

Notes for the Conference on Supported Collaborative Teacher Inquiry Conference

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In these notes, we focus on two broad issues that we believe it is important to address when investigating and supporting teacher collaborative inquiry. The two issues emerged in the course of a teacher development experiment (Simon, 2000) conducted over a five-year period in collaboration with a group of middle-school mathematics teachers who worked in an urban district.

Accounting for the Collective Learning of a Teacher Group

The first issue that we found it essential to address is that of developing a framework for analyzing the *collective* learning of the teachers as they collaborated outside the classroom. An interpretive framework of this type documents the evolution of group norms that constitute the immediate social setting of the participating teachers' learning. As a consequence, analyses produced by using such a framework would situate teachers' learning with respect to their participation in collaborative activities.

As a first step in developing a viable framework, my colleagues and I differentiated between a *group* of teachers who meet to work on issues of mutual interest and a professional teaching *community*. Researchers who have collaborated with practicing teachers to support their learning make it clear that a group of teachers who collaborate with each other in some way do not necessarily constitute a community (Franke, Kazemi, Shih, Biagetti, & Battey, 2005; Grossman, Wineburg, & Woolworth, 2001; Krainer, 2003; Nickerson & Moriarty, 2005; Secada & Adajian, 1997; Stein, Silver, & Smith, 1998). Based on a synthesis of the literature on communities of practice, professional communities, and professional teaching communities, we developed the following criteria for differentiating between a teacher group and a professional teaching community:

- *A shared purpose or enterprise* (e.g., ensuring that students come to understand central mathematical ideas while simultaneously performing more than adequately on high stakes assessments of mathematics achievement).
- *A shared repertoire of ways of reasoning with tools and artifacts* that is specific to the enterprise of the community (e.g., normative ways of reasoning with instructional materials and other resources when planning for instruction or using tasks and other resources to make students' mathematical reasoning visible).
- *Norms of mutual engagement* (e.g., general norms of participation and norms that are specific to mathematics teaching such as the standards to which the members of the community hold each other accountable when they justify pedagogical

decisions and judgments).ⁱ

One of our initial goals when we began working with the middle-school teachers was to support the evolution of the teacher group into a professional teaching community. The criteria that we identified imply that the deprivatization of teachers' instructional practices is integral to this transition. Relatively few studies have been conducted that examine either the initial emergence of full-fledged professional teaching communities (Grossman, et al., 2001; Gamoran et al., 2003), or the types of practices established by a professional teaching community and forms of participation in them that support teachers' learning (Wilson & Berne, 1999).

The second step in developing a framework for documenting the learning of a teacher group and its evolution into a professional teaching community was to identify qualitatively distinct types of norms that we anticipated would be relevant based on a review of the literature on teacher learning. The three types of norms that we delineated while preparing for the experiment were 1) norms of general participation, 2) norms of pedagogical reasoning, and 3) norms of mathematical reasoning. Our conjecture that norms of general participation would prove to be important was influenced by Grossman et al.'s (2001) claim that norms of interaction necessarily change as a teacher group evolves from a pseudocommunity into a professional teaching community. In addition, the third criterion that we identified for differentiating between a teacher group and a professional teaching community, mutual engagement, implicated norms of general participation.

Our focus on mutual engagement also constituted a rationale for documenting norms of pedagogical reasoning because this criterion encompasses norms that are specific to mathematics teaching such as the standards to which the members of a teacher group hold each other accountable when they justify pedagogical decisions and judgments. Our decision to analyze the evolution of norms of mathematical reasoning was informed by prior investigations that document the importance of teachers developing a deep understanding of central disciplinary ideas if they are to achieve a substantial instructional agenda by building on their students' reasoning (Ball & Bass, 2000; Bransford, Brown, & Cocking, 2000; Hill, Rowan, & Ball, 2005; Ma, 1999; Shulman, 1986).

