A Culture of Collaborative Inquiry: Learning to Develop and Support Professional Learning Communities

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Background/Context: The type of professional development provided for teachers has been undergoing change from a one-time workshop approach to a more embedded, long-term, reflective, and collaborative structure. Although findings on the impact of new forms of professional development (PD) are beginning to emerge in the literature, there is little research on the professional development of those who design and support these PD efforts.

Purpose/Objective/Research Question/Focus of Study: To better understand how to support secondary teachers' engagement in collaborative inquiry, a group of 12 professional development providers deliberately set out to use the same processes and structures in their development and implementation of a PD model. This research examines what this group learned about fostering and sustaining a culture of collaborative inquiry and considers how this can inform PD providers' support of teachers' engagement in a collaborative inquiry cycle.

Research Design: A narrative case study design was used to examine the evolution of the professional development group from its inception in March 2004 through December 2005, halfway through the project's duration. The particular timeframe was targeted to explore the developmental phase of the group and critical decisions that shaped the group structure and direction.

Data Collection and Analysis: Traditional qualitative data sources were collected and analyzed in the construction of the narrative, including interviews with the professional developers, archived documents, and video and audio recordings of meetings.

Conclusions/Recommendations: The PD group's focus on how to foster and sustain a culture of collaborative inquiry provides insights into the structures and processes that support this kind of collaborative endeavor. Assuming an inquiry stance toward the work was challenged by the ongoing business of implementing a large-scale project and the demands of people's other work in school districts and universities. Difficulties related to communication between and during meetings also occurred. An explicit reliance on collaborative norms and explicitly using processes such as dialogue structured by protocols, distributing leadership responsibilities, and co-constructing an inquiry focus based on data analysis helped the group develop and maintain an inquiry stance. These findings inform the support of teachers undertaking collaborative inquiry for professional growth.

An increasing number of teacher professional developers are structuring experiences around collaboration and inquiry. Although still inconclusive, these approaches appear to facilitate classroom teachers in a reexamination of beliefs that can lead to changes in instructional norms and contexts (Darling-Hammond & McLaughlin, 1995; Linn, Shear, Bell, & Slotta, 1999; Loucks-Horsley, Love, Stiles, Mundry, & Hewson, 2003; Putnam &

Borko, 2000; Radinsky, Bouillion, Lento, & Gomez, 2001). Professional development focused on collaborative inquiry can be supported and facilitated through specific means, usually by a university professor and/or district specialist, or by one or all of the teachers themselves. The type of support reported in the literature is quite varied, but it is clear that specific kinds of support are crucial for allowing teachers the time, place, and intellectual capacity to collaboratively inquire into their practice (Gamoran et al., 2003; Nelson & Slavit, in press).

Although the literature on teacher collaborative inquiry is emerging, there is a paucity of both empirical and descriptive evidence on the professionals who design its structure and support teachers as they engage in this process. Elliott (2005) reported an extensive search on the development of mathematics professional developers that yielded only four results (Davenport & Ebby, 2000; Even, 1999; Even, Robinson, & Carmeli, 2003; Stein, Smith, & Silver, 1999), all of which used case studies to describe the inherent challenges in facilitating the development of leaders. Although these studies do ground the case discussion in the broader professional development context, there is little information on the overall planning contexts that led to the construction and implementation of the project as a whole. For example, Stein et al. concluded that "by providing up-close views of a few pioneers actually attempting to assist teachers in new settings and in new ways, we have begun to map the territory of what professional developers must learn in order to be successful" (p. 266).

Although helpful, these studies do not address the broader scope and context of planning, organizing, and delivering professional development. If professional development that supports teachers in reconceptualizing beliefs and practice is to be examined, then more data are needed to support professional developers in similar reconceptualizations regarding the overall planning and execution of "transformative" professional development (Ball & Cohen, 1999; Thompson & Zeuli, 1999).

Similar to teacher action research, self-inquiry by a team of professional developers as they plan and deliver a long-term, large-scale project was identified by the authors as a method for understanding how to reconceptualize and enact transformative professional development. Specifically, this research is about a 12-member group, known as the "steering committee" (SC), whose members came together to design and implement a 3-year professional development project for secondary science and mathematics teachers. To better understand the structures and processes for collaborative inquiry that we ("we" refers to the steering committee) were setting up and facilitating for the teachers, we deliberately set out to use these same structures and processes ourselves as we worked together on the project. The results of our own inquiry into professional development are the focus of this article. Specifically, this article provides a narrative of how and what we learned about supporting teachers engaged in inquiry-oriented professional learning communities while we did so ourselves. Three of the authors (excluding Mart) were full participants on the SC and have attempted, through data analysis and member checking, to fully represent the perspectives and processes of the group. Implications for teacher professional developers relative to group norms and cohesiveness across different areas of expertise, interests, and agendas, as well as potential impact on teacher participants, are explored.

CONTEXT

Partnerships for Reform in Secondary Science and Mathematics (PRiSSM) is a 3-year professional development project, funded by the U.S. Department of Education, designed to help teachers from 22 schools in six school districts undertake collaborative inquiry into some aspect of their practice. Because teacher professional

development activities can be isolated, additive experiences that do little to change classroom practices (Hawley & Valli, 1999; Sarason, 1996; Sikes, 1992; Yerrick, Parke, & Nugent, 1997), current theory in professional development promotes the integration of practice with critical, dialogic reflection (Wells, 1999) among educators, an approach that fuses purposeful activity and dialogue to enhance learning (Ball & Cohen, 1999; Hawley & Valli). Collaborative inquiry involves a stance of "knowledge negotiation" (Nelson, 2005) among group members. Employing dialogue grounded in shared experiences and a shared focus, group members question ideas, actions, and artifacts; examine varying perspectives and beliefs; and work toward a co-construction of understanding about the focus of their collaborative work. This focus is grounded in classroom practices, especially in teacher-identified gaps between a negotiated vision of high-quality learning and data about students' accomplishments and understandings (see Figure 1).

In the interest of promoting changes in the typical culture of isolation found in most secondary schools (Sarason, 1996), we aimed to enact transformative professional development; i.e., "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)" (Thompson & Zeuli, 1999, p. 342). We identified collaborative inquiry as a promising development tool, recognizing that teacher change is a complex process that requires time for reflection, discourse, questioning, practice, and feedback, rather than a one-time or short-term encounter with others' ideas (Fullan, 1993, 1999; Loucks-Horsley et al., 2003).

Specifically, the PRiSSM professional development model utilized professional learning communities (PLCs) as a vehicle for supporting collaborative inquiry. Details of how PLCs can support teacher growth are abundant in the literature (Dufour & Dufour,

2002; Gamoran et al., 2003; Hord, 1997; King & Newmann, 2000; Putnam & Borko, 2000), but because the focus of this paper is on the development of the professional development team's PLC, details of the nature and role of PLCs in PRiSSM are now only briefly described (see Slavit & Nelson, 2006, and Nelson & Slavit, 2007, for further details). Teacher participants were organized into 10 PLCs containing teachers from associated middle and high schools, with each PLC undertaking their own self-determined inquiry. In the second and third years of the project, approximately 100 "expanded team" teachers from across all participating schools joined the project, and each Year 1 "lead teacher" became a facilitator-participant in a newly-formed, school-based PLC.

