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Attending to Problems of Practice: Routines and Resources for Professional Learning in Teachers' Workplace Interactions

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The authors investigate how conversational routines, or the practices by which groups structure work-related talk, function in teacher professional communities to forge, sustain, and support learning and improvement. Audiotaped and videotaped records of teachers' work group interactions, supplemented by interviews and material artifacts, were collected as part of a 2-year project centered on teacher learning and collegiality at two urban high schools. This analysis focuses on two teacher work groups within the same school. While both groups were committed to improvement and shared a common organizational context, their characteristic conversational routines provided different resources for them to access, conceptualize, and learn from problems of practice. More specifically, the groups differed in the extent to which conversational routines supported the linking of frameworks for teaching to specific instances of practice. An analysis of the broader data set points to significant contextual factors that help account for the differences in the practices of the two groups. The study has implications for fostering workplace learning through more systematic support of professional community.

KEYWORDS: workplace learning, professional community, in-service teachers

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How might talk among teachers supply opportunities for professional learning and account for improvements in teaching? Research suggests a number of possible explanations for why talk about teaching, even among teachers who are attracted to collaboration and committed to reform, may not add up to much: the difficulty of making tacit knowledge explicit (Eraut, 2000), the challenge of confronting well-established norms of privacy and noninterference (Little, 1990) or contending with disagreement and difference (Achinstein, 2002; Grossman, Wineburg, & Woolworth, 2001), insufficient structural and social supports (Louis & Kruse, 1995), taken-for-granted language and frameworks that reify assumptions about learners and learning (Coburn, 2006; Horn, 2007), and the urgency of the immediate and multiple tasks to which teachers must attend (Kennedy, 2005; Little, 2003b). Together, such impediments and constraints may make it difficult for teachers to engage in interaction with sufficient frequency, specificity, and depth to generate new insights into teaching dilemmas or to foster instructional innovation.

Despite these difficulties in achieving substantive discourse about teaching and learning, there are two crucial reasons for understanding more fully what it entails and how it might be fostered on a larger scale in schools. First, a body of research spanning more than 25 years demonstrates the significance of teachers' collegial relationships as a factor in school improvement (Hubbard, Mehan, & Stein, 2006; Little, 1982; Louis, Marks, & Kruse, 1996; McLaughlin & Talbert, 2001). In their large-scale, longitudinal study of school reform in Chicago, Bryk, Sebring, Allensworth, Luppescu, and Easton (2009) found that measures of professional community differentiated consistently between improving and stagnating schools and were predictive of student outcomes in reading and mathematics. Central to their conceptualization of professional community, derived from a model introduced by Kruse, Louis, and Bryk (1995), were core shared values, the deprivatization of practice, focus on student learning, collaboration, and reflective dialogue.¹ Elaborating on the last of these, Kruse et al. (1995) wrote,

Growth of the school-based professional community is marked by conversations that hold practice, pedagogy, and student learning under scrutiny. . . . Rich and recurring discourse promotes high standards of practice, and both generate and reinforce core beliefs, norms, and values of the community. In other words, talk is the bridge between educational values and improved practice in schools. (p. 30)

The Chicago study findings correspond closely to those of other studies that attribute improvement gains or enhanced staff capacity at least in part to the formation of professional community (Newmann & Wehlage, 1995; Louis & Kruse, 1995; McLaughlin & Talbert, 2001). These studies also converge in defining a set of organizational conditions under which such professional relationships, interactions, and dispositions prove likely. In a recent paper, Talbert (in press) summarized,

Literature on professional learning communities documents the social, technical and organization conditions that enable them to grow and flourish in schools. Key conditions are: norms of collaboration; focus on students and their academic performance; access to a wide range of learning resources for individuals and the group; mutual accountability for student growth and success.

These are conditions arguably achieved in and through interaction among teachers, but the research to date has made relatively little headway in examining the nature of the interactions by which professional community is forged, sustained, and made conducive to learning and improvement. That is the focus of our work.

A second impetus for investigation into the practice of teacher work groups resides in the burgeoning interest demonstrated by school districts in promoting “professional learning communities” at the school and district levels (Hargreaves, 2007; Talbert, in press). One indicator of such programmatic initiatives is the sheer number of practitioner-oriented texts now offering guidance to district and school leaders. Most of the available texts have been produced by former practitioners (e.g., Dufour, Eakor, & Dufour, 2005; Schmoker, 2006) or those engaged in educational research and development (Hord & Sommers, 2008), with a smaller number by university-based researchers (McLaughlin & Talbert, 2006). We posit that such formally constructed workplace groups are more likely to prove generative for learning if they develop a capacity for talk that centers on dilemmas and problems of practice. In their essay on the importance and challenges of learning in and from practice, Ball and Cohen (1999) argued that the kinds of questioning and investigative activity required “could not be adequately cultivated without the development of more substantial professional discourse and engagement in communities of practice” (p. 13). Efforts to introduce or increase professional community at the school level or among within-school groups (grade level, subject) would therefore benefit from understanding what makes conversation in naturally occurring workplace groups generative for learning. It is our goal to specify the nature of such professional discourse, together with the organizational resources that enable it.

In this article, we contribute to understanding generative collegial exchange by examining how conversational routines in two teacher work groups enhanced or limited opportunities for the in-depth examination of problems of practice and hence shaped opportunities for teacher learning. Located in the same urban high school, both groups satisfied criteria for what McLaughlin and Talbert (2001) would call teacher learning communities: The teachers expressed strong obligations to increase students’ access to and success in core academic subjects and were committed to working collaboratively to improve their teaching. The Algebra Group comprised nine math teachers who were working to detrack the ninth grade algebra classes; although some teachers were new to the group, others had worked together for many years. The Academic Literacy Group was a more recently

formed group of five English teachers seeking to develop a ninth grade English course that would place greater emphasis on reading comprehension, more specifically on helping students develop metacognitive strategies that would aid them in meeting the academic reading demands of the high school curriculum. Although both groups of teachers viewed themselves as collaboratively engaged in activity that would improve teaching and learning, their talk positioned them differently to make progress on their aims.

Conversational Routines and Opportunity for Professional Learning

In this article, we argue that focusing on selected group-level conversational routines provides an important and strategic means for conceptualizing and investigating opportunity to learn within workplace settings. By *conversational routines*, we refer to patterned and recurrent ways that conversations unfold within a social group. Routines are constituted by *moves*, turns of talk that shape the interaction's progress by setting up and constraining the response of the subsequent speakers. In our examination of teachers' talk, we find that distinctions at the level of routines are most useful in understanding opportunities to learn.

Following developments in organizational sociology, we conceive of routines both as sources of stability and resources for change. In particular, we adopt the conceptual frame offered by Feldman and Pentland (2003), which considers that

routines, like other social phenomena, embody a duality of structure and agency. . . . An organizational routine consists of two related parts. One part embodies the abstract idea of the routine (structure), while the other part consists of the actual performances of the routine by specific people, at specific times, in specific places (agency). (p. 95)

Feldman and Pentland (2003) asserted that "there is considerable agreement in the literature that organizational routines can be defined as repetitive, recognizable patterns of interdependent actions, carried out by multiple actors" (p. 95). That definition usefully underscores the productive role of routines in accomplishing central goals and tasks, socializing newcomers to an organization, and maintaining organizational continuity, but it is also tends to fuel the notion that routines result in a degree of inflexibility, dampening innovation and inhibiting change. However, Feldman and Pentland contended that one may accept the basic definition of routines without accepting the corollary argument regarding organizational inertia. In defining routines as having both an ostensive (structural) aspect² and a performative (agentic) aspect, they constructed an alternative theoretical rendering that allows for both continuity and change and that also goes further to explain the observed patterns in existing data.

Our interest in routines for this study derives from their utility in helping us understand the patterned nature of professional interaction and learning opportunity in organizational subunits, specifically teacher work groups within academic departments. We take as our point of departure the set of locally evolved, informally named, micro- and meso-level routines for conducting joint work in the two groups.³ Each of the routines demonstrates ostensive (structural) aspects that give it a certain stability and continuity in the group, and each also reveals performative (agentic) variations of a sort that afford more than one potential trajectory of practice and change over time. In particular, two sets of routines—a routine labeled “check-in” in one group and a routine for “walking through” planned lessons in the second—are analyzed for the opportunities they afford (or constrain) for collectively taking up and working on problems of practice. Acknowledging a debt to others who have undertaken micro-ethnographic analysis (Erickson, 1992; Mehan, 1996), we suggest that

the heuristic notion of affordance calls attention to the multiple possibilities made available in and through talk, gestures, and material artifacts. Used as a frame for fine-grained discourse analysis, it helps specify and locate the available resources for learning while acknowledging the inherent ambiguity, open-endedness, and indeterminacy of social practice and learning. (Little, 2003a, p. 920)

The Study

The analysis reported here employs a subset of data collected as part of a larger comparative case study of professional community and professional learning in two urban high schools. The larger study investigated the learning opportunities constructed through teacher interaction at multiple levels (whole school, grade level, department, and other specialized work groups), together with those created through teachers’ ties to external sources of professional development and support. Results previously reported from that study suggest that secondary school reforms, even when widely embraced by a staff, are unlikely to yield improvements at the level of the classroom without a means to foster in-depth interaction, mutual support, and professional learning opportunity among subject-domain teachers (see Little, 2003a; Little, Horn, & Bartlett, 2000). The current analysis takes its point of departure from that observation, focusing on two teacher groups within subject departments of the same school—one group in mathematics and the other in English, both self-defined “collaborative” entities—to determine what such in-depth interaction, mutual support, and professional learning might entail.

