie and Carol. Moreover, these are practices that are often not emphasized in research literature about inquiry groups. Cammie and Carol considered encouraging all participants' voices to be expressed, heard and respected was a crucial practice that created equity, trust and openness among group members. In addition, they shared leadership with one another and with teacher leaders. They expected inquiry group participants to negotiate and generate shared goals and agenda in part by collaboratively uncovering members' learning needs.

Perceptions of Shaping Practices, Identities and Agency

Cammie and Carol perceived that participation in the PD inquiry group and teacher leader inquiry groups they facilitated encouraged them to reshape their practice and become inquiry group facilitators. Cammie articulated this explicitly when she said, "I had no idea, not having been part of a professional learning community myself, in the way that I understand them now, I couldn't envision what it would look like. [It was] kind of walking into uncharted territory." In other words, as she participated in an inquiry group Cammie [and, in her own way, Carol, too] came to understand them and figure out how to map out ways to facilitate such groups with teachers and teacher leaders.

Cammie and Carol also claimed that inquiry groups provided a nurturing and challenging environment for learning, or reshaping their practices. Specifically, they viewed the PD inquiry group as a "safe space" in which they could share their
secret stories of practice. We saw that Cammie and Carol felt their identities were affirmed and sustained by inquiry group collaboration. Further, as mentioned in the previous section, they developed inquiry group norms that challenged them to reflect on and improve their facilitation practice. Additionally, as they collaboratively planned teacher leader inquiry group meetings, we saw Cammie and Carol generated ways to similarly support and challenge teacher leaders. It seems significant that, in their eyes, inquiry group participation both sustained members' professional identities and, at the same time, challenged participants to learn and reshape identities.

Cammie and Carol recounted tales in which inquiry group participation encouraged them to reshape their professional identities. Cammie described that initially she resisted inquiry group practices. She still identified with practices associated with workshops and identified herself as a workshop leader. As she participated in the PD inquiry group and facilitated teacher leader groups, we saw Cammie come to identify with inquiry group practices and considered that she was becoming an inquiry group facilitator. Carol's stories included shifting from identifying with classroom teaching practices to trying to belong to the District professional development community. We saw that through PD inquiry group participation Carol came to feel more confident and able to articulate her educational views. As she developed expertise with inquiry group practices, Carol came to see herself as a competent, confident inquiry group facilitator.
Finally, Cammie and Carol told numerous stories of exerting agency. Carol explicitly credited work she did in the PD inquiry group with helping her to become more articulate and confident about her practice. Over the course of this study, Cammie and Carol initiated conversations in the PD inquiry group in which they discussed how they could negotiate (exert agency) with people they perceived as having power over them and their jobs (e.g., supervisors and District administrators). When they challenged my use of educational jargon ("Susan-speak") in suggesting agenda for the PD group, Cammie and Carol exerted agency and declared that the PD inquiry group was a practitioners group and educational research, although legitimate, was peripheral to its core work. They claimed that what they "appreciate[d] about this [PD] group is that we can push back on each other." That is, exerting agency was an important way to operate with one another in an inquiry group context. When they told stories of sharing leadership with teacher leaders and encouraging them to "drive this bus" of learning and leading, Cammie and Carol were illustrating that in inquiry groups, negotiation among equals was also a way for them – as well as teacher leaders – to exert agency.

In the next and final chapter I reflect on the lessons learned from this study. I propose conclusions based on the analysis of the study's data. Based on these conclusions, I make recommendations for educational leadership practice. I suggest topics for further research that seem to grow out of this study. Finally, I reflect on my research and my journey as a researcher.
CHAPTER V

CONCLUSIONS, RECOMMENDATIONS, REFLECTIONS

This study of professional development for professional developers used a narrative inquiry design to evoke the lived experience of two secondary mathematics facilitators of teacher learning. Its purposes were to: (a) Investigate professional developers' experience, practice, learning, identities and agency in professional learning communities, or inquiry groups, especially in a professional developers' (PD) inquiry group and teacher inquiry groups that they facilitated; (b) amplify professional developers' voices in the professional development field; and (c) suggest recommendations for practice and leadership by contributing to a body of research about professional developer learning, a topic largely missing from the literature.

A review of literature about teacher learning suggests that professional development for teachers needs to be transformed. In order to improve learning opportunities in secondary mathematics for all students, teachers need opportunities to continuously reflect on and collaboratively solve problems that arise in practice (Ball & Cohen, 1999; Thompson & Zeuli, 1999). For example, teachers need to recognize discrepancies between their intentions (e.g., student understanding) and evidence provided by collaborative examination of classroom artifacts, such as analyzing student work (Ball & Cohen, 1999; Thompson & Zeuli, 1999).
analyzing student work (Ball & Cohen, 1999; Thompson & Zeuli, 1999). Uncovering and resolving such dissonances (Thompson & Zeuli, 1999) is especially important as these discrepancies relate to improving learning of traditionally marginalized students (Boaler, 2002b; Ladson-Billings, 1994; 1999). However, most teacher professional development involves leading workshops that attempt to transmit pedagogical principles and skills (Darling-Hammond & McLaughlin, 1999) rather than facilitating collaborative exploration of learning, mathematics, students and teaching practice (Ball & Cohen, 1999). Further, most professional developers have little experience as participants in inquiry groups (Thompson & Zeuli, 1999).

The literature review developed a framework to study professional developers' lived experience grounded in situative, social learning theory. Constructs described included (a) communities of practice, (b) learning as belonging to and becoming a more central member of a community, (c) shaping identities as identifying with a community's meanings and practices and (d) exerting agency as the ability to negotiate and shape community meanings and practices. Literature about the effectiveness and enactment of professional development programs that feature professional learning communities, or inquiry groups, was also examined.

The methodological choice of narrative inquiry complemented the situative, social learning theory framework, Narrative inquiry and situative learning theory
shared similar perspectives about the nature of learning. Additionally, both models considered story and discourse to be centrally important and viewed agency to be integral to learning and shaping identities. Narrative inquiry involved collecting and analyzing stories that people tell and retell as they live and relive their storied lives (Craig, 1997).

This study looked at experiences and perceptions of two professional developers as they participated in ongoing, collaborative inquiry and initiated, designed, facilitated and sustained teacher and teacher leader inquiry groups. I listened to stories of Cammie and Carol’s lived experience and analyzed their learning, teaching and professional development stories. From this analysis, narrative themes of participation, practice, learning, shaping identities and exerting agency emerged.

The theoretical framework that supported this study proved useful throughout this research. The situative, social learning framework was an important, multipurpose tool that helped me to perceive, define, understand and structure ideas that emerged from the data. As Mewborn (2005) suggested, I used the theoretical framework not only to define this study, but also to support collection and analysis of data as well as to report findings. In a situative framework, learning is interrelated with belonging to communities, shaping identities, negotiating meanings and practice. These constructs were useful in
teasing out Cammie and Carol's perceptions of learning and participation in
inquiry groups.

This framework supported analysis of this study's data. It helped me
recognize ideas about learning, shaping identities and exerting agency that emerged
from Cammie and Carol's stories. Additionally, it helped me make sense of these
three processes as interdependent. Such interdependence is congruent with
literature about situative, social learning theory. Further, situative theory helped to
deepen this study's analysis by helping me understand implications of the
interdependence of learning, shaping identities and exerting agency for practice and
educational leadership.