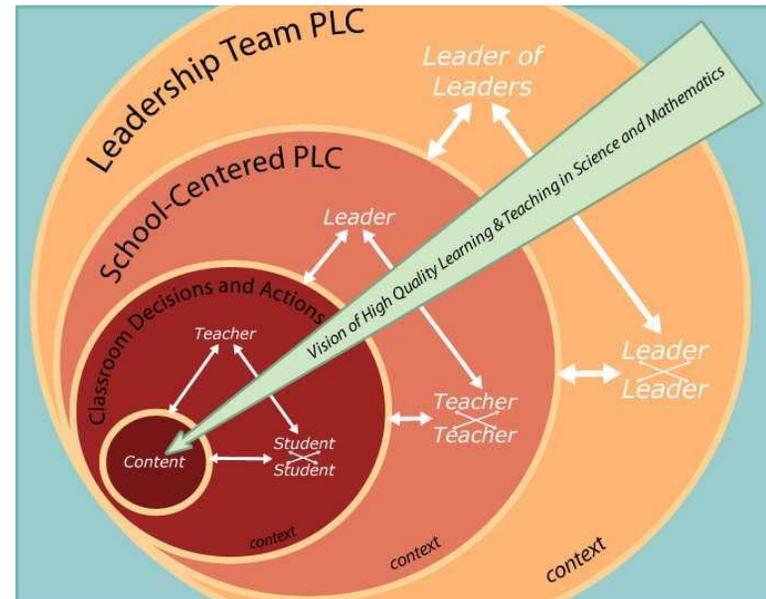**Figure 1.** Conceptual Framework for PRiSSM Professional Development

Figure 1, adapted from Cohen and Ball (1999), Cohen, Raudenbush, and Ball , and Carroll, Moretti, and Mumme (2005), portrays the model used to describe the interactions among classroom practices, teacher inquiry, context, facilitation, and professional development. As depicted in the "second circle" of this graphic, the focus of the teachers' discussions was some aspect of high-quality teaching and learning, as manifested across their classrooms. Over time, through dialogic and data-driven processes, an inquiry focus emerged. Because some members of each PLC during Year 1 came from a different context (middle or high school, mathematics or science), negotiation arose naturally over elements of teaching and student learning, including those that might be of common interest and significance to all. Similar activity occurred at the school-based level after Year 1, with the lead teacher moving toward the facilitation role in the PLC.

One key aspect of project structure, planned from the project's inception, was the facilitation of the teacher PLCs by a member of the SC (identified as "leader" in the second circle of Figure 1). Facilitation was constructive, not directive; project staff were intentional in supporting the teachers' ability to make decisions about their inquiry work. Specifically, in addition to providing logistical support for organizational and meeting details, facilitators supported teachers in surfacing and negotiating beliefs and engaging in an inquiry cycle consisting of the development of an inquiry focus and design, data collection and analysis, and synthesis (Nelson & Slavit, 2007). Three sets of facilitators were designated to support all PLCs in one large suburban district, one medium-sized suburban district, and among the teachers in four smaller rural districts.

All facilitators were members of the SC. The SC was ultimately composed of district-level mathematics and science specialists, current or former middle school teachers, and university mathematics and science educators. Descriptions of the individual members of the SC, as well as its formation and evolution, are provided in subsequent sections. Occasionally, two different high school principals participated on the committee, but this involvement was not sustained. Like the teacher participants, each member of the SC had other full-time responsibilities in addition to PRiSSM. The overall planning of the SC meetings was conducted by a four-person leadership team (described later), but the facilitation of the SC's PLC inquiry rotated among its members. As seen in the outer circle of Figure 1, the SC members met together to explore the focus of our own inquiry: facilitating the work of the lead teacher PLCs. In essence, although the teachers participated in collaborative inquiry on their own practice, we also took a collaborative approach to understanding our professional development practices related to the support of the teachers.

As stated above, PRiSSM was not designed to assist teachers in implementing a specific curriculum or instructional technique, nor was it specifically focused on the development of content knowledge. Rather, PRiSSM was designed to support teachers in framing questions about their practice, and then provide the time, intellectual, and material resources to support a collaborative, action research approach to these questions. In some sense, PRiSSM can be thought of as constructivist professional development in which the teachers helped guide and control the content and direction of their learning in small groups, supported by a facilitator (Stein et al., 1999). But like a teacher who responds to an array of student ideas in a lesson, the SC met significant challenges in developing and maintaining project structure and coherence while providing support to the wide array of inquiry foci and approaches that emerged. Lisa, a member of the SC, voiced the uncertainties felt by many at the beginning of the project's second year: "In the very beginning I was very concerned about how we would do our work, there wasn't really a plan of how it would go, so it was learning by doing. . . . Gosh, we're still so much in the

middle of it."

By placing teachers in control of the direction of inquiry, the PRiSSM SC made a decision to work in murky, unstructured territory, with the ability to preplan only large, structural aspects of the project; preplanning the actual content (i.e., the teachers' inquiry foci) was impossible. Hence, we adopted a PLC stance of questioning, negotiating, and co-constructing understanding about the professional development support and impact. This research examines the implications of this decision on the professional development support we provided and on our understanding of teachers' experiences and challenges as they undertook PLC work.

METHODOLOGY

A narrative case study design was used to examine the evolution of the steering committee from its inception in March 2004 through December 2005, halfway through the project's duration. The use of narrative is widely accepted for exploring teachers' lives, practices, and norms (Conle, 2003; Reissman, 1993; Ritchie & Wilson, 2000). Although partly (auto)biographical and focused on story-telling, the use of narrative in teacher education transcends these more limited genres by focusing on storied landscapes or rich descriptions of teachers' reflective practice. Narrative is couched in the supports and limitations of pertinent contexts and in the dialogical landscapes that abound in the daily lives of teachers (Clandinin & Connelly, 1996, 2000). Not only does the construction of teacher narrative allow for thick description of individual teachers and teaching contexts, but it can also be a tool for shaping experience and promoting reflection on one's practice (Schon, 1991).

Although teacher narrative abounds, very few narratives exist regarding the manner in which professional developers design long-term experiences. For these reasons, the authors sought to document the history of our group and critically examine the decisions, contexts, processes, and outcomes that constituted our work. As is the case in teacher narrative, we found this decision to be one that would shape the processes and outcomes that emerged.

The particular timeframe was targeted to explore the developmental phase of the group, and critical events that shaped the group structure and direction. The latter include the expansion of the committee from 6 members to 12 members, including the loss and replacement of two committee members as the project moved into its second year. In addition, the committee confronted new challenges in fall 2005 as the project expanded from 10 PLCs with 45 lead teachers to 33 PLCs and 146 teachers.

The research helps us understand how the SC constructed and sustained collaborative norms, processes, and shared understandings relative to the goals and actions embedded in the professional development work, and what contexts hindered this development. We also address how the SC used these collaborative norms, processes, and shared understandings to support teacher leaders in the development of their own inquiry-based professional learning communities.

STEERING COMMITTEE PARTICIPANTS

The first two authors (Tamara and David) of this article were collaborative partners (Merriam, 1998) in the research process. We were complete participants of the SC, and our identities as researchers of the SC processes and structure were well known. The fourth author (Tom) was a science education specialist and member of the SC who served as cofacilitator for six lead teacher PLCs. General descriptions of SC members are found in Table 1, and further descriptions are provided in the narrative.