Site Context

East High School enrolled approximately 1,800 racially and ethnically diverse students, with about one third coming from low-income families. The 12th grade cohort was 25% smaller than the 9th grade cohort, indicating

a sizable attrition in student enrollment despite low published rates of annual dropout (less than 1%). Fewer than half of the graduates completed the combination of coursework and testing requirements for admission to the state's university system. Such figures suggest that the school could be considered among the likely targets of policy and reform initiatives aimed at reducing disparities in student achievement and educational attainment and thus might also be considered as a site at which supports for professional development and instructional improvement deserve attention.

Academic departments at East enjoyed a relatively high degree of departmental autonomy that extended to preferences in teacher hiring, teacher assignment, and the frequency and use of meeting times for the department or within-department groups. As is the case with nearly all secondary schools in the United States, however, department chairs had no formal authority over the department members, nor any formal imperative to exert leadership on matters of instructional improvement. Consistent with academic departments portrayed in other studies (Gutierrez, 1996; McLaughlin & Talbert, 2001; Siskin, 1994), those at East varied with regard to the cultures they developed, the amount and type of collaboration in which they engaged, and the leadership they cultivated.

At both schools, the research team devoted particular attention to teachers' relationships and interactions within the subject domains of English and mathematics, a decision that acknowledged the importance of these two tested subjects to the school's public profile and their centrality to students' educational trajectories. At East, English and math both represented relatively strong departments with a collective orientation toward improvement and an ethic of shared responsibility for student success.⁴ The departments differed, however, in the depth of teaching experience available as a resource for defining and pursuing an improvement agenda. The 14 English teachers ranged in experience from 1 to 9 years, with a department average of 3.5 years; the department chair was in his 4th year at the school. The 10-member math department ranged from 1 to 19 years of experience, with an average of 8.7 years. The department's co-chairs had a combination of 15 years of experience.

Within each of the departments, teachers organized themselves to work collaboratively at the grade level (English) or around specific courses (math). In consultation with department members, we made the decision to focus our observations most intensively on one subgroup within each department, while still conducting observations and interviews more broadly in the departments and the school. Both subgroups were engaged in improvements strategically targeted at the ninth grade, where a successful or troubled transition from middle school has been shown to be a crucial factor in students' prospects for high school completion and postsecondary education (Neild, Stoner-Eby, & Furstenberg, 2008). Both groups also met voluntarily on one day each week for 90 minutes after school, offering us ample access to the group's collective thinking and activity.

The members of the Algebra Group shared a decade-long commitment to opening up access to college-preparatory mathematics to all students and had succeeded in fostering a higher than predicted level of student participation, confidence, and achievement in mathematics (Boaler & Staples, 2008).⁵ During the period of our study, the Algebra Group comprised nine individuals: six full-time members of the math department, including the department co-chairs; a special education teacher whose teaching assignment included algebra; a student intern; and, in a development unanticipated when the study was designed (see below), one member of the research team, a former math teacher.

The Academic Literacy Group had formed in the year prior to our study to tackle the difficulties that many students experienced with the reading comprehension demands of the secondary school curriculum. Inspired by a professional development program that focused on building secondary students' metacognitive reading strategies, the group made plans to modify the department's ninth grade curriculum in ways that gave greater prominence to students' capacity for and confidence in reading complex texts. Group membership included four full-time members of the English department, including the department chair, and, in another unexpected development, a member of the research team, a former English teacher.

Participant Observation Roles

The study was initially designed as an intensive qualitative case study, entailing an immersion in the two school sites that began in the summer as teacher groups met informally and continued through a full school year (4 days a week spent at school sites). An unanticipated set of developments at East opened the possibility for more fully defined participant observation roles at that school for two members of the three-person research team during the fall semester. First, the Algebra Group proposed that the first author teach one class section of ninth grade algebra and participate in the group's weekly meetings; this arrangement would solve a problem for the school and department (the need to hire a part-time qualified teacher to maintain a 20:1 ratio in ninth grade math classes) and would also ensure that the group members worked hard to bring the researcher, now also in the position of "new hire," up to speed regarding their practice. Similarly, the English department was faced with achieving a 20:1 ratio in its ninth grade classes. When one teacher in the Academic Literacy Group withdrew shortly before the start of the school year, the group approached a second member of the research team, a former English teacher, to teach the assigned Academic Literacy class and become more fully a part of the collaborative group. The research team appreciated that such participation offered an unusual degree of access to "insider" meanings and practice but also acknowledged the challenges that full participation presented for sustaining a researcher's perspective and activity (Becker, 1958; Spradley, 1979). Given our interest in making sense of the teachers' learning, we believe that this complexity was worth managing. Not only did members of the research team have their own

experiences trying to learn about practice through collegial interaction, but teacher participants reported being more frank and open with the researchers as a result of this level of participation. As one teacher said in an interview, "It's easier to talk about our bad days because we see that you have your bad days, too." The two teacher groups were sympathetic to the challenges of our dual roles and, to somewhat differing degrees, aided the team in securing high-quality audio and/or video records of interactions. The final member of the research team (Little, who was also the study's principal investigator) continued in the field research role originally conceived in the study design, picking up a larger share of observations and interviews outside the two focal work groups and providing an outside perspective to make sure tacit insider assumptions were made explicit.

Data Sources

Although we employed multiple data collection methods, including extensive teacher and administrator interviews and observations in various workplace settings, most central to our analysis here are audiotaped and videotaped records of teachers' regularly occurring meetings with one another. Voluntary weekly meetings of approximately 90 minutes, held after school, formed a constitutive feature of the ongoing work for both of the groups. These after-school meetings were not the only occasions on which the teachers talked to one another, but they were the times during which the teachers collectively concentrated their activity and interaction on teaching and learning. To the extent that learning-conducive exchanges were evident in each group, they were likely to be available for observation there. The audiotaped and videotaped records permit us to examine the substance and dynamics of teachers' collegial interaction and enable us to examine how teachers' talk and activity created or limited opportunities for teacher learning and improvements in teaching practice. Altogether, we recorded approximately 26 hours of interactions among the Academic Literacy Group during the fall semester, together with another 12 hours of their interactions with other members of the English department; we recorded 26 hours of weekly meetings of the Algebra Group during the same period, plus 8 full days (approximately 48 hours) of "Algebra Week" activities spanning two summers. Interview accounts from teachers in each of the groups confirm the perceived importance of the weekly meetings as venues for pursuing each group's shared aims and for supporting professional learning and improvements in classroom practice.

Locating Problems of Practice in the Flow of Teacher Talk

Because we are interested in how talk supplies opportunities for professional learning, we focus specifically on conversational moments that entail accounts of classroom experience and that signal problems of professional practice, treating the frequency and nature of such moments as indicators of

the generative power of a teacher group. By focusing on these episodes of pedagogical reasoning (Horn, 2005, 2007, in press), we can explore the learning potential of these conversations. What part do problems of teaching and learning play in teachers' recorded talk? How often do they arise, with regard to what aspects of teaching, and with what degree of specificity and transparency? How do they get taken up, or not?⁶

In focusing specifically on problems arising directly in the classroom and located at the level of the "instructional triangle"—or the relationships among teachers, students, and content—we have deliberately narrowed our focus to one subset of what could legitimately be encompassed in the broad terrain of teaching problems and tasks. For example, a more comprehensive analysis would also examine the two groups' interactions as they set curricular priorities, resolved issues of curriculum coherence and lesson planning, weighed the relative merits of various instructional materials, or considered the results of various student assessments. Indeed, some of the classroom-based problems of practice that surface arise in the context of just such discussions. Our singular focus on problems of classroom practice in this analysis reflects our view that the treatment of such problems presents a significant barometer of a group's collective capacity to support professional learning and stimulate instructional improvement.

We located relevant conversational moments by means of a systematic mapping of episodes of teacher-to-teacher talk within line-numbered transcripts, marking episode boundaries by shifts in topic and/or participation structure. Episode designations supplied us with the interaction context in which problems arose and were pursued or not (e.g., episodes devoted to curriculum planning or to reporting on the previous week's classroom activity). Within episodes, we identified "problems of practice" through linguistic and paralinguistic cues that signaled classroom interactions experienced as troublesome, challenging, confusing, recurrent, unexpectedly interesting, or otherwise worthy of comment. Such cues included explicit references to trouble, expressions of emotional distress, or direct appeals for feedback or assistance, many of them marked by changes in intonation and emphasis. On some occasions, what appeared to be straightforward, nonproblematized accounts of the classroom became problematized through the subsequent questions or commentary of others in the group. For example, when a novice teacher in the mathematics group asked for help in finding activities that would work for both her "fast" and "slow" students, the remaining teachers first (gently) problematized her classification of students as "fast" and "slow" (see Horn, 2007); in doing so, they directed the group's attention to assumptions about the connections between students' behavior (e.g., finding a solution quickly) and students' ability (what they may be "fast" or "slow" at) and thus supplied different criteria for thinking about the design or selection of instructional activities from which all students have something to learn. By means of this conversational mapping, we determined patterns in the relative frequency with which problems of practice surfaced in each group and the relative density, defined by percentage of transcript lines, with which they populated a conversation.

Consistent with our interest in the generative potential of teacher talk, we devoted particular attention to the nature of each group's "take-up" of expressed problems. To establish that a conversation was potentially conducive to professional learning, we sought evidence that the dialogue did more than simply report on or point to problems of practice, or brainstorm quick advice, but supplied specific means for defining, elaborating, and reconceptualizing the problems that teachers encountered and for exposing or building principles of practice.

