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

Doctor of Philosophy

In

Education

in the

Graduate Division

of the

University of California, Berkeley

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Summer 2018

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by

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Abstract

Learning Together: Investigating Possibilities for Mathematics Teachers’ 
Equity-Focused Learning Through Coaching

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Developing ambitious and equitable mathematics teaching involves recognizing and working against fundamentally inequitable hierarchies that pervade the dominant culture of US schools. To engage in this sizeable undertaking, teachers need ongoing, work-embedded opportunities for learning and thought partners with whom to do it. Instructional coaching is increasingly employed as a strategy to support improvement in mathematics teaching, but little is known about how coaching can function to support this the kind of teacher learning required for the development of more ambitious and equitable math classrooms. Moreover, in much research on teacher learning, and almost all research on coaching, learning itself is either underspecified or narrowly articulated, and goals for teacher learning leave out equity.

This dissertation introduces and operationalizes a multi-strand framework for transformative teacher learning toward ambitious and equitable teaching (in short, TTL), and employs it to investigate possibilities for coaching to support this learning. Interactions between two middle school math teachers and their coach were observed and recorded and surveys and interviews were conducted. Close examination of the work of these two teacher-coach pairs yield findings with implications for the research and practice of equity-focused coaching.

All strands of learning were found to support the others, and when barriers existed in individual strands, their consequences were broadly evident. One teacher engaged in learning along all strands, coming, in her own words, to be “wowed” by her students’ mathematical thinking. This story of learning involved making new meaning of students, mathematics, and teaching; coming to engage deeply in coaching; co-participating with the coach in risky, new classroom practice; developing an articulated vision of powerful teaching; coming to identify as competent with respect to that vision; and developing joint engagement with the coach. One teacher experienced challenging power and positioning with respect to her coach, and this arrangement inhibited all strands of her TTL. When power was renegotiated and new positions established, opportunities for each aspect of TTL were newly available. In both cases, learning was found to be afforded and constrained by frames for coaching, and the joint accomplishment of productive reframing was found to involve opportunities for participation that is inconsistent with extant, less productive frames.
Findings support articulation of some aspects of powerful coaching, as well as challenges that coaches must navigate. Three broad and interrelated coaching practices were found to support TTL: (1) working from the premise, made explicit in talk, that each student is mathematically smart; (2) naming and building from teachers’ strengths related to ambitious and equitable teaching; and (3) interrogating mathematical content. However, as TTL was found to be mediated by power and cultural frames for coaching, these practices alone were insufficient. Coaching toward TTL was found to necessitate attention to issues of culture, power, and framing that mediate teachers’ experiences in coaching interactions. These findings have implications for the preparation and support of coaches and the design of coaching programs intended to support teacher learning toward ambitious and equitable teaching.
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Acknowledgements

I am fortunate to have been surrounded by dedicated, thoughtful, smart, and generous people, who have lent me their intellectual support, friendship, and love, each of which were essential for my engagement with this research.

I would like to thank my advisor, Alan Schoenfeld, from whom I have learned about research, writing, and myself. I am grateful for his steadfast support and his desire that I find and do the work that matters to me. Under his watch, I had the space and freedom to become a researcher. He has provided a model of mentorship that I will treasure and draw from throughout my career.

Thank you to Judith Warren Little for the conversations that pushed and supported me, reminding me that there are new connections to be made, new questions to ask, and always more to learn.

I am grateful to Randi Engle, who welcomed me into her professional world at the end of her life, and invited me to teach, think, and learn beside her.

I would like to thank Aki Murata, Geoff Saxe, Michelle Wilkerson, and Andy diSessa, who each shared their time, perspectives, and mentorship with me beyond any call of duty.

Many, many thanks go to my writing and thought partners Mallika Scott, Erin Palmer, Nicole Louie, Niral Shah, and Sepehr Vakil. With them, I continue to rediscover that we are always smarter together.

I am indebted to the educators and coaches who opened their practice to me, providing me with rich opportunities to learn, including Lisa Jilk, Karen O’Connell, Ho Nguyen, Angela Torres, Kristina Dance, and particularly to Kamilah and Heather.

I have been privileged to learn about teaching, students, math, and equity from Leslie Dietiker, Judy Kysh, Barbara Shreve, Carlos Cabana, Estelle Woodbury, and Rachel Lotan.

For their research assistance, I thank Xiao Zhao, Alma Vazquez, Dora Medrano Ramos, Kate Anderson, Pahul Singh, Elizabeth Ramirez, and Allison Waller.

I would like to acknowledge the sources of funding that have supported my research, including the National Science Foundation, the Institute of Education Sciences, College Preparatory Mathematics, and the Eugene Cota Robles Fellowship program.

Lastly, I thank Renard and Aria, whose love and sweetness lighten my days.
Chapter 1
Introduction

1.1 Introducing the Dissertation

Imagine a classroom in which students of various skin tones, hair textures, and access to wealth and privilege engage together each day with rich, challenging mathematics. They explore, question, hypothesize, conclude, justify, and represent ideas in multiple ways. They make connections across representations and content areas, discovering and building deep and connected understandings of mathematics. They see themselves and are seen by others as “smart” mathematical thinkers and learners.

Some teachers, schools, and districts are working toward this vision of excellent and equitable instruction, hoping to make classrooms like this one typical, rather than the rare exceptions documented in the literature (e.g. "Railside High School" in Boaler, 2008; Nasir, Cabana, Shreve, Woodbury, & Louie, 2014). In these districts, schools, and classrooms, communities are being crafted to support powerful experiences for all students. Teachers are being supported to examine and dismantle patterns of social inequality that serve as barriers to learning for many students.

Such teaching is complex and contingent\(^1\). There is no list of “best practices” that, once mastered, will reliably result in equitable and excellent classrooms. Teachers’ learning toward such a vision involves more than coming to know more content or getting better at a particular skill. It involves working against cultural “common sense” notions of mathematics and intelligence as exclusive and hierarchical to construct math communities in which each student’s “smartness” is assumed, recognized, and expanded. It involves learning to engage with complexity and contingency and to continually adapt and revise classroom practice. It involves the formation and maintenance of relationships and communities of educators that foster creativity and collaboration, taking on the challenges of such teaching together.

The cultural surrounds of US education do not support development of the kinds of work or the kinds of teaching outlined above. American schools are organized to classify, categorize, and sort students, not to invite them, as their whole, authentic selves, to engage together to investigate mathematics (McDermott, Goldman, & Varenne, 2006). Broadly accepted notions of mathematics and intelligence which are narrow, hierarchical, and fundamentally racist and classist support our American obsession with standardized measures of student achievement and other simplistic one-size-fits-all measures of teacher and student success. These measures, in turn, feed into hierarchical narratives, supporting teachers to understand some students as “gifted” and others as “slow,” breathing life into systems that increasingly frame students as labels (EL, IEP, gifted, struggling, at-risk, high, low, etc.) more than humans. The egg crate organization (Lortie, 1975) of schools and the ubiquitous notion of “hero” teachers (Ayers, 2000) cast teachers as masters of their private domains, discouraging the kinds of collegiality and collaboration that matter for teachers to take up and sustain challenging teaching (Grossman, Wineburg, & Woolworth, 2001; Little, 1982; McLaughlin & Talbert, 2001). Teachers are asked to wear many hats—acting as therapists, social workers, administrators, ambassadors of ever-evolving district initiatives, etc.—consuming time and energy that becomes unavailable for ambitious, reflective, or collaborative work.

\(^1\) One could certainly argue that all teaching is complex and contingent, to varying degrees and in various ways.
Many investigations of teacher learning lack articulated goals for learning or conceptions of learning. Those goals that are articulated for teacher learning tend to focus on a single kind of outcome (Borko, 2004), for example teachers’ gaining mathematical knowledge for teaching (e.g. Hill & Ball, 2004) or getting better at noticing students’ mathematical thinking (e.g. van Es & Sherin, 2008). Studies of teacher learning tend to ask whether experiences or interventions of focus supported teachers to know more or to get better at a defined set of things. Although these outcomes are often aspects of ambitious teaching that matter, narrow foci do not illuminate connections among various processes and outcomes of teacher learning, leaving us with partial—and often disconnected—pieces of the puzzle. Moreover, research focused on interventions and outcomes often does little to support our understanding of how interventions support learning, leaving teachers’ actual interactions within them hidden. This dissertation tries to unpack some of the complexity of ambitious teacher learning and of interactions that can support that learning.

Coaching, which has been increasingly employed by districts working to reform classrooms, holds promise for supporting ambitious learning for teachers, as it offers learning experiences that are integrated with teachers’ own classrooms, students, and schools (Desimone & Pak, 2017; Woulfin, 2014). When combined with other efforts to support teacher learning it can, at least in theory, support teachers to connect ideas they may encounter in spaces outside of their classrooms (such as professional development workshops) to the particularities and challenges of their day-to-day teaching practice (Woulfin, 2014).

However, coaching offers no simple solution. A widely-documented challenge in coaching relates to the need for coaches and teachers to develop productive working relationships (Anderson-Levitt, Feldman, & Minstrell, 2014; Feger, Woleck, & Hickman, 2004; Neufeld & Roper, 2003; Poglinco et al., 2003). The ways this challenge has generally been written about suggest that some teachers or coaches have the wrong dispositions, skills, or other attributes (Anderson-Levitt et al., 2014); teachers are framed as resistant or defensive and coaches as lacking “people skills.” These explanations yield limited solutions, implying potential courses of action such as asking teachers to change, ignoring resistant teachers, screening coaches for “people skills,” or developing strategies for teaching them these skills.

In this dissertation, I suggest that considering coaching and teacher learning as situated in figured worlds (Holland, Lachicotte, Skinner, & Cain, 2001) supports the examination of these phenomena in ways that illuminate conditions that govern the interactions that we hope support teacher learning, yielding more generative understandings. A figured world is a “socially and culturally constructed realm of interpretation in which particular characters and actors are recognized, significance is assigned to certain acts, and particular outcomes are valued over others. (p. 52)” In figured worlds, people inhabit roles (e.g. student, teacher, coach), and participate in ways that are made sensible by cultural meanings that surround those roles. Particular kinds of people have access to particular ways of participating in their worlds. For example, in the world of US schooling, teachers can explain, nurture, argue, plan lessons, listen, gossip, punish, etc.

Within figured worlds, frames (Goffman, 1974; Hand, Penuel, & Gutierrez, 2012) narrow possibilities for kinds of people in kinds of interactions. Frames delineate kinds of interactions, answering the question, “What is going on here?” and providing actors with cues about particular ways of participating that belong in particular interactions. For instance, in a tutoring session at lunchtime, it is acceptable for a teacher to explain, listen, and nurture, but not gossip, while it is sensible for a student to listen, ask questions, and try out ideas, but not tell raunchy jokes. In a break-room chat, it may be acceptable for a teacher to gossip, listen, and complain,
but not plan a lesson and in a schoolyard game, it may be acceptable for a student to tell jokes, throw balls, and taunt, but not ask questions about fractions. By shaping who gets to do what in interactions, frames are a mechanism by which power and participation are organized.

This dissertation employs the concept of figured worlds to investigate teacher-coach interactions and the conditions that govern them through the in-depth examination of two teacher-coach pairs. What results is a robust picture of (1) conditions that can support coaches and teachers to construct new, more ambitious and equitable worlds for themselves and for students and (2) how frames and power can support or inhibit learning and ways that coaches might attend to these issues productively.

After a brief review of relevant literature, this dissertation begins by proposing a framework to support the examination of teacher learning toward the kinds of classrooms described at the start of this chapter. The framework draws from figured worlds and from social theories of learning to name multiple, intertwined processes of teacher learning and to articulate trajectories for each process—the “from what” and “to what” aspects of teacher learning—that are taken to matter for teachers’ learning toward the vision for classrooms outlined here. I refer to the learning outlined in this framework as transformative teacher learning toward ambitious and equitable teaching (for brevity, “transformative teacher learning” or TTL). The dissertation offers methods for the study of five strands of TTL, methods which are then employed in the analyses that support the arguments outlined in the three data chapters named below:

Chapter 4: Learning to be “Wowed by Kids:” A Case of Transformative Teacher Learning and the Coaching that Supported It

Chapter 5: “It Feels Like I’m Throwing a Bomb Out There.” Negotiating Power and Agency to Support Transformative Teacher Learning

Chapter 6: Learning to Learn Together: (Re)framing Coaching to Support Transformative Teacher Learning

Chapter 4 reveals some of the complexities of TTL through in-depth analyses of one teacher’s learning and of the coaching that supported that learning. In doing so it reveals ways in which processes of TTL are interconnected and it begins to unpack coaching work that can support multiple processes of TTL in coherent and connected ways. It highlights ways in which progress along each strand of TTL requires teachers’ agency and the co-constructed nature of learning activities.

 Chapters 5 and 6 examine some of the complexities of TTL in coach-teacher interactions that relate to frames, the arrangements of power and agency that are afforded by them, and implications of these arrangements for learning. Chapter 5 examines one case in which power relations first constrained and then afforded opportunities for TTL. It examines two distinct phases that unfolded in this coach-teacher relationship, and a pivotal conversation that transformed it. In the first phase, power was inequitably distributed, the teacher experienced limited agency, and opportunities for her learning were severely constrained. In a pivotal conversation, power and agency were negotiated explicitly and the relationship was reframed, setting up a brief phase in which the teacher had increased access to power and agency, which afforded new opportunities for learning.
Chapter 6 zooms out to consider frames and learning across these two cases, identifying three frames that shaped these teachers’ understanding of—and participation in—coaching. It demonstrates that these three frames—coaching as evaluating and fixing teaching, helping, and learning together about teaching—developed with similar trajectories in the two cases and that these trajectories supported greater opportunities for TTL over time. It examines the accomplishment of productive reframing, finding that opportunities for participation were consequential for each such accomplishment.

For the remainder of this chapter, I situate this dissertation by providing a brief review of relevant literature.

1.2 Research Related to Teacher Learning in Work-Embedded Interactions

Instructional coaching has received relatively little research attention to date—although with a recent surge—but some of the issues of concern in this study relate to other bodies of literature. I report below on three lines of research that shed light on issues related to how teachers’ learning toward equitable math classrooms might be supported through work-embedded interactions: (a) research on teacher collaboration and school reform; (b) research on teachers’ learning in workgroup conversations; and (c) research on instructional coaching. I do not review these bodies of literature comprehensively, but instead situate this dissertation by focusing on the perspectives, methods, and findings from this literature that bear on the issues outlined above.

1.1.1 Teacher Collaboration

Since the 1980s, there has been increasing research attention paid to the role of teachers’ collaboration and the organization of professional communities in the accomplishment of various aspects of advancement from traditional and inequitable conditions in schools and classrooms toward increased equity and justice. Little (1984) found that efforts to desegregate schools were more successful in districts where participants (teachers and schools) were positioned as collaborators with reformers, rather than as recipients of outside reforms. Little’s findings brought attention to the importance of teacher collaboration for school reform. More researchers came to investigate collaboration among teachers, its dynamics, its effect on various outcomes, and structural supports that facilitated its development (e.g. Hargreaves, 1994; Nias, Southworth, & Yeomans, 1989; Rosenholtz, 1989). This literature came to employ “teacher community” and “community of practice” (influenced by Lave and Wenger (1991) and Wenger (1998)) to refer to the entities formed from the web of relationships among teachers who collaborate.

The empirical work that developed out of this refocusing clarified that not all groups of teachers who talk together work productively toward more equitable or ambitious practice, and articulated some of the features of teacher communities that do (Louis, Marks, & Kruse, 1996; McLaughlin & Talbert, 2001). Multiple aspects of school culture were identified as important for the development of the kinds of teacher communities that support instructional innovation. These aspects are (1) the deprivatization of practice, including frequent collaboration among teachers and sharing of teaching materials and ideas and (2) shared norms and values, including collective focus on student learning, shared commitment to all students’ success and to the continual adaptation of classroom practice, and thoughtful decision making, rather than prescriptions of “best practices.” While this literature does not focus explicitly on teacher learning, but rather on instructional innovation or school change, it illuminates conditions of teachers’ work with other
teachers that support the kinds of interactions that are likely to support teacher learning. It calls out the importance of teachers having opportunities to share and examine their practices with other educators.

Another influential finding from this work is that teachers’ ways of understanding their students are cultural in that they inform and are informed by the discourse within their professional communities (McLaughlin & Talbert, 2001). This finding offers an expansion to psychological perspectives that study teachers’ beliefs, suggesting that those concerned with influencing teachers’ ideas about students (and by extension about mathematics, teaching, and learning) should consider the cultural practices of the communities within which teachers work.

Research on teacher collaboration and school change focused the field’s attention on the cultural conditions in which efforts at school and classroom change are situated. It established that efforts to understand or support equity- or justice-focused change (and by extension, teachers’ learning toward such change) must attend to both the local cultures of teacher communities that impact teachers’ understandings and practices, and the school and district level cultures that afford and constrain the development of teacher communities that are productive for such efforts. It established that teachers should be positioned as collaborators with those seeking to support reform and that teacher communities should be supported in developing collective norms and practices that support innovation.

The research described above did not yet help us to understand how the collective norms and practices that support innovation play out in interaction or how communities develop them. Nor did it focus on connections between these norms and practices and teachers’ learning. Out of this work, several studies were conducted—which I describe below—to investigate mechanisms by which collective norms and practices are negotiated in teachers’ conversations and how these negotiations can provide opportunities for teachers to learn.

1.1.2 Teachers’ Learning in Professional Interactions

Grossman, Wineburg, and Woolworth were among the first researchers to offer substantive answers to the question of what teachers can do as they interact together with the purpose of improving instruction. In the 1990’s, they facilitated the development of a “community of teacher learners” among English and Social Studies teachers in one high school and investigated its discursive practices over time (Grossman, Wineburg, & Woolworth, 2000; Grossman et al., 2001; Thomas, Wineburg, Grossman, Myhre, & Woolworth, 1998; Wineburg & Grossman, 1998). Their findings offer the field deeper understanding of the interactional work required for the formation and maintenance of productive teacher community. For example, their analysis reveals that when the teachers in their study first gathered, they behaved as a pseudocommunity. Their talk remained general and abstract enough to allow them to behave as if they agreed. They avoided pressing each other for specification, allowing for agreement about generalities, such as the importance of “critical thinking” or “interdisciplinary curriculum,” and were thus able to maintain an “illusion of consensus” (Grossman et al., 2001, p. 955). Over time, however, disagreement surfaced and this group of teachers struggled to develop the capacity to handle ensuing conflict. Grossman and colleagues argue that the presence of disagreement, and group norms to navigate this disagreement, are essential for productive teacher community.

Grossman and colleagues (2001) offer a framework for the development of productive teacher community. It includes dimensions related to formation of “group identity” and norms for interaction; teacher’s navigation of various disagreements and tensions related to negotiations of disciplinary questions and competing goals for the group; and development of shared
commitment to the learning of each member. This research was unique in the extent to which its findings were grounded in the interactions that took place in a developing community; it offers examples of the interactional work of this community unfolding and includes transcript that allows readers to “hear” the development of group identity and norms, the management of conflict and negotiations of tensions, and the development of the group’s shared commitment to learning.

Little (2002) is another early piece to provide a rich picture of teachers’ learning interactions. Little, drawing on data from a 2-year comparative case study of teacher interactions in subject matter departments in two high schools (Horn, 2005, 2007; Horn & Little, 2010; Little, 2002; Little, Horn, & Bartlett, 2000), takes on the question of how learning might be found within records of teachers’ everyday work and offers a framework for analyses that seek to do that. She asks, “How can we find teachers’ learning inside of their interactions with other teachers?” and chronicles analytic dilemmas and opportunities for analysts. She culls one conversation among teachers in a High School English department for teachers’ opportunities to learn, identifying conversational junctures at which opportunities for teachers to learn are either opened (when challenging questions are posed, reframed, or pursued) or closed (when decisions are stated and conversational moves are made to “move on”).

Little (2002) suggests that analyst looking for learning in teachers’ interactions treat all of what is said and done as evidence of what is known and as potential resources for learning, look for the options for talk or action that are opened or closed in conversation, and suspend our own prior notions about what is or what might be learned. She offers a three-part conceptual framework to help “unpack the relations among teacher community, teacher development, and the improvement of practice,” pointing analysts to (1) representations of practice within teachers’ conversations, (2) ways in which teachers’ interactions create a stance toward practice and its “improvement,” and (3) development of norms for interaction among teachers (concurring with Grossman and colleagues) and the extent to which these norms open or close opportunities for learning. Finally, Little suggests that, while opportunities to learn may be identifiable in single episodes of interaction, identifying learning itself will require attention to changes over time, leaving the development of methods to do so to future research.

Taken together, these two foundational pieces (Grossman et al., 2001 and Little, 2002) help to establish the importance of looking at teachers’ interactions as they work and learn together. They begin to flesh out the notion that some types of interactions among teachers support learning better than others, and set the stage for a group of studies that compared interactions in more and less successful groups of teachers, which I consider in the following section. Grossman and Little also provide methodological precedents for the study of learning in interaction, demonstrating ways in which interactional data can be culled for evidence of teachers learning together.

**Teachers’ opportunities to learn through collaboration.**

Continuing the work begun by Little (2002), and coming mostly out of the same study, the pieces in this section help us to focus on teachers’ learning by consider their opportunities to learn or the resources available for their learning in interactions with other teachers. They take a comparative approach to the study of teachers’ learning in work groups, comparing interactions in groups of teachers in two high schools which they determined to have “taken reform seriously.” (Horn, 2005, p. 212) Recordings and field notes from 18 months of observations of
conversations among teacher work groups were collected and analyzed to investigate the ways in which teachers’ interactions support them to learn about their practice.

Horn (2005) focuses on resources for learning as she compares conversations in two mathematics teacher work groups, one of which had shown greater success in developing ambitious teaching practices and in supporting large numbers of students to enroll in Calculus, despite serving more students from groups with historically low rates of participation in Calculus. She found that the pedagogical reasoning of the more successful group of teachers was characterized by (1) deep interrogation and collective sense making around artifacts of reform; (2) interrogation and ultimate rejection of hierarchical classification systems; and (3) frequent replays and rehearsals of classroom practice that included teachers’ and students’ voices.

Horn (2007) expands on the second numbered finding above, providing a picture of what the conversational classification systems sounded like in conversations and the ways in which those classification systems that reinforce hierarchies of ability can be either reified or challenged in teachers’ conversations. In one group of teachers, talk about “fast,” “slow,” or “lazy” students was taken as normal, whereas in the other group, such talk was problematized and alternative classification systems (that consider status differences among students, rather than ability levels, for example) were proposed. While this piece offers transcript that shows how teachers challenged hierarchal classification systems, it does not shed light on how this group developed in ways that supported this to happen productively (and not, as we could imagine, “shut down” some teachers by positioning them as wrong), nor does it offer opportunities to see how individual teachers’ sense-making about students may have shifted over time.

Horn and Little (2010) investigate the “practices by which groups structure work-related talk” for two groups of teachers at one school, and how those practices “forge, sustain, and support learning and improvement.” They analyze the extent to which conversational routines supported “the linking of frameworks for teaching to specific instances of practice,” a linking that they consider essential for teacher learning. They found that the conversational routines in one group more consistently opened opportunities for learning, while those in the other group more consistently constrained opportunities for learning, with the similarities and differences elaborated as follows. Both groups frequently “normalized problems of practice,” responding to teachers’ articulation of problems by communicating that these problems were normal and not indicative of failure on the teachers’ part. However, in the first group, this normalization served as a starting point for deeper discussions of the problem, whereas in the second group, problems were superficially “solved” or dismissed (e.g. “Don’t let it get you down” or “maybe you just need to…”). In the first group, there were also opportunities for “rough draft” talk (e.g. “I don’t know. Maybe it was…” or “No, maybe it was like…”), teachers were given agency over their own problems, teaching problems were framed as actionable, and teacher talk frequently bridged specific accounts of practice with general principles of teaching. This study concurs with Little’s earlier findings to suggests that extended discussion of problems of practices is important for teacher learning and suggests additionally the importance of both teachers’ agency over their own problems and their public acknowledgement of what they do not yet know. This study also raises questions about how groups of teachers might come to interact in these ways. How do norms develop that support deep inquiry into problems of practice, that create safety for “rough draft” talk, and that position teachers as agents?

Horn and Kane (2015) investigated the interactional processes of learning in teacher work groups as they relate to varying levels of teacher expertise, addressing the question, “How do conversational opportunities to learn compare in mathematics teacher work groups at different
levels of instructional accomplishment?” (p. 14) They compared the interactional practices of three work groups, which they determined were made up of teachers with primarily beginning levels, emergent levels, and sophisticated levels of pedagogical expertise in ambitious mathematics teaching. They found that teacher groups made up of more accomplished teachers had conversations richer in opportunities to learn than did groups made up of less accomplished teachers. They argue that teachers’ well-developed, ambitious teaching practice provides epistemic resources that support them to employ conversational frames that are more likely to support learning. They suggest that strong facilitators might play important roles in supporting teachers’ learning in interactions with their colleagues.

Louie (2016) followed the interactions of groups of mathematics teachers who were explicitly focused on developing their own equity-oriented teaching practices. She found that their talk exhibited tensions between restrictive discourses consistent with dominant math education culture and expansive discourses consistent with the non-dominant vision for classrooms that the teachers were aiming to take up. While these tensions might have served as resources for these teachers’ equity-focused learning, the frames that organized their understandings of their interactions together inhibited opportunities for this to happen. Louie showed that teachers understood the purpose of their interactions to be sharing ideas and strategies, and that they routinely avoided disagreement to support this purpose, effectively closing opportunities for learning. Louie argues that framing collegial conversations instead as opportunities to co-investigate problems of practice makes available norms of interaction that support teachers to navigate the tensions inherent in equity-focused teaching, and to learn.

Taken together, this body of literature provides a window into interactional practices that provide opportunities for learning toward various aspects of ambitious and equitable teaching. They show us teachers airing and resolving disagreements (Grossman et al., 2001), negotiating use of conversational category systems (Horn, 2005, 2007), taking up and investigating problems of practice (Horn & Little, 2010), connecting teaching principles with instances of classroom practice (Horn & Kane, 2015; Horn & Little, 2010), engaging in “rough draft” talk and public revision of ideas (Horn & Little, 2010), framing problems as actionable, positioning themselves and each other as agentive (Horn & Little, 2010), and framing collegial conversations as opportunities to dig deeply into problems of practice (Louie, 2016).

These papers also speak to the creation and maintenance of professional relationships that are rich in opportunities for learning. Grossman et al. (2001) and Horn and Little (2010) point to the importance of establishing (Grossman et al., 2001) and maintaining (Horn & Little, 2010) norms for interaction that support deep and collective inquiry. Grossman et al. (2001) show us how these norms at first failed to develop with one group of teachers and were later developed. Horn and Little (2010) show us how constructive norms operate in one well-established group of teachers. From these examples, we can see discursive practices that may support the development of learning relationships: participants allow speakers to retain the “conversational floor” (Horn & Little, 2010); attend to creating “safety” and inviting all group members to participate (Grossman et al., 2001); share personal challenges (Horn & Little, 2010) and make their personal histories and identities public (Grossman et al., 2001); distribute the task of leading or facilitating discussions across participants (Grossman et al., 2001); and treat ideas as public property and refrain from personalizing differences of opinion (Grossman et al., 2001).

These pieces do not yet provide examples of the development of the interactional practices that support opportunities to learn. And, by focusing on opportunities to learn or resources for learning in single interactions, they do not yet provide us with analytic or
conceptual tools for the study of learning over time as it unfolds through multiple, work-embedded interactions.

