Teachers' Learning about Equitable Practice through Talk with Colleagues

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Abstract: Using insights from the learning sciences, the four papers in this symposium investigate the ways teachers' collegial talk contributes to their learning about equitable instruction. One pair of papers comes from primarily observational studies, investigating how everyday storytelling and facilitation stand to instantiate or challenge teachers' knowing about their diverse students and their instruction. The other pair of papers comes from design-experiments aiming to transform teacher knowledge. These contribute frameworks for understanding teacher learning through discourse. Together, the collection illuminates relationships between teachers' collegial talk and projects of instructional change.

Learning to Teach Equitably

For education to fulfill its democratic function, teachers must effectively engage students from diverse backgrounds and support their learning and development. Such equitable teaching has been pursued by educators for decades and has yielded many well-articulated frameworks and practices. Nonetheless, we see evidence of persistent educational disenfranchisement of students, especially those living in poverty or coming from nondominant cultures.

Why is widespread implementation of equitable teaching so difficult? Scholars often point to longstanding traditions and institutional constraints in teaching (D. Cohen, 2011; Cuban, 1993). In this symposium, we take these conditions as a given but turn our focus onto issues of teacher learning. Frameworks from the learning sciences allow us to contextualize teacher learning within the school as a workplace, opening up new avenues for understanding the obstacles to and possibilities for making equitable teaching more commonplace in US classrooms.

To develop our perspective, we offer two observations about the challenges of teachers' learning equitable instructional practices. First, we note that many well-articulated equitable teaching approaches, such as culturally responsive teaching (Gay, 2010), tapping into children's funds of knowledge (Moll & Gonzalez, 1994), or complex instruction (E. Cohen, 1994) are characterized by teachers' responsiveness to the particularities of their students, making them highly situated forms of instruction. For instance, in Rosebery and colleagues' (2010) account of children learning about heat transfer, the students' key connection to ideas about insulation came from an unexpected fire drill in the dead of winter. After the children huddled to keep warm, the teachers leveraged this incident to build students' understanding. Likewise, Gutierrèz and colleagues (1999) describe a teacher effectively making a "third space" in her classroom by hybridizing home and school discourses to facilitate students' understanding of science concepts. In both examples, teachers work with what students bring to the classroom to enrich their understandings of content. For teachers to competently respond in this way, they need to develop robust pedagogical judgment. In the moment-to-moment of instruction, pedagogical judgment presses on teachers to weigh social, individual, and content concerns, trying to optimize them in their decision-making with the dual goals of inclusion and learning (Lampert, 2001).

Our second observation is that widely available forms of pre-service and inservice education are highly acontextual, focusing on developing general knowledge for teaching that applies across teaching situations rather than cultivating the kind of judgment described in these prior examples. Zeichner (2010) has described typical teacher education as using a default *acquire-apply pedagogy*, where teachers "get" theory in courses and "apply" it in the field. In this approach, the underlying conception of professional knowledge can be likened to an appliance: instructional ideas can be plugged in and "work," regardless of the settings in which they operate. Thus, our primary mode of educating teachers is ill suited to developing the responsive practices equitable teaching demands.

If we have a mismatch between pedagogies and knowledge in teacher education, what are we, as a field, to do if we want to enfranchise more students in our schools? In this symposium, we aim to make progress on this question in two ways. First, we bring together papers from four different studies examining teachers' learning in contexts that are pressing for more equitable outcomes. We will identify the contributions of these analyses to our understanding of teachers' situative reasoning. All of the papers use teachers' talk as a primary data source and a window into sensemaking, identifying different ways collegial interactions contribute to

pedagogical reasoning. Two of the studies (Yoon, Kane) were primarily observational, looking at how teachers draw on workplace resources to understand issues of teaching. The second two studies (Bannister, van Es and Hand) took place within professional development projects aiming to develop teachers' knowledge of equitable practices. As a collection, these papers identify existing teacher discourses around issues of equity and point to possible avenues for shifting those discourses. By analyzing the affordances and obstacles for teachers' learning about equitable teaching, we can better understand how teachers come to develop these practices and support the democratic goals of public education.