Table 1. Steering Committee Participants (including the first three authors)

Pseudonym (authors' real names)	Professional position	PRiSSM role
Alina	Director, Science and Mathematics Education Resource Center at regional "educational service district" (ESD)	District liaison and evaluation coordinator; leadership team
Arne	Year 1: Mathematics "teacher on special assignment" from large local school district / Year 2: Math specialist, ESD	PLC facilitator, Year 1 in large district, Year 2 in rural districts
Dan	District science "teacher on special assignment" from large local school district	District coordinator and facilitator, in large district
Dar	Year 1: Middle school science teacher and department chair / Year 2: not on committee	Facilitator in large district, Year 1
David	Associate professor, mathematics and mathematics education	Grant co-lead; leadership team
Ginny	Mathematics specialist from regional "educational service district" (ESD)	Facilitator, in medium-sized district
John	Mathematics program specialist, district level position	District coordinator and facilitator, medium-sized district
Julie	Year 1: Mathematics specialist, ESD / Year 2: not on committee	Facilitator for small, rural districts Year 1
Lisa	Mathematics specialist, ESD	Facilitator for small, rural districts
Pam	Science and mathematics specialist, ESD	Project director; leadership team
	Assistant professor, science	Grant co-lead; leadership
Tamara	education	team
Tom	Science specialist from a regional ESD	Facilitator, in medium-sized district

The SC held 7-hour monthly meetings, usually at the university, during the targeted timeframe. The 12-member group was first together at a 3-day retreat in June 2004. Prior to that, Tom, Ginny, and Julie were not involved, and after August 2005, Dar and Julie were not members. Other people associated with the work of the project occasionally attended meetings, including two local principals, internal evaluators, and other district personnel. During this 22-month period, members also participated in three 2- or 3-day retreats to plan summer academies for the lead teachers. In fall 2004, it was decided that up to half of each meeting would be dedicated to our own inquiry and professional growth, and the remaining time would be spent on the "business" of the project.

PARTICIPANT CONTEXT: FORMATION AND EARLY DEVELOPMENT OF THE STEERING COMMITTEE

We began as a group of experts with a wealth of experience in teaching and a variety of experiences with providing professional development. Some members had worked together on previous projects; others did not know each other. After receiving the funding in March 2004, the group began with six members: Alina, Dave, Pam, Tamara, Dar, and John. By May, job descriptions were generated. The first four of this group were charged with project and grant oversight and became known as the leadership team. The latter two took on a (temporary) role of science or mathematics lead content instructor, with responsibilities for the teacher professional development activities at on-site teacher academies and for working with soon-to-be hired facilitators.

Between March and June the group grew, with the addition of four facilitators, a local principal, and an internal grant evaluator. In May 2004, 12 people (not *the* steering committee) met and generated a list of norms. These served the emerging SC for a time but were addressed more deliberately in fall 2004. For these first few months, the norms were more structural than cultural (Fullan, 2000); in other words, they were a part of how we organized, not how we operated. SC meeting notes from the May meeting revealed a key question at the conclusion of this meeting: "Who's leading/facilitating the facilitators?" As the composition of the SC stabilized during the subsequent month, this question would play an important role in shaping its direction. For example, meeting notes also stated that, "John would like to bring in Ginny and Tom to deliver professional development." This was an intentional, further push toward teacher collaborative inquiry because Ginny and Tom were emerging as regional experts in this area. It also signaled a redefinition of John's role from instructor to overseer of district facilitation, and it provided a model for supporting the facilitation process in a specific district.

To further refine benchmarks and project structures, a 2-day retreat took place in June 2004. It was here where the 12 core members of the SC first gathered, along with a few additional participants from the May meeting. Tom, Julie, and Ginny joined the group for the first time, Tom and Ginny to assist John in his region as facilitators, and Julie to help Lisa in the facilitation of a group of rural districts. The focus of this retreat was "What is high quality learning and teaching?" and "What is high quality professional development?" It was here that the expertise of the different individuals began to be fully revealed and where structure began to morph into decision and action. For example, Tamara led a session on developing a common vision for high-quality learning and teaching, during which time the group members initially put forth beliefs and values and began to understand each other's

perspectives, even beginning to negotiate a shared vision. A visiting principal helped to keep our ideas grounded in the realities of the schools and districts. Alina emerged during the end of this meeting as a consensus builder and organizer, summarizing and publicly documenting discussions and decisions as the meeting progressed. Ginny and Tom brought their expertise in collaborative inquiry to the discussion, including the introduction of an earlier version of Figure 1 and other resources about PLCs. It was during these discussions that our ideas about learning communities began to take more concrete form. Ginny explained,

I guess that at the beginning I really thought that my role, along with Tom, was to help this group to think about PLCs. We weren't involved in the original writing process and conception, and we were brought in a little bit late, but there were these general ideas about what they wanted to do. And what we understood was that no one really had any experience in working with learning communities and we had a little bit of experience, and so they were bringing us in to help them to jump start them. Obviously as the year progressed, everybody's knowledge and experiences grew and we became less and less the experts on learning communities and more, I think, just members of the group that have a lot of valuable experiences to contribute.

There were no protocols used for sharing ideas during this retreat, and some voices were more dominant than others. The job descriptions generated in early May began to blur as new personnel emerged and everyone took on responsibilities for planning and teaching at the upcoming August academy. However, from the beginning, we adopted a metacognitive stance, intentionally reflecting on the content of our collective work (supporting teachers doing collaborative inquiry in professional learning community structures) and the nature of our group processes. This stance helped us notice the particulars of differing contexts and sensitized us to the need for flexibility (Putnam & Borko, 2000).

The decision of the SC to formally engage as a PLC was made in late summer 2004, and the negotiation of an inquiry question that drove the direction of the SC's work during the targeted timeframe slowly emerged, eventually becoming, **"**How can we foster and sustain a culture of collaborative inquiry?" The inquiry question was aimed at addressing our own needs as an emergent group and support the primary professional development goals of the project. At times, this question directed our focus toward understanding what it was like to work as a critically oriented, questioning group examining our own practice and making meaning of the dialogue, tools, and resources that we employed. At other times, this question turned our focus to understanding and supporting the teachers' PLCs.

DATA COLLECTION AND ANALYSIS

Traditional qualitative data sources were collected and analyzed in the construction of the narrative, including interviews, archived documents, and video and audio recordings of SC meetings. Interviews of each SC member (including authors Tamara, David, and Tom, and excepting Dar, who was not available) provided an essential data source that grounded our analysis. Because the authors were so immersed in the group from the beginning, we felt that our interpretation of the committee's evolution and actions needed triangulation. The interview questions emerged from a theoretical framework focused on the negotiation of differences in knowledge, beliefs, and expertise. This theory presents three stances that people coming together in a partnership might assume: a stance of inquiry and knowledge negotiation; a stance of consultation (i.e., as experts conveying information and knowledge to those less expert); or a stance of rejection, in which another's knowledge is seen as irrelevant or unfeasible and is discarded (Nelson, 2005). Knowledge negotiation is viewed as the stance most likely to enable transformative, not just additive, growth. The interview questions afforded insight into SC members' perceptions about communication, perceptions of pressures and risks in SC participation, group functioning, how people's roles within the group and positions outside the group impacted or influenced group processes, various aspects regarding the evolution of the project and impact on teachers, and what each learned from participation in this group.