1.1.3 Teachers’ Learning Through Interaction with Instructional Coaches

The practice of instructional coaching dates to the early 1980s (Joyce & Showers, 1981), but research about it has been scarce until a recent surge in the past decade. The corpus of research literature available includes a few conceptual pieces that help us to understand possibilities for coaching (Brown, Stein, & Forman, 1996; Desimone & Pak, 2017; Gibbons & Cobb, 2012; Joyce & Showers, 1981, 1982), large-scale efficacy studies of coaching programs (Bean, Draper, Hall, Vandermolen, & Zigmond, 2010; Campbell & Malkus, 2011; Cantrell & Hughes, 2008; Ross, 1992), reports about specific programs involving coaching prepared by professional program evaluators (Neufeld & Roper, 2003; Poglinco et al., 2003), quantitative analyses which identify factors that support successful implementation of coaching programs (Gibbons, Garrison, & Cobb, 2012; Matsumura, Garnier, & Resnick, 2010; Matsumura, Sartoris, Bickel, & Garnier, 2009), studies that examine knowledge and skills that support productive coaching in particular cases (Barlow, Burroughs, Harmon, Sutton, & Yopp, 2013; Gibbons, 2012), studies that use self-reports to investigate how people in the role of “coach” spend their time (Campbell & Griffin, 2017; Ellington, Whitenack, & Edwards, 2017; Luebeck & Burroughs, 2017), and a few studies that have used observational data of the work of coaches and teachers to investigate the potential of various kinds of coaching interactions to support teacher learning (Anderson-Levitt et al., 2014; Coburn & Russell, 2008; Ellington et al., 2017; Munson, 2018; Saclarides & Lubienski, 2018).

In this section, I summarize this literature, outlining the few convergent findings that are available, which come from a small number of studies and thus must be taken as tenuous. I follow this overview by situating my dissertation with respect to the knowledge base about coaching, proposing ways to fill some gaps by drawing from the previously summarized bodies of literature about teacher collaboration.

**Instructional “coaching.”**

The use of the word “coaching” to support teachers is credited to Joyce and Showers (1982), who compared teachers learning to teach with athletes learning to play competitive sports. Joyce and Showers conceptualized learning as a two-step process. First, teachers and athletes must learn skills, which they can do in settings somewhat removed from their classrooms or competitive events. They must then learn to “transfer” their new skills into practice, a process for which, Joyce and Showers propose, they need coaching.

By teacher “coaching,” Joyce and Showers referred to a support model generally referred to now as **peer coaching** in which teachers who are working together to take up new practices observe each other, provide feedback, and work together on the problems that arise. Other models of coaching in education are **technical coaching**, in which “more accomplished others” support teachers to transfer new teaching practices into their own repertoires; **collegial coaching**, in which coaches work to enhance teacher collaboration and encourage teachers to reflect together on their work; and **mentoring**, which is used primarily to support new or novice teachers to develop proficient practice (Poglinco et al., 2003). Some programs have named two kinds of coaches: **change coaches**, focusing on whole school change by supporting collaboration and developing leadership, and **content coaches**, focusing on helping individual teachers improve their teaching (Neufeld & Roper, 2003).
Coaching, in its many forms, is employed increasingly often in education (Coburn & Russell, 2008; Woulfin, 2014). In practice, people employed as “coaches” tend to fill a number of roles and multiple coaching models are employed simultaneously (Cantrell & Hughes, 2008; Coburn & Russell, 2008; Matsumura et al., 2010; Neufeld & Roper, 2003; Poglinco et al., 2003). One coach may work with individual teachers in their classrooms, work with groups of teachers to build routines for constructive collaboration, support principals in efforts to distribute leadership, and work with teachers to build peer support structures, such as peer observations and peer coaching (Gibbons & Cobb, 2012; Neufeld & Roper, 2003; Poglinco et al., 2003).

What coaching IS, or what coaches either do or might do, is the subject of a number of recent studies, with the convergent finding that people in a role called “coach” engage in many different activities (Campbell & Griffin, 2017; Gibbons & Cobb, 2017). Studies concerned with the practices of coaches have generally relied on coach self-reports, using activity logs and surveys to investigate how coaches spend their time and, in some cases, to make connections between their activities and desired outcomes for teachers and students. Findings from these studies suggest that the more time coaches spend working with teachers (rather than, for example, making photocopies, filling in for absent teachers, or gathering teaching materials), the more likely it is that their work will support changes in teaching. What it means to “work with teachers” is generally articulated only in terms of activity descriptors, such as “co-planning,” “modeling,” or “giving feedback.”

Desimone and Pak (2017) provide a resource for thinking about how activities like “co-planning” might most productively support teacher learning. They argue that coaching can provide each of the five features of quality professional development that had been identified in previous work (Desimone, 2009; Desimone & Garet, 2015). They suggest that each of the five features—content focus, active learning, duration, collective participation, and coherence—can serve as a guideline for decision-making about coaching, as the degree to which each feature is available will depend on the particularities of coaching interactions. They give the example that the degree to which “active learning” is available to teachers in a coaching relationship depends largely on whether the coach—or the initiative in which the coach is situated—takes a “directive stance,” in which the coach guides interactions and tells teachers how things should be done, a “responsive stance,” which allows teachers to lead the work they engage in with coaches.

Challenges in instructional coaching.

Some research has articulated the challenges of instructional coaching and some of the skills coaches may need to navigate those challenges. It is clear that coaches need certain kinds of knowledge and expertise with respect to the innovations they are coaching toward (Feger et al., 2004; Gibbons & Cobb, 2016; Mudzimiri, Burroughs, Luebeck, Sutton, & Yopp, 2014) and that they should develop expert “eyes” for issues in and out of classrooms that matter for teaching and learning (Feger et al., 2004; Gibbons & Cobb, 2016). Gibbons and Cobb (2016) set out to investigate the knowledge base that supports exemplary coaching by examining the practices of one middle school mathematics coach who was experienced and who was found to engage consistently in activities that Gibbons and Cobb (2017) identified as potentially productive for supporting teacher learning. Through analysis of interviews with the coach and with teachers across the four years of the study, Gibbons found that this coach had (1) deep understanding of mathematics teaching and learning, (2) professional vision, (3) understanding of teacher development, and (4) an extensive repertoire of activities in which to engage teachers.
to support their learning. Other publications (Aguilar, 2013; Feger et al., 2004; West & Staub, 2003) have concurred that coaches need deep content knowledge, pedagogical knowledge, as well as knowledge and skills related to supporting teacher learning.

Numerous studies have suggested that coaches need “human relations” or “interpersonal” skills necessary to develop and manage relationships—between themselves and teachers as well as between teachers, administrators, and others—that foster teacher learning, and contend with the tensions inherent in these relationships (Anderson-Levitt et al., 2014; Feger et al., 2004; Poglinco et al., 2003). For instance, coaches must manage tensions inherent in the navigation of roles and positioning, as they struggle to define themselves as teachers’ peers, as evaluator/advisors, and/or as quasi-administrators (Poglinco et al., 2003). They also must understand principles of distributed leadership and find ways to support teachers’ authority and autonomy while encouraging multiple stakeholders to remain flexible and find compromises in instances of disagreement (Neufeld & Roper, 2003). Multiple studies have found that coaches manage tensions between ensuring that teachers feel heard and respected—a necessary aspect of building productive working relationships—and supporting (or “pushing”) them to improve their practice (Neufeld & Roper, 2003; Poglinco et al., 2003). The subject of coaches’ need to build productive relationships with teachers comes up across enough studies that I elaborate on this research below.

Managing relationships and tensions in coaching.

Coaching literature is clear that relationships between coaches and teachers are central for the success of coaching (Feger et al., 2004; Neufeld & Roper, 2003; Poglinco et al., 2003). Coaches report spending more time with teachers with whom they have comfortable relationships (Poglinco et al., 2003) and the time that coaches and teachers spend together, particularly co-engaged in substantive conversations about teaching, correlates with the extent to which teachers shift their classroom practice in alignment with the goals of coaching (Campbell & Griffin, 2017).

Coaches report relationship-building to be not only central to their work, but also deeply challenging. Extant research has articulated this challenge in terms of the need to manage (1) roles and positions between coaches and teachers, which is related to managing feedback and the need to create safety for teachers to take risks and open their practice to outsiders, and (2) interactions with “resistant” teachers. I elaborate briefly on each of these ideas below.

Managing coaching roles and creating safety for teacher learning.

Managing roles and creating safety for teachers is an oft-cited and well-known challenge in coaching (Neufeld & Roper, 2003; Poglinco et al., 2003; West & Cameron, 2013). In a study of coaches working in 27 America’s Choice schools (Neufeld & Roper, 2003; Poglinco et al., 2003; West & Cameron, 2013), coaches reported challenges related to managing tensions in their work, in particular the tension between “being a teacher and a colleague of teachers, and being a quasi-administrator or manager.” (Poglinco et al., 2003, p. 11) As coaches manage their roles and positions with respect to teachers, they often struggle to find productive ways to talk with teachers about teaching, with providing feedback being an oft-cited challenge. Coaches in the Poglinco et al. study reported being challenged by the task of giving critical feedback, stating that doing so undermined their ability to construct productive relationships.

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2 It is interesting, if not surprising, to note that this is similar to knowledge identified as important to support effective teaching in How People Learn (Bransford, Brown, & Cocking, 2000).
Coaches emphasized the importance of staying positive, being tactful, and thinking about each particular teacher’s personality, strengths, and weaknesses. Several coaches said they initially erred on the side of being too “honest” with or critical of teachers, and that teachers felt threatened. (Poglinco et al., 2003, p. 24)

One coach in their study said, “Providing feedback is the toughest part. I want to be considered non-threatening... I would say, ‘maybe next time, we’ll do this’... I wanted to provide them with opportunities to reflect. I wish I was more adept at conveying information positively.” (Poglinco et al., 2003, p. 24) While this coach interprets the solution to her challenge as “conveying information positively,” research has not yet investigated ways in which coaches’ interactions with teachers can most productively support their learning.

Neufeld and Roper (2003) drew from longitudinal, qualitative studies of coaching in Boston, Corpus Christi, Louisville and San Diego over six years to put together a paper providing guidance to district leaders who hope to support successful implementation of district-wide coaching efforts. They describe as an essential part of a coach’s job the task to, “Help establish a safe environment in which teachers can strive to improve their practice without fear of negative criticism or evaluation” (p. 9) and describe that coaches, “must figure out when and how hard to push principals and teachers to address the reform agenda... [and to] gauge how directive to be when they see little movement..” (p. 6-7)

Some recent studies suggest that coaches co-participating in the work of teaching alongside teachers may support more productive learning relationships than providing evaluative feedback or otherwise assuming the role of outside expert (Ellington et al., 2017; Munson, 2018; Saclarides & Lubienski, 2018), a finding that logically connects with Neufeld and Roper’s call to establish safe interactional environments for teacher learning.

A number of studies name “resistant teachers” as a ubiquitous challenge for coaches (Ellington et al., 2017; Luebeck & Burroughs, 2017; Poglinco et al., 2003). Poglinco et al (2003) found that coaches spent more time in classrooms where they felt welcome, rather than in those in which they perceived the greatest need for support. Luebeck and Burroughs (2017) found that there was wide disagreement among coaches about how best to respond to “resistant” teachers.

Anderson-Levitt and colleagues designed a mixed-methods study (Anderson-Levitt et al., 2014) to identify science coaching that “works” and coaching that “breaks down.” They were surprised to find that not only did teacher-coach relationships matter for the success of coaching (which was not a surprise) but that cultivating these relationships was ongoing over multiple years. That is, it was not the case that coaches built relationships with teachers and then got on with the work of supporting their learning, but that coaches needed to attend to relationship building and maintenance throughout their years-long work with teachers. Additionally, they found that this relationship-building work was situated. In their words,

We could see that successful coaching was not well characterized as a linear process of establishing relationships and then “getting to work.” The ups and downs did not seem to be a reflection of the personal disposition or skills of the coach or the teacher, but rather seemed to result from the situated interaction between coach and teacher. (p. 7, emphasis in original)
How coaches manage relationship-building.

A number of studies suggest that coaches might productively manage relationship-building challenges by working to establish relationships with teachers in which their roles are closer to two peers working together to try out innovations and learn from the process than that of an expert and a novice. Coaches in a few studies (Munson, 2018; Poglinco et al., 2003; Saclarides & Lubienski, 2018) established relationships that supported learning in part by engaging with teachers in their work (e.g. planning and teaching lessons), rather than observing this work and offering advice or feedback. Some coaches reported focusing on the positive aspects of teachers’ practice as one way to build strong working relationships.

Anderson et al. (2014) found that the establishment and maintenance of productive coach-teacher relationships required both relational trust and the management of what they call role synchrony. Coaches needed to assume roles and participate in ways that matched teachers’ expectations of coaches’ roles. Many of the “breakdowns” that they observed in coaching were attributable to interactions in which coaches’ ways of participating did not match teachers’ expectations for them. For example, a coach reported deciding to collect data about teachers’ questioning practices during lessons. Her intention was to use the data only with teachers to examine their questioning practices, but teachers interpreted this collection of data to be evidence of the coach assuming an evaluative role, and relationship challenges ensued.

Given the finding that what coaches do with teachers varies greatly, it is logical to assume that the challenges they encounter in building productive relationships with teachers would vary as well, as would the ways in which coaches improvise approaches to these challenges. No studies have yet raised questions directly about how the relationship-building work of coaches and teachers might relate to the context within which they work, although the group of studies in the following section provides insights that may bear on this question.

Coaching situated in school contexts.

A number of studies have considered the affordances of supportive school context for instructional coaching, focusing in particular on the degree to which school principals have supported and been engaged with the work of coaches.

Matsumura and colleagues (Matsumura et al., 2010, 2009) investigated the relationship between principal leadership and teachers’ participation in a literacy coaching program by interviewing and surveying principals, coaches and teachers. They found that principals’ leadership and beliefs were positively associated with and/or predicted teachers’ (1) engagement with the target pedagogy, (2) participation in coaching activities and (3) perceptions of the usefulness of these activities. Gibbons, Garrison, and Cobb (2012) investigated the factors that influence middle school mathematics coaches’ centrality in the social networks of teachers in schools, considering that centrality to be an important dimension of coach effectiveness. They found that in schools in which coaches were most central, principals regularly (1) attended meetings in which teachers collaborated, (2) observed classroom instruction, and (3) met with coaches to discuss teachers’ practices. These studies suggest that the ways in which teachers and coaches perceive their work, and thus their orientation to coaching relationships, should be taken to be situated within school culture, a suggestion that echoes findings that suggest that the ways that teachers make sense of students is connected with school and district-level discourse (Horn, 2007; McLaughlin & Talbert, 2001).

Coburn and Russell (2008) drew on data from a comparative case study of two large, urban school districts engaged in a district-wide adoptions of innovative mathematics curricula.
Both districts employed coaches as part of their support for teachers, but the extent to which coaches’ interactions with teachers were both supportive of the curriculum adoption and were of significant depth to support learning varied across the districts. Among the factors contributing to these differences, Coburn and Russell found the participation of school and district leaders to be significant. In particular, school leaders mediated district policy by allocating coaching resources and these allocations influenced the extent to which coaches and teachers interacted with depth. (The more coaching time was available to teachers, the deeper the conversations were.) They found also that the extent to which principals’ talk was congruent with the intentions of the curriculum adoption was related to the extent to which coaches’ and teachers’ talk was also congruent and that “district-developed routines of interaction diffused through social networks, shaping what and how teachers talked with one another about mathematics and influencing depth of interaction.” (p. 213) These studies point to the need to consider coaching as situated within broader contexts, raising questions about what other aspects of school or district culture might bear on the work of coaches and teachers.

**What do we know about the nature of interactions between coaches and teachers?**

To date, coaching literature has given surprisingly little attention to the nature of interactions between coaches and teachers. Coburn and Russell (2008), briefly discussed above, was the first study to analyze these interactions themselves (rather than what teachers or coaches report about these interactions). As part of their effort to understand how various policy-level factors influenced the work of coaches, they developed a rubric to characterize degrees of depth of coach-teacher interactions. They considered interactions to be of low depth when they focus on “surface structures and procedures, such as sharing materials, classroom organization, pacing, and how to use the curriculum” (p. 212). High depth interactions “addressed underlying pedagogical principles of the approach, the nature of the mathematics, and how students learn” (p. 212). Sadly, and perhaps due to space constraints inherent in journal publication, Coburn and Russell do not share transcript of coach-teacher interactions at varying degrees of depth. They do, however, share the coding scheme that they developed to code analyze depth of interactions. A few studies (Gibbons & Cobb, 2017; Saclarides & Lubienski, 2018) have used these rubrics and the ideas behind them—assuming, as Coburn and Russel did, that greater depth is desirable for teacher learning—to investigate the affordance of various coaching activities, although none of these studies share transcript of coach-teacher interactions.

Mudzimiri and colleagues (Mudzimiri et al., 2014), observed 7 math coaches’ work with teachers during one day and analyzed field notes taken from these observations. They attended to the content of teacher-coach conversation, strategies coaches used in these conversations, and they dynamics of teacher-coach interactions. They found that coaches and teachers talked about various aspects of teaching (e.g. math content and pedagogy, students, classroom management, etc.), that teachers used various strategies. They characterized coach-teacher dynamics by examining forms of coach-teacher communication (face-to-face, email, telephone), substance of this communication (about content, pedagogy, teachers’ concerns about life or work), stances that coaches adopted (collaborative or directive) in these communications, and what they call the relational balance of coach-teacher communication (hierarchical or collegial). Interestingly, they found that all 7 coaches were both collaborative and directive in their interactions with teachers, and that these two stances were often evident in the same interactions. They found that all teachers deferred to coaches as experts, and characterized the relational balance in all cases as hierarchical. Unfortunately, the lack of records of teacher-coach interactions and the momentary
nature of their data (collected during one day) prevents further investigation of how these dynamics unfolded over teacher-coach relationships or within conversations, were situated within particular contexts, and may have connected with teachers’ learning.

1.3 Situating the Dissertation

This dissertation aims to contribute to the relatively young research corpus on instructional coaching, in particular focusing on the possibilities for coaching to support the vision of mathematics classrooms with which this chapter opened. The aims of most of the coaching literature to date are distinct enough from the aims of this study that I find it useful to draw from literature that has examined teachers’ learning in interactions not with coaches, but with fellow teachers. In this section, I outline the ways in which this study hopes to contribute to our understanding of the possibilities and complexities of coaching toward ambitious and equitable mathematics classrooms.

1.2.1 About Teacher Learning

Despite a recent uptick in research on coaching, teacher learning remains underspecified or undertheorized. Some studies focus on the potential of coaching to support the uptake of various reforms, and are not centrally concerned with teachers’ learning (c.f. Hopkins, Ozimek, & Sweet, 2017; Neufeld & Roper, 2003; Poglinco et al., 2003). Other studies attend to teacher learning by looking at shifts in teachers’ skills or practices immediately following work with a coach, adopting a view of learning that is measurable, but narrow and outcome-oriented (c.f. Cantrell & Hughes, 2008; Teemant, Wink, & Tyra, 2011). Also, this literature generally fails to attend to the insights provided by the previously-reviewed literature on teacher collaboration that highlight the culturally situated nature of teachers’ perspectives (and by extension, their practices). Coaching literature thus tends to miss important questions about how the skills or practices that teachers do or do not “learn” through their work with coaches relate to broader discourses in schools and districts.

None of the coaching studies located for this review articulated goals for mathematics teacher learning that explicitly take up issues of equity and justice. The goals for math teacher learning that were articulated in coaching studies named a vision for teaching that is sometimes called “ambitious” or “standards-based,” that is described in terms of supporting students’ mathematical sense-making. There were no studies that addressed the need to support teachers to learn to recognize and address patterns of oppression or inequity in classrooms. Without studies of coaching that attend explicitly to goals for equitable classrooms, we are left without resources for understanding essential aspects of teachers’ learning. How can coaches work to support the aspects of teachers’ learning that matter for the creation and maintenance of more equitable math classrooms, such as the negotiation of conversational classification systems (Horn, 2005, 2007) in which the same students might be cast as either “slow” or as having sensible mathematical insights to identify and build on?

Coaching studies that consider teacher learning also tend to treat this learning as an outcome, using pre- and post- measures to draw conclusions about whether and under what circumstances coaching is effective. While these studies reveal insights about the potential power of coaching, they leave us without access to processes of teacher learning that might be available in coaching. Research on coaching has yet to develop methods for identifying teacher learning as it unfolds in interactions with coaches.
This dissertation builds on advances made available by Grossman, Horn, and Little to theorize and propose methods for the study of teacher learning toward equitable classrooms as it unfolds (or does not unfold) in interactions with coaches. Chapter 2 proposes a framework for conceptualizing teacher learning toward ambitious and equitable classrooms, as it is situated in broader cultural contexts of US education. Chapter 3 outlines methods for capturing central aspects of this learning as it happens in and through teachers’ interactions with coaches.

1.2.2 About Coaching Practices

This dissertation also aims to contribute to the research that illuminates what coaches might productively do with teachers to support their learning. Extant research has begun this work by naming activities that coaches engage in (Campbell & Griffin, 2017; Mudzimiri et al., 2014) or that researchers find are—or might be—productive for teachers (Gibbons & Cobb, 2017; Munson, 2018), such as co-planning, modeling, or observing lessons. Without observational data of coaching interactions, however, we cannot know how these named activities play out, which limits our ability to understand their potential for supporting learning. For instance, one could imagine different kinds of coach-teacher interactions with different affordances for teacher learning, each of which could be called “co-planning.” Coaches might, for instance, listen to teachers describe their plans and then offer suggestions, they might tell teachers how they should plan a lesson, or they might work together with teachers to generate plans that neither of them has thought of before. Without further investigation, we have no reason to believe that these different kinds of conversations will have similar affordances for teacher learning, so naming each of them the same way may turn out to be problematic. This dissertation looks inside of coach-teacher interactions to investigate what one coach does with two teachers and how various interactional choices afforded and constrained teachers’ learning.

1.2.3 About Fostering Teacher-Coach Relationships that Support Learning

While the extant coaching literature is strongly convergent on the idea that coach-teacher relationships matter, it has done little to support our understanding of how these relationships might be developed in productive ways. The issue is generally framed in terms of attributes of individual coaches and teachers (Anderson-Levitt et al., 2014), with coaches either having or not having “masterful relational skills” (Luebeck & Burroughs, 2017) and with teachers being “willing” or “resistant.” Just as attributing powerful teaching to idiosyncratic “hero” teachers is unproductive for understanding teaching and learning in classrooms, I join Anderson and colleagues (2014) to suggest that attributing successful (or unsuccessful) coaching to the idiosyncrasies of coaches’ “people skills” or teachers’ receptiveness is minimally productive for understanding the work of coaching. Research is needed that supports our understanding of how relationships among coaches and teachers develop over time in their interactions. When these relationships go well, what are coaches and teachers doing? When these relationships are more challenging, how can we understand the challenges in ways that might support us to consider responses?

This dissertation suggests that it is instructive to consider ways in which teachers’ resistance to coaching, like their understandings of students, can be understood as culturally situated. The coaching literature is clear that some contextual factors outside of the immediate work of coaching (e.g. administrative support) have an impact on the quality of the interactions between coaches and teachers, a finding which aligns with the above suggestion.
It is also instructive to consider the ways that similar concerns were framed and investigated in earlier literature investigating teachers’ learning in interactions with other teachers. Rather than asking whether teachers in these interactions were “resistant,” Horn, Little, Grossman, and colleagues investigate ways in which interactions were fostered that supported learning, uncovering findings about the development of interactional norms and practices that supported teachers to participate productively together and that therefore provided opportunities for learning. This dissertation follows their lead by investigating the nature of interactions between a coach and two teachers with whom the trajectory of relationship-building was differently challenging. It considers factors that support and constrain “relationship-building” and “teacher resistance” that are not about the idiosyncrasies of the individuals involved, but that shed light on the cultural forces that bear on interactions.

In summary, this dissertation aims to contribute to our understanding of both mathematics teacher learning toward ambitious and equitable classrooms, and the possibilities and complexities of coaching to support this learning. It does this by proposing theoretical and methodological tools for the study of this kind of teacher learning and using these tools to investigate teacher learning and coaching through the close analysis of two cases. My hope is that this research will contribute both to the design of coaching that supports teachers to disrupt inequity in their math classrooms, and to theoretical conversations about teachers’ learning in work-embedded interactions.
Chapter 2
Theoretical Framework

The purpose of this chapter is to (1) acknowledge and describe some of the perspectives that underlie this study and (2) lay out a framework for *transformative teacher learning toward ambitious and equitable teaching* that draws from these perspectives and guides this study. I begin by describing some aspects of my position in the world and reflecting on ways that these positions are intertwined with the research presented in this dissertation.

2.1 Researcher Positionality

Education research is not neutral (Gutiérrez, 2008, 2013; Martin, 2008; Patel, 2016). The generation of knowledge is, and always has been, a power-laden set of processes; functionally only some people are granted the right to define problems, shape the questions that research works to answer, choose what counts as data or as progress, interpret and apply trends in data. The power wielded by those who are granted these rights generally remains unacknowledged. This power has historically been granted to—and wielded by—White, middle-class men. This arrangement has come with costs, not only to communities of color, women, and communities in poverty, but also to the breadth and quality of the knowledge generated through education research (Martin, 2008, 2010). While it is outside the scope of this dissertation to take on or dismantle these arrangements, it is important that they be acknowledged. Here I do my best to name my positions in the world, and consider some of the limitations and perspectives that accompany these positions.

The theoretical framework that is at the center of this chapter, and that guides the analyses throughout this dissertation, is built from a set of perspectives about how mathematics classrooms should be and about what ways of thinking, being, and teaching are conducive to the development of these kinds of mathematics classrooms. These perspectives are central to the way I conduct research. While there are obvious challenges to the underlying endeavor (e.g. what gives me the right to decide these things?), I hope that in the end, there is value to offer; that the questions, ideas, analyses, and findings herein will contribute constructively to ongoing conversations, and that these conversations will include voices from a broader set of cultural positions than is currently typical. There are two aspects of my position that I comment on below: my relationship to Whiteness and to communities organized around Complex Instruction.

I identify as White. (More broadly, I identify as a middle-class, straight, White woman of Jewish heritage, but my identities as middle class, straight, female, and Jewish bear less directly on the issues herein, so for now I comment on my identity as White.) Whiteness, though a scientifically-baseless and oppressive social construct (Leonardo & Broderick, 2011; Roediger, 1999), has been with me from birth, shaping the ways in which I understand and am understood by the world. While I have much to learn about the implications of Whiteness in my work, a few things are clear to me that bear on this dissertation. First, it is not possible for me to know in any rich or complete way the limitations of my perspectives without engaging with others who are differently positioned. The work of a dissertation is conceived of, and designed to be, the work
of an individual, with structural constraints placed on the extent to which differently-positioned collaborators can be sought out and different perspectives can be included.\(^3\)

Second, it is clear to me that it is and will be my responsibility, as I continue to learn with and from research, that I seek out opportunities to engage with differently positioned teachers, researchers, and other colleagues. For now, inside of this individual endeavor of a dissertation, it must suffice to recognize the limitation of Whiteness on my perspective, and to resist the pull to claim universality of the knowledge generated herein.

As a mathematics educator, my perspectives have been shaped by ideas and communities surrounding Complex Instruction (Cohen & Lotan, 1997; Cohen, Lotan, Scarloss, & Arellano, 1999)\(^4\). I first encountered CI when I joined a collaborative team of curriculum developers, which included members of the math department at “Railside” or “East HS” (Boaler, 2008; Horn, 2008; Nasir, Cabana, Shreve, Woodbury, & Louie, 2014), who had been for years using and developing CI pedagogy. I was a 6th year teacher, and the ideas I encountered through this engagement helped me to understand newly what might be happening for my students—and what might be happening differently for my black and brown students than for my students who identified variously as Asian or for the few students who identified as White—and how I might work to shape a classroom community that upended some of the injustices that dominated students’ mathematical experiences.