This study was situated in a specific context. Thus, only when readers
connect with its stories, contexts, analysis or ideas, can it address other situations.
Its stories and perspectives were limited to three people – Cammie, Carol and me.
Further, participants and researcher were all middle class, middle-aged European-
American women and our points of view undoubtedly were shaped by such factors.
Although credibility in narrative research is developed through its iterative process,
still I claim only that these findings seem reasonable and accurate for the study's
participants and situation. I make no suggestion that they apply to other
professional developers or to professional development in general. Additionally,
when compared with typical narrative research, this study had a somewhat
compressed timeframe. However, in-depth interviews as well as extensive meeting
transcripts provided a substantial amount of data, and salient stories were often repeated in different forms at different times.

Clandinin and Connelly (2000) say that in writing narrative research texts, a researcher "asks questions of meaning, social significance and purpose" (p. 120). In chapter 4, I discussed and interpreted Cammie and Carol's lived experience in terms of what it meant to them. In this chapter, I reflect on purpose and social significance. The remainder of this chapter is divided into conclusions, recommendations and reflections.

Conclusions

By analyzing stories told by two professional developers, Cammie and Carol, this study sought to understand the professional development of professional developers. It examined their perceptions of learning, shaping identities and exerting agency in the context of their participation in inquiry groups.

From Cammie and Carol's narratives of professional development and facilitation of inquiry groups, six important ideas about inquiry groups, facilitators' learning and their role in professional learning communities emerged. First, professional developers' participation in an ongoing professional learning community, or inquiry group, of peers was a vital part of learning to initiate, design, facilitate and sustain teacher and teacher leader inquiry groups. For instance, until she participated in an ongoing inquiry group, Cammie said she could not "envision" what facilitating a professional learning community would be like.
Carol found that through such participation in a PD inquiry group, she felt more confident and able to better articulate and enact what she believed about teacher learning.

The next three, related conclusions – the second, third and fourth – point to the crucial role that facilitators can play in initiating, designing, facilitating and sustaining effective professional learning communities. Each conclusion suggests that a facilitator's choices and actions can influence inquiry group members' openness, engagement, ownership of practices and meanings as well as the group's effectiveness to promote learning. We can also consider these three conclusions as helping us understand more deeply what Cammie and Carol referred to as "sharing leadership" or having participants "drive this bus." (Cammie or Carol facilitated teacher leader inquiry groups. In contrast, each member of the PD inquiry group informally took responsibility for attending to issues of facilitation. In both kinds of groups, leadership was shared).

Second, it seemed important that in inquiry groups, all participants' voices and personal practical knowledge were explicitly encouraged, heard and honored. In other words, it seemed important for all participants to be encouraged to exert agency. Community members could then consider diverse perspectives as they negotiated meanings and practices. Evidently, doing so helped to build trust and safety among participants. Such trust and safety apparently encouraged participants to share their stories of practice as well as to question their own and one another's
practices. That is, participants became willing to share and negotiate their practices, even though it involved the sometimes "intimidating" challenges of changing practices and reshaping professional identities.

Further, from their emphasis on creating trustful, safe inquiry communities and the time and care Cammie and Carol took to plan meetings, we can surmise that facilitators can play an important role in ensuring that all participants' voices are heard and appreciated. By ensuring that all participants' voices were heard, it appeared facilitators helped participants become increasingly central community members of their inquiry communities.

Third, in professional learning communities, members sustained and supported one another and, at the same time, encouraged one another to question and change practices. The PD inquiry group in this study provided time and a safe, yet challenging, space for facilitators of teacher learning to reflect on and actively shape improvement of their own practice.

Inquiry group discourse that encouraged questioning and changing one's practice was important to this study's participants. In the PD inquiry group, such discourse helped facilitators adapt their practice as local contexts in and around the inquiry groups they facilitated changed (e.g., different people, new topics or different steps in a process, what happened at the last meeting, new District directives). In so doing, it led participants to continuously improve their facilitation practice and make it more effective. There were numerous instances throughout this
study when participants felt supported by one another as well as challenged, or as Cammie might say, "pushed," to examine and reshape their practice. Each time they met to describe a previous meeting or plan a future meeting, they were, in effect, adjusting their practice to changing contexts.

At the same time as they challenged one another to change practices, we saw that Cammie and Carol felt that participation in the PD inquiry group sustained their identities. As one person shared a story of practice in the PD inquiry group, we saw that their beliefs, values, activities or perspectives were confirmed by other members' responses.

Similarly, in the teacher and teacher leader inquiry groups they facilitated, Cammie and Carol were careful to balance creating a safe, nurturing learning environment with encouraging participants to question and examine their practice with an eye toward improving it. Overall, Cammie and Carol believed that inquiry group meetings created powerful, effective learning opportunities, not only because such meetings helped participants to learn and improve practice, but also because participants' professional identities were sustained.

Fourth, in inquiry groups participants were encouraged to direct their own learning and, at the same time, their work was framed by tasks that aimed to examine and improve their practice by enhancing learning for the group with whom they worked. We saw that one practice Cammie and Carol highly valued was sharing leadership. They encouraged inquiry group participants to help determine
what they wanted to learn and how they wanted to go about learning it. Cammie said she thought that participants needed to "drive this bus" of learning and leading.

At the same time, she and Carol gave teacher leader inquiry group participants a framework within which to work. Often, these frameworks were responsive to District or state mandates. For example, one teacher leader inquiry group was structured by an impending District initiative for district-wide assessments and another was framed by ensuring that sixth graders were prepared for the algebra content they would face on the state test. However, within those frameworks, participants were given what Cammie called, "an awful lot of flexibility about how to do that." Cammie and Carol also grounded inquiry work in evidence from participants' practices. In the PD inquiry group descriptions of experiences of leadership issues or facilitation of teacher leader learning usually provided that evidence. In teacher leader inquiry groups, learning was grounded by discussions of teacher leaders' facilitation of teacher groups and by examination of student work.

It seemed that when participants had a say in, or negotiated, what they studied and how they studied it, they were likely to be actively engaged. They also seemed to feel ownership of ideas and products of that inquiry as well as likely to enact improvements in their practice. However, Cammie and Carol were also clear that their input into an inquiry group's agenda, taking District needs into account, helped to shape teacher leader inquiry. Thus, it seemed that facilitators
balanced two things: encouraging participants to drive the bus *and* framing the participant-driven agenda with tasks that effectively enhanced teacher leader, teacher and/or student learning. As facilitators, they engaged in a dance of agency, if you will, between the discipline of evidence of learning and the interests, views and practices – or identities – of participants.

Fifth, it seemed that facilitators found it difficult or, as Cammie might say, "intimidating," to learn, change their practices and develop new professional identities. We observed that both Cammie and Carol initially found it difficult to move from one community to another and from the periphery of a new community toward its center. We saw that this difficulty with learning was intimately connected to developing new stories to live by, identifying with a new community, and reshaping professional identities. These processes took time, considerable effort and commitment. However, by exercising agency through negotiating meanings, practices and tasks, facilitators of teacher learning came to enact solutions to problems of practice, own the products of their collective work, change their practices, and shape new stories to live by, or professional identities.