As our analysis unfolded, we identified systematic differences in the two collaborative groups with regard to both the incidence of problems of practice, the contexts in which those problems surfaced, and the degree to which the group's response oriented teachers' collective attention toward or away from a deeper investigation of teaching. We examined the way different speakers' contributions shaped the framing of the problem at hand, with particular attention to the kinds of conversational moves that seemed to extend or close off the group's analysis and understanding of the original problem. The episodes were transcribed to create a nuanced representation of the conversations, including overlapping talk, voice intonations, false starts, and repeated words. Although we have preserved some of this notation for this article, we have taken out some of the more arcane transcript symbols to increase readability. Transcript excerpts reproduced here employ the conventions represented in the Appendix.

In this article, we focus on two extended episodes, one from each group. We chose these episodes because they typify each group's discourse patterns in two respects. First, each episode represents a dominant interaction context in which problems of practice characteristically surfaced during the regularly weekly meetings. In the Algebra Group, that context was the routine practice of "check-in," during which each teacher reported on developments in his or her own classroom; check-in functioned both as a means for coordinating instruction across classrooms and as a forum for identifying and working on issues and problems. In the Academic Literacy Group, curriculum planning in general and a lesson "walk-through" routine more specifically formed the principal context in which problems of practice appeared. The lesson walk-through accommodated the group's agreement to handle initial lesson planning through a division of labor, with one or two teachers taking a lead in each curriculum unit; it principally entailed the planner's descriptive account of the lesson design, activities, and materials. Second, these episodes typify the observed trajectory of each group's interaction when a problem of practice was taken up at some length; that is, the groups were consistent across time in their handling of problems of practice and were consistently different from each other in ways that form the focus of this analysis.

Of course, not all problems of practice were taken up at length. In that respect, our choice of lengthy focal episodes masks an asymmetry in the data. Overall, the Algebra Group was more likely than the Academic Literacy Group to express or elicit problems of practice and to take them up at

length. In both groups, the incidence of expressed problems was higher in the early weeks of the semester and diminished in the final weeks, as teachers in both groups turned attention to how much (and what) of the curriculum might be squeezed into the remaining time. For purposes of this analysis, we have deliberately elected to identify parallel instances in which problems of practice were expressed and taken up at length, taking these to be occasions on which the potential might reasonably be greatest for learning in and from practice. By finding similar occasions and analyzing how the teachers used them for their own learning, we highlight the differences in the groups' processes for using problems of practice as a means of making sense of teaching. In the discussion that follows, we first introduce the conversational routine of "normalizing," which we found to be a characteristic response to problems of practice across groups. We then develop each of the selected instances in turn and finally take up the question of how one might account for these systematic differences between groups situated in the same school.

One consideration in our analysis is the potential influence exerted by research team members in their roles as participant observers. Although we cannot know definitively what that influence might have been (especially with regard to their observer status), our interviews and observations supply evidence that the two participant observers were positioned differently within their respective groups. As a temporary member of the Algebra Group, the first author (Horn), a specialist in mathematics education, brought expertise and experience in mathematics teaching, together with deep familiarity with contemporary mathematics reforms, urban secondary schools, research on mathematics teaching, and the kind of curriculum being used by the teachers. In interviews and in occasional exchanges during meetings, it was clear that the teachers saw her as an accomplished mathematics educator (a potential source of authority); at the same time, she was a newcomer to the group and the school. There is no indication that her presence altered the established dynamics of the group except in the ways that other newcomers did so—by creating a circumstance in which the core members of the group had to explicate some of their practices and rationales—with the exception of the fact that her copious record keeping led her to serve as the group's "memory" on a few occasions when prior discussions were invoked. In the 15-minute episode analyzed for this article, she was present but did not speak.

Our colleague in the Academic Literacy Group ("Lora" in the transcript excerpts) was positioned rather differently. Although she had previously worked as an English teacher and qualified for temporary hire on the basis of her teaching background, her primary field of specialization is education policy and the study of schools as organizations. She was not deeply familiar with contemporary reforms or research in English education, nor with the "academic literacy" curriculum or the content of the professional development that had stimulated the group's formation. In her participant role, she was positioned as a newcomer, seeking clarification of the school's and group's expectations and assistance with a familiar array of teaching

challenges. She is an active participant in the 17-minute episode highlighted in this analysis, in ways that we characterize below.

Consistent with our small comparative case study design (Yin, 2003), we view this analysis not as making a general claim about all teacher work groups but rather as contributing to theories of the conditions conducive to instructional improvement. Our principal aim is to advance understanding of the ways in which workplace interactions supply resources for teachers' professional learning. Our project strives toward a broader goal of contributing to a framework of more general utility in characterizing professional learning opportunity at the level of practice across multiple contexts.

Responses to Problems of Practice: The Phenomenon of "Normalizing"

In each of the groups we studied, we repeatedly saw exchanges in which teachers' expressed problems were met with what we have termed *normalizing* responses, that is, moves that defined a problem as normal, an expected part of classroom work and teacher experience (see Little & Horn, 2007). Normalizing moves supply reassurance ("you'll be fine, don't worry") and establish solidarity ("it happens to all of us"). Yet we also saw systematic, patterned differences in the way normalizing practices functioned in combination with other moves in interaction to turn the conversation *toward* the teaching or *away from* the teaching as an object of collective attention. In turning *toward* teaching, teachers treated the shared and expected (normal) character of a problem as the starting point for detailed discussion of specific classroom instances and as a means to help anchor emergent advice to more general problems and principles of teaching. In these interactions, the problem teller was positioned with substantial agency in defining and elaborating on the problem and in working out possible responses. The conversation turned *away* from more in-depth consideration of the problem when teachers limited themselves to expressions of sympathy or reassurance or when they moved directly (and briefly) to advice or familiar aphorisms before moving on to other instrumental tasks. This turning away tended to obscure any relationship between specific instances of trouble or surprise and endemic dilemmas of teaching (a class of problems), while positioning the problem poser as relatively helpless in the face of circumstances beyond his or her control or as a passive recipient of others' advice.

To illuminate these alternative responses—more fully exploring a problem of classroom practice or turning away from it—we consider two extended episodes in which teachers signal trouble to colleagues. The first episode, lasting approximately 15 minutes, shows how teachers may normalize problems of practice in ways that focus their attention closely on the dimensions of the problem and what might be learned from it. The second episode, approximately 17 minutes in length, shows the effort that may be required to compel collective attention to a problem of practice and how a group's

take-up of such problems may supply remedies without deepening understanding. Given inadequate space to display the full transcripts (over 500 transcript lines altogether), we must rely on excerpting parts of the transcripts, while preserving their sequential order, to show how particular conversational moves and routines enhanced or limited opportunities for professional learning and to suggest how differences in group discourse contribute to building a model of generative dialogue.

Conversational Routines That Open Up Opportunities to Learn: The “Alice’s Mayhem” Episode

The episode we call “Alice’s Mayhem” opened the weekly meeting of the Algebra Group. In this episode, Alice, a new teacher, arrived to the meeting having experienced a lesson that, in her words, evolved into “mayhem.” Her mentor, Jill, who was a co-chair in the department, accompanied her. The other teachers had delayed the start of the meeting to await Alice’s arrival and encouraged her to share her account of what had happened (“put it out there”). Her account centered on the disconnect between intention and classroom reality.

Alice: Uh, well my frustration, I think, was just, I started the geoboards today and it, it *felt* like mayhem? Like, it felt like no one kind of understood—I just had a *vision* of what it—I thought it should look like and it didn’t look anything like that and then . . . I was trying to keep students together in their groups, but they, they weren’t staying together. And then . . . What was happening? So then I wanted to communicate the whole putting the rectangle around the triangle? but it’s like, if I do it in front of class, no one’s paying attention but if I go around to groups, I felt like I wasn’t communicating it to all the students? So I think that—and after processing it with Jill, I think they were getting stuff done? It’s just that I have a vision of what group work should look like, and it’s not looking anything like that? And I just feel like they’re getting more and more unfocused in class.

Alice’s words may strike many readers as typical of those spoken by beginning teachers, or perhaps by more experienced teachers attempting something new. What was *not* typical is the way the conversation subsequently unfolded over 15 minutes as she and her colleagues elaborated and probed the vivid and rather daunting image of mayhem, successively posing and evaluating three possible explanations for the troubles that developed in Alice’s classroom. In this instance, as in others we observed in this group, the conversational routine involved the following: (a) normalizing a problem of practice, (b) further specifying the problem, (c) revising the account of the problem (its nature and possible causes), and (d) generalizing to principles of teaching. Through a routine of normalizing, specifying, revising, and generalizing, they created an interactional space rich with opportunities to learn about teaching practice.

Alice's colleagues first responded by normalizing her experience, assuring her that the disconnect between vision and reality is an enduring dilemma in teaching for both novice and veteran teachers.

Excerpt 1

1	Guillermo:	That would be my fourth block.
2		[laughter]
3	Female:	And mine!
4	Jill:	But a reality right?
5	Guillermo:	Yeah.
6	Jill:	Reality check, is that we all know what it <i>can</i> look like, we all know
7		what we're <i>striving</i> for. But my God—we're just like this <i>all</i> the time.
8		After 10 years, after 2 years, after 5 years, everyday is like that because
9		we don't know what's walking into our classroom. On a daily basis.
10	Howard:	I'll tell you Alice, I mean I've been here a long time. (??) This was the
11		first time I ever used geoboards with an Algebra <i>One</i> class because I
12		was so afraid of how easily they would just go off and play. And the
13		only reason that I attempted it <i>this</i> time was this was our time to do it.
14		And as much as it wasn't meeting like a <i>vision</i> I was putting out that
15		might have just been low expectations
16	Alice:	Yes.
17	Howard:	I mean, you put something like that in their hands for the first time and
18		there's a certain level of, play with it, (??), but whether they're focusing
19		on (??).