Prior Work: Colleagues as Resources for Teachers' Situative Sensemaking

As sociological studies of education have long shown, colleagues are one of the most salient resources for teachers' learning (Little, 1990; Siskin, 1994; Stodolsky & Grossman, 2000). What makes sense and seems "do-able" in the classroom is, in part, a reflection of workplace norms, which get negotiated with other teachers. In fact, schools and departments that demonstrate more equitable student achievement have in common that teachers take collective responsibility for student learning, signaling the role of colleagues in equitable teaching (Bryk et al., 2002; V. Lee & Smith, 1996)

Using these insights as a point of departure, Ilana Horn, the organizer of this symposium, has spent over a decade researching teachers' collegial learning by examining pedagogical reasoning in teachers' conversations. Some key findings of this work are relevant to the implementation of equitable teaching, including:

1. Teachers' collegial conversations are *asynchronous* from the interactive work of instruction. When teachers talk about instruction, they typically do so prospectively (planning) or retrospectively (debriefing) (Hall & Horn, 2012; Horn, 2010; Horn & Kane, 2012).
2. The intersubjectivity achieved through collegial conversations is constrained by a dearth of professional language (Dreeben, 2005; Hall & Horn, 2012). Teachers fill this gap through *representations of teaching* (Horn, 2005; Little, 2003), such as artifacts of practice like textbooks or student work, or through conversational representations of classroom interactions.
3. Local teacher cultures promote *epistemic stances* on the work, which, in turn, support some framings of teaching problems over others. Together, epistemic stances and frames shape pedagogical reasoning and "common sense" teaching choices (Hall & Horn, 2012; Horn, 2007; Horn & Little 2010)

Together, these three findings provide a basis for understanding how collegial conversations operate as a resource for teachers' sensemaking about equitable teaching practices. At the very least, they point to the limited horizon of observation (Hutchins, 1995) on instruction available to teachers, which compounds the difficulties of sharing highly situative instructional practices. Adding to their limited learning affordances, collegial conversations often provides emotional support for teachers, but norms of privacy provide few means for pushing back on taken-as-shared ways of viewing pedagogical problems (Horn & Little, 2010; Little, 1990).

Overview of Papers

These four papers deepen our understanding of how colleagues contribute to teachers' sensemaking about their work. The studies concern teachers in urban schools and raise questions about how teachers might come to teach more equitably in these settings. The distinctions among the studies are generative for discussion, as they each approach the issue of sensemaking with colleagues in different settings, at different grade levels, and using different grain sizes for analyses. At the same time, there is enough in common to support comparison: they all focus on discursive methods for understanding the contribution of colleagues to teachers' situated sensemaking. There is a balance in this collection between teachers' discourse as it typically unfolds to reinstate existing conceptions (Yoon, Kane) and discourse as it might be engineered to probe and extend to ways enrich them (Bannister, van Es and Hand).

As a whole, these studies help specify our understanding of teacher learning. Instead of viewing professional development as effective or ineffective, these analyses point to:

1. The interactional details that are consequential for learning (Yoon's critical discourse analysis of teachers' storytelling; Kane's analysis of expertise and facilitation; Bannister's frame analysis);
2. What learning might look like at the level of teachers' talk (Bannister's frame shifting; van Es & Hand's noticing)
3. How rich representations of practice stand to deepen the understandings of already accomplished teachers (van Es & Hand's video club).

The 90-minute symposium will consist of three 15-minute paper presentations, 15 minutes of commentary from our discussant, leaving 15 minutes for audience interaction.

Trading Stories: Middle-Class White Women Teachers and the Creation of Narratives about Students and Families in a Diverse Elementary School

Irene Yoon, University of Utah

In the hallway, in the staff lounge, and in team meetings, teachers tell stories about their day and their students. Starting from this common occurrence, this paper examines collective storytelling in teacher communities in a racially and socioeconomically diverse elementary school that I call Fields Elementary.

The narrative progression of a group conversation has the potential to limit or stretch the boundaries of professional learning and the development of shared meaning. An *intersectionality perspective* on middle-class White womanhood affords the tools to interpret storytelling as the central vehicle for creating meaning in the teacher community in this paper.

In order to examine storytelling among a group of middle-class, White teachers at Fields Elementary, I ask: first, what are the narrative tropes that these middle-class White women teachers draw upon to create common language or understanding about what it means to teach at their school, and how does this narrative unfold? Second, in what ways does a normative middle-class White culture, specifically related to White womanhood, achieve ideological projects through the ways in which teachers participate in collective storytelling in professional communities? A critical discourse analysis provides insight into these questions.