Since that time, my continued learning about mathematics education, as a teacher, curriculum developer, professional developer, coach, and researcher, has taken place alongside my engagement with communities of CI educators. I designed a dissertation study that allowed me to dig into these ideas, practices, and communities, and to investigate issues of teacher learning toward a vision of teaching that is rooted in these communities and their work.

The framework that I have developed to guide this study is closely tied with my position with respect to Whiteness and to communities organized around Complex Instruction. My hope is that this framework, and the discoveries that have resulted from its application to data, will be useful for other researchers and educators with varied positions and perspectives. One way to work against the limitations of perspective and the perpetuation of Whiteness through education research is to seek out new ideas and voices and to resist the call to claim the universality of our learning.\(^5\) It is thus my hope that I will have opportunities to bring these ideas and perspectives into future collaborative work that will challenge and expand them.

For the remainder of this chapter, I outline the central perspectives that this study takes and present the framework I developed for investigating teacher learning toward the vision of ambitious and equitable teaching that opened this dissertation.

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\(^3\) In a sense, by promoting and broadcasting the individual voices of those in the position to dissertate, and by rewarding “objectivity” and “neutrality,” the dissertation itself acts to reproduce Whiteness in the “White Institutional Space” of mathematics education research.

\(^4\) Complex Instruction emerged from a White Institutional Space, coming from the work of Cohen and Lotan at Stanford University. Since its inception, CI has been taken up, developed, and engaged with by various communities of educators, some of which have included differently positioned participants.

\(^5\) This resistance is made more challenging by the values and norms of the world of Education Research, wherein individual scholarship is valued and individuals achieve status and recognition when they claim to be the source of universally applicable knowledge.
2.2 Equity

The ideas in this dissertation build from the work of scholars who point out that math education in the US is situated within, and contributes to, a culture dominated by inequity (Cohen, 1997; Gutiérrez, 2002; Martin, 2003; Nasir & Shah, 2011). To work toward equity in math education, these scholars tell us, it is important to recognize that math teaching and learning unfold in spaces that are not neutral, but instead governed by unequal distributions of power and access. And these unequal distributions of power and access organize opportunity in mathematics classrooms in such a way that the social order is maintained and some students are granted access to status and opportunity as “smart at math” and others are not. Given the position of mathematics as a gatekeeper to broader social and economic opportunity, these arrangements have far-reaching consequences for the lives of poor communities and communities of color (Martin, Gholson, & Leonard, 2010; Moses & Cobb, 2002).

This backdrop of injustice implies that working toward equity in mathematics education requires recognizing and undoing structures of inequity. Systemically, this calls for us to create structures that grant access to rich mathematics to all students, dismantling systems that have historically granted access to rigorous, college preparatory curriculum only to some students, and tracked others into remedial or vocational educational pathways. Within math classrooms, working toward equity entails dismantling for students the narrow and limiting views of mathematics and of themselves that they have been supported to develop through their histories of schooling. It entails building classroom cultures in which all students come to see themselves and each of their classmates as valuable contributors to the intellectual work of the class. This requires curriculum that supports broad access to rich math, as well as teaching strategies and classrooms systems that support teachers to redefine what it means to do math, to be smart in math, and which students can be and do these things.

This perspective is different from common-sense notions of equity that are evoked in many conversations in US schools, where mathematics has been viewed as both the domain of the intelligent elite, and as a body of facts and procedures that students should take up and master. (While this latter view no longer dominates education research, there is evidence to suggest that it still characterizes much of students’ experiences in classrooms, carried there by teaching, curriculum materials, school arrangements, and grading policies that are vestiges of a long history of inequitable mathematics teaching and learning.) Consistent with this common-sense conception of mathematics is a view of equity as equal access to membership in the elite for different demographic groups. This view connects with widespread conversations about “achievement gaps,” that presume that the goal of equitable math education in the United States should not be to include everyone, but to ensure that equal portions of students counted within each demographic group are included, and by deduction, equal portions are excluded.

In contrast, the vision of equity that guides this research, and the professional development project in which it is situated, rests upon understandings of all students as ‘smart,’ or capable, math learners and of math as rich, complex, and full of connections. This does not suppose that all students are the same, but that ‘smartness’ in mathematics is multidimensional and that all students excel at some of its dimensions and have room to grow in others. In this view, equitable mathematics education has room to include all students, as all students can, and should, engage in meaningful mathematical inquiry, discovery, and learning in mathematics classrooms.
2.3 Learning

Learning is complex. Despite multiple and varied attempts to define it, it resists capture; attempts to operationalize it for research and practice (including in the study presented here) miss some of its complexity. Educational research (and many aspects of educational practice) have tended to take a relatively narrow view of learning, especially of teacher learning. While educators and researchers over the past decades have added richness to our understanding of student learning, much of that richness is absent from studies that focus on teacher learning. These narrow views of teacher learning have left us with narrow conceptions of supporting teacher learning.

This dissertation argues that broader views of teacher learning support richer ways to understand—and work to support—that learning. I draw primarily from the work of Wenger (1998) and Holland, Lachicotte, Skinner, and Cain (2001) to propose a view of teacher learning that aims to capture the complexity that I suggest matters for understanding the kinds of learning likely to support the development and maintenance of equitable mathematics classrooms. I refer to the teacher learning outlined below as transformative teacher learning toward ambitious and equitable teaching, or for brevity, transformative teacher learning, or TTL.

I use the word “transformative” here to denote degree, and not rate, of change. Like all meaningful learning, teacher learning is slow and ongoing, and does not take place in momentary revelations. Rather, it takes place over long stretches of time, influenced by teachers’ ongoing experiences and opportunities for learning. As is outlined in the sections below, the teacher learning of focus here involves ambitious, counter-cultural work and is thus different from other foci for learning, like learning to write a particular kind of lesson plan, or learning the mechanics of a new classroom routine. I use the word “transformative” to signal the focus on this broad and ambitious teacher learning.

2.3.1 Social Processes of Learning in Communities of Practice

Wenger’s (1998) theory outlines learning as consisting of ongoing negotiations (processes of participation and reification) related to four interrelated social processes: (1) meaning, (2) practice, (3) identity, and (4) community. The TTL framework considers learning to consist both of shifts in each process (e.g. development of new meanings), and ongoing, in-the-moment negotiations that take place related to each of these processes (e.g. in-the-moment negotiations of meaning). I return to these four processes after the discussions below of figured worlds and frames.

2.3.2 Figured Worlds

Holland et al.’s (2001) theory supports an understanding of learning as afforded and constrained by figured worlds. Holland et al. define a figured world as “a socially and culturally constructed realm of interpretation or web of meaning in which particular characters and actors are recognized, significance is assigned to certain acts, and particular outcomes are valued over others. (p. 52)” Figured worlds are historically rooted and situated. While many of the ideas related to Holland et al.’s Figured Worlds resemble those related to Wenger’s Communities of Practice, these entities are distinct in at least two significant ways: (1) Figured Worlds exist at a larger scale than Communities of Practice. Holland and colleagues discuss the figured worlds of Nepali Women, Romance on College Campuses, and Alcoholics Anonymous that span geographic regions and consist of actors who will never meet, nor even know of each other’s existence, while Wenger’s discussions of Communities of Practice...
over historical time, as cultural and political forces work together to construct, reconstruct, and negotiate realms of interpretation that pervade the spaces in which individuals conduct their lives.

In figured worlds, certain kinds of people exist, who are afforded certain ways of participating mediated by their positions with respect to the world. Thus, figured worlds mediate agency. They contain norms of interpretation and interaction, mediating how participants make meaning of how it is sensible to interact and interpret interactions. They are a backdrop against which individuals negotiate meaning about what they can do, coming to see some forms of participation as sensible, others as oppositional or radical, and still others as impossible.

Figured worlds make available particular tools and artifacts that people take up as they navigate their lives in these worlds. Tools that might appear to be the “same” to outside observers may be differently salient in different worlds. For example, “student work” might be a tool for identifying student deficits in one world and for making sense of students’ sensible thinking in another.

Dynamics of power and influence in any figured world constrain the meanings, practices, identities, and communities that are salient to inhabitants of that world. This is true for the figured worlds of math classrooms, which afford and constrain these processes for students, as well as for the figured worlds salient to mathematics education, which afford and constrain them for teachers. I describe two of these worlds in this chapter.

For this study, I connect Holland’s et al.’s articulations of figured worlds with the notion of frames that comes from scholars of discourse. Along with kinds of people and ways of participating, I suggest that figured worlds contain kinds of interactions, or frames (Goffman, 1974; Hand, Penuel, & Gutiérrez, 2012), and that frames further narrow individuals’ possibilities for participation. In the following section, I briefly discuss the notion of frames as they connect with learning.

2.3.3 Frames and Learning

In addressing the question, “what is it that is going on here?” a frame supports participants in situations to make meaning of those situations, organizing constellations of tools and actors, with particular roles, participating in particular ways, toward particular goals. Frames are continually negotiated in interaction as participants both provide and read contextual cues to make sense of and organize activity. For example, children hitting each other with pillows read and provide signals to their playmates about whether the activity they are engaged in is a game or a fight. (One can see in this example that when cues are mismatched or understood differently by different children, their experiences in the activity are likely to be confusing or hurtful or otherwise challenging.) A frame is said to be “at play” when individuals act as if that frame is functioning (Goffman, 1981; Hand et al., 2012).

Learning scientists have helped us to understand ways in which the frames that organize learners’ activity are consequential for learning (R. A Engle, 2006; Greeno, 2009; Hand et al., 2012). They have examined positional frames, which organize learners’ understandings of their focus on communities that evolve within a workplace environment, for example. (2) The ways in which Holland et al. conceive of Figured Worlds involve considerable attention to their historically and culturally situated nature as well as the ways in which they organize power among actors in worlds. Wenger focuses on ways in which Communities of Practice and individuals in those communities mutually constitute each other (he uses the image of climbing a tree that climbs you back). This mutual constitution applies also to Figured Worlds, but the larger scale of worlds leaves the individuals within with less power to influence the world.
relationships with others involved in any activity, and epistemological frames, which organize their sense of the discipline. Both frames guide learners’ understanding of how they are expected to participate or what forms of participation are acceptable or desirable. Hand et al. (2012) describe forms of participation that are supported by two contrasting frames in classrooms: “doing school” and “productive disciplinary engagement” (PDE; drawn from Engle & Conant, 2002). They demonstrate that the “doing school” frame involves particular positions (instructors as experts who decide what knowledge students need and delivering it and students as passive receivers of knowledge) and supports particular forms of participation, here individual practice. The contrasting PDE frame invites students into positions as active sense-makers and bestows upon them the intellectual authority to ask questions and investigate ideas. As these positions are offered to students, new forms of participation are rendered sensible, namely questioning, justifying, disputing or revising ideas together. When students participate in these ways, they have rich opportunities to learn.

Along with demonstrating the affordances of the PDE frame for learning, Hand et al. (2012) demonstrate ways in which the less productive “doing school” frame is entrenched in classrooms. Teacher-centered activities, roles that students experience throughout their schooling, and tools (such as exams and worksheets) cue “doing school” as the dominant frame. Hand et al. (2012) show that to support the PDE frame, explicit cultural work is required to signal to students that “doing school” is no longer “what is going on here” and to support them to accept invitations into new roles and positions.

Bringing together ideas from Wenger (1998), Holland et al. (2001), and Goffman (1981), I view learning as shifts in the intertwined, social processes of negotiating meaning, practice, identity, and community, which take place within—and are mediated by—figured worlds and the frames available in these worlds. In the following sections, I consider the worlds and frames that are salient to this dissertation, namely the dominant world of US Schooling and the emerging world of Ambitious and Equitable Teaching and Learning.

2.3.4 The Dominant World of US Schooling

This dissertation considers the world of US Schooling, which has evolved over historical time. Its evolution has been informed by purposes it was designed or modified to serve, and by the interests of the actors who were powerful in its formation. It is made up of meanings (about students, teachers, mathematics, lessons, etc.) that mediate particular actors’ (e.g. students, teachers, coaches, administrators) ways of engaging in the world, as well as their understandings of the possible, the valued, and the impossible.

In this world, intelligence—especially intelligence with respect to mathematics—is valorized and understood to be the innately held property of only certain students. School mathematics is a body of information and procedures to be taken up and applied correctly; students either master it or fail to do so, becoming labeled as either “math people” or people who are “bad at math.” Learning is understood to be the acquisition of knowledge or skills, which involves adding information which is missing, and correcting erroneous thinking. Learning can

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7 To consider a world called “US Schooling” does not imply any particular uniformity across schools in the US, but rather draws attention to the historically and culturally situated webs of meaning, or realms of interpretation, that mediate teaching and learning in the US. This is similar to Holland et al.’s world of Romance on College Campuses, which is useful for supporting investigations of identity, despite the fact that romance does not function identically on all college campuses, or among all those who populate college campuses.
be accomplished by certain kinds of people (e.g. “high” or “bright” students) in certain kinds of
environments (e.g. advanced classes with “good” teachers).

Teaching, which in this world is the work of individuals, is a collection of actions,
moves, or “best practices” that can be expected to result in students’ acquisition of new
knowledge and skills, at least for those students for whom learning is presumed to be possible.
Teaching is also the management of the different kinds of students so that students who are
capable of learning do so without disruption from others. Parallel to conceptions of student
learning, teacher learning is the acquisition of knowledge and skills and the development of
mastery of the “best practices” of teaching. It is sensible here for more novice teachers to acquire
this mastery through the tutelage of experts.

Recall that in figured worlds, frames guide individuals’ understanding of and
participation in moment-to-moment interactions, outlining which kinds of people get to
participate in which kinds of actions. Germaine to this study, the dominant world of US Schooling
provides frames for understanding and participating in activity intended to support teacher
learning. “Coaching” is easily understood as an activity in which more expert coaches give
information or impart skills to more novice teachers, in part by identifying their deficits and
working to mitigate them.

In this study, I refer to the world of US Schooling as dominant because this world
dominate the meanings, participation, identities and communities available to teachers in
schools. It is the collective common sense, what people have always known, and unless they are
given explicit cause to notice it, it remains all-encompassing and unnoticed. It surrounds and
touches on all activity that takes place in schools. It does not determine activity in schools, as
actors can and do find opportunities to innovate or resist; but all school-related activity takes
place against the backdrop of this world.

2.3.5 Possibilities for the Creation of Alternative Worlds

Holland et al. demonstrate that alternative worlds can be imagined and brought into
being. They show, through their analysis of a group of women in Nepal who used an annual
women’s religious festival to bring an alternative, more empowering world into being, that the
creation of alternative worlds involves collective engagement in new forms of activity and the
“carving out,” or the creation and protection of space in which it is possible for communities of
world-builders to achieve relative freedom from the trappings of dominant worlds. Once
emerging worlds are imagined and have gained some degree of strength, participants can carry
these worlds from “safe” spaces into those where pre-existing worlds dominate.

2.3.6 The Emerging World of Ambitious and Equitable Teaching and Learning

I consider the PD program in which the coaching in this study takes place to be part of
one such emerging world, which I call the world of Ambitious and Equitable Teaching and
Learning. This world has a shorter history than that of US Schooling, but has its own history
none-the-less. It too, is made up of meanings, actors, and frames that mediate moment-to-
moment interaction.

In this world, intelligence is understood to be multi-faceted, acquired through human
activity, and distributed among all people. Mathematics is a body of rich and connected ideas to
be made sense of and created anew. All students—and teachers, coaches, and others—are sense-
makers with various perspectives and strengths with respect to mathematics. Learning in this
world is ongoing and socially negotiated and takes place through human interaction. Teaching is complex and contingent and requires ongoing innovation, and is thus worthy of collective investigation and development. Teacher learning involves ongoing experimentation, sense-making, and co-investigation.

In the emerging world of Ambitious and Equitable Teaching and Learning, coaching can be sensibly understood through the frame learning together about teaching. This frame organizes people called “coaches” and people called “teachers” to understand themselves as engaged in the collective activity of learning about teaching and to participate accordingly.

As represented in Figure 1, This emerging, alternative world exists (or in some cases struggles to not-quite exist—see Chapter 5) in spaces where US Schooling is dominant. It must contend continually with the press (represented with gradient shading) of the meanings, identities, positions, forms of participation, and frames of the dominant world. In this sense, working toward the emerging world of ambitious and equitable teaching and learning is countercultural. Work must continually be done to recreate and sustain this emerging world and to work against the influences of the dominant one.

Figure 1. The emerging world of Ambitious and Equitable Teaching and Learning within the dominant world of US Schooling

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8 As was discussed at the start of this chapter, this study was born from this world, so similarities between the meanings in this world and the meanings throughout this chapter are not accidental.
2.4 Transformative Teacher Learning toward Ambitious and Equitable Teaching

I use the phrase *transformative teacher learning* to signal learning of an ambitious scope in the following respects. It involves shifts in the four processes of meaning, practice, identity, and community in ways that move between worlds. This dissertation is concerned with transformative teacher learning *toward ambitious and equitable teaching*, that is learning that is characterized by shifts in meaning, practice, identity and community from the dominant world of *US Schooling* toward the emerging world of *Ambitious and Equitable Teaching and Learning*. The framework in Figure 2 articulates transformative teacher learning toward ambitious and equitable teaching by enumerating aspects of four processes of learning—meaning, practice, identity, and community—as they relate to these two worlds. As indicated with arrows in Figure 2, this learning is taken to be progress along any number of learning strands from those consistent with *US Schooling* (articulated in the shaded region in Figure 2) to those consistent with *Ambitious and Equitable Teaching and Learning* (articulated in the unshaded region). Shading and placement in Figure 2 are intended to connect with the ideas in Figure 1, although the relative sizes of the representation of each world are shifted to accommodate text. ("Transformative teacher learning toward ambitious and equitable teaching" is cumbersome. I use the phrase "transformative teacher learning" and the shorthand “TTL” throughout this dissertation to indicate this kind of learning.)

While the four learning processes of meaning, practice, identity, and community are conceptually useful, they are too broad to support articulation of goals for teacher learning. For this reason, the TTL framework articulates sub-processes (which I call *strands*) that connect more directly to the work of teaching and to teacher learning toward ambitious and equitable teaching. Below, I briefly explain these strands. While described individually, they are taken to be intertwined, with complex relationships. Throughout the dissertation, I examine learning along the strands, foregrounding different strands at different times. I attempt as I do so to stay attentive to their interconnected nature.

2.4.1 Meaning
Meaning-making is active, ongoing, socially negotiated, and embedded in worlds. As teachers go about their professional lives, they continually take up, create, contest, and absorb meanings in negotiation with the people and artifacts of their worlds. The TTL framework articulates aspects of this meaning making—about smartness, math, students (who they are and what they should do), goals for teaching, and equity—that are central for teachers’ capacity to develop ambitious and equitable classrooms. Figure 2 articulates meanings along each of these strands that are given by and consistent with *US Schooling* and those that are supportive of, and connected with *Ambitious and Equitable Teaching and Learning*. Meaning-making is closely related to each of the learning processes named in the following sections; comments about these connections follow the articulation of each strand.

2.4.2 Practice
Wenger articulates participation in practice as a central process of learning. He explains, “The concept of practice connotes doing, but not just doing in and of itself. It is doing in a historical and social context that gives structure and meaning to what we do. (p. 47)” Cook and Brown (1999) use the term similarly to mean “the coordinated activities of individuals and groups in doing their ‘real work’ as it is informed by a particular organizational or group
context.” (pp. 386-387) They consider practice to contrast with behavior (doing of any sort) or action (behavior with meaning) in that practice is imbued with meaning drawn from a “particular group context.” Consistent with these articulations of practice, this strand of learning is concerned with what teachers do in the context of their “real work” that is imbued with meaning drawn from the worlds in which they teach.

The TTL framework articulates two strands of practice that capture central areas of teachers’ doing of teaching: teachers’ doing of teaching in their classrooms with students and teachers’ doing of the away-from-students aspects of teaching, including planning, reflecting, grading, etc. I call these two strands participation in classroom practice and participation in thinking and talking about teaching, respectively.

2.4.3 Identity and Community

Identity has been thoroughly and variously theorized over the past few decades and researchers take it up in a variety of ways. Here, I draw primarily from Wenger and Holland et al. to consider identity processes to be negotiations related to individuals becoming kinds of people. Teachers become kinds of teachers as they draw from the range of available constructions of “teacher” in their worlds.

The worlds of US Schooling and of Ambitious and Equitable Teaching and Learning contain meanings about teaching and teachers that mediate teachers’ notions of ideal teaching, and of who or what they might strive to become professionally. Their senses of their own competence with respect to these visions are mediated by worlds, as they have ongoing experiences of feeling more or less competent, or being positioned by others as more or less competent. The TTL framework articulates three strands to capture various aspects of these processes of teachers’ becoming in figured worlds, borrowing language from Holland et al. and Wenger: (1) figurative identity of teaching, (2) identity of competence, and (3) positioning (here with respect to the coach). I describe each briefly below.

Figurative identity refers to processes of becoming that relate to ongoing negotiations of meaning about the kind of teacher that is possible or desirable to become. In the TTL framework, figurative identity is focused on teachers’ evolving, situated meanings of what a teacher is or should be. The TTL framework uses identity of competence to point to teachers’ processes of negotiation related to their senses of their own competence with respect to ideal teaching. How do they experience themselves, or how do they experience being treated, as competent with respect to what they understand “good teaching” to be?

Recently a number of researchers have drawn from positioning theory (Davies & Harré, 1990) to understand aspects of students’ identities that are consequential for learning processes (Bishop, 2012; Engle, Langer-Osuna, & McKinney de Royston, 2014; Esmonde & Langer-Osuna, 2013). They use the spatial metaphor of position to signal the aspects of becoming that relate to how people experience themselves as situated with respect to other actors in their worlds. As the example drawn from Wood (2013) below demonstrates, individuals experience their placement in social space, taking up and offering positions through interaction:

A student (I will call her Rebecca) might frame school as a realm of sorting students into ability. If Rebecca sees herself as mathematically smarter than her peers, she might communicate her position (and her perceptions of her peers’

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9 This relates closely to Wenger’s notion of practice-based identity. However, I found the phrase “practice-based identity” to be used in differently ways in various studies, so to avoid confusion I use language from Holland et al.
positions) by placing her mathematical work in front of other students and ordering them to copy answers. (pp. 778-779)

While teachers experience positioning in all their interactions, and with respect to various actors in their worlds (e.g. administrators, students, other teachers), the TTL framework focuses on the positioning that is most relevant to teachers’ learning through interactions with coaches: *positioning with respect to the coach*. This aspect of teachers’ *becoming* is intimately connected to their experiences of togetherness, or community with coaches. Thus, it is located to span the headings “identity” and “community” in Figure 2.

The final strand of the TTL framework is that of *community or belonging* with respect to the communities that matter in teachers’ worlds. A great deal of research attention has been paid to the essential role of community in teachers’ learning (see Chapter 1). Holland et al. show ways in which the creation of alternative worlds requires collective practice among people who experience themselves as strongly connected and collectively committed to a shared vision. Thus, to understand TTL, it is important to consider ways in which teachers come to *belong* with communities of educators committed themselves to TTL.

The articulation of figured worlds as *webs of meaning* or *realms of interpretation* highlights the special place of meaning-making processes in learning. Meanings—about students, teaching, and learning—that exist in teachers’ worlds both inform their other learning processes and are informed by them. For example, the meanings that teachers hold about teaching and students guide their actions and interactions in the classroom. At the same time, teachers’ in-classroom participation supports their ongoing meaning-making processes, offering possibilities to reify dominant meanings or to construct emerging ones. Similarly, the *web of meaning* available to teachers mediates the *kinds of teachers* they can see themselves to be, or how competent, as well as how they are positioned in relation to others. At the same time, teachers’ development of identity supports meaning making. A teacher might, for example, come to see that she is good at supporting students’ mathematical sense making in groups. This developing identity could, in turn, support her to gain new understanding of the importance of this sense making for students’ math learning.

Figure 2 summarizes the TTL framework.
Figure 2. Framework for transformative teacher learning toward ambitious and equitable teaching (TTL)
Figure 2 describes possible states of being for teachers along each strand consistent with the dominant world of *US Schooling* or the emerging world of *Ambitious and Equitable Teaching and Learning*, with TTL represented by arrows signifying progress from the former to the latter. Because the world of *Ambitious and Equitable Teaching and Learning* is emerging and is situated within the dominant world of *US Schooling* (a relationship signified in Figure 2 by shading surrounding the unshaded region), TTL is not expected to result in an unproblematic finished state of arrival into the emerging world, or to be complete. The dominant world exists and will continue to exist and to press on the emerging world. Thus, it is expected that tensions between the worlds will continue to arise for teachers and coaches for as long as they work toward the emerging one. As prior research has demonstrated (Gutierrez & Vossoughi, 2010; Louie, 2016), these tensions can provide opportunities for learning, as teachers, coaches, and others can work together on navigating them.

It is possible, and likely, for teachers at any moment to be best described by some descriptors in the *US Schooling* and some in *Ambitious and Equitable Teaching and Learning* portions of Figure 2. For instance, a teacher might make meanings about students and classrooms in ways consistent with Ambitious and Equitable Teaching and see herself as not good at the things that matter in teaching. A teacher might also see herself as good at the things that matter in teaching and be making meanings of students in ways consistent with *US Schooling*. TTL is not the summative travel from *US Schooling* to *Ambitious and Equitable Teaching and Learning*, but rather progress along any number of strands of learning in that direction.

The meanings, practices, identities and communities articulated in the world of *US Schooling* (shaded in Figure 2) are readily available in this world. This does not indicate that these descriptions exist only in this world. For example, “I am not a good teacher” does not reside solely in the world of *US Schooling*; it’s possible (and perhaps common) to experience oneself as a “bad” teacher in relation to meanings and practices of *Ambitious and Equitable Teaching and Learning*. However, the world of *US Schooling* supports a focus on deficits, and is replete with meanings, practices, and artifacts (the image of the “hero teacher” in popular culture, against which teachers can easily fall short; teacher evaluation procedures and checklists; etc.), all of which work against teachers’ processes of becoming competent.

While Figure 2 represents each strand of TTL in binary terms (by articulating a “from” and a “to” state), TTL is considered progress along the arrows, and not arrival. Progress, even along a single strand (participation in classroom practice, for example) might unfold in various ways. One teacher might, for example, begin to experiment with explaining math to her students less often and asking students to generate mathematical explanations more often, while another might work on trying out new ways to intervene strategically with student groups to support more equitable participation. Both teachers would be engaging in TTL along the strand of participation in classroom practice.

The presence in Figure 2 of descriptions located at the end of arrows is not meant to suggest ideal or final states. The world of *Ambitious and Equitable Teaching and Learning* requires continual TTL; those working to embody and sustain this emerging world must continue to contend with their ongoing embeddedness in *US Schooling*. It is in part because of these presses that the work of TTL should be understood as ambitious and requiring substantial, ongoing support.

Chapter 3 explains strategies used to operationalize the TTL framework with data drawn from teachers’ work with coaches.
Chapter 3
Methods

As the central purpose of this study is to investigate possibilities for coaching to support TTL (outlined in Chapter 2), a substantial amount of theoretical and methodological attention was paid to articulating this learning. Chapter 2 laid out the theoretical tools. This chapter presents the methodological tools I employed, and in some cases developed, to operationalize TTL and to investigate its connections to coaching. I begin by describing the research setting and introducing the participants. I elaborate on my own role in this study as both a participant/subject and a researcher. I describe the methods for collecting data and then turn my attention to analytic methods. There, I map the multiple-strand TTL framework from Chapter 2 onto 5 analytic strands of TTL. I describe methods developed to investigate each of these strands and then describe my approach to examining coaching and the issues of power and frames that mediate teachers’ experiences in coach-teacher relationships.