The interviews were conducted in Fall 2005 (excepting Julie's, conducted in early 2006) by Mart (a research assistant and the 3rd author of this article) to better ensure each participant's comfort in responding to the questions. Mart also conducted the initial analysis of the interview transcripts, using a separate data table for each question and identifying themes across each participant. These themes were further synthesized by the authors; major themes included the notion of a common vision for teaching and learning in mathematics and science as well as for professional development; the use of data to make decisions about professional development activities and facilitation moves; sharing leadership roles in a PLC; how to work as a learning community; the role of content knowledge in the professional development activities as well as in the teachers' PLC work; and links between PRiSSM and other school and district initiatives.

These themes were then also used as an analytic framework with other data. Documents provided a significant record of the SC's activities, decisions, and processes, and also revealed the history of the committee's decision to engage in our own collaborative inquiry. Documents included meeting minutes taken by a designated SC member and meeting notes taken by the first two authors. A variety of handouts distributed during meetings were also used, including case studies developed by facilitators, records of lead teacher PLC meetings, facilitator's quarterly reports about teacher PLCs, protocols used for various purposes (such as structuring dialogue around a piece of data), lists of collaborative norms, and project goals. Various diagrams of conceptual

frameworks developed over time by the SC were also analyzed. An analysis of e-mails posted on the project e-mail list, as well as selected personal e-mails between committee members, contributed to filling in the record of work done between meetings. Beginning in September 2004, all SC meetings were audio and/or video recorded. The sections of audiotapes that recorded the group engaged in inquiry (as opposed to the "business" of project management) were transcribed. These transcripts and the tapes themselves allowed the authors to step back from complete participation (Merriam, 1998) and make analytical observations of these events.

Through this systematic process, general themes were collapsed into three overarching categories: Critical decisions and tensions in the functioning of the group, collaborative structures that supported an inquiry stance, and areas of ongoing negotiation. The significance of this research emerges from these three categories.

Although Tamara and David are the predominant voices of this narrative, member checking was done with the full SC, and especially with Mart (an ongoing participant observer in her role as research assistant) and Tom, to ensure their agreement with these findings.

FINDINGS

The steering committee had a major task to undertake: developing and implementing a 3-year professional development project for mathematics and science teachers in 22 schools. As such, our PLC inquiry was organic and necessarily action oriented. The subsequent narrative includes numerous problems, conflicts, frustrations, and missteps. But overall, the SC appears to have functioned as a collaborative learning community. Our group structure was more than a collection of individuals, each with his or her area of expertise, who came together, yet worked

individually, to accomplish a task. Instead, we developed an inquiry stance that supported questioning of and reflection on the impact of our decisions and actions on the PRiSSM teachers in a collaborative manner. What we learned from this reflection fed back into an inquiry cycle, informing our next decision-making process.

In the next sections, we discuss critical decisions and tensions that shaped the SC's understandings of and work toward achieving the PRiSSM project goals. Then, the collaborative structures that supported the development and sustenance of an inquiry stance among SC members are examined. Additionally, three critical areas of ongoing negotiation and growth are identified within the SC: the development of a shared vision of high-quality mathematics and science teaching and learning, the constant renegotiation of avenues of communication and voice, and the negotiation of shared leadership. Finally, the implications look beyond the particulars of the SC to examine how the findings of this research can be used to support professional developers and teacher leaders in the development of their own inquiry-based professional learning.

CRITICAL DECISIONS AND TENSIONS IN THE FUNCTIONING OF THE GROUP

The SC's adoption of an inquiry stance toward the work of the professional development project was not a predetermined decision. That this emerged after the first summer academy was a critical decision that shaped the further professional development of the committee and our subsequent actions in relation to the PRiSSM project. The following is an examination of the manner in which we initiated and conducted our inquiry, the activities we used to advance our ability to collectively learn from the process, and how this translated into our work with teachers. A tension between "doing inquiry" and getting done what became known as

the "business of the project" emerged when we made the decision to pursue our work through inquiry. This became a critical factor in shaping both our inquiry process and the work of the project, a theme that parallels those commonly found in teacher action research. The degree to which the SC adhered to an inquiry stance in spite of inherent pressures will be described.

Taking an "Inquiry Stance"

Initiating and conducting inquiry. The importance of approaching the implementation of professional development from a perspective grounded in inquiry cannot be understated (Cochran-Smith & Lytle, 2001; Kinchloe, 1991). Not only did this add to the quality of the professional development product, support the formation of bonds among group members, and allow for flexibility, but the critically questioning stance also afforded each member of the SC an opportunity to experience professional development similar to what we were delivering. Alina described our stance in her interview:

I think we *were* a culture of inquiry. I think everything [we did] was asking what we were doing, how we were doing it, why were we doing it, and we were learning from it. . . . I don't know that we did it as cleanly as was articulated in the inquiry cycle, with the data collection and all that, but I think we did it all, and we used our data . . . [but] we didn't do it in a concrete sequential way, we did it in a more organic way.

Evidence from SC meetings early in fall 2004 confirms this. The following brief discussion between John and Dave, occurring in the midst of a group discussion of our inquiry focus, illustrates how the inquiry directly connected to and informed the professional development project at hand, especially with respect to the negotiation of an inquiry focus:

Dave: You know, I don't think [that right now] we need to have a pinpoint focus that we don't necessarily deviate from, or even have different perceptions of . . . That's the goal. But the other point is, we do have this discontinuity from meeting to meeting that we need to address somehow . . .
Bob: I think there's certainly a lot of irony in what you just said because I know at our [lead teacher PLC] meetings, one of our main goals was to help try to get the PLCs to narrow their focus, to clarify their focus. I mean it was clear to us that this is going to be a common problem with PLC work, that their focuses start out nebulous and raw. And, um, and that's what ours is, it's very raw. A lot of "increase inquiry-based instruction." Yeah, whatever the hell that is, you know? . . . I just feel like we're in the same place and we need to do the same kind of organizing. But we don't have as much time as them.

Key themes regarding the importance of our inquiry stance are present in this transcript, including the use of data, the flexibility inherent in an emergent design, and the parallel lenses of inquiry that exist on both our work and the work of the teachers. The importance of time and communication, both of which are later discussed in further detail, are also present at this early stage.

Activities for advancing the inquiry. Three specific kinds of activities have been primarily used to advance the trajectory of our investigation into our own understandings of the project and how to foster teachers' project-related work. First, book study was used early in fall 2004 as a result of Alina introducing a guidebook for supporting professional learning communities (Garmston & Wellman, 1999) into group discussions. Although numerous other sources were cited and used by the group, we identified this text as our main reference and dedicated large blocks of meeting time to discussions of specific sections most relevant to our inquiry. Second, because facilitators (and teachers) were asked to document teacher growth using text, videotape, and audiotape, rich case

studies of our own teachers emerged. The case study discussions were led by the facilitator who supplied the data and were used to address general issues of facilitation, the inquiry of the SC, and specific support to the facilitator regarding the case. Third, data from the internal evaluation and data collected by the authors and other members of the SC were used to frame discussions of project status and direction, particularly data related to the growth trajectory of individual teachers and the teachers' PLCs as a whole.