Study Context

The analysis and data presented in this paper come from a larger qualitative case study conducted using ethnographic data collection strategies for roughly five months. I immersed myself in Fields Elementary, a racially and ethnically diverse elementary school where approximately 40% of the students are English Learners. 73% of the students at Fields qualify for free and reduced-price lunch, and Fields also experiences approximately 50% student mobility each year. The Fields faculty is predominantly White and female, as well as middle-class.

Fields's teachers have structured opportunities to collaborate. The conversation that is the focus of this paper occurs in the second-grade teacher community. All teachers on the team are White, middle-class women with varying years of teaching experience. I was not a participant in the study; I interacted with teachers and students, but tried to be unobtrusive. In the paper I discuss my experiences as a middle-class Asian American woman researcher at Fields and as the only person of color in the room during this conversation.

Data Sources and Methods of Inquiry

The teacher conversation presented in this paper comes from an audio recording of a formal teacher community meeting of the second-grade team at Fields Elementary, during which I also took scripted fieldnotes. These fieldnotes capture interactions nearly word-for-word and include gestural details filled-in immediately after observation (Emerson et al., 1995). Transcription of the conversation was first completed for verbal content, with a second round to notate non-verbal participation, such as pauses, sighs, laughter, or people talking over each other (Gee, 2005; Mazzei, 2004).

Discourse, as an instantiation of power, contributes to ideological projects, even if unintended or unconscious (Fairclough, 2001; Gee, 2005). The data were analyzed with a critical discourse analysis (CDA) of one team conversation. CDA examines language use to reveal and understand power dynamics, sociohistorical contexts, and meanings of speech and action in relation to social structure (Fairclough, 2001; Gee, 2005). In this analysis I adopt Fairclough's guidance that CDA include "*description* of text, *interpretation* of the relationship between text and interaction, and *explanation* of the relationship between interaction and social context" (p. 91).

Illustrative Findings about Teachers' Learning

In this paper, storytelling is an activity of learning and socialization in professional communities. These narratives reflect the values and epistemology of the middle-class White women teachers—ways of seeing the world, and of defining knowledge and practice (Banks, 1998; Collins, 2009; Harding, 1993; Lightfoot, 1978). That is, race, social class, and gender are social locations that are both sources and production sites of meaning in this teacher community.

The conversation in this paper begins with sharing concerns related to students' histories of academic achievement, and many of the stories reflect some level of concern for students' physical, academic, and social-emotional wellbeing. However, stories also reproduce White, middle-class, deficit-based stereotypes about the morality and childrearing of people living in poverty and people of color. The discourse about parenting implies authority on motherhood among the middle-class White women teachers, particularly in the case of students' fathers, who behave like children themselves.

The collective narrative progression is central to this story; turn-taking, use of pronouns, and patterns of participation (including silence) contribute to meaning, information, and potential resources for the group's learning and identity (Duncan, 2004; Engeström, 1987; Horn, 2007; Mawhinney, 2008; Mazzei, 2008; Scott,

1991; Wenger, 1998). That is, these stories provide knowledge resources for middle-class, White women teachers to make generalized conclusions about what it means to teach at Fields. The knowledge resources are grounded in an ideological context of middle-class White womanhood. Four ideological projects accomplished by this example of trading stories include: 1) establishing social and moral distance; 2) constructing colormuteness as White middle-class morality; 3) decontextualizing institutional constraints on teaching at Fields Elementary; and 4) defining boundaries and identity of middle-class White womanhood.

Implications for Teachers' Learning

Teachers, particularly elementary-level teachers who are with their students for a full day, know intimate details about their students' lives. Though trading stories is an informal part of professional collaboration, it comprises substantive moments for teacher learning and professionalization because the stories define the conditions and meaning of teachers' work and experiences in racialized, classed, and gendered terms. The kind of learning observed in this conversation is the generation of what Engeström (2007) calls "stabilization knowledge," or sharing information that secures, rather than expands, boundaries around how work and identity are envisioned.

The focus on the collective process of the storytelling is essential: the narratives and participation that reproduce middle-class White womanhood are constitutive elements of teacher learning. Resulting group dynamics shut down equity commitments, such that teachers as a group permit the painting of students and families in broad, demeaning strokes.