3.1 Research Setting and Participants

3.1.1 Research Setting

Research was conducted during the 2014-2015 school year in three “East Side” middle schools in Coastal Unified School District (CUSD)\textsuperscript{10}, a large, urban school district on the West Coast of the United States. CUSD is racially and socioeconomically segregated, with “East Side” schools serving larger portions of Black and Latinx students and students living in poverty, and “West Side” schools serving more students with racial and economic privilege.

At the time of the study, CUSD was in its 6\textsuperscript{th} year of engagement in an ongoing professional development (PD) program in Complex Instruction (CI) for secondary mathematics teachers. In brief,

Complex Instruction is a combination of pedagogical strategies used to create a classroom “social system” that directly attends to problems of social inequality, which undermine academic access and achievement if left unexamined. The complex instruction model aims to “disrupt typical hierarchies of who is ‘smart’ and who is not” (Sapon-Shevin, 2004) and promotes equal-status interactions amongst students as they engage with tasks that have high cognitive demand within a cooperative learning environment. (Jilk, 2009)

The PD program was designed to support district-wide cultural change in mathematics classrooms through multiple components, or “learning spaces.” Each learning space was designed to support the learning of various groups of learners (e.g. teachers, coaches, teacher leaders), but with particular focus on a primary group. Table 1 details the learning spaces that were part of the professional development design, which groups of learners the space was designed to support (denoted with an “x”), and which group of learners was primary in each space (denoted with a “P”). Those spaces that were primarily intended to support the learning of teachers and coaches are shaded for emphasis.

\textsuperscript{10} Pseudonyms are used for names of the district, schools, teachers, students, coaches, and other participants.
Table 1. Design of CUSD professional development program in Complex Instruction

<table>
<thead>
<tr>
<th>Learning Spaces:</th>
<th>Students</th>
<th>Teachers</th>
<th>Teacher Leaders</th>
<th>Administrators</th>
<th>Coaches</th>
<th>Program Designers</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Formal Workshops:</strong> teachers learn tools for teaching equitably in heterogeneous classrooms. Exclusive understandings of students, math, and ‘smartness’ are taken up and challenged.</td>
<td>x</td>
<td>P</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td></td>
</tr>
<tr>
<td><strong>In-Class Coaching:</strong> teachers’ sense-making about students, math, and ‘smartness’ are supported in the context of teachers’ own classroom practice.</td>
<td>x</td>
<td>P</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td></td>
</tr>
<tr>
<td><strong>Peer Observation:</strong> teachers work together to build common vision and norms of mutual support for teacher learning within their school sites.</td>
<td>x</td>
<td>P</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td></td>
</tr>
<tr>
<td><strong>Supporting Teacher Collaboration:</strong> norms of equity-oriented collaboration are built and reinforced through support at the department level.</td>
<td>x</td>
<td>P</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td></td>
</tr>
<tr>
<td><strong>Video Club:</strong> Educators come together across the district to build a vision for equitable classrooms and develop tools for strengths-based teaching practice.</td>
<td>x</td>
<td>P</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td></td>
</tr>
<tr>
<td><strong>Cross-Site Collaboration:</strong> Teachers plan units and lessons together to build common vision and norms of mutual support across school sites.</td>
<td>x</td>
<td>P</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td></td>
</tr>
<tr>
<td><strong>Teacher Leader Support:</strong> Teacher leaders develop their capacity to build and reinforce self-sustaining, equity-oriented departments.</td>
<td>x</td>
<td>P</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td></td>
</tr>
<tr>
<td><strong>PD for Administrators:</strong> School and district administrators come together to experience Complex Instruction and build understanding of the work taking place in math departments.</td>
<td>x</td>
<td>P</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td></td>
</tr>
<tr>
<td><strong>PD for Coaches:</strong> New and experienced coaches develop their practices together through apprenticing in “the field” and in formal workshop sessions, and through monthly “coaches’ meetings.”</td>
<td>x</td>
<td>P</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td></td>
</tr>
<tr>
<td><strong>Ongoing Program Development:</strong> Program designers come together regularly to share data gathered in all learning spaces and adapt the program in response to district-wide strengths and needs.</td>
<td>x</td>
<td>P</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td></td>
</tr>
</tbody>
</table>

As is evident in Table 1, teacher learning was the primary focus of multiple components of the PD program, namely workshops, peer observation, support for teacher collaboration, video club, cross-site collaboration, and in-class coaching, which is the focus of this dissertation. The hope was that teachers would have multiple complementary opportunities to learn with and from other educators about CI as they took on the challenging work of integrating it into their teaching practice.

It is luxurious to have a context within which to investigate these issues that is so richly supported. Rarely do PD programs offer so many complementary opportunities to teachers over extended periods of time (Desimone & Garet, 2015). The learning teachers experienced in this program was likely supported by their engagement in multiple learning spaces. It is thus important to take care when connecting particular aspects of any one teachers’ learning to coaching, and to recognize that numerous experiences may have supported the learning that is observed.
The methods developed in this study to examine teacher learning (detailed throughout this chapter) tend to focus on observing learning as it happens, rather than as a measured outcome that might be attributed to various experiences. The methods used here instead seek to observe teachers’ learning as they are interacting with coaches, to understand the affordances and challenges of coaching for TTL.

3.1.2 Participants

I collected data pertaining to the work of three coaches and seven teachers, shown in Table 2. Coaches were selected for their experience teaching and coaching with CI. Schools were selected that served mostly students from low-income families (receiving free or reduced price lunch) and students of color. Within schools, teachers were selected to maximize data collection opportunities given the schedules that coaches had established for their work. Most coach-teacher pairs engaged in four coaching visits across the course of data collection.

<table>
<thead>
<tr>
<th>Coach</th>
<th>Coaching (yrs)</th>
<th>Teacher</th>
<th>Teaching (yrs)</th>
<th>School</th>
<th>Low SES</th>
<th>Non-White</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jess</td>
<td>10</td>
<td>Tina</td>
<td>3</td>
<td>Malcolm X MS</td>
<td>90%</td>
<td>100%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Jasmine</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Olive</td>
<td>7</td>
<td>Selina</td>
<td>7</td>
<td>Dinai MS</td>
<td>70%</td>
<td>85%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Chantel</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mia</td>
<td>6</td>
<td>Aya</td>
<td>5</td>
<td>John Adams MS</td>
<td>85%</td>
<td>95%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Heather</td>
<td>5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Kamilah</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

3.1.3 Participant Observation

I was engaged in this study as both a participant and researcher. In this section, I outline my role as a participant and discuss how this role intersected with my role as a researcher.

I had been involved in the PD program since its inception, 5 years prior to data collection. Throughout those years, I had been employed by CUSD as a program designer and coach, and I was part of the collaborative team of designers that designed (and continued to re-design) all aspects of the program. I was also a member of the 3-person team of senior coaches who were engaged during the year of data collection in apprenticing newer coaches into the project. As a member of this group of more senior coaches, I was a subject of my own data collection. To support my analysis and writing, I gave myself a pseudonym (Mia) and wrote about myself as a research subject in the third person.

While it could reasonably be argued that my involvement in the project introduces biases that influence my analyses and interpretations (which must be true to some degree), it is also clear that my involvement gives me access to understanding the data in ways that an outside observer could not. For instance, I met regularly with other members of the coaching team and was privy to multiple years’ worth of conversations about the work of coaching in this project, its intentions, its design and its outcomes. I attribute my own learning about being a coach largely to my ongoing work with this team.

It is also true that my position as a researcher influenced the coaching work. My presence (with computer and video recorders in tow) must certainly have introduced some degree of self-consciousness for coaches, teachers, and students. My position as an observer of the work of multiple coaches also yielded insights and questions about our collective work of coaching. I shared these insights freely with coaches, both formally (in monthly coaches’ meetings) and
informally (in casual conversations) over the course of the year. This degree of observation, reflection, and feedback must have had some impact on coaching approaches and practices.

I suggest that, for several reasons, this does not introduce insurmountable validity problems. First, across the course of a school year, it is reasonable to assume (and indeed, to hope) that any thoughtful, collaborative team of practitioners, including coaches, would engage in ongoing learning and practice shifts. As with any other set of practices, including teaching practices, there is no point at which practitioners are finished developing and changing. The practice of coaching is a moving target; it shifts and adapts constantly, in response to environmental influences, including the perceived needs of teachers, the developing ideas and capacities of coaches, and constraints of school and district contexts.

Second, the intention of this study is not to evaluate the expertise of coaches or to establish degrees of effectiveness. It is, however, to examine closely the work of coaches and teachers to investigate ways in which their co-constructed interactions can support powerful teacher learning. The depth of knowledge afforded me as a participant in this work supports this goal of the study.

Nevertheless, to mitigate risks to validity associated with my multiple roles (and with my necessarily limited perspective as one person), I engaged with multiple research assistants, colleagues, and professors frequently through all phases of analysis and writing. These collaborators provided feedback, offered alternative interpretations, and pushed me to return to my data with new considerations.

3.1.4 Case Selection

While the primary aims of this study remained stable, its design developed over time. After data collection with the multiple participants (see Table 2), the design shifted into a comparative study of two teacher-coach pairs. In this section, I discuss the reasons for this development as well as the logic of the selection of the two cases. The discussion unfolds chronologically.

One aim of this study was to address a need (detailed in Chapter 1) to develop tools to study teacher learning with a degree of nuance that would support understanding of the ambitious learning (TTL) that was the aim of the PD program. To support this goal, I chose to begin detailed analysis by examining one case closely. In one case, I reasoned, I could develop and begin to refine tools for identifying multiple learning processes and that I could later apply those tools (while continuing to refine them) to other cases.

I selected the case of Kamilah (teacher) working with Mia (coach) for the following reasons. I wanted to begin with a teacher who I coached, as my closeness to the data could, guide my investigations productively and such a choice offered me opportunities to learn newly about my own coaching practice. Among the teachers I coached (Aya, Heather, and Kamilah), I was most curious initially about Kamilah. I experienced my coaching work with Aya as relatively easy. While this case, which I interpreted to involve successful coaching, could be interesting, I was not as curious about it as about other cases. In the other extreme, I experienced my coaching work with Heather as challenging and I did not have a sense that I would find clear evidence of learning. As my initial purpose was to flesh out tools to study learning, this was not an optimal case for beginning analysis. I experienced my work with Kamilah as productive, although not as easy as my work with Aya. I suspected that investigation would uncover evidence of Kamilah’s learning, but I did not yet have a strong sense about what that learning would be or where the evidence would be found. Together, these factors pointed to the Kamilah case as the most
interesting for me as a starting point and the most supportive of my aim to develop tools for studying teacher learning.

As my investigation in the Kamilah-Mia case progressed, several things became clear that influenced study design and further case selection. First, as I developed strategies for studying multiple strands of Kamilah’s learning, it became clear that the depth of analysis that was emerging, and that was appearing to be generative, would not be possible across the data corpus in a reasonable timeframe and that the study design would shift to a comparative case study (Yin, 2006).

As I uncovered aspects of Kamilah’s learning and Mia’s coaching, I became increasingly curious about Heather. As will become clear in Chapter 4, Kamilah engaged in multiple processes of TTL, and clear evidence emerged that Mia’s coaching was supportive of this learning. There were numerous similarities between Kamilah’s and Heather’s work, and Mia’s participation in that work, which might lead one to expect similar results. They taught the same classes (7th and 8th grade math) in the same school (John Adams MS), and used the same district-generated curriculum. They, along with Aya, planned together regularly, and often taught the same lessons on the same days. Both teachers had first met Mia when she visited Adams MS the previous spring to talk with the department about CI and invite them to join the PD program. They had both participated in the 5-day summer course in CI that Mia taught. Mia coached both teachers during the same four visits to Adams MS (see Figure 3), and their conversations were often related to the same, or closely related, lessons.

![Figure 3. Timeline of data collection through 2014-2015 school year.](image-url)
Despite the contextual similarities (see Table 3), my experience with Heather and my preliminary analyses of data suggested that her experiences with coaching—and her learning—were markedly different from Kamilah’s. It was clear that Heather’s learning had been less dramatic and that her relationship with Mia had been more challenging. This contrast suggested Heather as a rich case for analysis and comparison. Also, I had a hunch that studying my own work with Heather could support me, and others, to learn about difficult coaching. It had been easy for me to interpret my challenges with Heather as resulting from her “resistance,” an interpretation that is common in the coaching literature (Matsumura, Garnier, & Resnick, 2010; Neufeld & Roper, 2003; Poglinco et al., 2003). Indeed, as Heather’s coach, I did sometimes interpret her in this way. I suspected that there were more generative ways to understand the challenges in our work together and was interested to discover those.

Table 3. Comparison of contextual factors between Kamilah and Heather

<table>
<thead>
<tr>
<th>Similarities</th>
<th>Differences</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kamilah and Heather</td>
<td>Kamilah</td>
</tr>
<tr>
<td>• Same school (Adams MS)</td>
<td>• 2 years of prior teaching experience; 1 year at another school using Direct Instruction and 1 year at Adams trying group work.</td>
</tr>
<tr>
<td>• Same courses (7th and 8th grade math)</td>
<td>• Relative newcomer to Adams.</td>
</tr>
<tr>
<td>• Both in 1st year with new, district-developed curriculum.</td>
<td>• Positioned as novice in co-planning, often taking up Heather’s previously-developed ideas.</td>
</tr>
<tr>
<td>• Planned lessons together.</td>
<td>• Identifies as a teacher of color.</td>
</tr>
<tr>
<td>• Worked with Mia on same days with similar lessons.</td>
<td></td>
</tr>
</tbody>
</table>

3.2 Data Collection

In the following sections, I describe the methods employed for data collection.

3.2.1 Teacher Interviews

Semi-structured interviews with teachers were conducted (and video and audio recorded) after the first coaching cycle and again after the last, investigating teachers’ goals for their own teaching, their perceptions of CI and of the PD program, their experiences with their CI coach and experiences they had had with previous coaches, and their perception of their own learning—and goals for learning—through coaching. End-of-year interview protocols were modified slightly for each teacher, with a few questions designed to follow up on comments each had made in the first interview about their goals or wishes for their work with their coach.

I conducted the interviews with the teachers who worked with other coaches (Olive and Jess). A research assistant conducted interviews (using a slightly modified protocol) with the teachers with whom I was coaching. To reduce the extent to which these teachers might be concerned with how I (their coach) would react to their talk, they were informed that I would not view recordings of the interviews or have access to their content until after my coaching work with them was completed at the end of the school year.

Basic interview protocols for both interviews are included below. Modified interview protocols are included in Appendix A.
Beginning Teacher Interview Protocol

Introductions and reminder what the study is about: Just to remind you, I’m conducting a study to try to learn about how coaches and teachers work together and what kinds of things they can do together that feel supportive for teachers. There’s not much research yet that helps us understand that. There’s a little bit of research that helps us to see whether coaching is or can be effective, but none that helps us understand what coaches and teachers can actually do together and which things might be most supportive for teachers. So that’s what my study is working toward. Do you have any questions?

Also, I want to remind you that this interview is for research purposes only. No one in the City complex instruction community or in your school will have access to it. Do you have any questions about that?

Goals for their own practice
OK, I want to start by learning a little bit about you as a teacher.
1. Why did you go into teaching?
2. Describe yourself as a teacher. What is your teaching practice like? What do you feel good at? What is hard for you?
3. Now think about the teacher you’d like to be in 5 years. Paint a picture for me of the educator you’d like to become. Help me understand your vision of perfect practice? What would it look like? Sound like? Feel like?
4. What challenges do you deal with as you far as making your goals for yourself a reality?

Perspectives on CI
Great, now I’d love to learn some more about how the complex instruction project you are involved with relates to what you already told me.
5. Can you talk about complex instruction for a bit? How does it relate to the kind of teacher you are hoping to become?
6. What are you hoping to learn from or get out of your engagement in the complex instruction project in San Francisco?

Perspectives on Coaching
Thank you. Now I’d like to learn about your experiences with coaching in the CI project so far.
7. What are your first impressions of your coach? What do you know about her/them?
8. Have you worked with coaches before? What have those experiences been like?
9. How did your first coaching experience with (your coach) go for you? Did it feel useful? How? Did you learn? What and how? Did it feel hard or frustrating? (ask probing questions here, pushing for specifics as much as possible that might help us connect their comments to our video data of the interaction)
10. Were there particular parts of your conversations with (your coach) that felt particularly helpful or challenging? How so?
11. Given everything you just told me, what do you hope to be able to learn or accomplish with (your coach) this year? Do you have worries?
12. Is there anything else that you want to tell me that you think might help me understand your experiences with coaching or the complex instruction project in general?
Hello and preamble: Thanks for taking the time to meet with me again. I know you’re busy and I appreciate this a lot. Some of what I’ll ask you about today will overlap with stuff we’ve talked about before. Don’t worry about trying to remember anything you said before. I’m interested in your thinking now. Also, you and I are part of the same CI community and so we might share some ideas about teaching and complex instruction. For the sake of research though, I’m going to do my best to talk as if that were not the case. So, I may ask you to explain or describe things that I otherwise would not. I just want to be really clear that I’m not making assumptions about what you mean.

Development of teachers’ ideas about math teaching and learning

OK, I want to start by learning a little bit more about your ideas of great math teaching.

1. Describe to me your vision of great math instruction. (If necessary, probe for detail with: What are students doing? What is the teacher doing? What makes the instruction great?)

2. What people or experiences in your life, past or present, have been influential in building this vision of good instruction?

3. Has your work with complex instruction, this year or in the past, influenced your vision of good instruction at all? If so, how?

Experiences with CI in their own practice

4. What are your experiences so far using CI in your own classroom? (If necessary probe for detail with: How is it hard? Useful? Powerful? Rewarding? What are you appreciating about it? How has applying it to your practice shifted how you think about it?)

Development of teaching practice

5. Has your teaching practice shifted since last year? How?

6. I want to get a sense for what you were like as a teacher before I met you. Would you walk me through a typical day in your classroom before this year? (If necessary, probe with: what happens right after the bell rings? Can you continue from there?)

7. Thanks. Now would you walk me through a typical day in your classroom now. How is it different? How is it the same?

Perspectives on Coaching and on their own learning

8. Now that you’ve worked with your coach a few times across this year, do you feel like you know her better than you did at the beginning? How so? How comfortable do you feel with her?

9. How did your work with your coach go for you throughout this year? Did it feel useful? How? Did you learn? What and how? Did it feel hard or frustrating? In what ways? (ask probing questions here, pushing for specifics as much as possible that might help us connect their comments to our video data of the interaction)

10. Questions were crafted for each teacher here that followed up on their earlier talk about their goals for coaching. One example: You talked at the beginning of the year about goals you had for your own practice this year. In particular, you talked about wanting to increase academic rigor and using CI every day. I think you said something about
becoming a master of CI. How are you feeling about these things now? (If she talks about learning or improving, ask:) To what do you attribute your growth/learning?

11. As you worked with (your coach) this year, did new goals develop for you in relation to your practice? Tell me about that.

12. Can you remember any specific parts of your conversations with (your coach) that felt particularly helpful or challenging this year? Please explain.

13. Is there anything else that you want to tell me that you think might help me understand your experiences with coaching or the complex instruction project in general?

Demographic stuff:

14. How old are you?

15. How many years have you been teaching?

16. How do you identify racially/ethnically?

17. Are there other aspects of your identity that are central for you?

18. Where and when did you do your pre-service training / get your credential?

3.2.2 Coach Interviews, Surveys, and Reflections

Informal interviews of coaches.
When possible, I interviewed coaches (Olive and Jess) informally before and after each coaching visit, investigating their thinking about teachers’ strengths and needs, their coaching approach and plans, and their perceptions of the success of particular interactions with teachers. These conversations were audio recorded.

Coach surveys.
In February, I conducted a brief survey of coaches, asking for their open-ended responses to prompts investigating their perceptions of their work with each teacher to date. The survey questions are below:

1. How would you characterize your relationship with TEACHER at this point?

2. Do you perceive success in any aspects of your work with TEACHER so far? Please explain?

3. Do you perceive challenges in any aspects of your work with TEACHER at this point? If so, please describe them.

4. Do you perceive any change happening for TEACHER so far? Explain.

5. On a scale of 0 to 10, how clear do you feel about what TEACHER wants your help with? Please give a number and also explain your choice.

6. What are your goals in relation to TEACHER (for this coaching relationship, for your work with her/him, or for her/his growth)?

7. Please reflect on how working with a coaching team (COACH A and COACH B) has affected your work coaching TEACHER so far this year.

Coach focus group interview.
I conducted one focus-group interview with coaches in March both to investigate their coaching goals and approaches and the learning they perceived for the teachers with whom they worked and to gather their feedback on my current thinking about how to articulate the teacher
learning that we collectively hoped to support and I planned to study. (This thinking was encapsulated in a document called “Draft Framework” below).

**Coach Focus Group Interview Protocol:**
1. Give coaches the Draft Framework and explain: “I developed this framework to try to encapsulate what I think the goals are for our work as coaches with teachers. In other words, this captures my thoughts (with some feedback from Jess) about what we hope teachers will come to know and do. I’d like to start this conversation by giving you each an opportunity to read it and to react. I’m interested both in your feedback (what might be missing, what makes a lot of sense to you) and your questions. Once we reach what feels like a common understanding of this document, we’ll talk about some of the teachers you each work with and how these ideas might relate to them. Any questions about that?”
2. Answer any clarifying questions and then ask them to read the document quietly and jot down thoughts or questions or reactions.
3. When everyone is done reading, say, “OK, I’d love to hear the reactions or questions that came up as you read this document.”
4. When this discussion is concluded and it seems that we have some common understanding of each of the items in the Framework, ask: “I’d like to ask you about each teacher you work with that is included in my study in relation to this framework. First of all, please reflect on ways in which you think you are seeing progress from these teachers on any of the categories listed here. To remind you, the teachers I am focusing on for now are Jason, Tina, Brittany, Michelle, Jessica, and Dante.” As coaches talk about teachers and their learning (or lack of learning), ask clarifying questions or push for more detail.
5. It may be that through this conversation coaches naturally talk about their goals or hopes for teachers. If not, ask about their hopes or goals or what they perceive as next steps for teachers along the categories in the framework.
6. Follow up on any other lines of conversation that came up as relevant and interesting.

I engaged in ongoing reflections and journaling about my own coaching work with teachers.

### 3.2.3 Audio and Video records of Coaching Cycles

Each coaching visit consisted of a three-part cycle: a teacher-coach conversation prior to a lesson enactment, the lesson enactment itself, and a teacher-coach debrief conversation. Data collection for each part of this cycle is described below.

**Planning and debrief conversations.**

For teachers with whom I was not coaching, I observed and took field notes during planning and debrief conversations. I occasionally participated orally, as participants knew me and sometimes asked me questions. I made efforts to minimize this participation and remain a silent observer. I recorded teacher-coach conversations, usually with video and audio. In a few cases, I only audio recorded. I also collected copies of coaches’ notes for each of these conversations. When observing my own coaching work, data collection methods were the same, with the omission of field notes.
Lesson enactments.

I video recorded lessons using a stationary camera. I also used a lapel microphone to audio record each coach during the observed lessons in order to capture conversations between coaches and teachers during class. For lessons in which I was not coaching, I observed and took field notes, paying particular attention to interactions between coaches and teachers during class. I collected lesson materials, such as photographs of board inscriptions and copies of task cards and worksheets. I collected copies of notes coaches took during lessons.

3.3 Analytic Methods

The remainder of this chapter focuses on the analytic methods used for the study of teacher learning, coaching, and issues of frames and power in teacher-coach relationships. I begin by mapping the theoretical framework for TTL onto five strands for analysis.

3.3.1 From Theory to Analysis: Operationalizing Transformative Teacher Learning

The process of transforming theoretical constructs to observable measures is, by definition, a process of narrowing (Maxwell, 2013). In this section, I describe ways in which I approached this process of narrowing to operationalize the framework for TTL that was described in Chapter 2.

I began by asking the question, “What, from the theoretical territory of each strand of TTL, could be reasonably observed in data?” To clarify, I do not mean, what happened in the data and was thus observable, which is a question to answer through analysis, but what aspects of the theoretical constructs could be captured by records of teacher-coach talk, interview or survey responses, classroom artifacts, etc. For instance, from the conceptual territory of participation in classroom practice, what could be investigated through the examination of video records from a stationary camera, audio records of coaches’ talk during class, coaches’ notes, and video and audio records of teacher-coach conversations?

Answering questions of this sort involved the following iterative process. From the theoretical ideas and from initial encounters with data, I articulated analytic strands, and methods for operationalizing them, that I predicted would be observable in data and bear in some relevant way on the theoretical ideas. I then applied these first-draft methods to data, which revealed imperfections in the methods (e.g. something I thought would be clear in transcript was not present or ambiguous, or there were phenomena in the data that I did not anticipate). I generated ideas for adjusting the analytic strategy in response to these first attempts. Proposed adjustments were checked against theory: does the adjusted method still capture a reasonable slice of what matters from the theoretical terrain? If so, I applied this adjusted strategy to data, and repeated the process.

These iterative processes—which are similar to the progressive refinement of hypotheses described by Engle, Conant, and Greeno (2007)—took place over extended time. For the sake of space, I focus here on describing the current forms of the methodological tools that came out of them. My hope is that the tools described here will continue to be refined in future research. Table 4 shows the four large-scale processes of TTL (in the first column) mapped to the five analytic strands for which I developed methods. The following sections describe the methods developed for each.
Table 4. From a theoretical framework to an analytic framework

<table>
<thead>
<tr>
<th>Process</th>
<th>Operationalized strand of TTL</th>
<th>Overview of data and methods</th>
</tr>
</thead>
<tbody>
<tr>
<td>Meaning</td>
<td>Meaning-making in coaching conversations.</td>
<td>Coded transcripts of planning and debrief conversations for strands of meaning-making consistent with US schooling or ambitious and equitable teaching and learning. Used colors to represent codes and created visual representations of meaning-making across conversations over time called &quot;code profiles.&quot; Used code profiles to identify patterns in data, which were then investigated in video and transcript.</td>
</tr>
<tr>
<td>Practice</td>
<td>Participation in thinking and talking about teaching with coach.</td>
<td>Coded teachers’ contributions to coaching conversations using a rubric considering depth of these contributions and the degree to which they open or leave open lines of inquiry in conversation. Contributions that were deeper and opened lines of inquiry were considered consistent with the world of ambitious and equitable teaching and learning. Examined shifts in frequency and type of contributions over time.</td>
</tr>
<tr>
<td>Negotiations</td>
<td>Negotiations of classroom practice with coach.</td>
<td>Coded transcript of coach-teacher conversations and classroom interactions for actions related to classroom practice grouped into 12 threads. Created visual representations tracing actions along these threads in and out of conversations and lessons over time.</td>
</tr>
<tr>
<td>Identity</td>
<td>Becoming a kind of teacher.</td>
<td>Examined interview data for evidence of teachers’ ideas of ideal teaching and of their own competence in relation to those ideas. Compared talk early and late in the year to identify shifts.</td>
</tr>
<tr>
<td>Community</td>
<td>Positioning with respect to coach.</td>
<td>Examined talk and non-verbal behavior for evidence of teachers being offered, accepting, rejecting, or claiming positions with respect to coach. Zoomed out to identify patterns of this positioning over the course of the teacher-coach relationship.</td>
</tr>
</tbody>
</table>

**Meaning-making.**

The methods outlined below were developed to capture (1) essential aspects of teachers’ and coaches’ ongoing negotiation of meaning about students, mathematics, teaching, and “smartness” and (2) relationships between this meaning-making and both the dominant world of US schooling and the emerging world of ambitious and equitable teaching and learning that the professional development program was working toward. As the analytic focus was on ongoing negotiation of meaning—and not, for example, a set of meanings or “beliefs” that one might consider a result—coaching conversations were treated as the central data source. The following sections outline the methods used to cull these conversations for information about teachers’ and coaches’ negotiation of meaning.