Sixth, it seemed that professional developers' inquiry groups flourished when they operated in supportive contexts. That is, when supervisors and administrators encouraged facilitators of teacher learning to engage in inquiry group practices, such a group flourished. Two inquiry group practices seemed especially important to support. The first practice was encouraging – or, at least,
allowing – facilitators to take adequate time to meet with colleagues on a regular and ongoing basis to examine, question and negotiate problems of their facilitation practice. Second, it appeared important for supervisors to value and trust the choices and solutions that such inquiry generated.

One aspect of trusting the choices that arise from inquiry seemed to involve understanding that PD inquiry groups would generate continuously improving – i.e., changing – ways to initiate, design, facilitate and support ongoing teacher learning. Put another way, when supervisors expected facilitators to adhere to predetermined, standardized professional development templates, it seemed to lead facilitators of teacher learning to contemplate hiding their true practice (operating "under the radar") or consider changing jobs ("drawing a line in the sand"). When their supervisors inhibited their sense of being able to exert agency, and along with that to feel ownership of approved practices, Cammie and Carol felt frustrated and unsupported. However, it appeared that when administrators negotiated with facilitators' about choices that were generated in a PD inquiry group and in their work with teachers, the facilitators felt supported and were able to be generative, feel ownership of practices and meanings, as well as able to sustain identities of participation.

**Recommendations**

The ultimate point of these recommendations is to improve teaching and learning for teachers and their students, especially mathematics students who have
been traditionally marginalized. This study grew out of research indicating the importance of professional learning communities as avenues for teacher professional learning. At the same time, literature pointed to the shortage of teacher access to such ongoing, reflective, collaborative inquiry groups. Bringing professional developers' voices to the discussion table, this study used their personal practical knowledge and lived experience to suggest ways to negotiate solutions for this significant educational problem.

Since a purpose of this research was to amplify voices of facilitators of teacher learning, what Cammie and Carol call being "at the table," I make recommendations — that is, statements of social significance — by turning once more to Cammie and Carol's words and actions as well as implications of what they said and did. Looking at Cammie and Carol's — from their viewpoint and mine — highly effective work with teachers and teacher leaders, I suggest practices that could encourage and sustain teacher learning and leadership. Cammie characterized the growth of professional learning communities in the District as creating "collaborative cultures." What I hear her saying is that inquiry group participation fostered a different way for teachers to work and learn together and that such practices involved expanding circles of mathematics teachers, teacher leaders and professional developers. Based on this study's conclusions, I make recommendations for professional developers, school administrators and school district leaders regarding professional development and educational leadership for
the purpose of creating and sustaining such "collaborative cultures" which, ultimately, can improve learning for teachers and their students.

**Foster a Collaborative Culture: Inquiry Group Participation**

A critical conclusion of this research was that until they participated in a professional developer (PD) inquiry group, Cammie and Carol could not clearly "envision" or "articulate" how to develop such experiences for others. Based on Cammie and Carol's experiences, I recommend that one effective route for professional developers to learn to initiate, facilitate and sustain teacher professional learning communities is for facilitators of teacher learning to participate in ongoing PD inquiry groups. Cammie and Carol recognized the importance of participating in ongoing, collaborative inquiry for themselves. Through such reflective inquiry, focused on enhancing learning for teachers and teacher leaders in order to improve learning for all students, Cammie and Carol figured out how to respond to changing local contexts, new District policies and priorities, teachers who came and went, initiatives that started and ended, and evolving needs of teacher and teacher leader learning communities.

Carol talked about "parallels" between what she considered good teacher professional development and effective classroom practice. What I hear her saying is that there are significant similarities between ways teachers and teacher leaders learn most effectively and ways that students can learn best in classrooms. This
recommendation extends her parallels to other groups—facilitators of teacher learning and other educational leaders. From these parallels, we can draw implications that inquiry group participation as a path to effective learning can cascade from adult learning to more effective learning opportunities for all students. Here, I look at this series by starting with its ultimate purpose, improved student learning, and consider how, for each "parallel" group, professional learning community participation can help foster this goal.

First, students in a discourse-oriented classroom who collaboratively inquire to solve complex mathematics problems can change their relationship with mathematics and develop a sense of exerting agency (Boaler, 2002a). That is, they reason about mathematics and negotiate to solve problems.

Second, to improve access to such discourse-oriented, collaborative mathematics learning for all students, teachers who reflect together in an inquiry group can examine the contexts of their schools and classrooms. They can reason about mathematics, pedagogy, and student learning as well as how to better teach students with a diversity of backgrounds and ways of learning. For example, teacher inquiry groups may look at student work, plan and critique lessons, or create and evaluate curriculum and assessments.

Third, to improve teacher learning and practice, teacher leaders who participate in collaborative inquiry can discuss and question the work they do to support and encourage their school colleagues' to learn and improve practice. That
is, they can examine ways to improve their facilitation practices to help teachers more effectively look at student work, curriculum, and so on.

Fourth, to work effectively with teacher leaders, professional developers can collaborate in a PD inquiry group to examine ways their facilitation can better foster learning and leadership among members of teacher leader inquiry groups. For example, as we saw with Cammie and Carol, they can meet to examine their work with teacher leaders and District administrators, carefully plan upcoming meetings and, as Cammie said, "take time out and reflect, and just kind of say, 'Wow; this is amazing where we've gone.' Because it helps me to be clearer about where we're going, and why we are doing this." What I hear Cammie saying here is that part of the power of PD inquiry group participation can be to balance careful work on the immediate, local details of fostering teacher learning and leadership with broad attention to overall, long-range goals and purposes.

Based on conclusions drawn from this research, for teachers to create and sustain discourse-oriented, inquiry classrooms, teacher leaders to foster collaborative inquiry among school colleagues and professional developers to encourage learning and leadership among teacher leaders, facilitators of teacher learning can benefit from opportunities to participate in PD inquiry groups with their peers. For each successive group in the series, participants can investigate evidence of learning among the group of persons with whom they work. Then, as
Cammie might say, they can collectively "push" or "press" one another to improve such learning.

Further, as research showing the efficacy of teacher professional learning communities increases, some school instructional leaders and district administrators are trying to figure out how to initiate such groups in their schools and districts. If, as this study finds, ongoing participation in collaborative inquiry is an effective pathway to being able to initiate, design, facilitate and sustain such inquiry, then, by extension, it seems likely that school leaders and district administrators could benefit from opportunities to participate in ongoing, collaborative inquiry with their peers. Working in groups with other school leaders or district administrator groups, their inquiry could center on solving problems of their own practices – that is, how to strengthen school or district leadership. Just as professional developers examine their facilitation practice and teachers and teacher leaders collaborate to improve teaching, learning and leading practices, administrators could benefit from opportunities to build trust with peers or teams, make their practice public and work together to find ways to improve their own practice – not someone else's practice. In such inquiry groups, administrators could collaboratively focus on becoming ever more supportive, creative, democratic and empowering leaders. They could also find ways to foster and sustain teacher and teacher leader inquiry groups in their schools and district.
The series of benefits from inquiry group participation, described above, may also apply to the recommendations that follow. In the interest of brevity, however, I do not recount all benefits for each recommendation or detail specifics for every group in the cascade – students, teachers, teacher leaders, professional developers and educational leaders. As noted earlier, readers may find that stories and analysis in this study relate to their own situations. If so, these recommendations may also be valuable for their contexts.