Finally, it is noted that the teachers at Fields do not address institutional constraints in their stories. Stories about individual merit and moral standing echo the liberalism of Whiteness and middle-class ethics that avoid institutional critique (S. Lee, 2005). In this way, a colormute middle-class White womanhood becomes the ideological and moral lens for professional learning, while the stories also reflexively create the teachers and their identities as moralized, racialized, gendered, and classed subjects. Challenging these everyday discourses has significance for teachers' identities, students' experiences, school-family relationships, and the larger goal of equitable education.

Facilitators' Expertise and Teachers' Opportunities for Learning

Britnie Delinger Kane, Vanderbilt University

Because a host of studies note a relationship between teachers' collaborative work and school improvement (e.g., Langer, 2000; McLaughlin and Talbert, 2001), school districts are beginning to institute time for teachers to collaborate. Yet not all collaborative groups are equally generative for teachers' professional learning (Horn and Little, 2010), and the mechanisms for how teachers' collaboration can support school improvement are not well understood. Recognizing this problem, many schools have placed facilitators on collaborative teams (McLaughlin and Talbert, 2006; Parr and Timperley, 2010). However, this only pushes the issue downstream: facilitation itself is not well understood in relation to teachers' learning. It seems sensible, though, that the present of a more expert other might engender richer learning (Frank, Zhao & Borman, 2004). A more situated account of how expertise is accomplished and tapped into in interaction requires a closer look at this idea.

Research Question and Conceptual Frame

This analysis focuses on how facilitators' expertise contributes to teachers' learning. Using sociocultural frameworks, I assume that facilitation is an interactional accomplishment in and through the resources that group members leverage in their collaborative work. In turn, the way facilitators accomplish this work will influence teachers' opportunities to learn about instruction. Representations of practice are one important resource for teachers' conversational learning, particularly when they highlight relationships among students, teaching, and content (Horn and Kane, 2012). To understand facilitators' role in supporting opportunities to learn, we can thus examine how their contributions develop the collective representation of practice. For instance, facilitators can ask probing questions and press for elaboration; alternatively, they can bypass such details and focus more on work completion in the group. One might expect facilitators' expertise to shape the nature of their press in conversation. In this paper, I explore this notion by investigating the relationship between expertise and teachers' opportunities to learn.

Study Context

This analysis comes from a larger, two-year study in two urban school districts focusing on instructional improvement in middle school mathematics. Within that larger study, our research team has focused on a subset of schools that district and school personnel identified as sites of strong math teacher collaboration. The primary data for this analysis are a year's worth of interview and video data from teacher collaborative groups at Magnolia Middle School and Aspen Middle School, both located in the same district. Both schools were under strong pressure to meet state achievement benchmarks because of previous failure to do so. Institutional press for more equitable student outcomes often came up in teachers' conversations. The group at Aspen had no

sanctioned facilitator and no official leader. At Magnolia Middle, on the other hand, bureaucratically appointed facilitators were in abundance: an assistant principal (and former district-level math coach), a state department of education math coach, and a school-based math coach attended. Despite the differences in role, both facilitators had expertise in mathematics teaching according to our studies measures (described below).

Analytic Methods

To understand the influence of expertise on facilitation and teachers' opportunities to learn, I use discourse and interaction analysis, as well as grounded theory, to analyze video and interview data (Strauss and Corbin, 1998). Specifically, since collaborative work is accomplished asynchronously from instruction, we know that representations of practice can be a resource for teachers' learning (Horn and Little, 2010; Little, 2003), Thus, I used grounded theory to code group members' contributions according to what aspects of practice they represented. I also coded questions according to the types of representations of practice they supported. This data set and method highlighted connections across facilitators' conversational processes, their pedagogical and mathematical expertise, and the larger contexts in which workgroups collaborated, in order to better understand teachers' opportunities for learning.