**Transcription.**

Coaching conversations were transcribed and organized in a two-column format to make visible the flow of conversation between the participants (Ochs, 1979). Care was taken to capture any verbal responses that could be detected (such as “mhm” or “yeah”) and to note when talk was simultaneous. Non-verbal behaviors, such as laughter, that were interpreted as relevant for readers and analysts to understand the tone and meanings of the conversation were included in the transcription. Further transcription conventions utilized are provided in Appendix B. To facilitate coding, two column transcripts were copied into Microsoft Excel.
Segmentation.
Traditionally, researchers who have looked for a low-inference method for segmenting talk have used turns or grammatical structures such as sentences or phrases. However, Chafe (1994) found that breath groups, or segments of talk that take place between breaths, carry more meaning for the participants in conversation. As speakers’ meaning is central to this analysis, transcripts were segmented by breath group. I began a new unit of talk when (1) a new speaker began to speak or (2) a speaker took a breath. In most cases, breaths were audible. In some instances, the taking of a breath was inferred from a combination of the length of a pause in speech and the amount of speech that preceded the pause. Clear shifts to new topics of conversation were marked in each transcript. These were often signaled by talk such as, “Another thing I thought of was…” or “Also…”

Coding.
Breath groups were color-coded using the codes outlined in the following section. When it was found that a single breath group could reasonably be coded in different ways and that there were insufficient context clues available to support confidence in one choice over another, the breath group was not coded.

Development of meaning-making codes.
Codes were developed using an open coding procedure. As I read transcript, I created codes to capture categories of talk related to teachers’ and coaches’ ongoing meaning-making about students, teaching, and mathematics that were consistent with either the world of US schooling or the world of ambitious and equitable teaching and learning (see Chapter 2). As I continued through transcript, I revised the collection of codes by, for example, dropping codes for categories that did not arise frequently enough to be relevant, collapsing codes that did not appear meaningfully distinct in the data, and creating new codes in response to unexpected discoveries.

Once I achieved a reasonably robust and meaningful group of codes, I trained a team of undergraduate research assistants in my current understanding of the codes. We coded together, refining our definitions of codes interactively. Points of disagreement among coders served as resources for more clearly drawing boundaries around categories. We captured these disagreements and their resolutions in a code book that evolved throughout this process and is included in Appendix C. The Code Book includes descriptions of each code as well as examples and, where they were useful, non-examples.

Out of this process, nine categories of talk emerged as salient, four categories that we consider to be consistent with the world of US schooling, and five that we consider to be consistent with the world of ambitious and equitable teaching and learning. These codes are described below.
Consistent with the dominant world of *US schooling*:

<table>
<thead>
<tr>
<th>Compliance: This is talk about student compliance, and whether and how students are doing what they are supposed to do.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Limiting Math Goals: This is talk about goals that are consistent with particularly limiting aspects of traditional education. This includes goals driven by procedural math (that is not examined as such) and goals driven by issues of content, pacing, and standardized testing.</td>
</tr>
<tr>
<td>Smartness as Exclusive: Talk about ability or smartness as global, binary, and/or hierarchical. For example, statements that some students are smart, implying that others are not.</td>
</tr>
<tr>
<td>Students’ Math Deficits: Talk about what mathematics students do not or cannot do, do not or cannot understand, or what they are doing, have done, or might do incorrectly.</td>
</tr>
</tbody>
</table>

Consistent with the emerging world of *Ambitious and Equitable Teaching and Learning*:

<table>
<thead>
<tr>
<th>Social Organization of the Class for Learning: This is talk about the social organization of the classroom environment, which includes talk about group work, norms, safety and risk taking, students’ feeling about learning and working in the class, etc.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rich Math Goals: Consideration of goals for strong student thinking and considering what content matters for student learning. This includes talk about rich goals for learning as well as talk about whether the goals at hand are rich.</td>
</tr>
<tr>
<td>Smartness as Inclusive: This is talk about smartness that is inclusive. It includes talk that explicitly states that all students are smart or that is dismantling limiting views of smartness.</td>
</tr>
<tr>
<td>Students’ Smart Math Thinking: Students’ mathematical thinking (or doing) is being talked about as a resource or strength or as sensible.</td>
</tr>
<tr>
<td>Rich Mathematics: This is talk about mathematics of the following three kinds: (1) talk about math that is rich, connected, detailed, conceptual; (2) talk that is about whether the mathematics at hand is rich, connected, detailed, or conceptual with the idea that pushing for this type of mathematics is desirable; or (3) talk that is about what richness or complexity may be present in content that had not previously been related to as challenging or conceptual.</td>
</tr>
</tbody>
</table>

**Application of codes to transcript and creation of code profiles.**

Using Microsoft Excel, color codes were applied to cells containing breath-group segments of transcript. In the unusual cases in which two codes applied to a single breath group segment, one color was applied to the cell containing the transcript of talk to be coded and the second color was applied to the preceding or following cell, as appropriate. Shifts between topics were noted with horizontal lines.

After color codes were applied and topic shifts indicated, text was removed and row heights for breath-groups were standardized. To generate representation of manageable size (it was important for analysis that an entire conversation could be represented on one page), rows containing no color codes were removed.

This process, exemplified in Figure 4 below, yields representations of conversations called *code profiles*. Note that, because of the standardization of heights of each breath group in the code profile, the thickness of each color is proportional to the number of breath groups receiving that code. (This is therefore independent of the width of the columns and the number of words within a breath group. For readability, this standardization is not possible in the transcript itself.)
Figure 4. Application of codes to transcript and formation of code profiles

Code profiles were generative for analysis, as they suggested answers to analytic questions that were otherwise challenging to observe in the data. Some of the types of observations and questions available for investigation using Code Profiles are listed in Table 5.
Table 5. Types of analytic questions and observations available for investigation using code profiles

<table>
<thead>
<tr>
<th>In-speaker</th>
<th>Between-speaker</th>
<th>Relationships among types of talk</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Which code categories dominate teachers’ talk? Does this shift? When and to what?</td>
<td>- How similarly or differently are teachers and coaches making meaning? Does this relationship shift over time?</td>
<td>- Thickness and color relationships: Thin, stripes of varied cool colors could signify that teachers’ or coaches’ meaning-making is nuanced, and well-aligned with ambitious and equitable teaching and learning.</td>
</tr>
<tr>
<td>- Do teachers’ code categories shift over time across the four coaching cycles? Between planning and debrief conversations? Within conversations?</td>
<td>- How are coaches responding to various categories of teachers’ meaning making? How are teachers responding to the meaning making of coaches?</td>
<td>- Co-occurrence of codes: patterns of meaning-making can be revealed by stability or shifts in codes occurring together.</td>
</tr>
</tbody>
</table>

**Formation and investigation of hypotheses, supported by code profiles.**

The power and danger of representations is that they make visible some aspects of underlying phenomena and obscure others. Code profiles make visible patterns in coded categories of talk, as discussed above, but they obscure non-verbal activity and distort time. Codes were applied in most cases in response to transcript, which captured only small portions of non-verbal activity. Video recordings were used when the relevant meanings appeared ambiguous, and in some cases non-verbal activity, such as body language or intonation, was used to draw conclusions about meaning. Never-the-less, verbal activity was privileged strongly over non-verbal, with the consequence that coding may have missed important aspects of interaction.

Due to design choices made to accommodate space constraints (e.g. the removal of white space between codes), they also distort the flow of time across interactions. A consequence of this is that codes sometimes appear related by proximity in the representation when in fact the talk they represent was separated by time and by other talk. Because of these limitations and others (e.g. all categorization systems collapse non-identical talk into identical categories, obscuring nuance), it is necessary to take any conclusions drawn from the examination of code profiles as hypotheses and that care be taken to seek out confirming or conflicting evidence in other representations of data.

Hypotheses about TTL that resulted from identification of patterns in code profiles were investigated in transcript and/or recordings of interaction. These investigations either provided corroborating evidence or prompted alternative hypotheses, which in turn were investigated. Relevant examples are elaborated in Chapters 4, 5, and 6.

**Participation in thinking and talking about teaching.**

To examine TTL along this strand, I posed the following analytic question: to what extent do teachers’ contributions align with the world of ambitious and equitable teaching and learning? That is, to what extent do teacher contributions support co-inquiry into and ongoing learning about teaching? To investigate these questions, I drew from Coburn and Russell’s (2008) notion of depth and Little’s (2002) ideas about talk moves that open or close lines of inquiry, asking: to what extent are teachers (1) Inquiring deeply into practice vs. asking surface questions that invite ‘tips’ or easy answers; (2) Sharing struggles and challenges in ways that invite collaboration and progress vs. complaining or deflecting; and (3) Sharing original ideas about practice that leave open opportunities to learn together vs. waiting to be told by experts or deciding what to do independent of the coach.
These analytic questions rest on the idea that the following teacher practices are consistent with, and supportive of, the world of ambitious and equitable teaching and learning: (1) teachers inquiring deeply into practice, (2) teachers sharing struggles and challenges in ways that invite collaboration, and (3) teachers sharing their own ideas about teaching in ways that leave open opportunities to learn. The first and third of these ideas are well supported in literature that I have previously reviewed, most directly by Coburn & Russell (2008) and by Little (2002). The second, however, surfaced from my data and deserves a little attention here.

As I examined teachers’ talk, I noticed some markedly different ways that teachers talked about what was hard for them, with clear implications for coach-teacher interactions. Teachers sometimes talked about their struggles or challenges in ways that positioned themselves as learners and invited the coach to participate with them in making sense of the struggle. For example, when a teacher said, “I didn’t have closure on [the lesson], I didn’t feel like there was like a good set goal for me, like in my mind,” she expressed vulnerability and implied that she was willing to reflect on what she might learn with her coach. At other times, teachers talked about what was hard for them in ways that did not invite the coach to participate in any way and did not imply that they had learning to do. For example, a teacher said in a planning conversation, “My classes are all off [sequence], so I don’t know what to teach.” She went on to say more things about what might happen in the lesson, but did not invite her coach to work with her on this challenge. The difference between these ways of talking about what is hard in teaching is consequential in ways that are related to the other ideas in this rubric. When teachers position themselves as learners and invite coaches in to considerations of their struggles, lines of inquiry are opened, and depth is available. When teachers do not do this, lines of inquiry are not opened, and opportunities for depth do not exist.

These ideas were combined into a simple rubric, summarized in Table 6. I isolated teachers’ minimally responsive contributions to conversations, where they, for instance, asked their own questions or offered their own ideas.

Table 6. Teacher participation in conversations aligned with US schooling or ambitious and equitable teaching and learning

<table>
<thead>
<tr>
<th>Depth</th>
<th>Openness</th>
</tr>
</thead>
<tbody>
<tr>
<td>Higher depth questions or statements of struggle:</td>
<td></td>
</tr>
<tr>
<td>• About pedagogical principles underlying instructional choices.</td>
<td></td>
</tr>
<tr>
<td>• About mathematics.</td>
<td></td>
</tr>
<tr>
<td>• About student learning.</td>
<td></td>
</tr>
<tr>
<td>• About emotional or psychological challenges of teaching.</td>
<td></td>
</tr>
<tr>
<td>• New ideas that open or leave open lines of inquiry.</td>
<td></td>
</tr>
<tr>
<td>• Questions or statements of struggle that display vulnerability or concerns about one’s own competence.</td>
<td></td>
</tr>
</tbody>
</table>

| Lower depth questions or statements of struggle: |
| • About general group work or student support. |
| • About lesson design or flow. |
| • About how to use strategies or activities. |
| • Without specification. |
| • New ideas that close (or do not open) lines of inquiry. |
| • Questions or statements of struggle do not display vulnerability. |

Each teacher contribution was coded using the appropriate column above. In other words, questions and statements of struggle were examined for depth and for the degree to which they displayed vulnerability. New ideas were examined for the degree to which they opened (or left open) lines of inquiry in conversations.

Note that teachers’ ideas were not evaluated for pedagogical quality. In other words, I did
not distinguish between ideas that were more or less consistent with ambitious and equitable teaching and learning. This strand of TTL is about participation in thinking and talking about teaching, and not about classroom teaching. It seeks to capture ways in which teachers’ participation in coaching conversations support their own progress along TTL.

**Participation in classroom practice.**

The goal of this line of analysis is to address the question: How do teachers work (with coaches) toward ambitious and equitable classroom practice? What patterns exist in teachers’ ongoing negotiations of classroom practice with coaches? (This analysis does not seek to evaluate the nature of teachers’ classroom practice. Such an analysis is not supported by the data and is not in line with an investigation of TTL. TTL does not require expert teaching practice, but continual work toward more ambitious and equitable teaching.) Together with a research assistant, I developed a strategy for following teacher-coach “work” on various threads of practice from coaching conversations into lesson enactments and back into coaching conversations. These representations support findings addressing the following questions:

1. What classroom practices do the coach and teacher work on together? How does their focus shift over time?
2. To what extent do conversations about classroom practice “live” beyond one coaching cycle, contributing to coherence over time in teacher-coach work on classroom practice?
3. To what extent (and by whom) does talk about classroom practice make it into lesson enactments? To what extent do teachers try out new classroom “moves” in line with their work with their coach on classroom practice?
4. Who initiates work on which practices?

This strategy for analyzing threads of practice is described below.

**Data reduction and organization.**

First, we examined transcripts of coach-teacher conversations and of lesson enactments, pulling out moments of interaction that were directly related to the negotiation of ambitious and equitable classroom practice. That included moments in which teachers or the coach, for example, proposed actions that could be taken in class, named actions that were taken, took actions, or wondered aloud about the potential benefits or drawbacks of taking actions. We summarized these moments and arranged them in Microsoft Excel such that the flow of such moments through one coaching cycle were arranged sequentially into a single column, with empty cells separating the three parts of each coaching cycle (planning conversations, lessons, and from debrief conversations).

**Bottom-up development of categories of classroom practice.**

Each action was characterized by a descriptive phrase assigning it to an area of teaching practice. Rather than listing or trying to define what counts as a teaching practice, which would be both challenging and unnecessary for our purposes, we focused on areas of teaching practice, which we called threads of practice, such as “intervening in student groups” or “leading rich and equitable whole class discussions.”

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11 One limitation of this analysis comes from the nature of my recordings of classroom practice. My recordings, as with any set of recordings, miss much of what happens classrooms, in particular student-centered classrooms like Kamilah’s, where the important action is distributed around the room.
As we progressed through data, we combined, divided, and renamed these threads until we had arrived upon a list containing threads (1) of a manageable number, (2) of similar “grain size,” and (3) that appeared a significant number of times or were otherwise relevant to the data corpus. When the final list of threads was developed (listed in Table 7), they were applied to the data corpus by entering the appropriate letter in the cell to the right of each action in Excel.

Table 7. Threads of practice relevant to the Kamilah-Mia and Heather-Mia cases

<table>
<thead>
<tr>
<th>Letter Code</th>
<th>Thread of Practice</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Organizing students into groups or pairs.</td>
</tr>
<tr>
<td>B</td>
<td>Interventions into student groups.</td>
</tr>
<tr>
<td>C</td>
<td>Making expectations for group or pair work explicit.</td>
</tr>
<tr>
<td>D</td>
<td>Using strategies (e.g. Participation Quiz, huddle, sentence frames) to support productive participation in groups.</td>
</tr>
<tr>
<td>E</td>
<td>Making important math ideas central to the lesson.</td>
</tr>
<tr>
<td>F</td>
<td>Using manipulatives and other tools to support student learning.</td>
</tr>
<tr>
<td>G</td>
<td>Building norms to support equitable participation and learning.</td>
</tr>
<tr>
<td>H</td>
<td>Leading equitable and rich whole class discussions.</td>
</tr>
<tr>
<td>I</td>
<td>Naming and building from students’ math strengths in lessons.</td>
</tr>
<tr>
<td>J</td>
<td>Watching and listening, allowing time for student sense making.</td>
</tr>
<tr>
<td>K</td>
<td>Task design or redesign.</td>
</tr>
<tr>
<td>L</td>
<td>Supporting student-led whole class discussions.</td>
</tr>
</tbody>
</table>

*Visually representing threads of practice.*

We then created time-sequenced representations that trace teacher-coach work along these threads of practice through coach-teacher interactions. To illustrate my description of these representations, I have included the diagrams from the Kamilah-Mia case in Figure 5.
Figure 5. Threads of practice diagrams for the Kamilah-Mia case
Each moment of “work” is represented by a dot, with darker dots representing teacher work and lighter dots representing coach work. (“Work” here consists of talk and/or other action that signifies ongoing negotiation of ambitious and equitable classroom practice, which includes envisioning, describing, proposing, trying out, and/or interpreting elements or moments of such classroom practice.) Stars are used to represent those actions that involve the uptake with or for students of practices that have been (or will be) under discussion. In all but one case these actions took place in lesson enactments. (The single exception took place in Kamilah’s Cycle 3 and involved a moment in a debrief conversation in which she modified lesson materials as she talked with Mia.) Stars are used to signify the engagement in new practice, or practice directly related to the work the teacher and coach do together. So, for example, if a teacher had already planned to use particular tools to support student learning and the conversations did not push or change these plans, her use of these tools in class would not be represented by a star. Thus, the absence of a star does not mean the absence of classroom practice in a strand, but the absence of new classroom practice in that strand.

Dots and stars are sorted into columns according to threads, with the thread of practice for each column indicated with a letter above that column. The first action along each thread is denoted with a larger dot, which, for ease of reading, also contains the thread letter. Each vertically-oriented diagram represents one coaching cycle, with the planning conversation first, followed by the lesson, and the debrief conversation at the bottom, each of these parts separated by a strip of white space. Sequence is preserved such that earlier moments appear higher in the representation, with time progressing downward.

Lines and arrows connect moments of action within each thread of practice; solid lines connect actions along threads within one coaching cycle, and dashed lines connect threads between coaching cycles. Dots at the start or end of lines represent the first or last action taken in that thread. Arrows signify that the thread is continued from or continues to another coaching cycle. For instance, in the diagram in Figure 5, Thread H began in Cycle 2 and continued in Cycle 3. An arrow downward from the last dot in the “H” column indicates this continuation, as does the dashed arrow starting at the top of the Cycle 3 diagram under the letter “H.”

Formation and investigation of hypotheses, supported by threads of practice diagrams.

Like the process used to investigate patterns of meaning-making from code profiles (see “Meaning-making” section of this chapter), threads of practice diagrams were used to generate hypotheses about teacher-coach negotiation of classroom practice. Further evidence (usually in transcript and sometimes video) was then identified to corroborate or refute these hypotheses.

 Threads of practice diagrams supported the development of hypotheses related to connections among or between threads (e.g. by frequency of dots alternating between two threads over time); who tended to initiate work along which threads; which threads included (or did not include) new practices being tried out with and for students, and by whom; and coherence, as indicated by threads appearing through multiple coaching cycles. Findings resulting from the formation and investigation of such hypotheses are shared in Chapters 4, 5, and 6.

Supplemental investigations of teachers’ classroom practice.

While the data in this study do not support a broad examination of teachers’ classroom practices over time (separate from the negotiations of classroom practice that are the foci of the analysis outlined above), there are data to support some relevant observations. For instance,
recordings of lessons allow for the examination of teachers’ lesson and task launches in the lesson enactments that were part of the coaching work. Also, photographic or material artifacts related to mathematical tasks (worksheets designed for students, prompts written on boards) served to support observations about classroom practice. These data were examined when other findings suggested that this examination would be useful. (For instance, examination of threads of practice in the Heather-Mia case revealed ongoing negotiations about which mathematics was important and the articulation of mathematical learning objectives for students. In this case, it was instructive to examine Heather’s lesson launches over time to investigate if or how her talk with students about what mathematics was important in the lesson shifted. Findings related to this investigation are in Chapter 5.)

**Becoming a kind of teacher.**

As discussed in Chapter 2 and earlier in this chapter, becoming a kind of a teacher involves (at least) two related processes: developing a vision for the kind of teacher it is possible or desirable to become (in language borrowed from Holland et al., *figurative identity*), and developing an identity of competence (Wenger, 1998) with respect to that vision. These processes are cultural (Goodwin, 1994; Holland, Lachicotte, Skinner, & Cain, 2001; Lave & Wenger, 1991; Wenger, 1998). What teachers should be and what they should do are continually negotiated in and with figured worlds that shape the meanings available to them. One’s own sense of competence exists always with respect to continually negotiated shared meanings of competence, as well as ways in which any individual interprets his or her own actions and capacities in relationship to these meanings.

I culled evidence of these two aspects of teachers’ *becoming* processes from interviews conducted after teachers’ first and last meetings with their coach as follows. After transcribing interviews, I reduced the data by isolating teachers’ talk which bore directly on issues of *becoming a kind of teacher*. I focused on portions of transcript that contained teachers’ talk about ideal teaching, and about themselves with respect to that teaching. As the interviews were semi-structured (see interview protocols beginning on page 37), this talk was found in teachers’ responses to various questions across the interviews.

Memos were then generated to capture patterns in this talk in each interview. Connections were made between relevant instances of teacher in various responses throughout each interview. Summative descriptions were generated of teachers’ talk in each interview related to these two aspects of identity. Summative descriptions for the two interviews (in September and in May) were compared and hypotheses were generated from the similarities and differences observed in teachers’ talk at these two points in time. These hypotheses were then checked against transcripts and video records of interviews and adjusted as needed. Findings resulting from this process are shared in Chapters 4 (for Kamilah) and 5 (for Heather).

**Positioning with respect to the coach.**

As discussed in Chapter 2, a teachers’ *positioning* with respect to the coach relates to both *becoming* (identity) and *belonging* (community). To operationalize this strand, I borrowed from Wood’s (2013) notion of *micro-identity*, which she defines as the moment-to-moment experiences of positioning that take place for learners. While teachers experience positioning in all their interactions, and with respect to various actors in their worlds (e.g. administrators, students, other teachers), the positioning that is most relevant to this study—and available in the data—is that of teachers and coaches.
I examined teachers’ talk and nonverbal behavior for evidence of roles and positions that they were offered, accepted, rejected, or claimed. This evidence was gleaned from teachers acting as if they occupied certain positions with respect to their coach. For instance, teachers sometimes asked questions that served to position themselves as less expert than the coach, for example by asking what they “should” do (e.g. “Should I have 2 groups of 3 [students] or should I have 1 group of 5?”). Other times teachers asked questions of the coach in ways that served to position them as together in thinking about teaching, for example by offering an idea and inviting the coach to reflect on that idea. These invitations were often communicated through intonation and body language, rather than through words, for example by ending an idea with the rising intonation of a question and then suggesting with eye contact, body language, and wait time that a response was desired (e.g. “So maybe we can have a Do Now where kids can see the table and the equation, kind of like what we did today, right? Where we had those table points and we plugged it into the equation to see if it would make it true?” Teacher looks at coach expectantly.)

Unlike Wood, who examined micro-identity as it shifted across individual interactions, the analysis developed for this dissertation is concerned with patterns of positioning that teachers experience with respect to coaches, or how this positioning shifts for teachers (or remains stable) over the course of the teacher-coach relationship. For this reason, I noted evidence of positioning that existed in short segments of talk, and then zoomed out to examine patterns across interactions. As did Wood (2013), I relied finally on peer debriefing (Lincoln & Guba, 1985) to interrogate the credibility of my findings. As I uncovered patterns, I shared these findings in writing and in conversation with colleagues, who questioned my interpretations, offered alternative hypotheses, and pushed me to return to data to investigate further. I continued this process until my colleagues and I were convinced that my claims were solid.

The preceding sections have outlined the five strands of analysis developed and employed in this study for the investigation of TTL. The following sections describe more bottom-up strategies used to investigate issues related to supports and challenges for TTL. Because this dissertation aims to connect each of its investigations to a rich picture of teacher learning, a primary goal was to develop a detailed framework for this learning and to use it for close analyses of various learning processes. Analyses of coaching and of frames and power, which I describe below, were developed with a more emic approach. That is, they were developed in response to findings that surfaced from analyses of TTL. Details follow.

3.3.2 Examining Coaching Practice

Analyses of coaching in this study were closely intertwined with, and came out of, the analyses of learning described above. The coaching literature does not yet offer frameworks for coaching that can reveal ways in which coaching connects with TTL. As the coach under investigation in the focal teacher-coach relationships, I had access to ideas about what the coaching practice in the data was intended to accomplish. It was important for this study however to let the data drive conclusions about how coaching was functioning. It is unavoidable that my practitioner lens influence my analytic lens, but the emic approach supported me to do my best to be open to being surprised by the data, which indeed I was.

12 Deeper analysis of micro-identity is certainly available in the data I have, and is an intended focus of further study. I treat the subject briefly here to allow for reflections on this strand as it relates to the multiple processes of Transformative Teacher Learning.
For the reasons outlined above, my findings about coaching came out of observations that surfaced through my analyses of TTL. For instance, the analyses of TTL suggested the special importance of particular segments of teacher-coach interactions in that these segments contained evidence of TTL along multiple strands. I started my analytic focus on coaching by looking at these consequential segments of interaction and asking, “What is the coach doing that seems to connect to the teacher’s TTL?” From this question, I articulated various kinds of coaching “moves,” and zoomed out to examine how these moves were employed across the teacher-coach relationship. I grouped (and regrouped and renamed) these observed coaching moves until I had achieved a manageable number of coaching practices that were relevant across the data corpus.

To illustrate this process, I use the example of a conversation that unfolded early in the second Kamilah-Mia coaching cycle about a student. This conversation turned out to be consequential for the analyses of all five strands of TTL. In this conversation (the “Manuel” conversation, which is treated in detail in Chapter 4), Kamilah and Mia negotiated meanings about math, students, and smartness; ways of talking together about teaching; ideas for classroom practice; a vision for ambitious teaching; and their positions with respect to each other. As there was so much happening with respect to TTL, I took this interaction as a useful place to begin to examine coaching. I articulated various things that Mia did in this interaction (e.g. offer ideas for classroom practice, direct conversational attention to the underlying mathematics, and reframe the problem from being with Manuel to being with some yet-to-be discovered features of his school experiences that were presenting barriers). I then examined these coaching moves with respect to the larger data corpus and identified ways in which they related to coaching moves that took place in other interactions and appeared to connect with the TTL that I had previously identified. This turned into an iterative process that continued until I had arrived on coaching practices (larger grain size that individual “moves”) that (1) took place across the data and (2) consistently related to TTL. Findings from this process are discussed in Chapter 4.

3.3.3 Frames, Power, and Agency

Like analyses of coaching, the analyses of frames and power were emic in nature. In contrast to observations about coaching, which surfaced from interactions that were particularly generative for TTL, observations about frames and power surfaced from interactions that were revealed to be particularly challenging or problematic in nature. I did not set out to study frames; in my investigation of TTL, I was struck by ways in which issues of framing (and positioning and power) surfaced as consequential. Discoveries about frames are detailed (both the content of the discovery and how it surfaced from data) in the findings sections to which they relate. Here I comment briefly on the analytic precedents for my identification of frames.

Like positions, frames are said to be “at play” when individuals in an interaction act as if they are (Hand, Penuel, & Gutiérrez, 2012). As teacher (rather than coach) learning was most central to this study, I focused on ways in which teachers’ talk and action in interactions with the coach suggested particular frames to be at play. For instance, when teachers asked coaches questions that suggested that they expected to be offered evaluative feedback, or when teachers talk and action suggested that they interpreted ambiguous coach comments as evaluative, a coaching as evaluating frame was said to be at play for teachers. Consistent with prior research (Hand et al., 2012; Louie, 2016; Wood, 2013), teachers acted as if different frames were at play in different moments. To allow for the analysis of framing patterns unfolding over the span of
teacher-coach relationships, the frame that was evident for teachers throughout the majority of each interaction was named as the *primary frame* for that interaction.