The final step in developing the framework was to test the adequacy of the three types of norms in capturing the significant developments that occurred as we worked with the middle-school teachers to support their learning. As Dean's (2005) analysis of the collective learning of the teacher group during the first two years of this collaboration documents, all three types of norms proved to be relevant in this regard. However, as Dean (2005) also documents, we found it necessary to elaborate the framework by including a fourth type of norm that we refer to as norms of institutional reasoning. When we first began working with the teachers, it was normative for the teachers to speak about aspects of the institutional setting as objects of frustration that were beyond their control to change. By the end of our first year of working with them, it had become normative for the teacher to acknowledge the highly privatized nature of their instructional practices, and to account for it terms of the influence of aspects of the institutional setting on their teaching (specifically, frequent drop in visits by school leaders to monitor and regulate their instructional practices). By the end of the second year, it had become normative for the teachers to perceive aspects of the institutional

setting as susceptible to their influence. For example, the teachers' worked to gain access to resources such as time for collaborative instructional planning that they considered essential as they attempted to develop instructional practices that focused on student reasoning. Dean's (2005) analysis indicates that these developments were critical to the de-privatization of the teachers' instructional practices and the evolution the teacher group into a professional teaching community.

It might well be important for other researchers to focus on norms of institutional reasoning given that teaching as collaborative knowledge generation clashes with the institutional constraints of most districts. This is particularly the case in the current era of high stakes accountability given that most districts do not have the capacity to respond productively to accountability demands (Elmore, 2006).

Our analysis of the learning of the middle-school teacher group revealed that the four types of norms did not evolve independently (Dean, 2005). Instead, the evolution of norms of one type created the conditions within the teacher group for the evolution of norms of another type. For example, shifts that occurred in norms of mathematical reasoning appeared to make possible subsequent developments in general norms of participation. In particular, the norm of challenging others' thinking in mathematics discussions did not emerge until it had become normative for the teachers to develop more sophisticated arguments for justifying their mathematical reasoning. As a second example, the fact that the teachers would not allow us to video-record their classroom instruction until we had worked with them for 18 months provides a strong indication of the highly privatized nature of their instructional practices. This privatization and the concomitant norms of institutional reasoning constrained the development of norms of general participation when teachers discussed pedagogical issues during the first year of the experiment.

Relating Teachers' Activity in Professional Development Sessions and in the Classroom

The second issue that we found it essential to address while working with the middle-school teachers was that of developing a viable conceptualization of the relations between the teachers' activity in the professional development sessions and in their classrooms. This challenge is endemic to teacher development experiments that aim to engage teachers in activities in professional development sessions with the goal of supporting their reorganization of their activity in another setting, the classroom (Kazemi & Hubbard, 2008).

Designs for supporting teachers' learning have traditionally focused on equipping teachers with forms of expertise that are conjectured to underpin effective instructional practices. These designs are premised on the assumption that teachers will develop insights as they engage in professional development activities, and then apply them in their classrooms. In such cases, the design conjectures focus primarily on what might be accomplished in the professional development sessions, and the teachers' classrooms are treated as settings in which the outcomes of their learning in the professional sessions can be applied and assessed. The underlying relation between the professional development sessions and the teachers classrooms is therefore primarily uni-directional in nature (Borko, 2004; Clarke & Hollingsworth, 2002).

The design conjectures that we developed while preparing for the design experiment with the middle-school teachers were consistent with the work of a number of researchers who have challenged this uni-directional conceptualization. These researchers' central claim is that professional development activities should be grounded in classroom instructional practice (Ball & Cohen, 1999; Franke, Carpenter, Fennema, Ansell, & Behrend, 1998; Nelson, 1997; Putnam & Borko, 2000; Schifter, 1998). For example, Ball and Cohen (1999) call for teacher development activities to be centered on the use of artifacts that are directly relevant to teachers' classroom practices. This proposal is based on the rationale that teachers' classroom practices constitute a valuable resource on which researchers can draw as they formulate designs for supporting teachers' learning. In this conceptualization, a key criterion for assessing the quality of designs is that of how closely they are tied to the reality of the classroom.

The initial design conjectures that we developed when preparing for the teacher development experiment went beyond the uni-directional conceptualization and reflected the assumption that we could situate professional development activities in the context of teaching by using artifacts that originated in the teachers' classroom. However, events that occurred during the third year of our collaboration with the teachers led us to reconsider this initial assumption. The teachers had deprivatized their instructional practices and the teacher group had evolved into a professional teaching community by this point in our collaboration. Against this background, we engaged the teachers in activities in which they used a common instructional task with their students and then analyzed the resulting student work in the subsequent professional development session. Our rationale for this design decision serves to illustrate our initial conceptualization of the relation between the teachers' activity in the two settings. First, we assumed that students' work is an integral aspect of teachers' instructional practices and conjectured that making it a focus of activity in professional development sessions would enhance the pragmatic value of the sessions for the teachers. Second, we conjectured that the teachers would openly critique and challenge each other's interpretations of student work because teaching was now deprivatized. Finally, we conjectured that open discussions of this type would give rise to opportunities for the teachers to gain insight into the diversity of their students' reasoning that would be useful when they attempted to build on their students' solutions while conducting whole class discussions.