For each of these data sources, specific protocols were developed and followed for guiding the data analysis and discussion. For example, when discussing one chapter of the Garmston and Wellman (1999) text, the group members were asked to highlight the most impacting page, then paragraph, then word, and discussion was organized around this analysis. When discussing case studies, specific protocols for individual and group data analyses were provided to facilitate attention to specific matters and to structure the nature and dynamics of subsequent conversations (McDonald, Mohr, Dichter, & McDonald, 2003). Because time was at a premium, the protocols also emerged from the need to balance efficiency with genuine, deep conversation. The following discussion from a case study presentation in March 2005 provides insight into the nature of the group's inquiry process:

Tamara: So the purpose of the protocol is to help us as a leadership PLC think about applying tools for decision-making, which was our reading in Garmston, to the dilemma of a PLC that is really wallowing between looking at student work, which is the data that they are drawing upon, and taking some action on that.
Tom: I'm going to present the dilemma and the dilemma is one of facilitation. We're trying to cultivate PLC dialogue, but at the same time we need to . . . develop strategies to help PLCs get past this wallowing between looking at data and taking some actions . . . [There is a] need to be flexible in our ability to get groups unstuck,

because even though we're going to look at one case and think about how to get them unstuck, this is just one situation, and this is going to come up again and again. So how can we use the tools for decision-making presented in Garmston? [He refers to specific pages in the book and addresses how they relate to the protocol.] How can we apply those decision-making tools for groups to develop our capabilities to be able to deal with this case now, but also other cases of your own, perhaps?

The last sentence is particularly interesting because we see an explicit duality in Tom's remarks regarding "groups" to get "unstuck," but also to develop "our capabilities" for supporting the teacher PLCs. In this brief transcript, we see several inquiry processes, such as employing group norms that embed the use of protocols to facilitate processing and discussion, drawing from prior resources and common group experiences, and using data to support the work of the teacher participants and our own growth as professional developers. We now turn to a specific focus on how the inquiry processes we employed impacted our work with teachers.

Translating our new understandings to our work with teachers. The use of resources, such as protocols, that supported the functioning of our group were later used by project facilitators to support the teachers in their PLCs. For example, Lisa used the above text analysis protocol with her PLCs, and Tom and Ginny used a "looking at student work" protocol during a case study discussion with the SC that was later shared with lead teachers by other facilitators. Hence, inquiring into the essence of a professional development experience led to important changes in our practices as professional developers (Even et al., 2003; Stein et al., 1999). However, although an important result, this direct transfer of specific skills and tools to the work of the project was far less important in the context of our own professional growth than was the growth in our own understandings of the nature of

teacher development, partnership, and group facilitation. During the interviews, *every* facilitator talked about inquiry and his or her participation in the project as a learning process in this larger context. Here, John discusses the value of the inquiry process and the ongoing learning:

We were able to develop a question and we had a resource that was an excellent resource that we consulted and then did things where we brought in examples from the field to inform our question, and there was a real commitment to that. And I think we all felt like we were experiencing that culture of inquiry and what it was really like to do inquiry in a group like that. . . . And just learning about group dynamics and facilitation and all that was a real eye-opener. First to learn about it intellectually and then to take cases and really dissect them, so, obviously we're still learning that, but it's great work.

Striking parallels in regard to the value of inquiry and reflection on one's practice can be found in the above comments to those found in past empirical studies on teacher inquiry (e.g., Little, 2003). Taking an inquiry stance implies a degree of deliberateness. As Dan stated throughout our inquiry, "You have to go slow to go fast." Tom expanded on this idea: "I think it's important to characterize our group as being very reflective and trying to improve how it does things, noticing its processes and products and trying to always get better." In this sense, the organic nature of the evolution of our inquiry was driven by the care given to the work of the teachers by all members of the SC, and our own individual and collective goals of being intentional, data driven, and reflective in the work that we were accomplishing.

Analysis of SC meeting notes and interviews reveals that each group member talked about his or her own professional learning in positive ways, using phrases such as "steep learning curve," "it was like being shot out of a cannon!" and Dan's colorful statement,

"Can I be excused because my brain is full?" Many explicitly expressed the sentiment of Lisa, who stated, "This work has transformed the way I think." However expressive these comments are, every member of the SC attributed his or her growth to the impact of doing collaborative inquiry in a professional learning community. Ginny stated, "This probably was the first real PLC I've been a member of. I've been facilitating PLCs but never really gotten a chance to be a member of one, so just being able to experience the process I think is really valuable for my work as a facilitator in PLCs."

Similarly, Lisa stated, "I'm still learning, but I've learned enough to be able to apply what I've learned from this to the [other] grant that I work with, 'cause we're starting PLCs with that grant." John, who as a district administrator had a much different professional role outside PRiSSM than Lisa or Ginny, focused explicitly on fostering collaboration in a group:

I mainly learned, through that PLC work, about facilitation and about group dynamics and how to work with a group, and it's, you know, there's something about that, it's actually now that I realize it, because that was our area of study and so there's this sort of meta-level thing going on, you know? We were studying about being a group while we were being a group.

Julie, the least experienced facilitator, perhaps showed the most dramatic growth:

We don't always see [teachers] as professionals, and I think that I just had the opportunity throughout the year to really just to think more about that and how valuable and important that is, and that every teacher needs to be a part of something like that, a culture of just growth and learning. . . I would like to go into educational policy so that this type of thing happens regularly for all teachers, to go on to something that is not only supported by grants and that

people only get to do for a year or two, but it's a regular part of their work day, [where] teachers view this [as] normal, because it shouldn't just happen in little spurts.

By explicitly studying group processes while doing authentic work as a collaborative group, each of us experienced some degree of transformative learning that impacted our professional work in multiple venues. By engaging in collaborative inquiry in a professional learning community, we found, as Lisa explicitly stated, that the work "transformed the way [we] think teachers should be working together."

Tension Between "Inquiry" and "Work"

As described earlier, the SC had an immense amount of work to accomplish in relation to the project. In the first year of implementation (August 2004 to July 2005), the committee negotiated a decision to devote half of the monthly meeting to inquiry and the other half to discussion about "business" items such as evaluation, planning, recruitment of new teachers, individual district issues, and communication across the project with all participants, including administrators. Our limited time together contributed to the tension between focusing exclusively on business during meetings and engaging in a formal inquiry process. Pam voiced her concern early in October 2004:

I am having trouble understanding—how do we take care of other business within the format of PLC work as we are defining it with our inquiry question? By other business, I mean the kinds of things we've put into the parking lot and future steering committee meetings. Of course the two have intersecting ground, my image is of two intersecting circles—PLC inquiry and business work—but maybe I mistakenly understood that by focusing on the inquiry we would absorb these other tasks—one circle of business work within the other larger circle of PLC Inquiry. In the book

[Garmston & Wellman, 1999] I think it's the difference between things and energy. The school PLCs will have the same issues, especially this spring and next year as they begin to not only focus on their inquiry question but also need to start thinking about the logistical end of working with the Expanded Team. I would like to be clear on how our model works. . . . How I see it might work is to have dedicated time for each focus.

Pam, in her role as project coordinator, continued to feel a particular strain from this tension and talked about this in her interview in fall 2005:

The end product is much better when we're done [with inquiry]. But in terms of efficiency, it's not a good thing. So, you know, there are times where it's good. In terms of myself I think it's not appropriate for all things, all decisions, we can't operate like that on everything. But it's also a good thing in terms of long-term growth of a group and how we work together. I can't say that there's a good or bad ultimately.