To investigate ways in which Mia worked to influence the primary frames for coaching that mediated teachers’ experiences with coaching, her talk was examined for evidence of interactional work that took up components of frames. This work included ways she offered roles and positions, talked about teaching, talked about coaching, and the activities that she proposed for the coaching work. Open coding was used to label relevant talk and types of talk were grouped and regrouped into a manageable number of categories. These categories of talk are shared in relevant findings section of Chapter 6.
Chapter 4
Learning to be “Wowed by Kids:” A Case of Transformative Teacher Learning and the Coaching that Supported It

There are days when I’m so excited. Like I remember a week or two ago, I wasn’t feeling well, I was getting sick and I gave a task for my kids to do and the way they were talking with each other and talking about the math and making sense of it was just so amazing and just hearing it was making me feel so good that my kids are justifying and reasoning and sharing their ideas and feeling comfortable about it. It was really cool. I mean, it’s not like every day is like that, definitely not. But there are days where I’m just really wowed by my kids.

Kamilah, final interview, May 2015

In the words above, Kamilah identifies a key aspect of her learning. Her journey toward being “wowed” by her students was part of a transformation that enabled her to shape her classroom so that her students, across traditional hierarchies of which students can learn rich math, could work productively together as they “struggled” to make sense of complex mathematical ideas. This chapter documents’ multiple processes of Kamilah’s nuanced and multi-faceted learning. Understanding these processes is central for developing a theory of ambitious and equitable teacher learning and for supporting teachers’ engagement in such learning.

This chapter examines the story of Kamilah’s learning in two sections. I begin with a focus on the learning itself, first by sharing a summative description and then with findings resulting from analyses of multiple strands of her transformative teacher learning (TTL, see Chapters 2 and 3 for articulation of this framework and my strategies for operationalizing it). I then turn to the coaching that was instrumental in supporting this learning for Kamilah, investigating how it unfolded in interaction to support multiple strands of Kamilah’s TTL. In brief, I find that the learning that led Kamilah to be “wowed” by her students’ mathematical thinking was supported by three intertwined coaching practices: (1) the interrogation of mathematical content; (2) the premise, made explicit in talk, that each student is smart; and (3) naming and building from the teacher’s own strengths. Each of these practices supported opportunities for TTL along multiple strands, with the three together supporting Kamilah’s learning in layered and nuanced ways.

I begin by describing the learning that took place for Kamilah across the year of working with Mia, illustrating it with the lesson that Mia and Kamilah planned and taught during their fourth and final coaching cycle. I argue that this learning is significant—it supports the ongoing creation and maintenance of ambitious and equitable teaching and learning—and worth examining in more detail. I use the TTL framework to analyze this learning, presenting findings along multiple strands of that framework. I argue that a multi-layered analysis (such as the one I present) supports the understanding and fair representation of learning like Kamilah’s.

13 For ease of reading, I refer after this to the collection of processes of TTL as “learning.”
4.1 Overview of Kamilah’s Learning: from “Student Struggle” to Student-led Teaching

Kamilah came into her work with Mia clear that she wanted help supporting her students to talk together about mathematics. She expressed, both in her initial interview, and in her first coaching conversation with Mia, a newfound commitment (but one that predated her work with Mia) to allowing students to “struggle” and to develop their own deep understandings of mathematics. At that time, she expressed this concern in terms of wanting her students to “feel safe” so that they would engage with struggle.

Below, I describe the work Kamilah did with Mia in March during their 4th coaching cycle. I use this description to demonstrate ways in which Kamilah’s initial commitment to supporting students to feel safe to struggle developed into ambitious and generative engagement with teaching, the kinds of engagement that we might hope to support for teachers broadly. She took on new and challenging teaching and she did so in ways that supported her continuing development as a teacher. Thus, the story that I share below is of both product and process; it demonstrates that Kamilah had achieved significant learning (without which the work in this story could not have happened) and it demonstrates her ongoing engagement in learning about teaching. In this story, Kamilah asks important questions about her practice, takes risks in trying out new and challenging teaching, and engages with Mia in deep sense-making about that teaching.

In Cycle 4, which took place in March of 2015 (just before Spring Break), something new happened for Kamilah in her journey of becoming “wowed by kids.” With support from Mia, she tried out a challenging new lesson structure, one in which students were responsible for leading the mathematical work of the class. (Part of what makes this ambitious is that the mathematical work of the class was not about content that had previously been covered. Students were not being asked to lead “reviews,” but rather to lead the class in making sense of new content.) In her work with Mia to try out this new lesson structure, Kamilah engaged with teaching as a complex system, attending to issues of students’ embeddedness in the social system of the classroom, replete with status challenges and social risk; she related to all of her students as sense-makers, working to plan and implement a lesson that relied on their sense making to succeed; and she worked hard to ask and support students to “struggle” publicly, in part by providing them with meaningful mathematics about which they could collectively grapple.

What happened in this 4th and final coaching cycle came out of a question that Kamilah posed to Mia at the beginning of their planning conversation:

I’m using this right now (showing Mia a worksheet about solving equations using a manipulative called “Algebra Tiles”) and we are working on this as a whole group… And [I want to know] how to kinda make it more - less me up there (pointing to the front of the room) and talking on how to do it and more them trying to figure out how to do it.

The two decided that they would try out an ambitious lesson structure that Kamilah had not previously attempted in which students would be the ones at the front of the room leading the class in mathematical discussion, rather than Kamilah. In this structure, the teacher selects students randomly—using some sort of public randomization strategy—to lead the class in figuring out a ‘legal move,’ or a manipulation to an equation that would not disrupt the equivalence of the expressions on either side of the equals sign. Students would come to the front
of the room and either propose and justify a manipulation to an equation or ask the class for help in doing so. The students’ work at the front would be considered complete when the whole class agreed about how the equation might be manipulated and why that manipulation preserved the integrity of the equation.

This kind of lesson is challenging to teach, especially when it’s the first time a classroom community has been structured in this way, as was the case in Kamilah’s class. It requires allowing students to be in control of the mathematics of the lesson, which in turn requires trusting that students are collectively capable of making sense of the mathematics on their own and that each of the individual students is capable of leading such a mathematical sense-making process. It requires supporting students to take on roles and responsibilities that are new and scary as they are called on to share their partial or unsure thinking publicly and to trust the class to be both able and willing to support the development of their thinking in ways that will help them learn and that will strengthen or preserve their sense of belonging and acceptance in their community. And it requires the teacher to be clear about the important mathematics that students are being held responsible for making collective sense of.

In some senses, this lesson required Kamilah to be a different kind of a teacher than the one who had come into the year committed to helping students feel safe to struggle. She needed to be a teacher who relinquishes control of mathematics to students. She needed to see (and act on seeing) her students (all of them) as mathematically smart, and as capable of taking on challenging mathematics together. During the lesson, she needed to be ready to support her students as they took on new roles and challenges and to do so in ways that did not undermine them as individuals or undermine the classroom community. She needed to trust in Mia, as her partner in teaching and learning, to do these things with her. In short, to engage in this lesson, Kamilah needed to operate within a world of ambitious and equitable math teaching and learning. To do so, she needed to resist the gravity of the dominant world, which provides numerous reasons that teaching such a lesson is either impossible (e.g. “Maybe other, high kids could do that, but not these kids.”) or undesirable (e.g. “Students don’t know the math, so teachers have to lead the learning to make sure the math students learn is ‘right’.”).

To be clear, I do not share this story to demonstrate Kamilah’s mastery of any of these things, but to demonstrate her in-the-moment engagement with both ambitious teaching and learning about ambitious teaching. In other words, she worked to make sense of mathematics and of new ways to structure a classroom, she asked for help as she did this, she tried out new and scary practices, and she considered together with Mia the implications of various teaching choices.

As might be expected, Kamilah was nervous about this lesson. She anticipated that students might “draw a blank” when they were on the spot. She understood that it would be her job to support them but also that in trying to do this, she might unintentionally undermine them. (For example, if she were to support a student by either doing the thinking for her or by asking guiding questions, she would be sending a message to the class that she didn’t think the student was able to do the mathematics without that support.) After some discussion of the lesson, Mia asked what Kamilah would like her to do during the lesson.

<table>
<thead>
<tr>
<th>Kamilah</th>
<th>Mia</th>
</tr>
</thead>
<tbody>
<tr>
<td>Um, just the “why” part because that’s new for me.</td>
<td>Um, cool. so, what- what would you like my participation or support or anything with? Should I just watch so we can debrief?</td>
</tr>
<tr>
<td>Kamilah</td>
<td>Mia</td>
</tr>
<tr>
<td>---------</td>
<td>-----</td>
</tr>
<tr>
<td>So, if I’m just- if they’re not like, making sure that they’re justifying clearly.</td>
<td>Yeah.</td>
</tr>
<tr>
<td>Like if they need support in that, or like how can I support a kid- cuz I know like some kids I feel like are gonna have a blank stare and not know how to say it, so like helping me help them to come up with an idea.</td>
<td>Okay.</td>
</tr>
</tbody>
</table>

Mia agreed to “play it by ear” and “join in” if it seemed useful.

The lesson unfolded successfully. Students came to the front of the room and shared ideas, asked questions, got stuck, and fielded input and support from their classmates. Kamilah and Mia worked together to support them to do this, for example by working to establish the norm that students at the front of the room can and should ask the class for help when they need it. Kamilah and Mia provided only support for participation, but offered no mathematical ideas or feedback. Instead, they insisted that it was up to students to determine, as a class, when they were satisfied with a mathematical idea that had been proposed.

As an example of students’ participation in leading the mathematical work of this lesson, I describe the work of Emelyn, one of the students Kamilah called—using “equity sticks,” a strategy for public, random selection of students—to the front of the room. When she arrived at the front, she told Mia and Kamilah that she didn’t know what to do. Mia thanked her for that and asked the class to support her: “She doesn’t know what to do. Awesome, let’s help her. Thank you for saying that. She wants help from her team.” Multiple students in the class raised their hands and, when Emelyn called on them, offered and justified ideas. Emelyn took up one of these new ideas and removed three unit tiles from each side of the “equation mat,” carrying out what students had proposed was a “legal move.” Multiple students then participated in justifying this move, explaining that whatever you do to an equation must “keep it equal.” After a number of students spoke, Emelyn agreed that she was convinced that the move was justified, and she returned to her seat accompanied by claps and cheers from the class.

When Kamilah and Mia sat down to debrief after this lesson, they reflected together on the mathematical work students had done and the new possibilities that were created for the classroom community out of this lesson. Kamilah said that she planned to teach the same kind of lesson with her other classes (when Mia would not be with her) and that “I feel like we just need to- like when we come back from [Spring] Break, like doing it all over again.” The power of this experience stayed with Kamilah well beyond her work with Mia; in a follow-up interview 1.5 years later, Kamilah brought up this lesson and its structure as a new piece of her practice that she found powerful and that she gained from her work with Mia.

Kamilah came to engage in complex and nuanced thinking and action with regards to teaching. She came to integrate ideas and practices that supported her to reshape her classroom in significant ways (in this lesson, supporting her students to take on new roles and responsibilities with respect to each other and to mathematics). Before the lesson described here, Kamilah looked for and achieved clarity about the central mathematical work of the lesson, and she treated students as capable of doing this work without mathematical intervention from any adult. She attended to the complexities of supporting students to take the substantial social risk involved and asked for support in those aspects of this work that she felt most challenged by. My contention is that this work, and the journey that she took to interrogate and integrate new (or
revised) ideas and practices, and to become a different sort of a teacher from the one she had been, is transformative learning. I contend that to understand learning of this sort (and thus to develop our understanding of how to support it), it is productive to examine this learning in layers, uncovering both the multiple processes involved and connections among them.

To investigate what happened for Kamilah (and thus to develop our understanding of what kinds of processes might be available for teachers more broadly), this chapter proceeds in two main sections. First, I examine Kamilah’s learning in more articulated ways as it developed over time. To do that, I use the transformative teacher learning toward ambitious and equitable teaching (TTL) framework to foreground each of five separate learning processes—meaning-making, participation in thinking and talking about teaching, participation in classroom practice, becoming a kind of teacher, and positioning with respect to Mia—and trace her development along these processes across the year. Such an examination opens the otherwise ‘black box’ of Kamilah’s learning, revealing multiple, interconnected strands of development, each of which shows up as necessary to support the others, and each of which is part of the summative story we have glimpsed here. Then, after Kamilah’s transformative learning has been articulated analytically, I turn my attention to the coaching that supported it, using this case of TTL as a starting point to examine ways in which such learning might be supported.

4.2 Kamilah’s Transformative Teacher Learning

The TTL framework draws on social theories of learning to name multiple, intertwined learning processes and to identify ways in which these processes can support teachers to move away from the dominant world of US Schooling and toward the emerging world of Ambitious and Equitable Teaching and Learning. This framework is operationalized with five strands of analysis (see Chapter 3) that aim to capture both teachers’ shifts over time in relation to these processes and the negotiations that are part of these processes as they happen. Table 8 lists these five strands of analysis, along with summaries of findings they yield regarding Kamilah’s learning. In the sections that follow, I share each line of analysis and flesh out these findings.

Table 8. Lines of analysis and central findings for Kamilah’s TTL

<table>
<thead>
<tr>
<th>Strand of Analysis</th>
<th>Central Findings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Making meaning about students, classrooms, mathematics, and goals for teaching.</td>
<td>Kamilah’s talk shifted away from foci on student compliance and students’ math deficits consistent with US Schooling to focus more on strong student thinking and to contextualize students’ “misconceptions” in talk about possibilities for supporting their learning.</td>
</tr>
<tr>
<td>Participation in thinking and talking about teaching.</td>
<td>Kamilah’s contributions to coaching conversations deepened over time and increasingly contributed to substantive lines of inquiry remaining open in these conversations.</td>
</tr>
<tr>
<td>Participation in classroom practice.</td>
<td>Kamilah’s work with Mia on classroom practice was coherent, connected, and supported her to try out and take up new and ambitious teaching practices.</td>
</tr>
<tr>
<td>Becoming and belonging: vision for teaching and identity of competence with respect to that vision.</td>
<td>Kamilah’s talk suggested a vision of powerful teaching that developed to become increasingly integrated, specified, and connected to mathematics. Kamilah’s sense of her own competence became connected to this newly powerful vision.</td>
</tr>
<tr>
<td>Becoming and belonging: patterns of positioning between teacher and coach.</td>
<td>Kamilah experienced increasing “togetherness” with Mia, with less hierarchical positioning and an increased sense of shared purpose.</td>
</tr>
</tbody>
</table>
As I foreground each strand in turn, I examine ways in which results illuminate various aspects of Kamilah’s learning, shedding particular light on the big picture and leaving some aspects of that big picture in the dark. I also consider how the various aspects are interrelated. What emerges is an analytically articulated picture of rich and interconnected learning processes that come together to support the work we saw her do with Mia in the opening section and to support her to be “wowed” by her students’ mathematical thinking and learning, both by developing the eyes and ears for that thinking and by developing ways to provide opportunities for that thinking and learning to thrive.

4.2.1 Meaning-making: Shifting Talk about Students

Ongoing negotiation of meaning is central to learning. While some aspects of meaning making about students, teaching, and learning are captured in the analysis I present in this section, meaning making is central to other learning processes as well. For example, part of the ongoing negotiation of classroom practice for teachers is the meaning they make about those practices. (We will see this in the analysis of classroom practice in a later section.) An aspect of becoming a kind of teacher is ongoing meaning-making about the kind of teacher it is possible, or desirable, to become. (We will see this in the analysis of figurative identity in the becoming section.) In this section, I present findings from analyses of Kamilah’s meaning making in talk with Mia about math, students, classrooms, and goals for teaching. I present findings from analyses along other strands in the sections that follow.

My analysis of this meaning-making in teacher-coach conversations captures categories of talk that align with the dominant world of US Schooling or the emerging world of Ambitious and Equitable Teaching and Learning. Table 9 contains names and color codes for these categories of meaning making, which are detailed in Chapter 3. Figure 6 contains code profiles for Kamilah’s talk in the four coaching cycles, with color-coded representations of her talk in each planning conversation followed by those for her talk in each debrief conversation, with white space indicating the separation between the two.

Table 9. Meaning-making codes for talk consistent with the worlds of US Schooling and Ambitious and Equitable Teaching and Learning

<table>
<thead>
<tr>
<th>Dominant world of US Schooling</th>
<th>Emerging world of Ambitious and Equitable Teaching and Learning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Compliance</td>
<td>Social Organization of the Class for Learning</td>
</tr>
<tr>
<td>Limiting Math Goals</td>
<td>Rich Math Goals</td>
</tr>
<tr>
<td>Smartness as Exclusive</td>
<td>Smartness as Inclusive</td>
</tr>
<tr>
<td>Students’ Math Deficits</td>
<td>Students’ Smart Math Thinking</td>
</tr>
<tr>
<td></td>
<td>Rich Mathematics</td>
</tr>
</tbody>
</table>

14 Code profiles that include both Kamilah and Mia are included in Appendix F.
Figure 6. Code profiles for Kamilah's meaning-making
Table 10 contains the portion of all of Kamilah’s coded talk that was captured by each code across the four coaching cycles, total portions across the broad categories of talk consistent with the dominant world of US Schooling (warm colors) and talk consistent with the emerging world of Ambitious and Equitable Teaching and Learning (cool colors), and ratios comparing these two broad categories. In the sections that follow this table, I interpret and investigate some of the patterns revealed here.

Table 10. Portion of each code for Kamilah’s talk over time (entries are percentages of total coded talk)

<table>
<thead>
<tr>
<th>Code</th>
<th>Cycle 1</th>
<th>Cycle 2</th>
<th>Cycle 3</th>
<th>Cycle 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Compliance</td>
<td>30</td>
<td>7</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>Limiting Math Goals</td>
<td>1</td>
<td>7</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Smartness as Exclusive</td>
<td>0</td>
<td>4</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Students’ Math Deficits</td>
<td>1</td>
<td>31</td>
<td>9</td>
<td>10</td>
</tr>
<tr>
<td><strong>Total talk consistent with US Schooling</strong></td>
<td>32</td>
<td>49</td>
<td>12</td>
<td>10</td>
</tr>
<tr>
<td>Social Organization of the Class for Learning</td>
<td>48</td>
<td>17</td>
<td>10</td>
<td>26</td>
</tr>
<tr>
<td>Rich Math Goals</td>
<td>0</td>
<td>9</td>
<td>30</td>
<td>3</td>
</tr>
<tr>
<td>Smartness as Inclusive</td>
<td>0</td>
<td>2</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Students’ Smart Math Thinking</td>
<td>10</td>
<td>19</td>
<td>44</td>
<td>26</td>
</tr>
<tr>
<td>Rich Mathematics</td>
<td>9</td>
<td>5</td>
<td>4</td>
<td>35</td>
</tr>
<tr>
<td><strong>Total talk consistent with Ambitious and Equitable Teaching</strong></td>
<td>68</td>
<td>51</td>
<td>88</td>
<td>90</td>
</tr>
<tr>
<td><strong>Ratio of Ambitious and Equitable to US Schooling talk</strong></td>
<td>2.1</td>
<td>1.0</td>
<td>7.3</td>
<td>9.0</td>
</tr>
</tbody>
</table>

Less dominant and more emerging talk about teaching over time.

Examination of code profiles (Figure 6) and code frequencies (Table 10) reveals a broad trend away from warm colors (representing talk consistent with US Schooling) and toward cool colors (representing talk consistent with Ambitious and Equitable Teaching). Also, a closer look reveals that a good portion of Kamilah’s ambitious and equitable talk in the first coaching cycle was talk related to the social organization of the classroom and not directly to students’ math thinking and learning. While considerations of the social organization of the classroom are certainly a central part of ambitious and equitable teaching (and of the particular teaching that we saw Kamilah take up in Cycle 4), omitting that category reveals interesting patterns in Kamilah’s development of ambitious and equitable talk about math content and students’ connections with that content. This subset of talk is compared in Table 11 below.

Table 11. Comparison of Kamilah’s Ambitious and Equitable Math talk to her talk consistent with US Schooling over time (numbers in table are percentages of total coded talk)

<table>
<thead>
<tr>
<th>Code</th>
<th>Cycle 1</th>
<th>Cycle 2</th>
<th>Cycle 3</th>
<th>Cycle 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Talk consistent with US Schooling (warm colors)</td>
<td>32</td>
<td>49</td>
<td>12</td>
<td>10</td>
</tr>
<tr>
<td>Talk about math and students’ connections with math that is consistent with Ambitious and Equitable Teaching and Learning (cool colors except light blue)</td>
<td>20</td>
<td>34</td>
<td>78</td>
<td>64</td>
</tr>
<tr>
<td><strong>Ratio of Ambitious and Equitable Math to US Schooling talk</strong></td>
<td>0.6</td>
<td>0.7</td>
<td>6.5</td>
<td>6.4</td>
</tr>
</tbody>
</table>

As indicated in Table 11, Kamilah’s talk about students, math, and math learning shifted in ways that indicate development of meaning-making about these aspects of teaching that increasingly aligns with the world of ambitious and equitable teaching and learning.
Talk about student deficits decreases and connects with ambitious and equitable teaching.

Another interesting pattern relates to Kamilah’s talk about students’ mathematical deficits, or what they do not know or cannot do, which is coded with pink. At the most basic level, we see that she talked less about what her students did not know or could not do (1%, 31%, 9%, and 10%) after the second coaching cycle and that she talked increasingly about their smart math thinking over time (coded with light green: 10%, 19%, 44% and 26%).

Closer look at the relative location of these codes in the code profiles reveals that when Kamilah did talk about what students did not know or could not do (pink), she came to do that in ways that were coupled with talk consistent with ambitious and equitable teaching (cool colors). (This pattern is apparent from the second coaching cycle on. In the first coaching cycle, there is only one instance of pink in Kamilah’s code profile and this one instance took place during a portion of the conversation in which she had been prompted to talk about the strengths of her lesson; here she said that some students did not understand a particular math idea in the context of saying that most students did understand that idea.) In cycle 2, talk about what students do not know or cannot do (pink) appears adjacent to other dominant talk (warm colors). However, in Cycle 3, Kamilah’s talk about what students do not know (pink) was coupled with talk consistent with ambitious and equitable teaching (cool colors), often talk about students’ strong math thinking (light green). The portion of her talk about students’ math deficits that is accompanied by codes for ambitious and equitable teaching across these last three coaching cycles is captured in Table 12 below.

Table 12. Portion of Kamilah’s deficit talk that is accompanied ambitious and equitable teaching talk

<table>
<thead>
<tr>
<th></th>
<th>Cycle 2</th>
<th>Cycle 3</th>
<th>Cycle 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Instances of deficit talk accompanied by talk consistent with ambitious and equitable teaching (pink adjacent to cool colors)</td>
<td>2</td>
<td>7</td>
<td>4</td>
</tr>
<tr>
<td>Instances of deficit talk (pink)</td>
<td>11</td>
<td>7</td>
<td>5</td>
</tr>
<tr>
<td>% of deficit talk accompanied by ambitious and equitable codes</td>
<td>18%</td>
<td>100%</td>
<td>80%</td>
</tr>
</tbody>
</table>

To understand the significance of this shift, we must consider the role of talk about students’ mathematical deficits in ambitious and equitable teaching. First, as discussed in Chapter 2, this teaching is not deficit-focused, but rather strives to recognize and build on the smart math thinking that students engage in when given appropriate opportunities to do so. Thus, a shift toward ambitious and equitable teaching logically involves a decreased emphasis on students’ math deficits. However, to provide meaningful math learning opportunities to all students, teachers must be attuned to those ideas that students do and do not yet understand (as well as being ready to be surprised, or “wowed,” by students’ smart math thinking that they did not anticipate). Examination of Kamilah’s talk that was coded pink revealed that often when it was coded alone or alongside other warm colors, it was clear that the deficits being discussed occurred for Kamilah as barriers or limitations to student learning. In contrast, when this “pink” talk was coded alongside talk consistent with ambitious and equitable teaching, it was often connected with making sense of possibilities for supporting students’ future learning. The two examples I share below illustrate this difference.

---

15 This conversation, and the coaching it contained, is discussed in detail in Section 4.3.1.
The first example took place in the planning conversation for Cycle 2. Kamilah had asked Mia for help thinking about how to support a struggling student and Mia asked her about that student’s strengths:

<table>
<thead>
<tr>
<th>Kamilah</th>
<th>Mia</th>
</tr>
</thead>
<tbody>
<tr>
<td>Do you know what he’s good at yet? Or what he’s smart at?</td>
<td></td>
</tr>
<tr>
<td>Um, (6s pause) I mean honestly, like, I mean we’ve talked like, ‘don’t say ‘loooow,’ like be more specific on what you mean by ‘low’ (air quotes), you know like a low student.</td>
<td></td>
</tr>
<tr>
<td>But yesterday we were doing like a patty paper, um, you know, like figuring out what angles are congruent, and they were drawing and figuring out matching. And he wasn’t able to understand like, that’s congruent to that. I guess he doesn’t understand, oh this is matched to that, like he was just picking. And so I had to- it was just difficult for him to figure out congruent, like he wasn’t getting it.</td>
<td>Mhm.</td>
</tr>
</tbody>
</table>

Here we see Kamilah’s perception of this student’s math challenge as a barrier. In other words, it seems to limit what she could see as possible for his learning. In contrast, in the following example, she instead related the mathematics that students were not yet seeing with what might be possible for them if they were given the right opportunities. This example took place in the debrief conversation for Cycle 3, when Mia asked Kamilah for her thoughts about the lesson.

<table>
<thead>
<tr>
<th>Kamilah</th>
<th>Mia</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yeah, so, what are you thinking? What did you learn from them first period?</td>
<td></td>
</tr>
<tr>
<td>Like, the misconceptions, but I feel like we kind of predicted that too</td>
<td></td>
</tr>
<tr>
<td>… I was like ‘yeah, I feel like they’re not gonna see, they’re gonna think that those tables are the only solutions that could work’</td>
<td>Mhm.</td>
</tr>
<tr>
<td>(pause) And then, I don’t know. I just feel like there needed to be more time for them to, like- …</td>
<td>Mhm.</td>
</tr>
<tr>
<td>I feel like they needed, like they saw the point of intersection, and then there was like- need to have conversations about like, OK, could there be other possibilities for x values?</td>
<td>Mhm.</td>
</tr>
<tr>
<td>Than what’s in the table you mean?</td>
<td>Yeah.</td>
</tr>
<tr>
<td>Um, and I don’t feel like those conversations were yet happening- but it’s not like it wasn’t going to happen but I feel like if there was time, it could happen.</td>
<td>Mhm.</td>
</tr>
</tbody>
</table>

Here we see acknowledgement of what Kamilah called misconceptions. She observed that students were not yet attending to values between the integer values that they saw in x-y
tables as potential solutions to systems of equations. At the same time, her talk presumed that students would be able to find their way through that “misconception” given more time and she envisioned what kinds of conversations students would need to have in order to make sense of this mathematics. She ended this comment with the statement that “it could happen” if students were given enough time. Her awareness of what students were not yet making sense of did not serve as a barrier for her teaching, but instead supported her to consider possibilities for supporting students’ future learning (in this case giving them more time to talk about the mathematical issues).

Analyses indicate that over time, Kamilah came to focus more on students’ strong math thinking and to contextualize considerations of students’ math deficits in talk consistent with ambitious and equitable teaching and learning.