This rationale reflected a conscious effort to draw on the teachers' classroom practices while planning for professional development sessions. However, as Zhao and Cobb (2007) report, our conjectures about the use of student work as a means of supporting the learning of the teacher group proved to be unviable despite detailed preparations. All the teachers seemed to find the activity engaging and discussed their interpretations of the student work openly. Furthermore, most were able to discriminate between students' solutions in terms of level of sophistication. However, it became apparent that none of the teachers viewed this activity as relevant to their classroom instruction. Zhao and Cobb's (2007) analysis indicates that the teachers' primary orientation to the student work was evaluative in that they used it to assess whether the instructional activity had been successful or not. In other words, there was substantial evidence that student work was, for the teachers, a tool for *retrospective assessment* of prior instruction rather than as a resource for the *prospective planning* of future instruction.

This sequence of events led us to reexamine our assumptions about the relations between teachers' activity in the professional development sessions and in their classrooms. In analyzing these events, we came to realize that the ways in which we had assumed that student work would be used in the sessions did not fit with how the teachers used student work in their classrooms. In Wenger's (1998) terms, it was our hope that student work would be a reification of students' current mathematical reasoning that could inform instructional planning in the context of our practices as researchers and teacher educators. In contrast, student work was a reification of the outcome of instruction that was useful for assessment purposes in the context of the teachers' classroom practices.

This insight led us to question our assumption that teachers' learning in professional development sessions and in their classrooms would necessarily be related for the teachers if we organized professional development activities around artifacts that originated in their classrooms. We found Beach's (1999) notion of *consequential transitions* particularly useful as we attempted to rethink the relations between teachers' activity in the two settings. In Beach's terms, transitions between settings occur when teachers shift from engaging in classroom teaching to participating in professional development activities, and vice versa. For Beach, these transitions are consequential if and only if teachers' participation in professional development sessions is oriented towards reworking their classroom practices, and if their classroom teaching constitutes the context in which they make sense of their engagement in professional development activities. This perspective implies that design conjectures should focus not merely on the movement of artifacts between the two settings as was the case in our initial conceptualization. Instead, design conjectures should anticipate the ways in which teachers might use artifacts in professional development sessions given how they use them in their classroom practices. In other words, how an artifact is used in one setting needs to be conceptualized in relation to how it is used in the other setting.

In summary, when we began the teacher development experiment, we assumed that the two-way movement of artifacts between the teachers' classrooms and the professional development sessions would support their learning across the two settings. We assumed that designing the professional development activities around the classroom artifacts would in itself constitute an effective means of situating professional development activities in the context of the teachers' classroom practices. In attempting to understand why design conjectures based on this assumption were unviable, we came to conceptualize the relations between the teachers' activity in the two settings not merely as a two-way movement of physical artifacts but as a *bi-directional* interplay between teachers' *use* of artifacts in professional development sessions and in the classroom.

The bi-directional conceptualization orients us to develop relatively detailed account of collaborating teachers' current instructional practices and, in particular, of the ways in which they use key artifacts in their classrooms. In our view, it is particularly important to document two aspects of teachers' classroom practices. The first concerns the extent to which student reasoning is made visible in the teachers' classroom practices. The second involves identifying issues that are pragmatically relevant to the teachers in the context of their classroom practices and that can be leveraged to achieve the professional development agenda. The overall approach of attempting to understand teachers' current classroom practices and their experiences in the professional

development sessions is consistent with the goal of attempting to achieve this agenda by using their current practices as a resource.

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ⁱ Wenger (1998) proposes an extensive list of characteristics of a community of practice, and Barab, Schatz, and Scheckler (2004) propose eight critical characteristics of on-line communities. Our goal in differentiating between a teacher group and a professional teaching community was to identify the minimum number of characteristics sufficient to make the distinction.