Despite the recurrent lack of time to deal with project business—"Our meetings are so full that we don't have time to come for closure often" (Tom)—the committee valued the way in which the inquiry process contributed to our understanding of the professional development work. In October 2005, Arne acknowledged the impact of the "nuts and bolts" work on the inquiry process:

Yeah, having the book that we studied helped facilitate the culture of inquiry, keeping us looking at an inquiry question, but the nuts and bolts kinds of workings tended to somewhat inhibit that. And it's kind of because as we, at least it appeared to me as we came to the meetings, many of us were wearing the two hats and we had to know when to wear what. So, if we look at us as a whole we had those two things going on but we were able to do some inquiry

based on the book we were reading and applying it to what we were doing in our PLCs.

Tom expressed similar feelings:

[Inquiry] is one of the best things about the steering committee and this is exactly what we've tried to export to other programs. There's a, I think, a strong culture of inquiry in the SC and that's really been honored and it's something that everyone has valued and if we start moving away from it somebody notices and says something, "Hey we need to keep this part of our work intact and not let the management stuff crowd it out." It's too easy for us to do that, there's never enough time for management issues.

Although there was a consensus as to the value of our collaborative and questioning approach, as the second year of implementation began, this had to be renegotiated along two dimensions. First, the group examined whether there was a new inquiry question to pursue in the second year. Although some felt that the existing question was still appropriate, other ideas emerged as well, and significant time during the September and November 2005 SC meetings was devoted to refining the inquiry focus. Employing a consensus model for decision-making and using protocols to ensure broad discussion and participation, "How can we grow and support teacher leaders who can foster and sustain a culture of collaborative inquiry?" was selected as the new focus. As can be noted, the new inquiry question was designed to maintain our original focus (foster and sustain a culture of collaborative inquiry) but also to more directly insert the application of our inquiry into the work of the project (supporting teacher leaders as they engaged their colleagues in a critical and reflective examination of teaching and learning). It remains to be seen the degree to which this was a nominal or substantive change.

The second aspect of renegotiation arose from the fact that 100 new teachers entered the project at the onset of Year 2, and the PLCs now became "expanded PLCs" (in addition to the continuation of the "lead teacher PLCs" in some districts). This increased the number of learning communities needing support from the facilitators and placed severe strains on project resources. Further, a lack of awareness of project goals and structures in the majority of the "expanded team" teachers provided increased tensions. Unlike the lead teachers, the project did not provide the expanded-team teachers with a shared experience, such as the summer academy, to explore their knowledge and beliefs about high quality learning and teaching or develop a conception of what it meant to be a member of a learning community. Additionally, two new facilitators joined the project part-time, and Arne took on two new districts to facilitate. These changes put pressure on the SC to deal explicitly with practical needs—in other words, the business felt more pressing than the inquiry. Although Dave ventured that "Our business is inquiry," it was difficult to practically realize our inquiry in service of our needs to support the lead teachers through the changes they were facing with the expanded PLCs. There was simply not enough time in the monthly meetings to deal with the complexities involved in attending to all of the teachers' needs as well as the other business aspects associated with a grant project. The shift in the inquiry focus, as described above, resulted from these tensions.

COLLABORATIVE STRUCTURES SUPPORTING AN INQUIRY STANCE

The SC comprised people from diverse professional backgrounds with a multitude of experiences and beliefs. Any such group may encounter challenges associated with perceived status, differing reward systems or work tempos, or different goals and/or agendas

embedded in the work (Brookhart & Loadman, 1990). Individuals may perceive (accurately or not) inherent risks in actively participating in a professionally diverse group. This sense of personal or professional risk can shape the interactions among partners, resulting in an unwillingness to actively participate and a rejection of an inquiring stance (Nelson, 2005). In addition to these potential barriers to collaborative inquiry, the SC dealt with the pressure of implementing a large-scale, long-term professional development project within a short time frame. And, in Year 2, we endured major transitions in both the project and the SC.

Despite the many pressures and challenges that could have constrained the group processes, evidence reveals that the group developed and continued to function as a learning community. Every member of the SC attributed this to the explicit, continual attention given to developing and revisiting collaborative norms, which were originally shaped by the Garmston and Wellman (1999) book study. The introduction of these collaborative norms caused the list defined in May 2004 to become less prominent because the committee paid closer attention to group processes such as paraphrasing, assuming best intentions, and balancing advocacy and inquiry. Pam stated,

I've been in groups before that used group norms but never saw them effective, you know, as a tool. And then this group hadn't felt like they were at first because they didn't really seem to fit. But we have come back to them and we have put time into them, and I'm really learning that now, as we're going back and we keep spending time, and it seems like a lot of time and taking away from other things that we should be doing, that it's time well spent in terms of the long term and that I'm learning the value of them. And how to use them, because I think my experiences in the past . . . they didn't mean anything. It's because they weren't really used.

Arne explained that "coming back to our collaborative norms and coming back to our beliefs about how we thought things should be going and were going" facilitated the development of a culture of inquiry among the group members. John also spoke explicitly of this, stating,

So what facilitated [a culture of inquiry], there were a lot of things. . . . But, you know, a lot of it had to do with the norms that we developed, the relationships that we had, the commitment that we have to improvement and reform and the belief in professional learning communities that we all have. Because we all believe that, there was no resistance to it, you know?

Collaborative inquiry in an environment with supportive norms often affords risk-taking activities (Lieberman & Miller, 2000; Wells, 1999). Dan said it plainly: "I think what the answer to . . . 'What made risk-taking feel safe?' is the culture that we've developed, the norms, um, it all." John also addressed the importance of freedom to take risks, stating,

The group really did provide openings for people to take risks. I think that we did a pretty good job of that and there was a lot of discussion about norms and revisiting norms and, um, I think that we really tried to make risk-taking—and we acknowledged that it was risky to put yourself out there, you know we did. We actually stated that at times which is, I think, a good thing. I guess I felt like there was definitely times when I was taking risks, it was pretty risky to be in that group because there were definitely things that I disagreed with and stands that I took that were not popular and that sort of thing. And I was able and willing to do that with that group of people because we had really developed a high level of trust.

John's and Dan's statements reflect how our norms provided for trust among group members, which made talking about one's beliefs about science and mathematics teaching and learning safe to do.

Finally, the explicit acceptance of collaborative norms allowed SC members to invoke these when tensions emerged. This agreed-upon avenue for dialogue enabled us to maintain the inquiry stance. Ginny expanded on this in the context of an emergent tension between satisfying grant requirements and supporting teachers:

I think there's this tension between, you know, the desire to have the good work happen in the PLCs and the desire to make sure that we're fulfilling the requirements of the grant and the evaluators and all that, and I think that that, sometimes, I don't know if those differences will be resolved. I think we just have to negotiate those.

Ginny's statement that "we just have to negotiate those" highlights the nature of the SC as a learning community. Not all groups feel concern about the beliefs of other members. The growth of groups may stall when members realize that they hold differing visions of or values for the work; that is a point when the group may shift to a collection of experts working to get a job done. Consulting with each other, or even rejecting the ideas of another, may be more typical than the assumption of an inquiry stance. Yet the SC continued to return to negotiation and collaborative inquiry even when faced with the pressures of time and change. As John said, we have collectively "learned to appreciate the importance of setting norms. Especially when you're going to try to do deep work like this." This understanding shaped the activities and resources that we brought to the lead teachers during summer academies and ongoing meetings.

AREAS OF ONGOING KNOWLEDGE NEGOTIATION

Three constructs emerged from the data as critical, ongoing areas of negotiation and growth: the development of a shared vision, the external and internal constraints to communication between SC meetings, and the challenges of shared leadership.