Findings

Preliminary analyses reveal that, in collaborative workgroups, facilitators (emergent or appointed) and activity structures influence how teachers represent the classroom; these, in turn, affect teachers' opportunities to learn. At Aspen Middle School, the collaborative group did not have an appointed facilitator. However, an emergent facilitator emerged, and, according to our study's VHQMI and VSMC measures, she was, in fact, more expert than her colleagues. Perhaps more important than the study's measures, her colleagues ratified her as expert in their interaction. In this way, she emergently took on a facilitative role, as when she frequently asked, "What else do we need to do today?" If expertise alone led to rich learning opportunities, we might expect her presence to support conversations in this direction. However, conversations were also shaped by activity structures. At Aspen, the default collaborative activity *planning-as-pacing*. In this way, facilitation amounted to more than the presence of one expert; instead, it was accomplished through the emergent facilitator and the dominant activity structures, which, together, shaped teachers' opportunities to learn. The resulting conversations represented classroom practice in generic ways, focusing on classroom management and content coverage. On the whole, the richer representations of practice connecting particular details of students, content, and teaching did not emerge, thus providing teachers little traction on developing situated and responsive instruction.

By contrast, at Magnolia Middle, an official facilitator and a different dominant activity structure allowed richer representations of practice to emerge. For instance, a common activity was looking at student work. During these conversations, the group discussed how teachers might teach mathematical content in light of the group's analysis of these representations of practice. Combined with a highly expert coach, this activity structure supported rich representations of practice that honed in on the interactional details that would support responsive teaching. The facilitator frequently her expertise to model discourse that directly reflected teacher-student interaction. Through such representation and analysis of classroom practice, the combination of activity and facilitator supported teachers' opportunities to learn about responsive instruction through their collaborative work.

Implications for Teachers' Learning

Facilitating learning in teacher workgroups requires more than the presence of expertise within the group. The details of how that expertise manifests in interaction matters for teachers' opportunities to learn. Both Aspen and Magnolia had experts present in their groups. The dominant activities at each school were not inherently richer with learning opportunities: we have seen rich versions of planning and anemic instantiations of looking at student work. Instead, using these two case studies as examplars, I argue that the activities get animated by how facilitators use their expertise. At Aspen, the activity structures and emergent facilitator led her to emphasize the management of group processes with an efficiency logic; their joint work got their planning done. At Magnolia, the activity structures and positioning of the coach led her to push on co-constructing specific representations of the classroom: she modeled the discursive practices teachers need in order to talk — and learn — about their practice in sophisticated ways. Opportunities for teachers' learning in workgroups, then, are not simply the consequence of the presence of expertise. The expertise stands to animate activities in ways that may or may not support resources for teachers' learning.

Capturing Teachers' Learning Through Their Framing of a Struggling Student Problem

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Research Question and Conceptual Frame

Empirical examples of teachers' development of equitable teaching practices within a community are few in number (Levine, 2010; Little, 2003). I take up this issue in my study by applying concepts from frame analysis (Goffman, 1974; Benford & Snow, 2000; Snow & Benford, 1988) to the trajectory of teachers' participation (Levine, 2010; Wenger, 1998) in a collaborative planning group. By tracing the evolution of teachers' frames over time, I analyze collective learning inside a teacher community. Specifically, I examine the shifts in teachers' framing of one pedagogical problem — the struggling student problem — over time.

Study Context

This research took place in the context of a larger project, *Adaptive Professional Development for High School Mathematics Teachers,* a longitudinal design-experiment project. Clark High School, a diverse, large, urban comprehensive high school in a large school district in the northwestern US, was a partner in this work. During the 2004-2005 academic year, I followed the progress of the five-member *Freshman Team* at Clark, a collaborative planning team composed of all ninth-grade college preparatory mathematics teachers. With support from our project, teachers had a daily common planning period that they used to make sense of issues related to teaching and curriculum. In response to a student failure crisis the previous year, the teachers were, by their own volition, transitioning towards equitable teaching practices and newly implementing a rich curriculum.

Analytic Methods

To document the teachers' collaborative talk, I collected 35 records of Freshman Team meetings over the course of the school year. The majority (31 out of 35) of these came from their weekly two-hour long meetings, the time when the teachers reported doing their deepest talking and thinking together. Of the 35 meeting records, 26 had fieldnote records and 32 meetings had audio records, with many meetings have both kinds of records available.

To understand how teachers' conversations changed as they worked toward more equitable teaching practices, I analyzed the meeting records. My analysis began with a data reduction, filtering the data set into *episodes of pedagogical reasoning* (EPRs) (Horn, 2005) related to the struggling student problem. Next, I selected representative episodes for more in-depth analysis. Finally, four episodes from October 2005, January 2006, March 2006, and May 2006 were selected for fine-grained re-transcription and analysis because they contained extended talk about the struggling student problem. When these episodes were taken together, they constituted a coherent narrative about the teachers' developing ideas about struggling students.