As in other collaborative groups we observed, the algebra teachers quickly normalized Alice's story through reassurances about her problem: Her class was likened to other unruly classes (lines 1–4); the experience was portrayed as endemic to the work of teaching, no matter what the teacher's level of experience (lines 6–9), and a possible consequence of using a potentially distracting manipulative (lines 10–15), something that could even happen to teachers who had been here “a long time.” One might imagine the conversation stopping at this point, with someone saying “So, really, don't let it upset you,” or “It's just a matter of experience—it will get better.” In fact, this was one of two main patterns we observed in other groups (the second being to conclude that the problem is outside the control of the teacher). However, normalizing practices in the Algebra Group did not simply preface a facile conclusion (“9th graders are just like that”) or a quick aphorism (“manipulatives don't work with all kids”) that leave the principal speaker with no agency in addressing the problem. Rather, they provided a starting place for a deeper discussion of the problem Alice introduced, providing a means to consider the problem from multiple perspectives while providing opportunities to engage both disciplinary and conceptual agency in thinking about the problem.

Specifying and Revising the Problem of “Mayhem”

A question that explicitly elicited more detail and invites analysis activates a crucial transition to focused reflection on this problem of practice.

When Guillermo, Jill, and Howard hastened to assure Alice that her problem is normal (“reality check!”), Guillermo asked,

Excerpt 2

- | | |
|----|---|
| 31 | Alice, can you identify the source of the squirrelness? Like (fear is) that |
| 32 | they, they wanted to play with the geoboards but didn't have time to do it |

This conversational move toward *specifying* is significant on several levels. First, it provoked a number of conjectures on the part of Alice’s colleagues about why her class unfolded in the way that it did, providing a set of possible explanations for the mayhem. The ensuing discussion was extensive and complicated, lasting 11 more minutes and including statements by 8 of the 10 teachers present. Two experienced teachers, orienting to the problem of “starting geoboards,” speculated that the squirrelness arose from a familiar kind of teaching challenge: introducing ninth graders to novel tasks or materials (geoboards), which naturally lend themselves to playing. Second, Alice maintained her agency in the course of the conversation as the ultimate interpreter of the events in her classroom as she revised her account of the mayhem. She contributed additional details, filling out the representation of the classroom (Little, 2003a) that came out in her story and providing more resources for them to use in interpreting her difficulties. As Alice considered Guillermo’s question, she recalled that the trouble did not originate with the geoboard exercise. Over the next 3 minutes, she revised her formulation of the problem twice. Initially, she conjectured that students’ understanding of area (or, more precisely, lack of it) was at the root of the mayhem problem. After a 1-second pause, Alice then said,

Excerpt 3

- | | |
|----|---|
| 36 | Yeah. I'm not sure, I think it even—it felt like it kind of even started |
| 37 | with the warm-up like they weren't— [1-second pause] I don't |
| 38 | know. Maybe it was a sense of—it's like, they don't really have a |
| 39 | concept of area <i>at all</i> . So maybe it was a sense, maybe they're afraid |
| 40 | of the—of not being able to do these ideas. No it was like they were |
| 41 | just counting the squares the whole time. I kept saying, “Okay, well is |
| 42 | there a rectangle there?” and it was like—that was going <i>beyond</i> for |
| 43 | them. Um. So maybe it's just that the concepts are challenging for |
| 44 | them. I don't know. |

This turn highlights another important affordance of the Algebra Group’s conversations: the opportunity to engage in “rough draft” talk. This reformulation had a provisional sense to it. There were pauses, several unfinished sentences, expressions of uncertainty (“I don’t know”), and explicit revisions (“No it was . . .”), all of which indicated that this is an emerging version of what happened in the classroom that had not yet been closely considered. In other teacher groups we observed, there were few to no opportunities for teachers to

make the difficult links from the embodied experiences of their classroom teaching to abstract concepts and principles. This feature of the Algebra Group's conversations provided an important resource for learning, as it is critical for learners to relate models of teaching to the particulars of unorganized experience (Gee, 2008, p. 94). Guillermo's question invited this kind of reformulation, and the group's norms provided interactional space for Alice to reconsider the source of the mayhem. Her new account considered the students' mathematical understanding: They were just counting the squares to figure out area of the figures they were making on the geoboards, and she wanted them to find rectangles that would allow them to calculate area more efficiently.

As she continued in this vein, Alice created a second revision by introducing an element that had been missing in the original formulation—her own anger with the students:

Excerpt 4

66 Yeah. I guess there was that sense that by the end? I was like—it was like the
67 first time that I just felt *angry* with them like/ because it felt so—like I
68 wasn't in control? that I started to get angry. And part of that is my control
69 issues. And so, I didn't even know—like by the end I was like, "I want you
70 guys to stay after." And I didn't know if I felt *good* about having them stay
71 after or if that was a good way to handle it, but it was like—I just wanted
72 them to know I mean *business* and we needed to get *work* done and—you
73 know? [2-second pause] So.

Again, a colleague's question ("Were they receptive to that?") invited further elaboration, perhaps responding to Alice's uncertainty about whether this was "a good way to handle it." Accompanied by much laughter, Alice replayed (Horn, 2005, in press) the classroom scene and the students' response:

Excerpt 5

76 **Alice:** Yeah, I mean, they were like [*exhales indignantly*], "This is not
77 fair!"
78 **Jill:** [*laughs*]
79 **Alice:** I'm like [2-second pause; she is most likely making a face]
80 **Jill, Guillermo:** [*laughing*]
81 **Alice:** I mean like. [*making the face again*]
82 **Guillermo:** Perfect.
83 **Alice:** So they stayed after 2 minutes, you know. And I mean that was. It
84 was fine.
85 **Jill:** [*snorting, like holding back a laugh*]
86 **Guillermo:** Yeah, but they're like *dying* for those two minutes, right? Like
87 two minutes!
88 **Alice:** Yeah I mean, it's like, "Two minutes? Come on!"
89 **Charlie, others:** [*laughing*]
90 **Alice:** So.

Alice's admission of her anger toward the students and her humorous account of the students' response to her punishment prompted another set of normalizing moves, these focused on the pervasively emotional nature of teaching experience. These affective contours highlight the embodied nature of Alice's account and also painted a scene that was emotionally involving for the other participants in the conversation (Horn, in press; Tannen, 1989), carrying a metamessage of alliance among the members of the Algebra Group.

Guillermo's response again established Alice's dilemma—emotional responses to students—as one inherent in teaching and specifically linked her experience to his own account of becoming angry in the challenging class he had likened to hers at the start of the conversation:

Excerpt 6

91	You really are describing my fourth block. Minus the staying after for 2
92	minutes. [<i>Alice, others laugh</i>] Because at some point I'm angry enough
93	that I don't want to SEE them for 2 more minutes! [<i>others laughing</i>]

As we previously stated, linking moves such as these are a common way of normalizing across the groups we studied. As in other groups, this linking move positioned the teachers in alliance with one another, creating a sense of membership and affiliation. The linking move had interpretive consequences as well. Alice told a specific account of her students in her classroom, and Guillermo recognized it by telling her that she was “really describing” his own fourth block class, inviting a direct comparison between Alice's experience and his own. Because Guillermo was an experienced and accomplished teacher, the comparison immediately limited the range of explanations for Alice's mayhem: It was not simply a result of her being a novice teacher. The linking thus positions Alice differently in relationship to this problem of practice. At the same time, Guillermo used his experience to derive a lesson about responding to mayhem (“I also don't want to try to enforce two minutes of silence or whatever”), pointing to possible responses that highlight the teachers' agency. Finally, as we describe in the next section, this linking lays the groundwork for making generalizations about teaching.

Generalizing From the Problem of “Mayhem”

From this point forward, the conversation moved back and forth between specific, linked accounts of practice and general principles of teaching. We argue that this movement between the particular and the general provided the group an important opportunity to learn. Specifically, it was a means of developing teaching knowledge that is deeply rooted in embodied accounts of classroom life, joining important concepts about teaching to particulars of practice. In this way, we see the conversational moves identified here as critical to the development of this teaching knowledge.

With respect to the dynamic of specifying and generalizing in talk about teaching, our thinking owes a debt to Jurow's (2004) analysis of generalizing practices in mathematics classrooms. Although the setting of her investigation is quite different, the discursive practices of "linking" and "conjecturing" that Jurow identified appear to have ready parallels here. Jurow wrote,

Through linking, a speaker proposes a comparison between situations and uses resources including talk and [representations] to articulate and show other participants the basis of the comparison. [Others are thus] positioned to evaluate the comparison in a particular way. (pp. 295–296)

Through conjecturing, speakers invoke possible or hypothetical worlds using narrative and other tools to describe and predict the behavior of phenomena over time. Gee (2008) emphasized the importance of this kind of simulation in the development of understanding. While we have identified a different set of conversational practices that supported the teachers' developments of generalizations about teaching, we concur with Jurow's statement that "a generalization is . . . the outcome of activities distributed across people, talk, and inscriptions rather than the product of any individual's thinking" (p. 296).