Negotiating a Shared Vision

Although developing a shared vision of both transformative professional development and high-quality learning and teaching were explicitly addressed and implicitly emerged in many SC conversations, the data show that it was not something that came quickly or easily. Each new challenge, especially those associated with facilitating teachers' PLCs, presented another indication that there were multiple views held. In her interview, Ginny stated,

I think that, like any group, there have been times when we've been . . . surprised that we're each coming at it from a different direction, that maybe we assumed that we all had this shared idea and then at some point it surfaced that we didn't have a shared idea.

Alina also talked about this in her interview:

This whole notion of . . . how does one facilitate a group and what is high-quality teaching and learning in mathematics and science? I think each of us has a slightly different view, and sometimes even more than slightly . . . but we're getting a better understanding of what each person thinks as we go along.

Using facilitator-developed PLC case studies and analyzing data such as PLC meeting notes and quarterly reports, the SC simultaneously engaged in negotiating visions of high-quality professional development, and mathematics and science teaching and learning. For example, in December 2005, each facilitator brought PLC meeting notes and, in small groups, SC members used these to determine what characterizes a high-functioning PLC. The ensuing discussion surfaced common ideas; however,

gaps in the details also existed. Meeting notes reflect that we ended more at a "brainstorming level than at consensus," and negotiation continues as of this writing. Indeed, of great significance to the process of negotiating a shared vision is that it has been an ongoing one. Assumptions have been surfaced and questions posed, and resources and grounded data continually informed our questions about the nature of high-quality learning and teaching and how to best support teachers in this context. Arne addressed this in his interview, elaborating on the importance of this negotiation due to differing district contexts:

I think we had some common beliefs about what we were trying to do, but the way the grant was set up, having the big districts . . . in the same group with the little schools . . . you know, the situations were so different that it was hard to work in all areas with such differences. There were commonalities that we drew upon and we worked with well, and the belief that we really wanted to improve mathematics and science learning and also at the same time improve the cooperation and collaboration between mathematics teachers and science teachers, yet how that kind of fleshed out was so different in the different schools.

The ongoing negotiation of understanding the work and desired outcomes of the project was supported by the inquiry stance of the steering committee and had a significant impact on the work of the project. The following statement from Lisa about the effects of participating in the negotiation process on her approach to professional development reflects the comments of many:

Being immersed in the process of developing a PLC starting with our vision, finding out maybe [this] vision wasn't so good, and refining it. I really had no knowledge of PLCs until I was immersed in this. . . . Learning from the other SC members, um, [I feel like] there were just so many things I was exposed to this year . . . I guess I look at my profession even in a different way having

moved from classroom teacher to facilitator, and it's an entirely new role for me. . . . It's on the two levels. . . . So, in both areas I have been transformed, having that supportive staff of colleagues that have a similar vision and then also working with teachers as a facilitator.

Our work with the teachers' PLCs revealed they struggled with multiple ideas about how to enact powerful teaching in their respective classrooms. Recognizing our own need to continually examine and renegotiate our co-constructed vision of high-quality teaching and learning helped us structure opportunities for teachers to engage in a similar process.

"I miss you guys!": Negotiating and Renegotiating Avenues of Communication

Dave's statement above, made at the end of an SC meeting in fall 2004, illustrated the general feelings of the group on three levels. First, the group emerged as people who genuinely liked each other and enjoyed time spent together. Second, the varied nature of expertise inside the group allowed for perspective and knowledge sharing that made meetings worthwhile places to be. Third, 7-hour monthly meetings were logistically difficult to schedule and were a drain on busy schedules, and there never seemed to be enough time for the group to fully interact. For these reasons, the sentiments expressed by Dave represented a desire to maintain more and higher quality communication outside group meeting times.

The establishment of an online discussion forum was on the agenda of several early SC meetings, including the initial one. However, because limitations exist for using this medium among diverse, busy groups of individuals, the decision was made to employ the "in-your-face" method of an e-mail list for online between-meeting group communication. As before, an analysis of e-mail communication reveals the theme of business and inquiry

tensions. The e-mail list was used to negotiate meeting agendas, send announcements, discuss evaluation, and other project business, but discussions also emerged relative to perspectives on the nature of teacher growth, professional development, and the nature and use of data and inquiry. A second e-mail list was formally established for the four-person leadership team to facilitate communication regarding project oversight, and several smaller subgroups emerged in an informal manner among SC members associated with specific issues, such as those only pertinent to an individual district.

The need for an approach to attend to specific district issues emerged as the project unfolded, because it became clear that issues specific to individual districts were emerging that did not require the attention of all group members. The phrase "That's a district X issue" was beginning to be found more and more in meeting notes. And although project structures did exist to address individual district issues outside of regular meetings, including the establishment of Alina as district liaison from the project's inception, it became clear that additional structures were required to support this emerging need and that more and better communication between meetings would have to occur. To help fill this void, members of the four-person leadership team took on specific responsibilities for supporting particular districts with issues that arose. Not only did this make this aspect of project work more manageable, but it also helped define the "go to" project person for the district participants, including the district facilitators on the SC. This new structure also allowed for the individuals on the leadership team to become more involved with individual teacher participants in their respective districts, something that previously provided a distinct level of separation between members of the leadership team and the facilitators on the SC. The audience for e-mail communication and meetings in this regard became more well-defined as a result, and analysis of meeting data shows that fewer issues were being placed in the

group parking lot. Simultaneously, facilitators within districts continued to work together and address issues on their own.

Unlike most other aspects of our work, specific norms of e-mail communication were not negotiated, nor were norms for communicating within or between districts. Members were left to use their own professional judgments and any larger group norms that might transfer to these situations. Further, the role of communication was never integrated into our inquiry process; it was merely a business issue. Over time, specific tensions began to arise both within and between districts and between members of the leadership team and facilitators. In most instances, the data suggest that these tensions were due to unclear or insufficient communication. For example, during the summer 2005 retreat, Alina and Pam felt the need to request greater attention to e-mail communication, including the identification of specific time each week to be spent attending to group e-mail. Time constraints of group members were raised, and expectations for responding to e-mail were discussed as an additional group norm. In fall 2005, attendance at SC meetings became an issue for the first time because pockets of individuals began to miss meetings. The inability of the group to make decisions and move forward in both our business and inquiry during this time provides further evidence of the group's interdependence and adherence to collaborative norms and also highlighted the critical need for expanded means of communication. In addition, for the first time, issues regarding norms of shared leadership emerged.

Negotiating Shared Leadership

Appropriate group representation for all decisions was a high priority throughout our history. But decision-making and leadership are quite different, and tensions emerged in the context of both of these group dynamics. For example, in summer 2004, Pam was unclear regarding her role in the leadership team and,

more important, her position of power in directing the project. This emerged as a significant issue during the first summer academy because meetings during that week were less organized and held an overtone of tension, as noted by some members of the SC. Meetings among the leadership team were quickly held to more clearly define roles and positions of power, and although not fully resolved, understandings emerged that continued to be refined. Later, Pam reflected on these experiences, noting the tensions that she felt in moving business forward while affording the group an inquiry stance—all the while negotiating a place of power in the overall group structure:

[In spring 2004, Alina said that I] should be director of the project. And it was like, okay. Not really sure in my own mind what that means. But then as things progressed, when we got towards the retreat, I didn't feel like that was the expectation of my role. Um, that I felt almost more like I was a coordinator, maybe even more like a secretary . . . I'm supposed to control this herd of cats, without the tools or something.