Encourage and Support Inquiry Group Participants to Exert Agency

I recommend that to promote learning and change inquiry group participants should be encouraged and supported to exert agency. First, I detail several reasons underlying this recommendation. Then, I suggest several ways in which facilitators of teacher learning – and facilitators in their own PD inquiry groups – can encourage and support participants to exert agency.

We observed that learning, shaping identities and exerting agency seemed to be interdependent. In particular, learning and identification seemed to be encouraged and supported by being able to exert agency and develop ownership of community meanings and practices. Here, I focus on the importance of exerting agency because it seemed so important to Cammie and Carol. For instance, we saw that in a workshop model of professional development, participants were not asked to generate their own learning agenda, that is, exert agency. Cammie said that as a
workshop leader she tried to plan "something that is going to be good for them [participants]." Further, Cammie came to see this model as ineffective for "developing teachers who were really effective leaders in their schools, who were great practitioners." As an inquiry group facilitator, she believed that participants were able to identify and solve important educational problems.

Cammie and Carol related PD inquiry group experiences of questioning and reshaping practice, making choices, and negotiating new ways of working. We saw that they shaped their own learning by developing an agenda based on questions they identified as areas in their practice they wished to examine with other community members and improve. Referring to teacher leaders, Cammie called such agenda setting "driving this bus" and deciding what "we are supposed to do," while Carol spoke of trusting teachers to do a good job and respecting work they generated. Darling-Hammond and McLaughlin (1995) called such community trust and agenda setting, participant-driven inquiry.

A conclusion of this research is that change can be difficult. We saw that for Cammie and Carol, it was neither quick nor easy to become central members of a new community. Cammie said that, at first, she felt, "a little bit intimidated" about trying to facilitate inquiry groups and Carol talked about feeling "insecure" and "uncomfortable" during her first year working as a District professional developer. We also saw that negotiating meanings and practices – i.e., exerting agency – in the PD inquiry group helped them become more central community members. In that
context, they learned, became competent with and confident about new practices, as well as came to identify with such community practices. That is, they reshaped their professional identities.

Further, just as exerting agency supported their own learning and leading, according to Cammie and Carol developing teacher agency was also important for teacher and teacher leader learning. They considered it crucial to trust teachers and teacher leaders to solve important educational problems, particularly problems that emerged from collaborative examination of local practice. When Cammie said that teachers and teacher leaders "can solve important problems in education," I understood her to mean that professional developers, as well as school and district leaders, can and should trust teachers to figure out how to improve instruction and student learning. Cammie and Carol’s underlying assumption seemed to be that nearly all teachers want to do the best job they can for their students and in the context of a professional learning community, they can create the personal practical knowledge to do so.

Based on Cammie and Carol’s stories and practice, as well as this study’s conclusions regarding facilitators’ roles and sharing leadership, several recommendations arise for ways to support and encourage facilitators to exert agency and, in inquiry groups they facilitate, for facilitators to encourage teacher leaders and teachers to exert agency, too. These recommendations highlight the pivotal role that facilitators of teacher learning can play. Wenger (1998) might
characterize this role as that of a broker. Brokers use their membership in multiple communities of practice to introduce new practices and meanings to a community. Further, these recommendations for facilitators in their own PD inquiry groups, when enacted in teacher inquiry groups they facilitate, may encourage teacher learning – i.e., changes in teaching practices – in classrooms, just as it appeared to foster learning and shaping new professional identities for Cammie and Carol.

**Encouraging All Voices**

Learning from Cammie and Carol's words and actions, an important way to encourage inquiry group participants to exert agency is to attend to issues of equity. Additionally, attention to equity is an important component of developing a safe learning environment in which participants can become increasingly willing to share, critically reflect on and negotiate about problems of practice. I therefore recommend that in professional developer, teacher leader and teacher inquiry groups, attention and effort be given to ensuring that all voices are heard and listened to.

Based on Cammie and Carol's experience and practice, I recommend that facilitators use protocols and processes that create opportunities for each person to have relatively equal time to speak and be respectfully heard. By using such protocols, facilitators can encourage participants to explicitly and actively address issues of status and equity. In PD inquiry groups, I suggest that participants find
explicit ways to collectively ensure that members are encouraged to participate in equitable ways. For example, in the PD group in this study, each person who wished to share a problem of practice suggested an agenda item, agenda items were given time limits and one person took on the job of time-keeper.

Further, since it appears that participation and negotiation foster learning and changing practices, when they engage in activities in inquiry groups that address equity issues, professional developers can learn ways to identify and handle equity issues in their own inquiry group. Additionally, they can then use such practices when they facilitate other inquiry groups. Similarly, teachers who participate in inquiry groups in which equity is a priority can learn to notice and deal with equity issues in their increasingly diverse classrooms.

Balance Questioning Practice with Sustaining Identities

I recommend that facilitators lead one another to push beyond collegiality to engage in critical discourse and action. At the same time, I recommend that facilitators support and encourage one another to share and confirm one another's beliefs, values and actions. Questioning practice and confirming it may seem contradictory. However, facilitating in ways that balance this tension is a crucial role for facilitators of inquiry groups. In other words, I recommend that facilitators, in their own PD inquiry group and the inquiry groups they facilitate, balance questioning practice with communally sustaining professional identities.
Creating time and space for practitioners to engage in conversation, while necessary, is not sufficient. When Carol talked about going back "to fix it" after a PD inquiry group conversation, she referred to addressing missed opportunities for moving conversations held in previous teacher leader meetings "further." From Carol's description, I infer that reflection on practice involved a continuous cycle of subsequent action and further reflection. This is a way to say that facilitators, teacher leaders and teachers need to, in Cammie's words, "push" each other to learn, solve problems and change practices. In inquiry groups, then, participants need to hold one another accountable for improving their practice, not just talking about it. By questioning practice, what Cochran-Smith and Lytle (2001) call taking an inquiry stance on practice, it is possible for inquiry group facilitation practices or classroom teaching to move beyond tinkering (Thompson & Zeuli, 1999) and continuously evolve as contexts change.

At the same time as they encourage one another and inquiry group participants with whom they work to question and change practices, facilitators also need to support participants and create opportunities for the community to sustain professional identities. We saw that one particularly difficult aspect of learning and changing practices was a sense of risk that practices with which one identifies (i.e., one's identities) were being challenged. For example, Cammie said that initially she felt "intimidated" and that she "resisted" certain changes to her practice and Carol claimed that in her first year as a professional developer, "I
wasn't myself." Cammie and Carol also highlighted the importance of trust, respect and a supportive environment.

Facilitating in ways that balance questioning practice with sustaining identities involves allowing time for participants to develop new meanings and practices through ongoing communal discourse. A critical element of that discourse involves the facilitator creating situations that "push" participants to develop new practices. For instance, Cammie recalled being asked questions that led her to learn about inquiry groups, "... questions to help us realize that our current mode of providing professional development ... wasn't getting us where we wanted to go. ... it threw me into a little bit of disequilibrium, which allowed me to be open to changing my practice." We saw that as she learned, Cammie felt she chose to change her practices. In other words, she felt she exerted agency and came, over time, to identify with new practices that she helped to generate.

**Encouraging Participants to Negotiate Goals and Set Agendas**

I recommend that participants in inquiry groups need to negotiate their community's goals, agendas and any communal products that are generated. In other words, facilitators need to share leadership with inquiry group participants. They need to balance participants' expressed interests, perceptions of important problems and ideas generated with topics that are framed by tasks grounded in curriculum, instructional needs and evidence of learning. For example, Carol talked
about the importance and "power of doing the task," including such tasks as examining student work, creating curriculum or collectively discussing student assessments.