As a part of the close analysis, I coded these episodes for core framing tasks identified by Snow and Benford (1988) to help identify how teachers framed the struggling student problem in context of their equity-oriented reforms. Specifically, I looked for (a) *diagnostic frames* to understand how teachers conceptualized the struggling student problem; (b) *prognostic frames* to understand how teachers conceptualized interventions related to the struggling student problem; and (c) *motivational frames* to understand how teachers made a case for their framing.

Findings

Over the course of the four episodes, the teachers' framing about *struggling students* shifted from fixed student characteristics to framings that provided the possibility of instructional response. For instance, in one of the early meetings, a teacher explains a struggling student this way:

> I have the kid [Taylor] who is really flaky and doesn't know what's going on and is starting to annoy the rest of the group. So that's a really struggling kid and so they're starting to opt out.
> (*Rose, 10/6/2005*)

By focusing on Taylor's "flakiness," there is little the teacher can do instructionally to help the student be successful in her math class. Other similar language appeared in these early meetings, such as students "choosing to fail," another frame with very little instructional possibility.

In contrast, during the May meeting, frames emerged that focused more on classroom-based instructional responses, such as making exceptions for kids who understand the content despite failure:

> He's not doing well now, but Taylor is so smart! And so here I am at the end of the year and I'm thinking, "Why would I put him back in Math 1?"… Because he obviously understands stuff. … So I think there are some kids we need to look at a little differently … there are some

kids maybe we shouldn't really keep back, 'cuz then we're really sentencing them to not ever
be able…to come out of that.   (*Rose, 5/25/2006*)

In this excerpt, we hear the same teacher (Rose) talking about the same student (Taylor) but in terms that recognize his competence ("so smart!"). The evolution of the teachers' framing reflects a growing collective awareness that achievement and ability are related but not synonymous. This is reflected throughout the data.

Implications for Teachers' Learning
In terms of teachers' learning about equitable teaching, another aspect of the frame shift is worth noting. The earlier frames place the onus for achievement primarily on the students, while the latter provide teachers a means for action. As such, the teachers' frames became more nuanced in their representation of mathematical competence, disentangling issues of ability from school-savvy. By conceptualizing in their own talk ways to be responsive, the groundwork is laid for them to engage in equitable teaching practices. In this study, we found that teachers' frames shifted from less agentic to more agentic ways of understanding problems of practice as co-occurring with development of more equitable teaching practices.

This study contributes a way of operationalizing teachers' collective learning through its use of frame analysis, evidenced by how teachers negotiated and framed problems of practice over time. Looking at other teacher groups in the study, it seems that their changes in participation patterns also mirrored changes in their collective framing practices over time. Tracking frames offers a productive method for analyzing learning within teacher community.

Using Video to Collaboratively Examine Equitable Secondary Mathematics Teaching

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Research Question and Conceptual Frame
It is well documented that students who have experienced disparities in the opportunities afforded to them through the educational system consistently underperform in mathematics compared to their peers (Ball & Moses, 2009; NCES, 2005). Mathematics education research has made important progress in identifying instructional approaches that can strengthen learning opportunities for diverse student populations (see Nasir, Hand, & Taylor, 2008). Less is known, however, about how teachers come to engage in this complicated work *while* teaching.

Research on teacher noticing for ambitious mathematics teaching and learning has begun to articulate patterns in the ways that teachers attend to and reason about noteworthy features of mathematics classrooms (Sherin, Jacobs, & Philipp, 2010). This focus on teacher noticing is spurred by empirical research that demonstrates the link between teachers' ability to perceive and make sense of student thinking during instruction and their success in enacting cognitively demanding mathematics tasks during instruction (Erickson, 2011). We draw on the construct of teacher noticing to examine how teachers attend to and reason about classroom features that influence equitable learning for non-dominant groups. We also consider how a video club setting (Sherin, 2000) can become a context for teachers to learn about equitable mathematics teaching.