Bob's earlier statement that we were "all leaders," combined with the variety of professional backgrounds and positions within the group, suggested the potential for tensions among visions of project direction. Early in fall 2004, as communication and leadership norms were still being developed and as individuals in the group were still getting to know each other, few tensions emerged outside the leadership team. Facilitators were highly focused on the establishment of the lead teacher PLCs, and the summer retreat and academies provided avenues for group members to define the direction of the upcoming academic year. The established trust and group definition for the direction and detail of the project afforded little chance for leadership tensions to emerge. However, as the second year of the project began, the previously described changes in our group, combined with the additional complexities and participants in the project, contributed

to the surfacing of issues relative to leadership, power, and decision-making. Tom provided a summary of the issues:

So there definitely are differences in power and I think those things play out at the SC meetings and they play out between the SC meetings because there are [leadership team] meetings where additional plans and decisions are made. . . . Maybe we understand that there are role differences, and just kind of accepting that and understanding the roles in the organization and just working within that . . . so that decisions are made knowing that we're all working for the same sort of thing and that things aren't being done just because there's a role difference. . . [An example of a power difference] is a form that gets designed, it's worked on, it's talked about, and then the next time we see the form it's different, but there haven't been any agreed upon changes, but it got changed. As opposed to this survey here that we're working on. The changing of that was a public process. So, um, when I see something changed and it's like, well, where does that come from? That's a power thing to me, not a role thing.

Tom's illustration of the role of power in decision-making was a result of some of the previously described structural changes in PRiSSM that emerged in Year 2. Specifically, adequate time given to aspects of decision-making could not be maintained because of the quantitative and qualitative complexities that emerged at that time. Further, group discussion between meetings broke down because e-mail could not support the complex nature of the needed interactions, despite phone conversations and visits to other members' locations. We lacked both the time and communication tools to sustain our prior level of decision-making. As a result, decision-making norms were broached that led to breakdowns in additional group norms, including the assumption of good intentions and the achievement of consensus. In a February 2006 e-mail, Alina reflected on this process, ironically identifying the emergence of shared leadership for the above situation:

Some of the ways I have been thinking about the PD [professional development] for PD providers is how we have let the group struggle with who is the leader, who makes decisions, how do we determine this, what is my role in the group, and is there a way that we SHOULD be doing this work? As the group has evolved, we are seeing individuals becoming more self-assured, more autonomous, more forthcoming in their feeling that they can put ideas on the table. There is more ownership and shared leadership. The facilitators are taking a more and more active role in determining the direction they want to go. I am sensing a shift in the group at this time. How did struggling with questions like the ones above influence the development of the group?

These issues were specifically addressed during the December 2005 SC meeting, and the group appeared to be headed back to the establishment of solid group norms. However, the questions raised by Alina remain on the table.

CONCLUSIONS

By working as a collaborative group conducting inquiry on our development and implementation of a professional development model, we were able to experience the very processes that we were asking of the project teachers. Our focus on how to foster and sustain a culture of collaborative inquiry gave us insights into the structure and processes that support and challenge this kind of collaborative endeavor. We found that particular decisions made early on enabled our ability to function as a learning community through challenging times and circumstances; especially useful was the intentional attention to the co-construction and maintenance of collaborative norms and the use of protocols to examine data. We also learned about the processes of collaborative inquiry—for example, agreeing on and narrowing an inquiry focus that satisfies the interests of varied participants, or coming to

collectively understand the meaning of diverse data.

A critical aspect of conducting collaborative inquiry lies in the development of the group. In addition to intentionally employing collaborative norms, we found that giving attention to the development of a shared vision, consistent and inclusive avenues of communication, and shared leadership were crucial to the functioning of the group. Because our work with teachers' PLCs reflects the same challenges, our experiences provide insight for facilitating others.

IMPLICATIONS

This research makes a contribution to understanding the "black box" (Little, 2003) of learning communities at the level of professional developers. Lack of time, nonuse or misuse of data, and a lack of awareness of the systemic forces that impact change are critical issues in teacher development (Fullan, 1999; Fullan & Miles, 1992), and these can be significant issues for professional developers as well. Although we looked at our own processes rather than those of teachers, we learned much about what it means to work together in the face of time constraints, and differences in understandings and interests relative to our content (professional development through PLCs). We learned that collaborative inquiry involves risk-taking, and deliberately employing collaborative norms provides safe structures for engaging in this risky yet transformative process. We also found that the inquiry process was supported by the common study of a relevant book, by the use of data in the form of case studies, and by the use of protocols. The book study gave us a common text around which beliefs became evident, which helped generate an emergent yet shared vision of professional development and inquiry. The use of data grounded our inquiry in the content of our work, and the protocols helped deal with time constraints and created space for all members to participate.

Our inquiry transformed our practice as professional development providers in particular ways, informing implications for the support of teachers undertaking collaborative inquiry. For example, our development and employment of collaborative norms required explicit and ongoing attention. Our deepening appreciation for these norms helped us recognize that we needed to support this process in the teachers' PLCs as well. Established collaborative norms serve as a framework that can support activities including book study, data analysis, and the development of a shared vision. We drew upon our increased understanding of the support provided by specific processes such as using protocols and developing cases studies to foster the teachers' PLC work. Further, just as we struggled to balance the need to attend to the pressing business of the project with the desire to take an inquiry approach to understanding the work, teachers face balancing the daily demands of their jobs with the time it takes to undertake an inquiry approach to understanding their practice. The pressing business of teaching can be limited to issues of scheduling, curricular changes, attendance, and other tasks only tangentially related to student learning, because time constraints are considerable (Little, 2003). For the steering committee, the inquiry supported the pressing business of project implementation. We suspect that an inquiry approach to teaching and learning can support—even transform—how teachers address the business of schools.

In the case of collaborative inquiry, a lack of consistent communication between meetings can also limit potential for teacher change (Fullan, 1993; Loucks-Horsley et al., 2003). The SC members were forced to deal with these same challenges in the construction of teacher professional development. However, the evidence suggests that the aspect of our transformations with the most impact involved changes in our overall understanding of the processes of professional development due to collaborative

inquiry—specifically, the analysis of theory and data from our working context, and the sharing and negotiation of beliefs with our colleagues. These processes are quite similar to those that are emerging in the literature regarding support for teacher change in collaborative environments (Grossman, Wineburg, & Woolworth, 2001; Hord, 1997; Palincsar, Magnusson, Marano, Ford, & Brown, 1998).

As stated earlier in this article, we feel that a process of knowledge negotiation (Nelson, 2005) focused on a particular aspect of professional work—what we have been calling collaborative inquiry—holds the most promise for professional learning. Loucks-Horsley et al. (2003) said that teachers who want to engage students in new ways of learning need to have similar learning experiences themselves. We are extending this notion to professional development: Providers who want teachers to engage in new ways of understanding their practice need to experience the benefits and challenges of the process themselves to fully support teachers.

We do not claim to have found *the* model for high-quality professional development or, more specifically, for high-quality professional development for professional developers. We continue to face our own challenges—especially in sustaining the collaborative inquiry in a group that will necessarily always be in flux—and to study how we can apply flexibility and shared leadership to dealing with these challenges. We hope that as we study this, we learn how to support teachers facing similar challenges.

Acknowledgements

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