In this instance, Guillermo set up a generalization about the "inevitable" chaos of working through an activity for the first time. To do so, he first reestablished the link between Alice's classroom and his own. He then went on to talk through what he realized through his struggles with his own class:

Excerpt 7

130	So I got angry (.) too at what they wouldn't do. I think a large part of
131	that is inevitable first-time-through things. For me, it's first-time-
132	through like fall Math 2, given what they had last semester for Math 1
133	and some of those frustrations and um—I just don't know what's
134	reasonable for them in terms of expectations

The conversion of general observations (occasional chaos is a fact of life in classrooms) to actionable principles for teaching provided another important affordance for learning in the Algebra Group. Significantly, these principles almost always position the teachers as agentic in resolving their problems of practice. Guillermo's talk here laid the groundwork for such a generalized principle. His linking work set up the possibility for a general category of classroom experiences: Roughly stated, these experiences can be described as *times when a teacher's expectations are not fulfilled by realities of class, and the teacher experiences mayhem*. In the talk excerpted above, Guillermo began to explore this comparison, moving the conversation *toward* the teaching. In the shift from the past tense ("I got angry") to a present indefinite tense ("for me, it's first-time-through"), Guillermo invoked a teaching principle suggested by earlier comments: The first time through something (be it a curriculum, an activity, or, in his case, getting familiar with a particular class), it is difficult

to know what is reasonable to expect of and from students. After stating this principle, he applied it to his own situation, concluding, “I just don’t know what’s reasonable for them in terms of expectations.” Together, this linking built a class of events to which an interpretive principle for teaching can be applied.

As previously suggested, broad statements of principle need to be evaluated in terms of the agency they grant to teachers. They may not provide much leverage for changing practice if there is no obvious actionable response to be taken by the teacher. However, Guillermo’s next move was to apply his principle back to Alice’s experience of mayhem and, in doing so, provide a substantively different interpretation of the events as she described them. In her emergent account of the mayhem, Alice observed that students were counting squares to calculate area instead of finding rectangles that would allow them to find the areas more quickly. She cast this as evidence that the students did not “have a concept” of what was going on mathematically. Having conceded that it is often difficult to know what is reasonable to expect, Guillermo used his prior experience teaching the unit and shared what, in fact, was reasonable to expect from the students. He said,

Excerpt 8

136	So I would have thought that given the unit that they do in 8th grade,
137	that a sense of area would not be an issue. But some of them think
138	that area’s length times width. So in some sense, their counting
139	squares is the <i>right</i> thing.

Applying his own principle about what was reasonable to expect, Guillermo countered Alice’s earlier explanation: Their counting squares was the right thing because it was more on target with the *idea* of area than the formulaic length times width version that many students have. A formulaic understanding alone is not robust and does not support transfer to novel problem contexts (Schoenfeld, 1985). It is not clear from this interaction whether this bit of pedagogical content knowledge was incorporated into Alice’s understanding of the mayhem, but it certainly was made available to her and others at the table.

Others’ contributions also displayed this pattern of linking Alice’s problem of mayhem to their own experience, expanding the exemplars in this emerging class of teaching problems. In addition, the other teachers build on the link to articulate principles of teaching and learning to teach. For example, Jill recounted the “chaos” that ensued the first two times she used a particular activity to introduce area: “And I remember thinking, ‘*What* did I *not* get the first time around?’ You know?” Carrie picked up the example, having taught the same activity, and used it to state a more general principle for interpreting and responding to “mayhem” or “chaos”:

- | | | |
|-----|----------------|--|
| 186 | Carrie: | When, when they get upset and they seem to be off task and acting goofy, it usually is motivated by “I’m so confused and |
| 187 | | the <i>last</i> thing I want to do is <i>admit</i> I’m confused |
| 188 | | |
| 189 | Alice: | Mhm. |
| 190 | Carrie: | so I’m instead I’m going to find a way to distract myself or |
| 191 | | distract others so that I don’t have to <i>face</i> the <i>fact</i> that |
| 192 | Alice: | Mhm. |
| 193 | Carrie: | I don’t know how to do something.” Um. So I always try to |
| 194 | | sympathize. Like, I’ll feel/ feel myself being <i>mad</i> , like “You |
| 195 | | guys aren’t working! What are you doing?” And then I like try |
| 196 | | to take a step back and say, “Okay. <i>What</i> are they afraid of?” |
| 197 | Alice: | Mhm. |
| 198 | Carrie: | “How can I make them feel comfortable with that fear?” |
| 199 | Alice: | Mhm. |
| 200 | Carrie: | “What can I say to them or what can I do for them to make them |
| | | feel (.) like, this is a safe place.” And that usually takes me |
| 201 | | somewhere where—it never is <i>fully</i> successful, but I see some |
| 202 | | successes and then that translates into other days that become |
| 203 | | more successful. |
| 204 | | |

Carrie’s contribution illustrated characteristic features of the “principled” talk in this group: Principles for teaching were cast not as tips and tricks but as ways of interpreting students’ responses. This principled or generalized talk gained specification through what Horn (2005, in press) termed “rehearsals” and “replays,” or narrations that enact the teacher’s voicing of the principle in anticipated or past practice. In this instance, Carrie narrated her own thinking as she assuaged her students’ fears, which she saw as underlying their rowdy behavior.

Over the 15 minutes of talk, then, the teachers invoked a set of principles for interpreting, responding to, and learning from the case of mayhem. Here, as elsewhere in data from this group, we saw different kinds of principles brought to bear on classroom replays: principles of interpretation, principles of teaching response, and principles of learning in, from, and for teaching. In this example, Principle 1 is primarily an interpretive principle addressing the uncertainty of teaching, particularly with novel lessons. Principles 2 and 3 are interpretive principles, supporting different interpretations of student behavior. In addition, Principle 3 links students’ behavior to issues of learning. By linking abstract ideas about teaching to particular instances of practice, the teachers were generating theories of teaching rooted in vivid representations of teaching. In terms of teachers’ opportunities to learn, it is important that the last two principles positioned the teachers as agents by providing an arena for responding to trouble.

Principle 1: Anticipating possible trouble (Guillermo, Jill, and Charlie): When teaching any activity, content or group the first time, you cannot fully anticipate what students will do.

Principle 2: Interpreting student behavior (Howard and Judy): When kids act out in this context, it may be because you've underestimated the novelty of the task or materials; for example, kids want to play with manipulatives at first.

Principle 3: Interpreting student behavior (Carrie): When kids act out in this context, it may be because they're confused or fearful and trying to hide their confusion or fear.

In the Algebra Group, principles for teaching were routinely accompanied in talk by a repeated perspective about learning from teaching: Teachers discuss developing “eyes for the classroom” over time, aided by growing “curricular knowledge.” They explicitly relieved one another from blame for problems of practice, while still signaling that they were collectively responsible for student learning and conveying the expectation that they as teachers would continue to learn in and from their teaching practice. Thus, Jill ended her account of “chaos” by saying, “And so you, you *can't* blame yourself for something that there's *no* way you could know. And you'll take that knowledge and you'll do something with it the *next* time around.”

And what of the significance of this episode for Alice? Although tracing all of her subsequent interactions for evidence of learning is well beyond the scope of this article, we turn to comments made in an interview several months later in which her words supply a direct echo of the words spoken to her by Jill. Attesting to the value she places on the “collegial” nature of the math department at East, Alice adds,

You also have a sense that it's ok to try things and have it not work—why didn't that work? What can we do differently? Because I think for me, I mean I'm kind of a perfectionist, so to do something and fail is really frustrating for me and if I didn't have the support of people who kept saying “That's not failure, it's trying things. It's always going to be some things will work, some things won't.” (Alice, interview, May 25, 2000)

Learning From the Problem of Mayhem: The Interplay of Normalizing, Specifying, Revising, and Generalizing

As the conversation developed, certain dynamics emerged that we view as importantly constitutive of professional learning opportunity. The use of normalization and the related conversational routines that support the development of generalizations constitute important affordances for learning, while positioning teachers as agentic in their work and encouraging them to reconstruct their understanding of and responses to complex situations. First and most central, teachers in the Algebra Group *normalized* problems in ways that created a sense of membership and affiliation but also legitimated the problems as deserving of sustained attention. By routinely asking questions and eliciting additional

information, the teachers communicated the inherent complexity and ambiguity of teaching while supplying themselves with the specifics needed to introduce and evaluate multiple explanations for the problems that surface. In the previous example, normalizing practices continued throughout the exchange as the more veteran teachers provided their own accounts of classroom struggles, detailing the ways in which Alice's dilemmas parallel their own and thus marking them as endemic and important problems of practice. That is, normalizing practices functioned here not simply as a means for providing reassurance or identification before moving on to other tasks; instead, they were a starting point for digging into problems of practice.

The second important affordance arose out of the conversational routine that helped Alice develop a more detailed and nuanced account of the trouble in her classroom. During their conversation, the teachers' talk moved constantly between *specific* accounts of classroom practice and *general* lessons from experience. The interplay between the specific and the general is important here. If teachers had shared only their own experiences of "mayhem" with Alice, the conversation could have developed into little more than a gripe session, perhaps emotionally comforting or even cathartic, but not necessarily generative for the teachers' learning about how to handle mayhem in the future. On the other hand, if teachers had moved directly to categorical advice (when that happens, do this) or only general principles of teaching had been shared, unattached to specific examples, the work of applying these principles to actual practice would have remained opaque, left to the individual teacher to sort out.⁷ Instead, by moving between the particular and the general, the teachers conversationally constructed general frameworks for thinking about teaching problems, providing durable tools for their work. The principles for teaching, coupled with the examples invoked, become a resource for thinking through future problems. In fact, this sort of shorthand emerged in the group over time, making Horn's insider status crucial for interpreting these conversations. Phrases popped up in meetings (e.g., "And that's where 'yet' comes in") that would be impenetrable to outsiders but had a taken-as-shared meaning that had emerged out of interactions such as these.