Encouraging participants to set inquiry goals and yet frame that inquiry in district or student needs may seem contradictory. One appears to be generated only by participants and the other seems to come from outside or top down. However, facilitating in ways that balance this tension is a crucial role for facilitators of inquiry groups. In other words, I recommend that facilitators, in their own PD inquiry group and the inquiry groups they facilitate, balance sharing leadership with framing inquiry tasks so they are grounded in problems of teaching and evidence of learning – what Cammie called keeping "the big picture in mind." That is, in addition to being participant-driven, PD inquiry groups need to respond to evidence that teacher and teacher leader participants in the professional learning communities they facilitate are, in fact, learning and changing practices. Similarly, teacher leader and teacher inquiry groups need to shape goals and agenda that keep mind improvement of pedagogy and student learning. Framing teacher and teacher leader inquiry with tasks that arise from District or state directives or other curriculum and instructional needs and, at the same time, negotiating as a community about how to address such directives or needs is one way to develop such a balance.
Rethink Systemic Change

Looking at the ways Cammie and Carol developed teacher learning and leading in the District also suggests ways that educational reform needs to be thought of in new ways. Historically, repeated waves of educational reform throughout the last century focused on mandating immediate changes to school structure, curriculum, content standards, and assessment (Goodlad, 2003; Tyack & Cuban, 1995). Research suggests that these large-scale, one-size-fits-all approaches eventually fail (Thompson & Zeuli, 1999) or result only in small changes (Tyack & Cuban, 1995). Among the reasons these initiatives have disappointing results are first, they do not take into account teachers' power to shape what happens in their classrooms (Remillard, 1999; Tyack & Cuban, 1995) and second, they do not trust and listen to what teachers, learning in community, know about their schools, and how their students can best learn (Palmer, 1998; Tyack & Cuban, 1995).

If, as this study suggests, learning that leads to substantive changes in practice involves transforming one's professional identity and exerting agency, individuals need time to come to identify with new community perspectives, practices and beliefs. Prescriptive changes that are mandated from "on high" undermine practitioners' sense of agency and identification with such practices. Mandating that teacher professional development will instantly become professional learning communities could undermine professional developers' ability to learn and identify with inquiry group facilitation practices. Similarly, prescribing
that teachers must participate in inquiry groups will likely undercut the qualities of critical reflection and collaborative learning (i.e., practices) that such mandates hope to develop.

Despite the urgency to improve learning opportunities for all students, teacher learning and leadership – changing practices – cannot be rushed. Inquiry group participants need time to move from the periphery toward the center of inquiry communities. Additionally, it takes time for participants to come to identify with new practices that they negotiate and generate together. We saw that over years of PD inquiry group participation, Cammie and Carol became experienced and expert facilitators of professional learning communities.

While I certainly recommend that professional learning communities are an important avenue for transformative teacher learning, school improvement and enhanced student learning, based on Cammie and Carol’s actions I suggest that it would be a mistake to rush the process of transforming teacher professional development. Cammie and Carol’s experiences taught them that by working with ever expanding circles of professional learning communities, they were creating changes in what teachers did and how they worked together. If professional developers, teachers leaders and teacher are going to own the changes they generate, they need time with colleagues to figure out and identify with solutions to local problems. They need to "drive the bus." In this way, a cycle of continuous reflection, action and improvement, that is, lasting cultural change can develop
rather than trivial and essentially conservative tinkering with practice (Thompson & Zeuli, 1999).

Rethink the Conduit: Broker Boundary Encounters

Based on conclusions of this study, supervisory and administrative support for PD inquiry and leadership seems crucial. One aspect of that support could be for supervisors and professional developers to genuinely share leadership in the area of teacher learning. I recommend that one way supervisors and facilitators could share leadership in the area of teacher learning could be in the context of a supervisor and professional developer inquiry group.

When Cammie and Carol felt that their agency was constrained by supervisors’ attempts to control their time and efforts, they spoke vehemently about their frustration. When, after many frustrating encounters with administrative directives, Cammie said she might need to "decide where I draw my line in the sand," I understood her to mean that she felt she might need to quit her job to maintain her integrity. Carol felt that her supervisor sometimes interfered with doing her job and perhaps, she would not "tell her what I was doing." It might be more useful for administrators and other educational leaders to engage with professional developers in negotiation and discourse about their facilitation of teacher learning, by making suggestions and helping to set goals and direction, rather than mandating certain courses of action. In this way, PD inquiry could flourish and teacher leader inquiry could thrive.
To this end, I recommend that district administrators work with Cammie, Carol and their colleagues to create a conduit that operates in both directions. Connelly and Clandinin (1999) use the term conduit to refer to the pipeline through which policies aimed at changing teachers and their practice are communicated and imposed. I propose that the conduit can be re-imagined. It can be pictured as working in two directions – from administrators to practitioners and from practitioners to administrators. If the conduit operated in both directions it could be an effective avenue for improving schools for teachers and their students. For example, policies and directives could then result from teachers' and professional developers' insights about local schools, classrooms and students as well as administrators' comprehensive perspectives about broader district systems, budgets and state expectations. In Wenger's (1998) language, this conduit needs to foster boundary encounters in which the practice of one community can shape and be shaped by other communities.

Facilitators of teacher learning can play a critical role in such boundary encounters because they are at least peripheral members of several important communities. As brokers they can intentionally share practices of one community with another. Importantly, they can help members of each community come to understand the perspectives, values and activities of the other. To some extent, Cammie and Carol already do this in their liaison role between administration and teacher leaders in which they share administrative goals and directives with teacher
leaders. However, what I am proposing is that they can *also* help administrators understand teacher leaders' views of such directives and share goals and proposals that teacher leaders generate.

For boundary encounters to occur and be meaningful learning opportunities for administrators, teacher leaders, professional developers and teachers, schools and school districts need to become fertile ground in which inquiry groups, aimed at improving student learning, can grow. A collaborative culture in which all voices are encouraged, respected and trusted needs to be nurtured and sustained for the long term. Teachers, accustomed to being under-appreciated, over-scripted and evaluated, need opportunities over time to come to trust administrators, professional developers and colleagues. That is, teachers and teacher leaders need to open the conduit on their end.

In order for teacher trust to grow, administrators need to listen to, respect and act on the personal practical knowledge that teachers, teacher leaders and professional developers bring to the field, thereby opening the conduit from *their* side. Sergiovanni (2004) describes this as a "reciprocal relationship" that "bubbles up" and "trickles down" (p. 49). I prefer an image of a conduit that is horizontal, not vertical. A horizontal metaphor reinforces the idea that practitioner, research, administrative, and policy-making communities need to share equal status even as individuals and groups possess different kinds of expertise and carry different responsibilities. Further, being level, a horizontal conduit, a thoroughfare on the
professional knowledge landscape, if you will, does not imply privilege to one kind of knowledge (policy or research) over another (personal practical knowledge). The re-imagined conduit will remain open in both directions only when all kinds of knowing are valued and used to shape policy and practice. In this way practitioners' personal practical knowledge can inform ways that policies are shaped and, at the same time, policies can shape practices for improving student learning with which practitioners can identify and develop a sense of ownership.