4.2.2 Participation in Thinking and Talking about Teaching: Deepening Engagement

In this section, I examine Kamilah’s participation with Mia in thinking and talking about teaching. Analyses of this aspect of Kamilah’s participation reveals that it deepened over time, becoming increasingly conducive to the ongoing work required for ambitious and equitable teaching and learning. She came over time to ask more unsolicited questions, seeking Mia’s input, and to ask questions of a deeper nature, which created opportunities for co-investigation with Mia about ambitious and equitable teaching. She also came to propose more of her own ideas for teaching, and to do so in ways that opened or left open possibilities for inquiry. Details related to these shifts follow.

Kamilah’s contributions in each coaching cycle were coded for depth (coding detailed in Chapter 3). Results of this coding are presented in Table 13 below.

Table 13. Kamilah’s low and high depth contributions to coaching conversations over time.

<table>
<thead>
<tr>
<th></th>
<th>Cycle 1</th>
<th>Cycle 2</th>
<th>Cycle 3</th>
<th>Cycle 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Low-depth questions</td>
<td>13</td>
<td>5</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>2. Ideas that close</td>
<td>2</td>
<td>1</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td><strong>Total Low Depth</strong></td>
<td><strong>15</strong></td>
<td><strong>6</strong></td>
<td><strong>2</strong></td>
<td><strong>1</strong></td>
</tr>
<tr>
<td>3. High-depth questions</td>
<td>0</td>
<td>1</td>
<td>3</td>
<td>7</td>
</tr>
<tr>
<td>4. Ideas that open (or leave open)</td>
<td>0</td>
<td>11</td>
<td>11</td>
<td>5</td>
</tr>
<tr>
<td><strong>Total High Depth</strong></td>
<td><strong>0</strong></td>
<td><strong>12</strong></td>
<td><strong>14</strong></td>
<td><strong>12</strong></td>
</tr>
<tr>
<td><strong>Total coded contributions</strong></td>
<td><strong>15</strong></td>
<td><strong>18</strong></td>
<td><strong>16</strong></td>
<td><strong>13</strong></td>
</tr>
</tbody>
</table>

These results demonstrate that Kamilah’s contributions to her conversations with Mia about teaching increased in depth over time. To give the reader a sense for this development, I provide examples of some of the questions and ideas that Kamilah asked or shared in Cycle 1, followed by some that came later.

**Example 1: low-depth question in Cycle 1.**

During the planning conversation in their first coaching cycle, Kamilah described for Mia the lesson that she had planned. Throughout this description, she asked Mia a few questions about what she “should” do or how to best structure aspects of the lesson. For example, she wondered about how to organize student groups when groups of 4 were not possible: “Should I have 2 groups of 3 [students] or should I have 1 group of 5, because I feel like 5 is better than 3?” Later, as she described the flow of the lesson, which was to be about scientific notation, she
asked, “Would you recommend me- before [students] start getting into group work, getting how to do this scientific notation, or having them discover it first?”

**Example 2: high-depth question in Cycle 4.**

By the end of their work together, Kamilah asked questions and described her struggles in ways that were of greater depth and supported deeper conversation about issues of teaching and learning. For example, as shared in the opening pages of this chapter, Kamilah asked Mia in the 4th and final coaching cycle to help her think about ways to redistribute responsibility for mathematics in her lesson, making it, “less me up there and talking on how to do it and more [students] trying to figure out how to do it.” Later in the same Cycle 4 conversation, as Mia described something that students might do with manipulatives as they were making sense of solving equations. Kamilah made her own prediction about what students might do and then shifted the conversations to inquire into the mathematics behind the action itself, looking for a “better understanding:”

<table>
<thead>
<tr>
<th>Kamilah</th>
<th>Mia</th>
</tr>
</thead>
<tbody>
<tr>
<td>They’re gonna do this (<em>moves tiles from one side of the equation to the other</em>).</td>
<td>And so somebody might add six [tiles], they might add four, right? They might</td>
</tr>
<tr>
<td></td>
<td>They’re gonna move those over there?</td>
</tr>
<tr>
<td></td>
<td>Mhm.</td>
</tr>
<tr>
<td></td>
<td>Cool. So every time anyone does anything we’re gonna say, “Why? How does that keep [the expressions on either side of the equals sign] the same?”</td>
</tr>
<tr>
<td>So, I don’t know. I think that for me, I need a better understanding of that too (<em>moving tiles</em>)</td>
<td>yeah</td>
</tr>
<tr>
<td>So the reason why we flip it is because… (<em>flips some red unit tiles from the right side of the mat to their yellow side on the left side of the mat</em>)</td>
<td></td>
</tr>
</tbody>
</table>

Here her engagement in conversation with Mia was working toward deeper understanding of the mathematics in the lesson, an understanding that she needed in order to effectively support student learning.

Also evident in Table 13, Kamilah came to offer more of her own ideas after the first coaching cycle, and she did so in ways that opened (or kept open) lines of inquiry. Below are two examples of ideas that Kamilah offered that were coded as high depth, as they were interpreted to open or leaving open potential lines of inquiry.

**Example 3: high-depth contribution, proposing ideas and inviting input in Cycle 3.**

In the debrief conversation in the 3rd coaching cycle, Kamilah and Mia were discussing student thinking that they observed during a group task that asked students to identify points of intersection in multiple representations of linear systems. Kamilah reflected on what students were struggling with, proposing the idea that one particular source of confusion was not actually part of the “main goal” of the lesson.
In this talk, Kamilah was considering aloud her priorities for student learning, inviting Mia to join in this consideration by ending with “right?” Mia took up her invitation, making a case for continuing to include the equation as one of the representations students are asked to attend to in the lesson. Mia then returned to Kamilah’s earlier proposal that the lesson be revisited the next day, asking Kamilah to elaborate. Kamilah proposed an idea for a “Do Now” activity that might support students with substitution. Here she used questioning intonation to invite Mia into conversation about the idea.

<table>
<thead>
<tr>
<th>Kamilah</th>
<th>Mia</th>
</tr>
</thead>
<tbody>
<tr>
<td>I feel like [students]- once they see it in table, and the graph. And then the equation part, I feel like they’re really struggling with, on how to substitute.</td>
<td>Uh huh.</td>
</tr>
<tr>
<td>Um, I don’t know if I should worry too much about that right now, if we’re just trying to- I think our main goal is for them to understand that there’s many solutions and it could be anywhere on that line, right?</td>
<td></td>
</tr>
</tbody>
</table>

In this sequence, Kamilah offered her own ideas, and did so in a way that invited input from Mia, supporting their ongoing co-investigation of teaching.

**Example 4: high-depth idea, leaving open a line of inquiry in Cycle 4.**

The next example comes from the debrief conversation that took place after the lesson I described to open this chapter. In this conversation, Mia described a moment that took place in the lesson and connected it to a challenge she saw related to supporting equitable participation among students in student-led whole class discussions.

<table>
<thead>
<tr>
<th>Kamilah</th>
<th>Mia</th>
</tr>
</thead>
<tbody>
<tr>
<td>So I’m wondering about- yeah, so what are your thoughts about then how we would take it up, like what would it look like to take it up tomorrow?</td>
<td></td>
</tr>
<tr>
<td>((sighs)) So I think like a Do Now, I mean, (4s pause) well, one, my concern is substitution still.</td>
<td></td>
</tr>
<tr>
<td>So maybe we can have a Do Now that (4s pause) like, where kids can see the table and the equation, kind of like what we did today, right? where we had those table points and we plugged it into the equation to see if it would make it true?</td>
<td>Mhm.</td>
</tr>
</tbody>
</table>

In this sequence, Kamilah offered her own ideas, and did so in a way that invited input from Mia, supporting their ongoing co-investigation of teaching.
Together, the two considered the challenge of leaving students in charge of leading these discussions, but attending to equitable participation at the same time. After some discussion, Kamilah offered an idea for a teaching move that could help:

<table>
<thead>
<tr>
<th>Kamilah</th>
<th>Mia</th>
</tr>
</thead>
<tbody>
<tr>
<td>Picking kids that, yeah.</td>
<td></td>
</tr>
<tr>
<td>picking other kids, is there- are we reinforcing status stuff because they’re gonna pick the kids they think are the smart ones?</td>
<td></td>
</tr>
<tr>
<td>Right, right.</td>
<td></td>
</tr>
<tr>
<td>Right?</td>
<td></td>
</tr>
</tbody>
</table>

I share these examples not to offer Kamilah’s ideas for evaluation, but to give the reader a sense for ways that Kamilah came to participate in coaching conversations. She came to ask questions and offer ideas that supported ongoing co-inquiry into substantive issues of ambitious and equitable teaching and learning.

In my examination of Kamilah’s participation in these conversations, connections between this aspect of participation in practice and meaning-making became evident. The ways in which Kamilah participated in these conversations has obvious implication for the kinds of meaning making that were available to her in them. Deepening engagement in these conversations created opportunities for rich and substantive meaning-making. Also, as Kamilah’s meanings about teaching, learning, and students shifted, these meanings supported her deepening engagement in coaching conversations; her increasing focus on strong student thinking, rich goals for student learning, and mathematics itself supported her to ask more substantive questions and offer new ideas. For example, as Kamilah’s meaning-making about teaching shifted in ways that facilitated her to see teaching less as presenting math to students and more as supporting students to make sense together of mathematics, the range of mathematical ideas she needed to consider shifted. This shifting relationship to the math content of lessons, in turn, supported her to engage differently with Mia in talking about math. In the following section, I turn to Kamilah’s ongoing negotiation of participation in classroom practice.

4.2.3 Participation in Classroom Practice: Taking on New Teaching Together

In this section, I move on to analyze Kamilah’s participation in classroom practice throughout her work with Mia. A threads of classroom practice analysis was used to investigate how Kamilah and Mia engaged in the ongoing negotiation of classroom practice, how their work together on classroom practice traveled in and out of the classroom, and how the classroom practice that they talked about did (or didn’t) get taken up or tried out with students, and by whom. (See Chapter 3 for a detailed description of this analytic strategy.) 12 salient threads of practice emerged:
A. Organizing students into groups or pairs.
B. Interventions into student groups.
C. Making expectations for group or pair work explicit.
D. Using strategies (Participation Quiz, huddle, sentence frames) to support productive participation in groups.
E. Making important math ideas central to the lesson.
F. Using manipulatives and other tools to support student learning.
G. Building norms to support equitable participation and learning.
H. Leading equitable and rich whole class discussions.
I. Naming and building from students' math strengths in lessons.
J. Watching and listening, allowing time for student sense making.
K. Task design or redesign.
L. Supporting student-led whole class discussions.

Representations of Kamilah’s and Mia’s ongoing work along these threads of practice are included in Figure 7 below. Darker dots represent moments of work done by Kamilah and lighter dots work done by Mia. (To remind the reader, I consider this “work” to consist of talk and/or other action that signifies ongoing negotiation of classroom practice, which includes envisioning, describing, proposing, trying out, and/or interpreting elements or moments of classroom practice.) Each vertically-oriented diagram represents one coaching cycle, with the planning conversation first, followed by the lesson, and the debrief conversation at the bottom, each of these parts separated by a strip of white space. Stars are used to represent those actions that involve the uptake with students of practices that have been (or will be) under discussion. To be clear, stars are used to signify the engagement in new practice, or practice directly related to the work Kamilah and Mia do together. So, for example, if Kamilah had already planned to use particular tools to support student learning and the conversations did not push or change these plans, Kamilah’s use of these tools in class would not be represented by a star. Thus, the absence of a star does not mean the absence of classroom practice in a strand, but the absence of new classroom practice in that strand. Lines and arrows connect moments of action within each thread of practice. Dots at the start or end of lines represent the first or last action taken in that thread. Arrows signify that the thread is continued from or continues to another coaching cycle.
Figure 7. Threads of practice for Kamilah and Mia
A number of conclusions about Kamilah’s work with Mia on classroom practice are available from this analysis. First, Kamilah and Mia were co-involved in the examination and uptake of ambitious and equity-focused classroom practice throughout their work together. This work together was continuous and coherent, evidenced by the fact that 11 of the 12 identified threads of practice continue throughout multiple coaching cycles. Also, their work on classroom practice included a fair amount of trying practices out with students, which can be seen by the 10 of 12 threads of practice that include stars. (This is a low estimate, as there is a significant amount of Kamilah’s classroom practice that isn’t available in my recordings.) 9 of the 10 threads of practice that include stars also took place across more than one coaching cycle. Table 14 summarizes the path of each thread of practice across the coaching cycles, showing where each thread started, continued, and was taken up with students.

Table 14. Threads of practice start, are taken up, and continue across Kamilah-Mia coaching cycles

<table>
<thead>
<tr>
<th>Thread Description</th>
<th>Cycle 1</th>
<th>Cycle 2</th>
<th>Cycle 3</th>
<th>Cycle 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. Organizing students into pairs or groups.</td>
<td>Start, take up</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>B. Interventions into student groups.</td>
<td>Start, take up</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>C. Making expectations for group or pair work explicit.</td>
<td>Start, take up</td>
<td>Continue, take up</td>
<td></td>
<td></td>
</tr>
<tr>
<td>D. Using strategies to support productive participation in groups.</td>
<td>Start, take up</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>E. Making important math ideas central to the lesson.</td>
<td>Start, take up</td>
<td>Continue, take up</td>
<td>Continue, take up</td>
<td></td>
</tr>
<tr>
<td>F. Using manipulatives and other tools to support student learning.</td>
<td>Start, take up</td>
<td>Continue, take up</td>
<td></td>
<td></td>
</tr>
<tr>
<td>G. Building norms to support equitable participation and learning.</td>
<td>Start, take up</td>
<td>Continue, take up</td>
<td></td>
<td></td>
</tr>
<tr>
<td>H. Leading equitable and rich whole class discussions.</td>
<td>Start, take up</td>
<td>Continue, take up</td>
<td></td>
<td></td>
</tr>
<tr>
<td>I. Naming and building from students’ math strengths.</td>
<td>Start, take up</td>
<td>Continue, take up</td>
<td></td>
<td></td>
</tr>
<tr>
<td>J. Watching and listening, allowing time for student sense-making.</td>
<td>Start, take up</td>
<td>Continue, take up</td>
<td></td>
<td></td>
</tr>
<tr>
<td>K. Task design and redesign.</td>
<td>Start, take up</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>L. Supporting student-led whole class discussions.</td>
<td></td>
<td></td>
<td></td>
<td>Start, take up</td>
</tr>
</tbody>
</table>

Below I share in more detail some of the development of Kamilah’s and Mia’s work on two threads of practice, to exemplify how these threads travel between coach-teacher conversations and the classroom over time, and to demonstrate some of their interconnectedness. Two threads—making important math ideas central to the lesson (Thread E) and naming and building from students’ math strengths (Thread I)—were chosen for exemplification because of their centrality for Kamilah’s journey of coming to be impressed by her students’ thinking and because of their interconnected nature.

What I capture in this analysis is work along these threads. In other words, the moments captured with dots or stars are those that relate to work the two have done together on a given
thread of practice. For example, Kamilah had been leading whole class discussions before she met Mia. However, the two worked together on some practices related to supporting equitable and rich whole class discussions. Dots and stars along this thread, then, relate to discussion or use of classroom practices that are being newly negotiated here related to leading equitable and rich whole class discussions (e.g. supporting students to volunteer ideas aloud by asking them to share the thinking of a partner, rather than of their own).

Below I describe how talk and classroom action along the two strands (E and I) developed over time. (See Appendix D for more detailed articulation of each dot and star in Figure 7.) Also, as part of the purpose for looking more closely at these threads is to understand their interconnected nature, I share their sequential development, interweaving discussion of the two. Kamilah’s and Mia’s work on these threads began in Cycle 2, with thread E in the planning conversation, and thread I beginning during the lesson. Work on both continued into Cycle 4.

The planning conversation for Cycle 2 began with an exchange about a student who Kamilah described as “struggling.” Out of this exchange, Mia and Kamilah came to the idea that the concept of angle is important (Thread E) and that students often struggle to make sense of angles. They together planned a Do Now activity that centered this content by surfacing, connecting, and building from students’ current thinking about angles. (In Figure 7, this portion of their conversation is represented by a sequence of alternating dark and light dots along the line for Thread E.) Their conversation then turned to the rest of the lesson, which was to be about the Triangle Sum Theorem. Mia suggested that she and Kamilah together figure out a “big question” for students to think about in the lesson, which she connected with Kamilah’s goal of supporting math talk in groups by giving students meaningful mathematics to discuss. Kamilah agreed and their conversation about the rest of the lesson included multiple considerations of what a “big question” could be, ending with various articulations of this question, including: “The sum of the angles in the triangles we made was the same in every case. Do you think this will be true for every triangle? Why or why not?”

The dark stars on line E in the Cycle 2 lesson indicate that Kamilah used several of the ideas that she and Mia had generated together. Dots along Line E indicate that the two also talked during class about ways that the important math of the lesson could be more effectively centered for students, and the latest star indicates that out of this talk Kamilah took a new action. The Thread I line, which begins here, shows that their work on naming and building from students’ math strengths began with Mia taking an action in class with students. As described in more detail below, the start of Thread I was closely related to work Kamilah and Mia had done and were doing along Thread E.

Kamilah started this lesson by posing the Do Now activity about angles that the two had created in the planning conversation (the first dark star on Line E). Posing Do Now activities was not new for Kamilah. However, this Do Now was crafted together in the planning conversation and worked to make the important mathematics of the lesson central and explicit for students. After students had time to work on the Do Now in pairs, Kamilah led a whole class discussion asking student to share their ideas. Early in this discussion, Kamilah had called on a student (in this case, David) to share his ideas, a practice she had employed in class many times before. She was ready to move on to a new idea when Mia asked for her permission to join in. Kamilah agreed and Mia asked the student to repeat his idea, highlighted the importance of it, named it “David’s idea,” and ensured that other students had opportunities to make sense of it. Mia did this a few times with other students’ ideas during this discussion. This thread of practice began with Mia, and not Kamilah, taking an action with students (represented by a light star). Mia’s
actions initiated co-investigations of this aspect of classroom practice, which was then connected to actions Kamilah took in future lessons (see dark stars on Line I in Cycles 3 and 4).

This segment of classroom instruction demonstrates the interconnectedness of the two threads of practice of making important mathematics central and naming and building on students’ math strengths in lesson. When Kamilah and Mia centered the concept of angle, they were able to create opportunities for students to generate mathematical talk, which they could then highlight and build upon in the lesson.

After this Do Now activity concluded, Kamilah launched the activity related to the Triangle Sum Theorem referencing the “big question” she and Mia had generated together. As class was close to ending, she asked students to write down as an “exit ticket” their ideas about a version of this big question:

<table>
<thead>
<tr>
<th>Kamilah</th>
<th>Mia</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>(to the class)</em> OK, so I want you to get out your exit tickets and just to think about this question here, um, “Do you think that the sums of angles, so <em>(inaudible)</em> in each triangle, are always 180 degrees?”</td>
<td>And why or why not?</td>
</tr>
<tr>
<td>And why or why not?… So, I just want you to think about and reflect, do you think the angles of a triangle, always add up to 180 degrees? Do you think you can make a triangle that is more than 180?</td>
<td>And why or why not?</td>
</tr>
</tbody>
</table>

During Kamilah and Mia’s debrief conversation the next day, their work on both threads of practice continued. At the beginning of the conversation, Mia recalled that Kamilah had said she wanted help with students making sense of angles and suggested that they could look together at students’ exit tickets to work on that. Kamilah agreed and together they read students’ work and drew conclusions about how students were so far making sense of angles and triangles. Following this, Mia explained to Kamilah why she had asked permission to join in and help lead during the whole class discussion about angles out of the Do Now activity in class. She explained that she had wanted the strong student thinking that Kamilah was surfacing to be written down so that it could be a resource for assigning competence and that part of that practice involved using students’ names with their strong math ideas.

<table>
<thead>
<tr>
<th>Kamilah</th>
<th>Mia</th>
</tr>
</thead>
<tbody>
<tr>
<td>So- and then you were surfacing, their thinking, beautifully, but it wasn’t getting written down?</td>
<td>Mhm.</td>
</tr>
<tr>
<td>Mhm.</td>
<td>So I wanted it on the board</td>
</tr>
<tr>
<td>Mm right</td>
<td>because I wanted it to be a resource for- for many things. One, for assigning competence because when it’s up there <em>(points to board)</em> we’re able to go back to it,</td>
</tr>
<tr>
<td>Yeah, yeah.</td>
<td>and say “Oh yeah, this round idea <em>(hand motions)</em> is super important and look Guadalupe had that too.” You know what I mean- and like pull <em>(pulling gesture)</em> with their names.</td>
</tr>
<tr>
<td>I love that!</td>
<td></td>
</tr>
</tbody>
</table>

Kamilah explained that in a class she taught after the one Mia had been in, she also wrote down students’ math ideas and used students’ names to label them. She said that doing this had
both helped her students to “feel smart” and served as a resource for herself to remember what had been said in the discussion.

<table>
<thead>
<tr>
<th>Kamilah</th>
<th>Mia</th>
</tr>
</thead>
<tbody>
<tr>
<td>It was good.</td>
<td>Cool</td>
</tr>
<tr>
<td>Yeah they- I couldn’t tell that they felt like “Oh she’s putting what I said up there,” you know like feeling competent or whatever.</td>
<td>Yeah</td>
</tr>
<tr>
<td>And um (.) even for ME because there were things being said and I forget</td>
<td>Yeah</td>
</tr>
<tr>
<td>you know like I needed like a refresher on what was said before and like going back to what they were saying</td>
<td>You can’t keep all that in your head.</td>
</tr>
<tr>
<td>Yeah, no way!</td>
<td></td>
</tr>
</tbody>
</table>

Mia added that this practice also helps to encourage math conversations, as it demonstrates that no students yet have all the math ideas, but that lots of students have useful ones. Later, Mia proposed that they talk together about planning “next steps” for Kamilah’s class, given what they had seen about students’ thinking. She proposed a way to use some of the ideas students had generated on their exit tickets as a starting point for the next lesson that Kamilah agreed to try. Mia also pointed out that Kamilah’s clarity about the mathematics she wanted students to learn in this lesson was a strength that allowed them together to watch carefully for and make use of students’ math thinking. She suggested that in their next meeting the two could think about how to build on students’ strong thinking to create more out-loud math talk. In this debrief conversation, we again see the interconnectedness of these threads of practice. We see that Mia’s support for Kamilah to develop clear articulation of the central math supported the two of them to notice, name, and work to build on the smart math ideas students that students generated.

These two threads of practice continued throughout their work in Cycles 3 and 4. Due to space constraints, I share just an overview of the development along these strands here. (Again, see Appendix D for more detailed articulation of each of the elements in Figure 7.) In cycle 3, these two threads of practice are again intertwined, as Kamilah asked for Mia’s help in constructing a “Multiple Abilities Orientation” (CITE) to launch a lesson in which students are asked to identify points of intersection for systems of linear functions using multiple representations of those functions (tables, graphs, equations, and descriptions). Kamilah had learned about this strategy in the CI training, but had not yet tried it in her own teaching. In a Multiple Abilities Orientation, teachers launch a lesson by naming for students the various math strengths that will be central in the day’s lesson, making the case that students need each other because each of them have some of these strengths and none of them have all of these strengths yet. The (20-minute) planning conversation for this cycle was taken up almost entirely by Mia and Kamilah considering the important math for the lesson, how students might make sense of various aspects, and what smart math talk was supported by the lesson and would support students’ learning together in groups, all of which they used to generate language for the Multiple Abilities Orientation.
Kamilah started her lesson with another Do Now that students worked on in pairs and then discussed as a class. In that discussion, Mia again participated by assigning competence to students’ math ideas. Kamilah then launched the groupwork portion of the lesson with a Multiple Abilities Orientation, using the language she and Mia had generated together. Students engaged in groupwork for the entire lesson and struggled with important mathematical ideas, such as how to make sense of a situation in which a “point” where two lines can be seen to cross on a graph does not appear in an x-y table. Multiple groups struggled in particular with whether this point of intersection that they saw in a graph actually counted as a point, if they did not see it in their table. As the class period ended, a number of groups had just figured out that they could add points to their table with non-integer input values, and had started to do so.

In the debrief conversation for this lesson, Mia and Kamilah talked about the struggles they heard in groups and what conclusions they could draw about what students were and were not yet making sense of, and what Kamilah wanted to be sure students had opportunities to learn before she moved on to new material. They reflected together on the ways that the presence of a “big question” for the lesson allowed them to consider productively whether to revisit the content the next day or move on, and they considered ways in which Kamilah could capitalize on the smart and sensible thinking she observed in groups to launch the next day’s continued exploration of the central math ideas.

In Cycle 4 Mia and Kamilah together tried out a new and challenging kind of lesson in which students were asked to lead the class in making sense of new mathematics. (This lesson was described in the opening section of this chapter.) In this cycle, both threads of centering important mathematics and naming students’ strengths mattered for the success of the lesson. In the planning conversation, Mia and Kamilah discussed the central mathematics that students were being asked to make sense of together, recognizing that this lesson structure would work only if the math were meaty. (If students were asked to lead the class in doing mathematics that was rote, skill-based, or not new to the class, this lesson structure would be likely to highlight differences between students who were more and less comfortable with the material, framing them as existing in a dichotomy of those who “get it” and those who don’t.) In this lesson, students were tasked with figuring out how to solve equations with Algebra Tiles by proposing “moves” that could be done with the tiles (roughly, a geometric model for ways to rewrite the equations). The underlying mathematics students were responsible for involved them justifying why their proposed “moves” were allowable and did not violate the equations. Then, during the lesson, Mia and Kamilah both worked to publicly name the mathematical strengths displayed by students who were selected randomly to lead the class from the front of the room. They planned explicitly to do this and they debriefed afterward about how it went.

Analysis of Kamilah’s participation in classroom practice reveals that Kamilah and Mia took on coherent, connected, and ambitious work on classroom practice together, including numerous aspects of practice that are central to the transformation that supported Kamilah to become impressed by her students’ mathematical talk. Their work to name students’ smart thinking and build on it in lessons connects with Kamilah’s journey of becoming “wowed” by that smart thinking. Also, her work to make clear for herself and for her students the “big” math ideas that are central in lessons supported her to both provide opportunities for students engage in smart math thinking out loud and for herself to notice, name, and build from that thinking.
4.2.4 Becoming a Kind of Teacher: Professional Vision and Identity of Competence

This section investigates Kamilah’s process of becoming a kind of teacher by analyzing together her figurative identity (ongoing negotiation of meaning about ideal teaching) and identity of competence (sense of her own competence in relation to that shifting vision). These identity issues connect also to the TTL strands of meaning-making and practice. Developing ideas about powerful teaching involves meaning-making and is interconnected with practice in a myriad of ways. This section foregrounds processes of becoming a kind of teacher, looking at how this becoming draws on notions constructed in figured worlds of the kinds of teachers it is possible to become–Holland et al.’s notion of figurative identity, which relates also to Wenger’s ideas about community-wide negotiations around the meaning of competence–and Kamilah’s evolving notions of her own competence, which are built in relation to her evolving notions of ideal teaching.

Analysis focused on Kamilah’s talk in two interviews—in September 2014 and May 2015. In both interviews, Kamilah was asked about how she saw good teaching and her perception of her own teaching strengths and challenges.

In this section, I examine this talk and consider how it suggests a particular kind of identity shift; one in which her ideas about what it means to become a powerful teacher, as well as her sense of herself in relationship to these ideas, became increasingly specified and connected to the mathematics that she gives students opportunities to learn. At the beginning of the year, Kamilah focused primarily on her wishes for students, and talked some about particular teaching tools or strategies. At the end of the year, she talked in more connected ways about how she could work to support students to have the experiences she hoped for, including by articulating more clearly ways in which her vision for students depended on building lessons around rich and multi-dimensional mathematics.

September Interview.

When asked to describe her own teaching in terms of what she’s good at and what’s challenging for her, Kamilah responded,

I hear lots of math talk. Students are reasoning and justifying, they are used to working in teams and as groups and struggling. I really care about my students. They are always on my mind. I think a lot about what I can do to make myself better as a teacher. I work hard to learn a lot and put what I learn into my practice. I’m willing to try things. Caring for my students is my strength.