The work of recontextualizing generic teaching principles or unspecified images of classroom practice is a central challenge of teacher learning. The linking work that happens in this conversation helped the group collectively construct a class of instances and narrated responses clustered around defining and explaining a common teaching problem and a set of principles for responding to it. Over the course of the conversation, "mayhem" was made accessible to elaboration, reflection, and remedy.

Conversational Routines That Constrain Opportunity to Learn: The Autobiographical Essay Episode

In a 17-minute conversation near the end of a weekly 90-minute meeting, the Academic Literacy Group teachers considered an essay assignment that

they would be introducing within the following few days. During the summer, the group had organized a division of labor for planning the semester's three main curriculum units, with one or two teachers taking the lead on each of the scheduled curriculum units. Weekly meetings constituted the principal opportunity for the group as a whole to consider the proposed lessons and to confer on issues of the lessons' purpose, scope, design, and pacing.

The first unit of the new course included activities crafted to help students develop a self-conscious awareness of themselves as readers and to introduce students to metacognitive strategies designed to aid reading comprehension. On this occasion, the teachers came prepared to discuss a writing assignment for which students would be asked to describe one or more incidents involving memories of themselves as readers. In advance of the meeting, one teacher (Karen) had drafted and circulated a one-page assignment sheet and a set of sample student essays from the previous year's ninth grade "autobiographical essay" assignment. The revised assignment sheet consisted of three topic prompts,⁸ a checklist of essay features under the heading "How to write a good autobiographical incident," and, on the reverse side, a matrix for organizing descriptive details under the headings of sight, sound (including dialogue), touch, and smell and taste.

Early in her overview and lesson "walk-through," Karen employed one of her own childhood memories to illustrate or rehearse (Horn, 2005, in press) the kind of description she envisioned students might produce using the first essay prompt (your earliest memory of reading) and to demonstrate how it might meet the requirement that the essay supply descriptive details:

Excerpt 10

1734	Karen:	So ... the <i>SOUND</i> of your mother's voice. The sound o:f (.) the clock
1735		ticking in the other room. The sound o:f (.) your dad snoring in bed
1736		next to you. The umm, you know you're seeing the dim light wherever
1737		you are. Whatever kind of feeling, I mean my- my first reading
1738		memories are, you know, my brother's crying in be:d (.) next to us, and
1739		I'm laying there with my mom and it's just our time and my dad's
1740		trying to keep him quiet, and all the details of (.) you know, I remember
1741		the lamp in the corner, and I remember y'know YEAH=
1742		

At this point in Karen's recitation, Leigh interjected, "I don't think I have any [memories]."

Excerpt 11

1743	Leigh:	I don't think I have any.
1744	Karen:	Whateverbut I remember <i>this</i> being – th' <i>reading</i> was so great (.)
1745		because this was this peaceful time of just sharing my mom. And so
1746		there's all the things going on and there's just this peaceful (.) part here.

Karen's response ("whateverbut," elided and spoken rapidly) marked Leigh's utterance as irrelevant. Moments later, Leigh tried again to gain the floor, offering a more explicit link to the proposed essay assignment. Once again, her concern was pushed aside, met with a joke from another teacher:

Excerpt 12

1759	Leigh:	You know, but I have <i>no id</i> / if I were to write this essay, I have <i>no</i>
1760		idea what I would write on. Like I don't have <i>any</i> images popping up
1761		my head right now.
1762		//And]
1763	Patrick:	//I think]
1764		it may be because right now you are <i>legally brain dead</i> . [laughter]

At this point in the conversation, Leigh's concern had not been normalized. Instead, Patrick's joke attributed Leigh's problem to the exhaustion she was feeling by balancing full-time work and master's degree coursework. Nonetheless, Leigh persisted, prompting an explanation from Karen that the three possible essay prompts constituted a response to the problem that Leigh had identified:

Excerpt 13

1772	Leigh:	Like my earliest memory, when I first learned how to read? I am
1773		<i>clueless</i> .
1774		[I mean//=
1775	Karen:	[THAT'S WHY //
1776		I gave yeah= [Leigh: =Okay.] the three [<i>prompts</i>]. Because I thought
1777		<i>somebody</i> —they had to either have been scared, or felt powerful (1)
1778		sometime.

It was at this point that Karen made what could be considered a first normalizing response, acknowledging Leigh's dilemma ("I'm clueless") as the justification for the multiple essay prompts ("that's why I gave . . . the three prompts"). Furthermore, she asserted that the alternative prompts would resolve the problem because "they [students] had to either have been scared or felt powerful sometime." As Leigh remained silent, Karen went on to recall a scene, again from her own life, that could serve as a response to the second essay prompt (a time when the student felt powerful or scared when reading): "Reading at my great grandmother's funeral and knowing that I was reading in this great powerful way and people really stopped and (.) and listened." Throughout, the focus remained on the viability of the proposed assignment.

Leigh remained unpersuaded and regained the floor to lay out more clearly how her own memory problem anticipated a classroom dilemma. As she laid out her argument, Margaret and Karen continued to assert that the

alternative prompts would supply a remedy, while Lora affirmed Leigh's dilemma as one she appreciated.

Excerpt 14

1826	Leigh:	Well, I mean the reason why I brought up that I'm having trouble coming up with a <i>memory</i> is
1827		that (.) I suspect that if I'm having trouble coming up with a memory, one of my 35 kids <i>might</i>
1828		also have trouble and I don't <i>yet</i> know what I would say to that kid. [Lora: Right.] That's why
1829		I'm asking. Not because I think you care
1830	Margaret:	[But that's why there's//
1831	Leigh:	[about my childhood.//
1832	Margaret:	But— but the other ones aren't <i>about</i> childhood.
1833	Karen:	Yeah. [Margaret: Like <?>.] They've all written to us about [Margaret: Right.]
1834		being scared about reading out loud in class [Margaret: Right.] or whatever. So you know,
1835		describe a time when you were <i>called</i> on in class.=
1836	Lora:	=I I understand Leigh's dilemma. I mean I also feel like, I guess also I've never given a
1837		great deal of thought to myself as a reader. I've never thought about telling
1838		[my story.//
1839	Leigh:	[I'm saying//
1840		this is going to be really difficult for some of our students. Even though they wrote the, what are
1841		you good at, what do you think of yourself as a reader on the survey, like that doesn't mean that
1842		they'll continuously on— thinking about it all the way, and [Female: Right.] I know that we want
1843		them to, but they're just not all there yet. And, yeah, I really could come up with like a half
1844		dozen reading experiences um but in that first second, I had a blank. And they're— if you're 14
1845		and you have a blank in that first second, it's hard to get beyond that sometimes, and so
1846		[Female: Right.] I would like us to think about (.) <i>that</i> . And
1847		[I'm not quite sure what I would do to help that student.//
1848	Lora:	[And and that's— For me that's an example of where//
1849		where my class gets bogged down. We take 45 minutes to an hour to do some aspect of the
1850		lesson plan.

It was only when Leigh linked the problem to an anticipated student response (“blanking” in response to an assignment) and instructional problem (“what I would do to help that student”), and when Lora showed how this set of problems related to the problem of lesson pacing and coordination, that Karen responded directly to the problem that Leigh had previously stated

(“what I would say to that kid”).⁹ Leigh’s problem eventually was ratified and granted conversational time, presumably because a strong case was made that it aligned with the group’s main purpose of planning and coordinating curriculum (lines 1848–1850). In the response that followed immediately, Karen laid out her solution: giving students advance notice, organizing pre-writing and talking opportunities in class, providing “tons of examples” from her own experience, and doing the assignment herself.

Excerpt 15

1857 Karen: Okay. So what— WHAT /: am planning on doing to get around that is, like
1858 I said, tonight, I just told them briefly today, “Hey this is where we’re
1859 going with this, so you guys want to keep that in your mind, you know, as
1860 you’re taking a shower, whatever you’re doing, start thinking about reading
1861 memories, you know, good, bad, whatever,” um, and uh ‘cause they do
1862 often need a few days of (.) —they definitely will blank for awhile. Um.
1863 Tomorrow (.) I’ll have them (.) write about it? I’ll have them *talk* to
1864 somebody, because these are just different ways that I find works with
1865 them. Um. Aa:nd— and I will give them examples. I give them *tons and tons*
1866 *and tons* of examples. Every time I teach an essay? Um, even the reflective
1867 essay that I teach for 2 weeks? *Every single day* I tell them a whole essay
1868 (.) story from my life. Um, and so you know today we’re doing part *one*.
1869 And I’ll tell them, okay, so here’s the story that happened in my life, and I
1870 tell them the whole story and I say, if I was doing part one, this is how I
1871 would fill it out for this story. And then day 2, we’ve done part 1 and part
1872 2, and I say here’s another story from my life. Here’s how I would do part
1873 1 for it *and* part 2, and then the next day I show them a different story and
1874 how to do it with 1, 2, and 3 until we finish, and I talk about, you know,
1875 how I would even edit my own essay, and I do try and do it as we go. I
1876 think (.) trying to write this stuff ahead of time will help to anticipate those
1877 questions, you can say, you know what? I had a really tough time with that
1878 too. I tried to write this essay for myself last night, but then I *remembered*,
1879 and when they see you do it, they’ll say, oh yeah, and when I started telling
1880 them my stories of when I was in high school this happened, they say, yeah
1881 that happened to me too, okay. I can write about that.