Cammie, Carol and their colleagues are in a strong position to help transform the conduit from a one way to a two way street on the professional knowledge landscape. Along with their specialist colleagues, Cammie and Carol operate in the middle ground between teachers and administration. They are neither classroom teachers nor supervisors but regularly work with teachers, teacher leaders and administrators. Historically, the specialists' liaison role was to inform teachers about what is happening in the District and listen to issues arising from teachers. Perhaps, through inquiry group participation and collaborative problem solving, Cammie, Carol and their mid-level colleagues can be brokers who foster a shared, bi-directional conduit that helps practitioners and administrators navigate and shape educational landscapes together. I can suggest several ideas for ways a conduit transformation might be initiated. Perhaps, Cammie and Carol could invite a willing and committed administrator or two to participate in one of the teacher leader inquiry groups as an equal member. Perhaps, they could design an inquiry
group of a few administrators and teacher leaders whose task is to work on
developing a different kind of communication – with an inquiry focus – between
the various communities that work in and shape schools. Ultimately, Cammie,
Carol and their colleagues can play a central role in figuring out ways to solve the
puzzle of how to broker the opening of both ends of the conduit to input as well as
output.

Clearly, these recommendations will cost money and funding for education
is often scarce. It is beyond the scope of this study to address school funding or
other policies at that level. Nevertheless, it is vital to fund such efforts to create
collaborative, empowered cultures in schools and school districts if the goal of
lasting instructional improvement and enhanced learning for all students is to be
realized.

Researcher Reflections

First, I reflect on this study to offer a number of directions and questions for
future research. Then, I reflect on the research process and my own development as
researcher and educational leader.

Directions and Questions for Further Research

A series of potential research questions arise from the nature of qualitative
methodology. This study, as already noted, takes place in a specific context and can
only speak to other contexts when readers find stories, contexts or ideas with which
they identify. The context of this study includes its location in a mid-size urban
school district and its focus on secondary mathematics professional developers and their work with teacher leaders.

Research about collaborative inquiry groups in the context of small, rural school districts could generate a number of potential questions. If, as this research concludes, it is important to participate in an inquiry group in order to initiate, design, facilitate and sustain them, what do single specialists/professional developers in small districts do to collaborate with peers? Research might look at learning, practices and participation in other configurations of inquiring collaborators. Examples might include all curriculum specialists across disciplines or curriculum specialists learning with school or district administrators. This leads to other questions. How do inquiry groups of teachers and teacher leaders meet regularly around local practice when teachers are separated by vast distances and work in tiny schools? What learning is encouraged or constrained by using the internet to form online collaborative communities? At the other end of the size spectrum, what about very large urban school districts? What different kinds of challenges do curriculum specialists/professional developers find with a larger hierarchy and greater numbers of teachers as they initiate, design, facilitate and sustain professional learning communities?

Inquiry groups in this study were all grounded in the same discipline and grade levels—secondary mathematics. In a contrasting context, elementary teachers are generalists and work across disciplines. Do their inquiry groups need to be
multi-disciplinary? If so, then around what common "discipline" would it be most productive for such inquiry groups to center? One possibility might be to examine students and their ways of learning. For instance, a study of practitioners using The Prospect Center's processes for describing children might yield pertinent research (Himley, 2002). As mentioned in the literature review, there is research about teacher inquiry groups in single disciplines other than mathematics (e.g., literacy). Research is still needed, however, that explores professional developers' inquiry group experiences as well as their work with teachers' and teacher leaders' inquiry groups in other disciplines and with groups of teachers working across disciplines.

I suspect that my study only scratched the surface in terms of looking at specific inquiry group practices. To puzzle out other practices that can engender trust, mutual accountability to continuously improve teaching and facilitation, and encourage leadership, teacher leaders need to be at the table and part of the research conversation. A future study focused on teachers' and teacher leaders', as opposed to facilitators', lived experience with inquiry groups could add crucial stories to this field. Further, a study that examined what effects teacher leader learning and leading has on schools, colleague teachers and student understanding could contribute evidence important to understanding the efficacy of inquiry groups.

Teacher leaders' stories may help with related, more specific, questions. The membership of the teacher leader inquiry groups in this study consisted of teacher
leaders from across a district, rather than teachers all from the same school. Most literature about professional learning communities focuses on groups of teachers who work together daily (e.g., Stokes, 2001). A study comparing teacher leaders' lived experience with district-wide inquiry groups and their experience with in-school groups of school colleagues might help to puzzle out ways to effectively initiate, design, facilitate and sustain inquiry groups in such different contexts. Perhaps, such a comparison could illuminate the particular problems of in-school groups.

Cammie and Carol learned to initiate, design, facilitate and sustain ongoing collaborative inquiry groups by participating in such a group. Their work with teacher leaders seems to imply that teacher leaders, too, might need to participate in inquiry groups in order to initiate, facilitate and sustain such groups with their school colleagues. Research that explores teacher leaders' learning and changing facilitation practices, reshaping identities and exerting agency may be an interesting topic for research, especially as it relates to teacher leaders' experiences of facilitating inquiry groups in their schools. In a similar vein, if administrators need opportunities to participate in inquiry groups in order to foster such inquiry with teachers and teacher leaders, research that explores ways that school administrators initiate and support teacher inquiry groups by participating in ongoing, collaborative administrator learning communities could be another interesting avenue to pursue.
A study that examined what effects school administrator participation in inquiry groups has on schools, teachers and student learning could also contribute evidence important to understanding inquiry group participation. In other words, what would administrator-only and administrator-and-teacher inquiry group participation mean for school culture? Do teachers and school administrators develop a sense of collective accountability for improving practice? Are there changes in administrators' practices, classroom practices and student learning?

In this study, Cammie and Carol’s position – not really classroom teachers and not quite administrators but with access to both groups – raised another possible direction for research. This study showed how acutely they felt the tensions of being pressured by administration to do things in ways that their own experience and teacher leader colleagues perceived as ineffective. At the same time, being "in the middle" gave them a unique vantage point to see what ideas teacher leaders generated as well as what administrators proposed or prescribed. A study focusing on learning, professional identities and agency that this middle position affords and constrains in negotiating and fostering a collaborative, inquiry culture in schools and district might prove useful to practitioners and administrators alike.

Finally, not only was this study grounded in a specific discipline and educational level, the backgrounds of its participants also created an important aspect of its context. This study's participants were female and further research is
needed that explores lived experiences of men who are professional developers. Learning, identity and agency stories arising from an inquiry group with both men and women might be different than stories from this study's PD inquiry group.

**Personal Reflections**

An important part of qualitative research is the idea of researcher-as-instrument (Ely et al., 1991; Merriam, 1998). In this study my relationships with the study's participants were especially complex, as described in chapters 3 and 4. Also, narrative inquiry involves partnering with participants to tell stories of practice and experience, adding further complexity to our relationships and the research process. In this narrative inquiry, Cammie and Carol were the experts and my role as researcher was to listen and convey their practitioner stories. As a researcher I also was able to offer them support and share with them other perspectives that come from my reading, observations and reflections. Most important, if I represented Cammie and Carol and their stories well, this research can begin to bring their practitioner voices, perspectives and expertise, often ignored and largely missing from educational research literature, into research dialogue about professional learning communities, teacher learning and leadership, as well as professional developer learning and practice.