Our work is also informed by recent research that suggests that a shortcoming of research on teaching and teacher education is the lack of a shared language and knowledge base for describing and characterizing teaching practice (Grossman & McDonald, 2008; Hiebert, Gallimore, & Stigler, 2002). Progress has been made in the last decade to decompose ambitious pedagogy in several disciplines (Grossman et al., 2009; Thompson, Windschitl, & Braaten, 2013). This study contributes to this body of work by documenting similarities and differences in the ways that exceptional equitable mathematics teachers talk about their noticing in practice, with a particular focus on the features of classrooms that teachers attend to for achieving equity in their classrooms.

Study Context
Six exceptional secondary mathematics teachers (from two large urban regions in the US) participated in the study over the course of one school year. District-level administrators and university-based teacher educators whose work focuses on improving mathematics teaching and learning with students from non-dominant backgrounds nominated these individuals because of their record of exceptional success teaching students from a range of ethnic, racial and linguistic backgrounds in their schools and districts. We conducted 10-15 observations in each teacher's classroom and videotaped a subset of these lessons. We also conducted a series of interviews where we asked the teachers to view selected segments from their own and other teachers' classrooms and to discuss what they noticed. We view their ways of noticing as a window into their dispositions as equitable mathematics teachers. Finally, we brought a subset of these teachers together in a video club

meeting to view selected segments from each other's teaching to document what they identify in each other's practices.

Analytic Methods

For this paper, we analyze video data and field notes from the video club meeting to understand how this context can become a fruitful setting for teachers to develop more robust understandings of and a shared language for talking about equitable mathematics teaching practice.

Data analysis is qualitative in nature. To understand how the video club setting can become a context for teacher learning of equitable mathematics practice, we drew first on analyses of the individual teacher data. We reviewed the classroom observation and interview data to construct profiles of the three teachers who participated in the video club meeting. Our analysis was informed by Hand's (2012) framework that consists of three categories for the ways teachers support nondominant students in "taking up space" in inquiry-based classrooms: promoting dialogic space, blurring distinctions, and reframing the system. We used this analysis to inform our interpretation of the teachers' dispositions toward equitable mathematics teaching. We then viewed the video club meeting data and examined how the teachers' dispositions arose in their conversations, what language they used to describe and characterize what they noticed while viewing clips from each other's classrooms and how this context provided them opportunities to develop more robust visions of equitable mathematics teaching.

Findings

Our first finding is that the three teachers have qualitatively different dispositions toward equitable mathematics teaching. One teachers' noticing can be characterized as mathematically oriented. He attended to students' mathematical thinking, their relationship to the mathematics and the ways they see themselves as successful mathematics learners. Another teacher's noticing can be described as student oriented. That is, he attended to their personal histories, lives and experiences and considered how these afforded or constrained their opportunities to learn in the classroom. And finally, the third teachers' noticing for equitable teaching can be categorized as developing student autonomy with mathematics. That is, he attended to ways students drew on another's thinking to develop their understandings and how the curriculum mediated their abilities to become autonomous math learners through collaborative work with each other.

Analysis of the video club meeting suggests that bringing teachers together can provide them with opportunities to develop more robust visions of equitable mathematics teaching. While all three teachers were considered exceptional equitable teachers, each exemplified different dimensions of the Hand (2012) framework. Thus, by viewing video of noticing for equitable learning as they arose in their teaching and then talking about together about their teaching, the teachers could come to see the multi-faceted nature of teaching practices for equitable learning. For example, when the group viewed clips from the "student oriented" teacher's classrooms, they saw him noticing disruptive behavior (e.g. student beat boxing in class) and then using that students' behavior to represent the mathematics they were learning, in this case rates of change. In this case, the teacher who is more "mathematically oriented" could see ways of *promoting dialogic space* and *reframing the classroom system* in ways that draw on students' ways of knowing and doing to create rich opportunities to access and learn the mathematics. Likewise, by watching videos from the other teachers' classrooms, this same teacher could begin to see ways that mathematically rich tasks can afford opportunities for deeper mathematical thinking and ways that teachers' interactions with students can *blur distinctions* to promote a range of participation structures and ways of representing mathematics.

Implications for Teachers' Learning

This study suggests that video of teaching practice can provide not only insight into noticing equitable mathematics practice, but also ways that teachers can collaborate to learn about equitable teaching from one another. The findings of this work have implications for the design of professional development for supporting teachers in adopting more equitable dispositions to mathematics teaching and learning.

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