Contrasting the response of Leigh’s colleagues to that of Alice’s colleagues’ response is illuminating for our analysis. Alice’s colleagues spent a good part of the conversation drawing out a diagnosis from Alice herself, venturing potential explanations and framings for her to reject, modify, or ratify. Alice’s specific encounter with “mayhem” emerged as the instantiation of a class of problems that teachers can expect to encounter throughout their careers (students’ confusion, fear, or uncertainty about a task; students’ unpredictable response to unfamiliar tasks or materials; controlling and redirecting teacher anger when students act out). In turning their attention toward the problem of teaching in

the way that they did—first normalizing the problem and then further specifying, revising, resolving and generalizing it—the Algebra Group not only positioned a novice teacher with the agency to identify, investigate, and learn from her own teaching dilemmas but also positioned themselves as a group to deepen their collective competence and their norms of mutual support.

Teachers in the Academic Literacy Group ultimately recognized and normalized the problem introduced by Leigh: anticipating student confusion or “blanking” in response to the first of three essay prompts. In a manner that could certainly be judged helpful, the teacher taking the lead on the design of the lesson responded by demonstrating that the proposed assignment provided students with alternatives (the remaining two prompts) and by rehearsing a specific solution to the problem of “blanking” that would give students a way to get started on the assignment (e.g., “tons of examples”). Yet the problem itself went unexamined, despite evidence elsewhere in the teachers’ talk that it might be considered as one case of a larger set of dilemmas related to their redesigned curriculum (making the purposes of tasks more transparent to students, giving students tools for managing assignments in ways that built reading confidence and comprehension). The group’s normalizing moves served to define the problem as Leigh’s alone rather than as one instance of a larger problem, and further positioned Leigh as the passive recipient of another’s advice; altogether, the normalizing moves functioned to turn collective attention away from the problem of practice.

Yet such a shift away from the problem was understandable in light of the group’s felt obligations. Turning away from expressed problems of practice allowed sustained attention to certain instrumental tasks, most centrally those of designing, refining, and endorsing lesson plans from which each of the group members could teach in the following days. These were fundamental tasks, ones integral to both individual and collective legitimacy in the organization. That is, teachers would not run afoul of organizational norms (or their own sense of professional obligation) by failing to delve into an expressed problem of practice on a given day, but they would do so if they did not have “something to teach” on that day or the days that followed. Fulfilling the obligation for “something to teach” was aided by the group’s walk-through routine.

The “Walk-Through” Routine

The Academic Literacy Group’s orientation to curriculum design and implementation was invited, structured, and sustained by a participation structure centered on “walking through” lesson plans that were designed by one or two members of the group and circulated to others prior to the meeting. Walking through the lesson was a routine in the Academic Literacy Group that was arguably appropriate to the curricular task at hand, and one might envision its being structured to enable participants to recall, anticipate, and work on dilemmas of practice implicated by particular features of a lesson.

In the Academic Literacy Group, the walk-through routine operated primarily to privilege expeditious decision making and to suppress more elaborated

consideration of expressed problems of practice. In all teacher groups we observed, there existed what we characterize as an endemic tension between “figuring things out” and “getting things done.” One way to view the Academic Literacy Group is that they found themselves pressed to work more on the latter. Participants oriented consistently to “decisions,” seeking to make them, clarify them, defend them, and occasionally challenge them. The routine incorporated a normalizing move that in some way resembled what we found in Algebra Group: Teachers linked their own experiences to that of their colleagues as a way of normalizing experiences. However, normalizing in the Algebra Group functioned as a platform for questions and prompts that resulted in greater specification of the problem. In the context of the walk-through routine in the Academic Literacy Group, the normalizing moves functioned to limit intrusions on time reserved for curriculum talk and to secure agreement about the feasibility of particular lessons.

At a minimum, the walk-through routine remained incompletely shaped to fit the group’s espoused goals of collaborative curriculum planning, and at most, it was openly contested. More specifically, the group’s members harbored different views of whether the walk-through focused on the lesson planner’s *telling* and *showing* the others what the lesson entailed (perhaps doing what one teacher called a “sped-up demonstration”), or whether it signaled an opportunity for collaborative *deliberation* about and revision of the planner’s initial ideas. Constrained by immense time pressures as they struggled to develop new curriculum even as they were teaching, the teachers tended toward the “telling and showing” version of the walk-through routine, deferring to individual autonomy when they encountered disagreements they could not resolve quickly. By the end of the fall semester, however, the teachers publicly lamented in one of their meetings (and separately in interviews) that they had not been as reflective and collaborative in their planning as they had hoped to be.

How should we see the significance of the group’s constraints on expressing and investigating problems of practice and its reliance on the walk-through routine? One possibility is to see the group’s practice as constituting a simple and perhaps necessary trade-off in the affordances for learning within the group, sacrificing some short-term individual learning opportunities in favor of curricular innovation that promised a broader organizational benefit. Another possibility is that the group’s propensity to deflect problems of practice and to enact a limited form of the “walk-through” routine not only compromised individual learning opportunities but also diminished opportunities to pursue a robust and shared conception of the new curriculum. Finally, it is perhaps the absence of principled talk about teaching closely linked to representations of practice that most clearly distinguishes the talk in the two groups.

Accounting for Differences in Conversational Routines

How might one account for the systematic differences displayed here as the Algebra Group contended with “Alice’s mayhem” and the Academic Literacy Group confronted an anticipated classroom problem with the

proposed autobiographical essay assignment? Certainly, learning opportunity cannot be realized on the basis of discursive routines alone. In this analysis, we have focused on specific interaction practices, but it was through those practices that the members of a group marshaled other intellectual, social, and material resources. On the basis of evidence developed through ongoing observation and through semistructured interviews with the participating teachers, we account for the observed differences by pointing to three conditions that varied between these two groups and that are evident to greater or lesser degrees in any specific episode of their talk.

Shared Frames of Reference

Both groups expressed ambitious aims for students and embraced responsibility for improvements in curriculum and teaching. However, they differed in the degree to which they made use of shared frames of reference—shared concepts, principles, and terminology—to structure their talk, justify their decisions, and guide their interpretations of classroom-based problems of practice. There is some evidence that the differences were attributable to differences in the groups' histories of participation in and stances toward external professional development.

The Algebra Group had honed a common set of conceptual tools and principles, rooted in shared professional development experiences. The teachers deepened their expertise in mathematics teaching and strengthened their ethical commitments to students through strong network ties with individuals, groups, and professional development events outside the department (Little, 2003b). References to ideas and practices derived from those sources occurred frequently in meetings and interviews, and outside colleagues showed up periodically in the group's weekly meetings or in its more intensive "Algebra Week" event in the summer.

There was less evidence of shared ideas, principles and terminology in the Academic Literacy Group. Although the teachers all conveyed an interest in improved curriculum, they commanded fewer conceptual resources for describing and analyzing problems of practice. The group's experiment with a new curriculum had resulted from a few teachers' participation in a professional development program, but even the participating teachers expressed varying and ambivalent views regarding the specific premises, concepts, and materials associated with that program, and unlike the Algebra Group, they did not have resources for ongoing engagement in these ideas. Altogether, the Academic Literacy Group had more tenuous and less collective connections with external sources of ideas and support and could not be said to share a language and frame of reference for characterizing and working on problems of practice. In the absence of a collective frame of reference, individual perspectives and preferences prevailed, especially when disagreements surfaced (see Little, 2002, for the group's tendency to defer to individual autonomy).¹⁰

Shared frames of reference bound a group's notion of what constitutes situationally relevant, appropriate action and constrain its identification and

interpretation of problems of practice. In this respect, such frames focus collective endeavors but also limit perspective. Thus, one question is how a group such as the Algebra Group retains a degree of openness and mindfulness with regard to alternative frames or, put another way, how it avoids insularity. The nature and range of external ties, cultivated over a period of years, appeared to be a crucial factor in that regard.

Common Curriculum

The two groups differed substantially in the degree to which they taught from a common, coherent curriculum.¹¹ In the Algebra Group, the teachers all made use of an extensive set of curricular resources that they had located, selected, revised, or designed over several years in accordance with agreed-upon criteria and principles. Thus, they were able to situate problems of practice in relation to students' observed or anticipated encounter with a common set of mathematics problems, activities, and instructional materials, all judged to be consistent with the teachers' view of mathematics teaching and learning. As Ball and Cohen (1996, p. 8) envisioned, these materials constituted important "terrain for teachers' learning" (see also Lampert, Boerst, & Graziani, in press, on conceptually coherent instructional archives as a collective resource).

By contrast, the Academic Literacy Group was in an early stage of collaborative curriculum development and an early stage of working out the practical meaning of the instructional goals they professed to share. Although they all spoke of the broad goal of supplying students with metacognitive reading strategies and enhancing students' confidence as readers of academic texts, the teachers found themselves building lessons in part from the stock of materials readily at hand: those derived from the existing ninth grade curriculum, which emphasized writing skills. Pressed to develop activities for the immediate future, they could not take the time to consider how students in different classes had responded to lessons already taught, despite an explicit suggestion from one teacher that they do so. And they worried aloud during meetings about the appropriate balance between their new goals (focused on reading) and the established expectations for ninth grade English (focused on writing). Altogether, the curriculum represented a sizable and urgent task to be accomplished rather than an existing and robust resource to be exploited for teacher learning.

Leadership

The groups differed with regard to the expectations for and observed practices of leadership within the group. Building on the record of a former department chair who was described as "remarkable at building community," the current co-chairs of the math department saw themselves as responsible for maintaining an ethos of professional learning in the Algebra Group. They took a visible role in posing questions, eliciting specific accounts of classroom practice, preserving a focus on both student and teacher

learning, and encouraging initiative of these sorts by others. Their demonstrated patterns of leadership played a large part in directing the group's attention to problems of practice.