The iterative nature of narrative inquiry, in which participants' recognition of their stories and voices validates research texts, helps to balance the power and status of researcher with the authority of participants. My long-term relationships
with Cammie and Carol also helped maintain this balance. For example, they reminded me that since I was actively engaged in research rather than professional development, I was not a central member of the PD inquiry group. That is, I was along for the ride as a passenger and observer while Cammie and Carol "drove the bus" of inquiry about facilitator practice.

Finally, in qualitative research a researcher needs to be open to unexpected themes. One of the surprises of this study was how loud the story of Cammie and Carol’s rising tensions with District administration and supervisors became. It was a much more important story than I expected. As a result, I find myself facing a dilemma of my own in my role as an educational leader. Just as I tried to "give back" by supporting Cammie and Carol around practice, I also want to share my learnings with a wider audience. I want to be able to use what I have learned from this study to support Cammie, Carol and their colleagues around the tensions they face. I believe that the narratives in this dissertation have lessons, as detailed in recommendations above, for administrators and other educational leaders. However, sharing this work directly with administrators in the District of this study could compromise Cammie and Carol’s confidentiality.

One pathway through this dilemma comes from narrative inquiry's iterative process and the nature of inquiry groups. I could share my conclusions, recommendations and dilemma with Cammie and Carol and ask for their reactions and suggestions. Collaborating with Cammie and Carol in our inquiry group, we
might devise ways in which this study's conclusions and recommendations
could be shared with educational leaders in this and other districts without placing
Cammie or Carol at risk. In this way we might extend our opportunities for
developing identity and agency as we navigate teacher learning and leading as well
as shape the professional development landscape.
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APPENDIX

INTERVIEW PROTOCOLS

What follows are semi-structured interview guides, rather than formal interview protocols. Questions are therefore tentative. They are based on the study’s research questions and my current knowledge of the professional developers’ context. Questions may be asked in a different order, omitted, or changed at the time of the interview in order to follow the interests and thinking of the interviewee.

These three interviews are adapted from one 2-hour life-story interview that Drake, Spillane, and Hufferd-Ackles (2001) conducted with teachers. I added one question. I expect that my results will differ from Drake and colleagues’ since I am interviewing professional developers, not classroom teachers. Further, I am not comparing responses of ten individuals. Rather, I am looking at each person’s responses in order to understand her stories and identities.

In the first interview I ask questions to elicit participants’ past experiences with teaching and learning. My intention here is to discover the perceptions, beliefs, values, dispositions and identities they developed over a lifetime of experiences with teaching, learning and professional development. Asking for specific events serves to focus and develop participants’ stories along the three dimensions of time, place, and interaction in inquiry space. Questions a) and b) focus on professional developers’ beliefs and practice. Questions c), d), and e) may elicit stories of ways that prior experience shaped professional developer identities and beliefs.

In the second interview my questions may shift the focus from past (influences, turning points) to present (challenges). Questions about influential people or organizations moves my queries from internal, individual perceptions (interview #1 questions about specific life events) to social interactions that shape participants’ identities and practices. Asking about turning points seeks Lucy’s and Carol’s stories of learning and change. The temporal realm of the third interview is present and future. Asking for stories about dilemmas and tensions in their present work seeks to elicit data about the dynamics of how they bridge the different contexts in which they work. Here I seek to gather data about how participation in multiple learning communities may shape Carols’ and Lucy’s practices as professional developers. In asking them to project their stories into the future, I am looking for consistencies or inconsistencies in Lucy’s and Carol’s stories about their changing practices, participation, learning and identities.
1. Introductory Comments

Thank you very much for agreeing to this interview. I know how busy you are and I am grateful that you are willing and able to give your time to this research about professional developer learning. This interview is about the story of your experiences with teaching, learning and professional development, including your experiences as a participant in and facilitator of professional learning communities.

What you say in this interview will be kept confidential. However, since you and the other participant know each other, in my final report you may recognize what she has said and likewise, she may recognize what you say. You can refuse to answer any question or stop the interview at any time. I am interested in understanding your own personal point of view, so there can be no wrong answers. Whatever you say will help me make sense of how professional developers learn to be helpful and effective in their work with teachers and one another. Even if we have talked about some of the things in this interview before, please tell me your stories again so I have them in your own words. Also, don't assume I know the details of your stories so please be as detailed as you can. We have a strong relationship, so I won't be offended or upset if what you say is different from, or critical of my ideas, practices or other actions. To be most helpful to me please don't hold back. I want to hear your perceptions, perspectives, and experiences, not mine.

2. Critical Events

I'd like you to concentrate on a few key events that stand out in bold print, so to speak, in your story of teacher learning / professional development. A key event should be a specific happening, a critical incident or significant episode in your past, set in a particular time and place. It may be helpful to think of such an event as a specific moment that stands out for some reason in your experiences with teacher learning. A very difficult year, such as your first year as a professional developer, would not count as a key event because it took place over an extended period of time.

I will ask you about several specific events. For each event, please describe in as much detail as you can what happened, where you were, who was involved, what you did, and what you were thinking, feeling and doing in the event. Also, please try to tell me what impact this key event has had in the story of your life-experiences with teacher learning and what this event says about who you are or who you were as a person, a teacher and a professional developer.

a) Event #1: Peak experience. A peak experience would be a high point in your on-going story of being a teacher and professional developer. It would be a moment when you experienced extremely positive emotions, like joy, excitement, satisfaction, great happiness, or deep inner peace after or during some experience as a teacher or professional developer. Tell me exactly what happened, who was involved, where it occurred, what you
did, what you were thinking and feeling, what impact this experience may have had upon you, and what this experience says about who you are now as a facilitator of teacher learning.

b) Event #2: Nadir experience. A nadir is a low point. A nadir experience is therefore the opposite of a peak experience. It is a low point in your on-going story of being a teacher and professional developer. Thinking back on your life as a teacher and professional developer, please try to remember a specific experience when you felt extremely negative emotions about teaching or facilitating teacher learning. What happened? Where? When did it happen? Who was involved? What did you do? What were you thinking and feeling? What impact has this event had on you? What does this event say about who you are as a person, a teacher or professional developer?

c) Event #3: Important childhood scene. Now please describe a specific event from your childhood that stands out as especially important or significant with respect to learning or teaching. It may be a positive or negative memory. What happened? Where? When did it happen? Who was involved? What did you do? What were you thinking and feeling? What impact has this event had on you? Why is it important? What does it say about you now?

d) Event #4: Important adolescent scene. Please describe a specific event from your adolescent years that stands out as being especially important with respect to learning or teaching. What happened? Where? When did it happen? Who was involved? What did you do? What were you thinking and feeling? What impact has this event had on you? Why is it important? What does it say about you now?

e) Event #5: Important adult scene. Please describe a specific event from your adult years (age 21 and beyond) that stands out as being especially important with respect to learning, teaching or professional development. What happened? Where? When did it happen? Who was involved? What did you do? What were you thinking and feeling? What impact has this event had on you? Why is it important? What does it say about you now?

f) Event #6: Important professional development scene. Please describe a(nother) specific event from your years as a teacher or professional developer that stands out as being especially important with respect to teacher learning or professional development. This could be a scene in which you were a teacher participant or one in which you were a facilitator. What happened? Where? When did it happen? Who was involved? What did you do? What were you thinking and feeling? What impact has this event had on you? Why is it important? What does it say about you now?