Such leadership practice proved less visible, ambitious, or consistent in the Academic Literacy Group. The dominant pattern of teacher leadership in that group (and in the English department more broadly) could be characterized as a division of labor focused on improving curriculum at each of the grade levels. In this regard, it was certainly a more assertive and widely distributed model of leadership than one may observe in many secondary school departments. Yet the division-of-labor arrangement provided only modest support for teachers to learn in and from practice, including the curriculum planning work they had undertaken. Those teachers who took the lead in drafting particular lessons tended toward a "telling" and "showing" (rather than collective deliberation) version of the walk-through routine. In only one instance in the Academic Literacy Group's meetings did the department chair respond to an expressed problem of practice by posing a question or eliciting the kind of detailed replay of classroom experience that was common in the Algebra Group.

Taken together, the Algebra Group had more resources internally and externally to couple problems of practice with the conceptual tools that support teachers' sensemaking. Their conversational routine of normalizing, specifying, revising, and generalizing supported the reconceptualization of practice, but it was buttressed by shared frames of reference, shared curriculum, and strong leadership that supported a particular vision of teaching. Our claim here is not that the Algebra Group's conversational routine can be taken up in isolation as a protocol for other teacher groups but rather that it is, in part, an outgrowth of engagement with a larger set of learning resources.

Conclusion

In this article, we have compared the conversational routines of two collaborative, improvement-oriented teacher groups to specify the interaction processes that help account for differences in professional learning opportunities across groups. Both groups were populated by energetic, competent, committed, thoughtful teachers who took their professional obligations seriously. Yet these groups were found to differ in the opportunities for learning they constructed through the micro-level discourse routines they employed in responding to expressed problems of practice (normalizing and related moves) and the meso-level participation routines they used to organize major parts of their work together (check-in and lesson walk-through). We acknowledge that individual knowledge, skills, experience, and dispositions all constitute part of the resources available to workplace groups and that those may vary within and across groups in potentially consequential ways. Analysis of those variations is beyond the scope of this article. However, we argue that differences in the generativity of the group discourse cannot be attributed to the individual teachers' personal and professional dispositions but should be seen as resulting from each group's collective orientation and its contextual resources and constraints.

We argue that this analysis has implications both for further research on workplace communities of practice and for practical initiatives to introduce “professional learning communities” in schools. First, the analysis indicates that shared dispositions toward improvement may be necessary but not sufficient for collaboration to yield opportunities for professional learning. When considered from the perspective of teachers’ opportunity to learn, the groups demonstrated quite different orientations toward problems of practice and were positioned to marshal quite different resources for engaging such problems when they arose. In part, the groups differed in the room they made for problems of practice in the first place, which was itself a function of the purposes and tasks that brought them together. But given the disclosure of problems of practice, they also differed in whether and how they built on the familiar practice of rendering problems as normal and expected aspects of teaching to deepen their understanding of those problems—and thus differed in the generative potential of their talk together.

Second, the analysis points to the utility of the conversational routine as a conceptual tool for assessing the learning potential that resides in collaborative group interaction. We have conceptualized teachers’ learning opportunities within their professional communities as being achieved in important ways in their conversational routines. The two groups investigated here did not differ appreciably in their orientations toward improvement and their ethos of shared responsibility for student success. Nor did they differ in the time they made available for collaboration during the school year. Yet the groups made different headway on their shared goals, and those differences, we posit, may be explained in part by the nature of the conversations that took place when they came together. The two groups employed routines that differed in the affordances they offered for individual and group learning, in the ways they positioned teachers in relation to problems of practice, and in the degree of agency they signaled in resolving and responding to teaching problems that arose. At the same time, these routines were a concrete manifestation of larger conceptions of their work and resources available for their learning.

To this end, the analysis of conversational routines, while fruitful, remains incomplete absent attention to the combined intellectual, social, and material resources on which teachers are positioned to draw. Although limitations of space precluded an extensive treatment of those conditions here, the two groups differed with regard to three important conditions: the degree to which they could rely on a shared language and frame of reference (derived from ties to external networks and professional development) for interpreting problems of practice, the stage they had reached in the development of a common curriculum reflective of their goals and their views of teaching and learning in their subject area, and the norms and practices of group leadership and initiative on matters of practice.

Research of the past two decades has confirmed the importance of the *collective* capacity of schools (Bryk et al., 2009; Newmann & Wehlage, 1995). In the analysis presented here, a combined focus on routines and resources has permitted close investigation of teachers’ professional interaction and

has enabled us to see how such capacity may differ in consequential ways at the level of meaningful groups (department, grade level) even within the same school. If collective capacity is forged in part by cultivating professional community, then we will benefit from conceptual frames and tools that enable just such close investigation of professional community at the level of practice and over time.

**Appendix:
Transcript Conventions Used in
the Transcript Excerpts**

/	Self-interruption
=	No gap between utterances
(.), (5)	Slight pause, 5-second pause
.	Low fall in intonation
dra:w	Drawn out vowel; one colon equals one beat
?	Rise in intonation
<i>Italics</i>	Speaker emphasis
CAPS	Rise in volume
//]	Beginning of overlapping utterances, end of overlapping utterances
(?), (cow)	Unclear reading, tentative reading
((<i>gesture</i>))	Describes voice qualities, actions, or pauses
[comment]	Researcher's comment added to clarify conversation

Notes

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¹The earliest research in this vein employed the term *collegiality* to characterize a set of workplace norms and practices that included frequent, specific talk about teaching and its improvement (Little, 1982). By the late 1980s, the terms *professional community*, *teacher community*, *teacher learning community*, and *professional learning community* had become common as a way of characterizing collegial relations considered conducive to instructional improvement and school reform. Both researchers and reformers have rightly criticized the loosely metaphorical and often superficial use of such terms—Grossman et al. (2001) wrote bluntly, “The word community has lost its meaning” (p. 942)—but it is also the case that a conceptual and empirical foundation exists that bounds those terms more precisely.

²The ostensive or structural aspect of a routine may be evident in institutionalized classification schemes, formal rules and regulations, and material artifacts such as attendance forms.

³Our focus on group-level routines differs from but potentially complements research on school-level organizational routines intended to shift the ways in which teachers, or teachers and others (administrators, instructional coaches), interact with regard to teaching and learning (e.g., Resnick & Spillane, 2006; Sherer & Spillane, 2009).

⁴The departments were first identified to us by individuals outside the school during the first stages of reputation-based site recruitment, in which we sought recommendations from leaders of reform organizations and professional development providers; the “collective orientations” of these two departments were subsequently confirmed in interviews with department chairs and department members and in ongoing observations.

⁵Immediately after our study, the Algebra Group participated in a classroom-focused study of mathematics teaching and learning conducted by researchers at Stanford University, and we draw on a report of that study for evidence of student outcomes.

⁶In an earlier article on representations of classroom practice, the first author introduced the “face” and “transparency” of classroom representations as conceptual tools for differentiating the learning potential of teacher discourse; she observed that the nature and transparency or specificity of representations was linked in part to the functional context in which the representations were employed and taken up (or not) (Little, 2002). In this article, we extend that analysis to examine the nature of that “take-up” in ways that help further specify collective resources for learning.

⁷Using Wenger’s (1998) framework, the stories replayed in these conversations are a kind of reification of practice. The conversational routine is a form of participation that helps bring meaning to these representations of experience.

⁸Students were asked to “choose one of the following”: “Topic 1: Describe your earliest memory of reading. Be sure that you can fill in the details so that this is a complete piece of writing. If you can barely remember your first reading experience, choose another topic.” “Topic 2: Tell about a time when you felt particularly powerful as a reader. What happened before and during the incident that made you feel powerful? How did your feelings about reading change because of that time?” or “Topic 3: Tell about a time when you had difficulty reading something, either aloud or to yourself. What happened before and during the incident that made you feel less powerful? How does the incident affect you now?”

⁹In aligning herself with Leigh, Lora (participant observer) may have increased the likelihood that the problem would be taken up; however, the overall episode trajectory suggests that Leigh’s persistence appears to account largely, even if not fully, for the take-up, especially since it is the expressed problem of students’ “blanking” to which Karen finally responds.

¹⁰One response to analyses of small-group differences may be to attribute them to congenial (or perhaps compliant) personalities or individual dispositions. Although we do not have personality measures on these teachers, we do have interview accounts of teachers’ individual histories, preferences, commitments, and concerns.

¹¹In this analysis, we focus specifically on curricular resources and do not attribute differences in the groups’ discourse to disciplinary or subject matter affiliation. Such a claim would be vulnerable to disconfirming evidence from other groups in our study and from prior research (e.g., McLaughlin & Talbert, 2001), in which the incidence of “teacher learning community” did not map neatly along subject lines. This is not to deny that there may be ways in which the subject did matter. To the extent that there is agreement within the field about its conceptual architecture and about goals and priorities for secondary teaching, teachers may find it easier to construct a common curriculum and work from a shared frame of reference; in that regard, there may be more agreement about the conceptual architecture of mathematics than English (e.g., Elbow, 1990). However, we posit that it is the localized conception that most likely influences the shape and intensity of teacher discourse about problems of practice. For example, Stodolsky and Grossman (1995) analyzed teachers’ reported perceptions of their subject as more or less defined, sequential, and static, and found that (a) there were variations among departments in the same subject field and (b) the conceptions were associated with variations in curricular activity. We do not have comparable data that would allow us to speak precisely about these dimensions of subject field conception in the Algebra Group and Academic Literacy Group.

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