3. Possible question

An additional question may be added based on observations and/or informal conversations with participants.
4. Concluding questions

Is there anything else you would like to add that has to do with your experiences as a learner, teacher or professional developer? Is there something else you would like to say?

Thank you very much.

Professional Developer Interview # 2

1. Introductory Comments

Thank you very much for agreeing to this interview. I know how busy you are and I am grateful that you are willing and able to give your time to this research about professional developer learning. This interview is about the story of your experiences with teaching, learning and professional development, including your experiences as a participant in and facilitator of professional learning communities.

What you say in this interview will be kept confidential. However, since you and the other participant know each other, in my final report you may recognize what she has said and likewise, she may recognize what you say. You can refuse to answer any question or stop the interview at any time. I am interested in understanding your own personal point of view, so there can be no wrong answers. Whatever you say will help me make sense of how professional developers learn to be helpful and effective in their work with teachers and one another. Even if we have talked about some of the things in this interview before, please tell me your stories again so I have them in your own words. Also, don't assume I know the details of your stories so please be as detailed as you can. We have a strong relationship, so I won't be offended or upset if what you say is different from, or critical of my ideas, practices or other actions. To be most helpful to me please don't hold back. I want to hear your perceptions, perspectives, and experiences, not mine.

2. Turning Point

In our last interview we talked about key events. These were critical incidents or significant stories in your past, set in a particular time and place. Our last interview was focused on the beginnings of your professional development story. Today, I am interested in both your past and present experiences with teacher learning, including your participation in and facilitation of professional learning communities.

In looking back on your life sometimes you can remember specific key events that were turning points – experiences through which you were substantially changed. I am especially interested in a turning point in your understanding of teacher learning. Please identify a particular episode in your life-story as a facilitator of teacher learning that you now see as a turning point. A very difficult year, such as your first year as a professional developer, would not count as a key event because it took place over an extended period of
time. If you feel that your professional development story has no turning points, please
describe a particular episode that comes closer than any other to qualifying as a turning
point. What happened? Where? When did it happen? Who was involved? What did you
do? What were you thinking and feeling? Why is this episode an important turning point?
What impact has this experience had on you as a person, a teacher, or a professional
developer? What does this story say about you now?

3. Influences on professional developer story: positive and negative

I am interested in who you view as influential people, groups, or organizations /
institutions in your professional developer story. I will ask two questions about these
influences.

a) Positive influence. Looking back over your life story as a facilitator of teacher learning,
please identify the single person, group of persons, or organization / institution that has or
have had the greatest positive influence on your perspective of teacher learning and
professional development. Please describe this person, group, or organization and the ways
in which s/he, it or they have had or are having a positive impact on your professional
developer story.

b) Negative influence. Looking back over your life story as a facilitator of teacher learning,
please identify the single person, group of persons, or organization / institution that has or
have had the greatest negative influence on your perspective of teacher learning and
professional development. Please describe this person, group, or organization and the ways
in which s/he, it or they have had or are having a negative impact on your professional
developer story.

4. Professional development challenges: two perspectives

The next questions focus on challenges you have experienced with respect to professional
development. I will ask two questions about this.

a) Challenging experience as a teacher participant. Looking back to your experiences as a
teacher participant in professional development interactions, please describe the single
greatest challenge you have faced. What happened? Where? When did it happen? Who was
involved? What were you thinking and feeling? How have you faced, handled, or dealt
with this challenge? Have other people helped you in dealing with this challenge? How has
this challenge had an impact on your experiences with professional development? What
does this challenging experience say about you as a person, a teacher or professional
developer?

b) Challenging experience as a facilitator of teacher learning. Looking back to your
experiences as a professional developer or facilitator of teacher learning, please describe
the single greatest challenge you have faced. What happened? Where? When did it
happen? Who was involved? What were you thinking and feeling? How have you faced,
handled, or dealt with this challenge? Have other people helped you in dealing with this challenge? How has this challenge had an impact on your experiences with professional development? What does this challenging experience say about you as a person, a teacher or professional developer?

3. Possible question

An additional question may be added based on observations and/or informal conversations with participants.

4. Concluding questions

Is there anything else you would like to add that has to do with your experiences as a learner, teacher or professional developer? Is there something else you would like to say?

Thank you very much.

Professional Developer Interview # 3

1. Introductory Comments

Thank you very much for agreeing to this interview. I know how busy you are and I am grateful that you are willing and able to give your time to this research about professional developer learning. This interview is about the story of your experiences with teaching, learning and professional development, including your experiences as a participant in and facilitator of professional learning communities.

What you say in this interview will be kept confidential. However, since you and the other participant know each other, in my final report you may recognize what she has said and likewise, she may recognize what you say. You can refuse to answer any question or stop the interview at any time. I am interested in understanding your own personal point of view, so there can be no wrong answers. Whatever you say will help me make sense of how professional developers learn to be helpful and effective in their work with teachers and one another. Even if we have talked about some of the things in this interview before, please tell me your stories again so I have them in your own words. Also, don't assume I know the details of your stories so please be as detailed as you can. We have a strong relationship, so I won't be offended or upset if what you say is different from, or critical of my ideas, practices or other actions. To be most helpful to me please don't hold back. I want to hear your perceptions, perspectives, and experiences, not mine.

2. Ongoing Tensions and Dilemmas

In professional development design and practice there are often dilemmas or tensions that you face as a facilitator of teacher learning. By dilemmas I mean situations that cause you to make difficult choices – sometimes unconsciously and between two or more valuable
alternatives – as you develop your plans and carry out your work with teachers. By
*tensions* I mean ongoing situations that you are living with and cause you to feel intense
discomfort due to being surrounded by differing outlooks or viewpoints relevant to
facilitating teacher learning that affect how you do your work.
Thinking about recent chapters in your life story as a facilitator of teacher learning, please
describe the most important ongoing tension or a dilemma that you are facing in your
professional development work with teachers. If you are not currently facing an important
dilemma or living with a tension regarding your professional development work, please
describe the one you faced or lived with most recently. What is happening? Where? Over
what period of time has it been going on? Who is involved? What are you thinking and
feeling? Have other people helped you in dealing with this tension or dilemma? If it is
being resolved, how is it being resolved and what are you doing to resolve it? How has this
tension or dilemma had an impact on your experiences with professional development?
What does this tension or dilemma say about you as a person or professional developer?

3. *Alternative futures for the professional developer story*

We’ve talked mostly about the past and present in these interviews. Now I would like you
to consider the future. I would like you to imagine two different futures for your
professional development story.

*a) Positive future.* First, please describe a positive future. That is, please describe what you
would like to happen in the future with regard to your interactions with professional
development, both as a participant in a professional learning community and as a
facilitator, including what goals and dreams you might accomplish or fulfill in the future.

*b) Negative future.* Now, please describe a negative future. That is, please describe a highly
undesirable future for yourself with regards to your interactions with professional
development, both as participant in a professional learning community and as a facilitator,
one that you fear could happen to you but you hope does not occur.

4. *Possible question*

An additional question may be added based on observations and/or informal conversations
with participants.

5. *Concluding questions*

Is there anything else you would like to add that has to do with your current or future
experiences as a learner or professional developer? Is there something else you would like
to say?

Thank you very much.