Her talk about her own competence here sheds light on some of her current notions about good teaching: in a good teacher’s classroom, students reason and justify, work in teams, and struggle. Good teachers care about their students and work hard to learn and improve their practice, being willing to take risks. In relation to each of these things, she claimed a sense of her own competence. She went on to talk about what she found challenging.

I need to work on dealing with time. This style of teaching is very different this year. The activities take a lot of time and so I need to be patient with how the learning is happening in my classroom because I’m not used to that. Letting [students] have those conversations and letting it go on another day if it needs to,
and feeling like I don’t need to keep going on a pace. It gets stressful because of time and pacing.

Here we see that to her, good teachers manage time and pacing well and know when it’s okay to slow down to let students have math conversations, and that she did not yet feel good at this. Later in the interview, Kamilah described how Complex Instruction related to her current practice, revealing some of what she was working to support in her classroom.

The way that I incorporate [Complex Instruction] in my teaching is all students are included, not feeling like, it’s like a heterogeneous where students are not grouped into ability levels; the type of instruction I’m doing gives access to all students…

Here we see that Kamilah cares about all students being included and that she is relating inclusion to heterogeneous grouping. She goes on to describe the “type of instruction” that gives access to all students:

…and that is having group roles and enforcing that consistently, having kids have conversations about math and having to prove and justify, a lot of higher level thinking. There’s checkpoints where students are responsible for being on top of as a group they come to a checkpoint and they have to check in with me and make sure they’re okay. And there’s a participation quiz where they are working and I’m jotting down like how they are working as a group and we give kids feedback like, I like how you were having this conversation or that was really powerful.

Here Kamilah talked about how she saw things happening that she valued for students. At this point, this talk reads something like a list of tools or strategies (checkpoints, participation quizzes) that she did not connect with the math tasks students should be engaged in doing. She went on to describe the math culture she wanted to support for students, focusing on how she wanted students to feel and not yet on the mathematics that might support the development of this culture.

And also, giving kids, making them feel welcomed and competent about their abilities in math. And giving them, like, “Your way.” Having them feel like they aren’t wrong in their way of thinking. There are multiple ways you can do [math] or think about and having kids feel like, “You do have a good idea, let’s build off of that or let’s dig deeper.” So, making students feel like it’s not just one answer.

In the same interview, Kamilah was asked about her goals for her own learning with Mia. She articulated two goals, both of which she described in terms of what she was hoping for her students to experience. She did not yet articulate what she might learn or do that would support these goals for students.

Goal statement 1: I hope my students have a better conceptual understanding of math and that they are able to make more sense of it.
Goal statement 2: [I hope] also for kids to feel more comfortable struggling and challenging themselves and how those feelings are ok, and that’s when you need to push yourself further… I want to make sure my kids are feeling safe to have those feelings. So, when they get older they will feel like they will come across a challenging situation and they will overcome it.

Again, we see evidence that Kamilah had well-articulated wishes for students, here that they learn math in a particular kind of way and that they “feel more comfortable struggling.” We see evidence that she saw “struggling” here in relation to students’ sense of safety and their feelings, but she did not yet articulate either of these goals in relation to the mathematics students are supported to learn, or what she might do as a teacher to support these things.

Across Kamilah’s talk in this first interview, we see that her description of strong teaching included some skills (e.g. managing time) and a lot of description of the kind of classroom culture that she wanted to build. She articulated this culture in terms of the kinds of math learning it supports (supporting students to discover math ideas on their own, rather than tell them things and supporting students to have conversations about math, including having to prove and justify ideas and lots of higher level thinking), some of the norms of the culture (“making students feel like it’s not just one answer”), goals of the culture (provide access to all students), teachers’ participation in the culture (provide feedback to students about group work), students’ participation in this culture (struggling productively). We don’t yet see, however, how these various pieces fit together for her or how she saw her own role in building this culture. As I demonstrate below, her talk about the same issues in the end-of-year interview was more specified and connected to particular mathematics.

May Interview.

In the end of the year interview, Kamilah’s talk conveyed a vision that had become more connected and more specified, particularly in terms of the nature of the mathematics. Talk about “access for all students” and supporting students to “feel included and competent,” to “struggle” and to have “conversations about math” gave way to connected and articulated talk:

Complex Instruction brings out all these smartnesses in our kids and like, depending on the task, and hopefully it’s a challenging task where multiple ways of looking at the problem can be highlighted, so we could assign competence to all our students. It’s like a way to differentiate my instruction too, and it gives access to the curriculum for all the students.

Here she connects the concept of “access to the curriculum for all the students,” which was something she had also mentioned in the earlier interview, to the nature of the mathematics that supports this access and connected that, in turn, to supporting students’ sense of their own math competence. Here, rather than talk about how kids might “feel,” she talks about highlighting multiple ways of looking at math and bringing out students’ “smartnesses.” Her comment about differentiating instruction here is significant in that it presents a view of “access for all students” that is markedly different from the pervasive talk in Kamilah’s school and district about “differentiating” instruction by giving different math to different students, according to teachers’ perceptions of differing ability. This is an example of ways in which
teachers’ sense-making about powerful teaching can be part of the creation and maintenance of more ambitious and equitable worlds for students.

When asked here about goals for her ongoing learning, Kamilah articulated four goals, each of which was framed in terms of aspects of powerful teaching that she wanted to get better at (rather than in terms of her hopes for students). Put together with her ongoing talk about her hopes for students, including her frequent talk about wanting to support students to “struggle,” we see a development of her more specified, and more mathematics-connected ideas about the kind of teacher she could work to become.

Goal statement 1: There are things that I’m still learning about that I need more coaching or more suggestions on like, “Hey what do I do if this is-” or maybe the task wasn’t rich enough or challenging enough or like could have been improved in a way that kids who were not engaged could get into the conversation.

This statement implies that the nature of the math task (whether it is “rich enough”) is closely related to supporting all her students to be engaged in mathematical conversations. She went on to list three more goals, each of which related directly to her own teaching practice.

Goal statement 2: I want to do a better job assigning competence to my students, I don’t think I’ve done the greatest job on that.

Goal statement 3: Another thing I want to push for more next year is presenting student work and showcasing that. I don’t think I’ve done a lot of that and I want to do more of that. Displaying [student work] a lot more in my classroom.

Goal statement 4: Um, having kids come up [to the front of the classroom] and present, I want to do that more next year.

Kamilah was asked also about what she learned in her work with Mia. Her responses shed light again on her developing sense of her own competence, which is tied up in her developing sense of competent teaching itself. Here are Kamilah’s articulations of her learning:

Assigning competence to my students, like recognizing my students’ smartness when they’re doing math. Kind of like boost their confidence and create an environment where it’s not one person contributing to the group or like doing all the learning but like everyone has something to share.

Here Kamilah not only articulated “recognizing my students’ smartness when they’re doing math” as part of her learning, but she connected it clearly with creating “an environment” in which there is more equitable participation in groups. It is interesting to notice also that she named “assigning competence” as both something she has learned and a goal for her ongoing learning. (For me, this is evidence of her shifting conception of teaching from a collection of practices one might master to practices to keep learning over time.) Kamilah named other aspects of her own learning that relate to what students are doing in her class in relation to the mathematics tasks she is learning to engage them with.
[Supporting students in] focusing really deep on one problem, and really making sense of it and understanding it and how to, like delve into a like a really complex and difficult and challenging problem with a group and applying group roles with that.

I remember at the beginning of the year, I really, really had to remind my students that it’s OK to struggle, or to feel that way, or to feel lost or confused, and so CI really supports that because of- the tasks that we do are challenging and [students] have to push themselves in order to understand what they are doing. So, they kind of have to go through the struggle.

Between these two interviews, a clear picture emerges relating to processes of Kamilah becoming a kind of teacher. Her notions of what kind of teacher it is possible to become (which Holland et al. and Wenger remind us are constantly undergoing social negotiation embedded in figured worlds) shift in ways that are more integrated, specified and connected to mathematics. Her talk of her own competence in relation to this shifting vision of powerful teaching demonstrates a sense of deepening competence, connected to ongoing goals for her own learning. This shift tells a story of Kamilah becoming a kind of teacher who works continually toward a well-elaborated vision of ambitious and equitable teaching.

In the next, and final, analytic section, I examine another aspect of Kamilah’s processes of becoming and belonging: her shifting positioning with respect to Mia.

4.2.5 Positioning with Respect to the Coach
This section presents findings from analyses of a strand of TTL that bridges processes of becoming and belonging. As discussed in Chapters 2 and 3, this is an aspect of identity (becoming) that what Wood (2013) calls micro-identity, or the moment-to-moment experiences of positioning that take place for learners. Because the moments of micro-identity most available in my data are those that relate to the relative positions of Kamilah and Mia, this analytic strand collapses with an aspect of belonging: Kamilah’s sense of belonging to the mini-community of herself with Mia, or her sense of togetherness with Mia. I examine this strand briefly here, connecting it with analyses presented in Chapter 6.

The roles and positions that Kamilah experiences and takes up in her work with Mia are central foci in the analyses in Chapter 6, where I consider how Kamilah and Heather each experience different and shifting frames for their work with Mia, understanding differently at different times what their work together is all about. In that chapter, I consider how Kamilah makes sense of her work with Mia, what it’s about, sensible forms of participation in this work, and how she and Mia are each positioned. There I discuss findings that suggest that Kamilah’s sense of her own and Mia’s roles and positions in relationship to each other shifted over time through three rough phases, summarized in Table 15 below.

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16 Deeper analysis of micro-identity is certainly available in the data I have, and is an intended focus of further study. I treat the subject briefly here to allow for reflections on this strand as it relates to the multiple processes of TTL.
Table 15. Shifting positions and roles for Kamilah and Mia throughout their work together

<table>
<thead>
<tr>
<th></th>
<th>Phase 1</th>
<th>Phase 2</th>
<th>Phase 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kamilah is</td>
<td>• A novice with deficits, which Mia will work to fix.</td>
<td>• A novice teacher in need of help.</td>
<td>• Teacher with meaningful expertise, who is also learning.</td>
</tr>
<tr>
<td></td>
<td>• The sole leader of her classroom, who performs for Mia’s evaluations.</td>
<td>• A teacher who is working to get better at teaching.</td>
<td>• Leader of the classroom and co-teacher with Mia.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• The central leader of her classroom, with some softening of this</td>
<td>• Ongoing learner, sense-maker, innovator.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>position, as she invites Mia to co-lead some with her.</td>
<td></td>
</tr>
<tr>
<td>Mia is</td>
<td>• A teaching expert, with teaching strengths Kamilah aspires to.</td>
<td>• An expert with more and better ideas about good teaching.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• An evaluator who will fix Kamilah’s deficits.</td>
<td>• A resource for Kamilah’s improvement.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• An outsider to the classroom community.</td>
<td>• A helper.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• An outsider to the classroom community, who is sometimes invited in.</td>
<td></td>
</tr>
</tbody>
</table>

These shifting positions are evidenced in part by Kamilah’s shifting participation. As Wood argues, positions can be inferred from participants in interactions acting as if they are positioned in particular ways with respect to other interlocutors. Kamilah’s participation, examined in a previous section in this chapter, as well as in Chapter 6, shifts in ways that are consistent with the shifting positions outlined above. For example, as she comes to ask deeper questions that do not suggest the presence of simple answers, she acts as if she is a co-investigator with Mia into substantive issues of teaching.

Over time, Kamilah and Mia’s positions became less distinct. Their increasing togetherness is related, as I discuss in Chapter 6, to the ways in which teaching itself—and by extension, learning about teaching—are being understood. As discussed in greater depth there, Stages 1 and 2 are connected to a conception of teaching, and of learning teaching, that renders hierarchical positioning logical. Teaching is understood as a collection of best practices and learning teaching is understood as increasing expertise with the practices of teaching. Within this understanding of teaching, it makes sense to construct hierarchical models for teaching expertise, and for Mia and Kamilah to occupy different locations on these models. Between these first two stages, Mia and Kamilah got somewhat closer in that Kamilah was repeatedly positioned (by Mia and sometimes by herself) as a competent teacher with meaningful teaching strengths, which invited her to occupy a more expert position along this hierarchy. Simultaneously, Mia did considerable work to complicate a simplistic positioning of herself as the expert who had all the answers (e.g. by wondering aloud, naming her mistakes and what she doesn’t know, trying things that she then discusses as not having worked how she thought they would, etc.). Resulting from this work, Kamilah may have seen her as a less distant expert.

However, by the third stage, the two had worked together to explore a different conception of teaching that does not lend itself to linear hierarchies and positions along them. Their conversations were oriented instead to an understanding of teaching as complex, contingent, and requiring ongoing innovation and collaboration. In such a conception, each could claim different kinds of expertise and be positioned as having room to investigate and continue learning about teaching. To be clear, this does not imply that Mia ceased to be seen as having expertise, nor that Mia and Kamilah were then presumed to be the same in relation to teaching,

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but that they both occupied space of expertise and exploration within the broad and complex field of what can be investigated in teaching. These ideas are represented in Figure 8 below.

![Diagram showing Novice and Expert roles for Kamilah and Mia]

**Figure 8.** Kamilah’s shifting positions in relationship to Mia.

As well as coming closer in these spatial analogies of positioning, Mia and Kamilah achieved a sense of togetherness in a set of shared work and shared goals. In her interview in May, Kamilah articulated some of this sense of shared work. She was asked whether her work with Mia had supported her previously-articulated goal of “getting my kids to talk more about math.” Kamilah responded with a strong affirmative, including with the quote that began this chapter, in which she described that, “there are days where I’m just really wowed by my kids.” The interviewer (a research assistant) then asked about particular things Mia may have done that supported this. Kamilah responded:

> I think Mia has, you know, helped me create this classroom environment where kids could feel like [students] can do that [take risks in front of the class]. So, then it’s caused for that to happen. Does that make sense? I don’t think it’s specific like she said to say *this* and *this* is what happened, you know? It’s like [we’ve] kinda built off each other and created that environment.

Here she describes the sense that she and Mia worked *together* in ways that involved mutual, complementary contribution (“built off each other”) to develop a particular kind of classroom environment.

Again, both types of increasing “togetherness” (in position, and in shared goals and practice) are evidenced by Kamilah’s shifting participation (see Section 4.2.2) as well as by the shifting nature of their talk and their teaching. In other words, over time, Kamilah and Mia came to take risks together (e.g. in Cycle 4 supporting students to lead the new mathematics in a lesson), wonder aloud about student thinking together (e.g. in debriefing Cycle 3, when they
wonder together about students’ sense-making about points of intersection), and they proposed and revised ideas together.

Kamilah’s sense of this increased togetherness, and of its connection to participation and shared goals, can be seen in her talk in her end-of-year interview as well.

I really appreciated like, it wasn’t just her just observing me and then like writing down notes and then like, “Oh this is how your lesson went,” but like she actually participated in the lesson and like would jump in with conversations or like, she wasn’t there just to observe, she was there to support my kids and my students and to, if she could help them, she would do it, you know? Instead of just being an observer and not saying a word.

Here we see that Mia’s participation in Kamilah’s class supported Kamilah to see a new potential role for Mia (participator, rather than observer) and shared goals (supporting students). This new role for Mia and the shared goals, invited Kamilah into a position of alignment with Mia (both people who participate in the classroom toward a shared goal). She spoke to the importance of shared goals in her sense of alignment with Mia again:

I think the more that I got to see her and work with her, the more comfortable I felt. Um, and then knowing that she’s coming in to support my kids and not to just observe me made me feel a lot more comfortable too.

Kamilah’s participation with Mia and her talk about working with Mia provide evidence that she experienced a sense of more egalitarian positioning with Mia over time, as well as an increasing sense of ‘togetherness’ in shared goals of supporting students and learning about teaching.

4.2.6 Summary of Kamilah’s Transformative Teacher Learning

Through examination of each strand of TTL for Kamilah, different aspects of her overall transformation have come into focus. The meanings she made in talk with Mia shifted to become more consistent with the ambitious and equitable world that she was working to build. Her participation in thinking and talking about teaching deepened and supported conversations in which meaningful co-investigation of teaching was increasingly available. She engaged with Mia in planning for, trying out, and reflecting on new classroom practices that are part of this ambitious and equitable world. Kamilah identified with an increasingly articulated and mathematics-connected vision for powerful teaching and learning. Increasing ‘togetherness’ in Kamilah’s work with Mia supported the two to work together toward shared goals for students. These distinct (but not at all separate) stories of learning processes weave together to build a more articulated understanding of what happened for Kamilah that led to the transformation described to open the chapter and to her increased sense of being “wowed” by her students.

At the end of her time with Mia, Kamilah had not reached the end of any of these learning processes. Indeed, they do not end, as each continues to be negotiated throughout a teacher’s work life. Kamilah will, as long as she is engaged in teaching, continue to make meanings of it, participate in various practices around and in it, develop vision and identity with respect to teaching, and become connected with various people and communities relevant to her work. We cannot predict the directions those negotiations will take, nor can we be sure that
Kamilah will continue to have the support necessary to continue to work toward the creation and maintenance of ambitious and equitable teaching. However, it is reasonable to interpret the transformation that took place for Kamilah across this one school year as meaningful and to expect that it will be part of her ongoing development as a teacher.

It stands to reason that if coaches aim to support learning for teachers of the types we have seen Kamilah engage in, they must develop rich practices that provide multi-faceted supports. For the remainder of this chapter, I turn my attention to Mia’s coaching work with Kamilah, looking for coaching practices that can be seen to support multiple strands of Kamilah’s learning.

4.3 Coaching that Supported Kamilah’s Transformative Learning

As I transition into a focus on coaching in this relationship, I must flag a change in analytic approach and rhetorical structure. My analyses of Kamilah’s learning were aimed at uncovering sub-processes that made up the whole, and thus a strand-by-strand presentation of those findings is sensible. However, considering a strand-by-strand approach to coaching (in which we might look for practices that aim at supporting teachers’ meaning-making, and different practices that aim at supporting teachers’ classroom practice, and still others that aim at supporting teachers’ identity processes alone) is nonsensical. As we have seen, the various strands of learning are deeply interrelated, and thus support for those strands we might hope would be coherent and connected.

To examine the coaching practices that supported Kamilah’s transformative learning, I started by looking closely at Mia’s coaching during two parts of their work together that surfaced as particularly powerful. Here I focused in on a stretch of interaction early in the planning conversation for Cycle 2 (in which Kamilah was looking for help supporting Manuel, who she talked about as “failing”) and on the planning and teaching of the lesson in Cycle 4, which I described to open this chapter. (These two segments, which I identified as particularly powerful, were the same two segments that Kamilah talked about in her follow up interview 1.5 years after her coaching work with Mia had ended, in response to an open question about what she remembered getting from their work together.) In each of these segments, I looked closely at Mia’s work, asking “What is Mia doing and how are her actions related to Kamilah’s learning?” Then, as observations about coaching surfaced from these segments, I considered them in relation to the rest of the data corpus, looking for those practices that showed up across the data. I grouped and regrouped the actions I saw, making choices about breadth of groupings that would best allow for the examination of continuous work over time to support TTL. This process is discussed in more detail in Chapter 3.

In this section, I share findings from this examination of Mia’s coaching work with Kamilah, highlighting three interconnected coaching practices that I found to have supported Kamilah’s learning: (1) naming and building from an expansive view of Kamilah’s teaching strengths; (2) interrogating mathematical content (to develop empathy for students’ thinking and learning as well as to understand what students need opportunities to make sense of); and (3) working from the explicit assumption that all students are mathematically smart. In the sections that follow, I provide an overview of the coaching interactions between Mia and Kamilah and demonstrate how each of these broad practices played out in different coaching cycles. Throughout the discussion of coaching practice, I consider connections between these practices.
and various strands of Kamilah’s learning. I close with summative consideration of the support that these practices provided for various aspects of Kamilah’s learning across the year.

In her coaching work, Mia relied on the three practices named above, leaning on them with different emphases across the coaching cycles. Table 16 represents the extent to which Mia relied on each practice in each coaching cycle, with darker shading representing greater emphasis.

Table 16. Relative emphases of each of three coaching practice in each Kamilah-Mia coaching cycle

<table>
<thead>
<tr>
<th></th>
<th>Interrogating content</th>
<th>Students smart</th>
<th>Teacher strengths</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cycle 1</td>
<td>Medium</td>
<td>Low</td>
<td>High</td>
</tr>
<tr>
<td>Cycle 2</td>
<td>High</td>
<td>High</td>
<td>Low</td>
</tr>
<tr>
<td>Cycle 3</td>
<td>High</td>
<td>High</td>
<td>Medium</td>
</tr>
<tr>
<td>Cycle 4</td>
<td>High</td>
<td>High</td>
<td>High</td>
</tr>
</tbody>
</table>

The sections that follow progress cycle-by-cycle, providing both an overview of the coaching that took place and more focused look at data from those places in the interactions in which these three practices came most strongly and explicitly into play. For example, in Cycle 1, Mia structured a debrief conversation that allowed her to name and build from some of Kamilah’s teaching strengths. In the planning conversation for Cycle 2, Kamilah posed a question that Mia took as an opportunity to both interrogate content and make explicit the assumption that all students are smart. In the sections that follow, I emphasize these conversations, providing other information about the coaching cycles to give readers an understanding of the ongoing work these conversations were situated within.

4.3.1 Coaching from an Expansive View of Teacher Strengths in Cycle 1

In the first coaching cycle, Mia created structures in which Kamilah’s strengths were named and built upon explicitly (practice 1), setting the stage for their ongoing work together. She also supported Kamilah to think more about the nature of the mathematical content of the lesson (practice 2), here connecting that to Kamilah’s desire to support students to talk together about mathematics. However, since practice 2 is central to Mia’s coaching in Cycle 2, I will focus my discussion here around practice 1 (naming and building from teachers’ strengths in relation to an ambitious vision of teaching), which Mia employed primarily in the debrief conversation. Below, I describe briefly Mia’s and Kamilah’s work together in the planning conversation and the lesson, then examine more closely talk in the debrief conversation that supported a more expansive view of Kamilah’s teaching strengths. As I share that talk, I consider ways in which it provided various kinds of opportunities for Kamilah’s transformative teacher learning.

In this first coaching cycle, Kamilah asked Mia to help her support better group work. She was concerned about a few students who spent time with off-task conversations and students who she described as not yet willing to talk about math in their groups. After laying out these concerns, Kamilah began to describe the lesson she had planned, which was about expressing large and small numbers using scientific notation. Mia interjected a few questions and comments, asking Kamilah to consider the nature of the math content and what, exactly, she might hope that students would be talking about in their groups. Out of these considerations, the two concluded that there was insufficient richness in the mathematics to support constructive group conversations and decided to organize students into pairs for this lesson.
Kamilah taught the lesson as the two had discussed, spending most of her time circulating, responding to students’ questions, and checking with student pairs, sometimes supporting pairs who were off task to get back on task and sometimes asking students questions about the math they had done. Mia mostly watched and took notes, listening to students and observing Kamilah’s interactions with pairs. A few times during the lesson, she spoke briefly with Kamilah.

Mia began the debrief conversation the next day by thanking Kamilah and setting up a conversation protocol focused on Kamilah’s teaching strengths and questions:

<table>
<thead>
<tr>
<th>Kamilah</th>
<th>Mia</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thank you for letting me come into your classroom.</td>
<td>I really enjoyed it. Um okay. <em>(Opens her notebook)</em> So if we take a few minutes to um think both-like start with some writing. I am going to do it too and then we will talk about it.</td>
</tr>
<tr>
<td>Of course.</td>
<td>Okay.</td>
</tr>
<tr>
<td>I like to do it in this T-chart kind of way <em>(drawing a large “T”)</em> so the strengths of your own or of your class or of your kids <em>(writing “strengths” at the top of the left column of the t-chart)</em>, but I would like you to try to own them. So, what you feel like you are really good at and strong with that happened today in class or that you feel you know connected to for today? And um questions <em>(writing “questions” at the top of the right column)</em>. What are you feeling curious about, wanting to work on, yeah?</td>
<td></td>
</tr>
<tr>
<td>Mhm, okay.</td>
<td></td>
</tr>
</tbody>
</table>

After writing quietly for about 6 minutes, Mia asked Kamilah to share what she had written. The strengths that Kamilah articulated about her own teaching point to ways in which she was making sense of both herself as a teacher and of strong teaching. Kamilah named 3 strengths, taking 1 minute 47 seconds to do so. I have condensed her talk about these strengths below.

Strength 1: I really liked the video. I think it was really cool for students to see what the power of 10 was and I think it was interesting for them to see. There was the comments they were making like, “Oh, that’s nasty.” But… they were still thinking about what that means. You know?

Strength 2: I noticed proximity works well with my kids, and if they’re talking and I come over, they’ll stop… In Table 1, who wasn’t getting anything started, but when I came over, there was that motivation to, “Okay let me actually read or try and do something. Let me work with a calculator, or let me write something down.” So, I feel like my kids do feel like they do need to do something in my class. I feel like it’s positive that they are feeling like I am coming over and that they do have expectations and they are trying to, you know, fulfill it.

Strength 3: The Do Now problem I think helped [students] see patterns, early on and then it kind of overflowed and they were able to see- I mean, not all students, but I think most students were able to see, “okay the decimal is moving” or “when we add a zero, this is happening.” I think the Do Now problem kind of helped them with that.
Kamilah’s talk about her own strengths here points us to some of how she was seeing herself and seeing good teaching in this conversation, and connects with the findings along that strand of her learning in Section 4.2.4. (It is often challenging for teachers to name what they are good at and naming only three strengths is not at all unusual for similar conversations across my data set.) Here we see that students’ math learning was central for Kamilah, as two of the three strengths she listed related to aspects of the lesson that she perceived as supportive of students’ “seeing” math ideas that mattered to her in the lesson. However, her articulation here of her strengths, especially in contrast to Mia’s articulation, which I share below, does not point to a particularly expansive or connected vision of teaching and learning, nor does it attribute to herself particularly ‘meaty’ strengths toward that vision. (To be clear, this is not evidence that Kamilah does not have aspects of an expansive vision for teaching, just that this talk doesn’t point to such here. In fact, as discussed in Section 4.2.4, her talk in interviews suggested that she did have aspects of such a vision, just that these aspects may not yet have been connected or relate clearly yet to the particularities of the math she provided students opportunities to learn.)

After Kamilah had listed these three strengths, she posed five questions, which I have enumerated below, again condensing her words. These questions point us to how Kamilah was thinking about teaching, and which areas of inquiry were salient for her.

Question 1: So the flow of class… I wonder what you were thinking about the flow. Was it too slow? Like how much should I have been pushing forward?

Question 2: Pair work versus group work, like how to use that… deciding when to use pairs or groups.

Question 3: What should I be doing at [pair] check-ins? Like if I’m doing pair work, what kind of questions should I be asking? Is it kind of like a checkpoint?

Question 4: Changing seats. Like I feel like Tony and Manuel are not working very well together, so like if- you know they have seats already, because I try to be random. But I have seats and they are not working out, how long do I keep them together until I move them?

Question 5: Just kind of like- because Table 1 is the one that is struggling with getting stuff done. They tend to be unfocused. So how can I help them?

In Kamilah’s questions, we get a sense for what she was attending to in this conversation, namely “flow,” how to group students, how to interact with student pairs, and how to support students to stay “on task.” These concerns are on the level of “how to” do things in class and do not suggest that Kamilah was yet inquiring into the underlying causes of the challenges she was experiencing. Mia’s talk, which we will see below, worked to dig under some of Kamilah’s questions, connecting the particularities of classroom happenings, including teaching practice, to underlying ideas about teaching and learning.

Mia listened to Kamilah’s questions, inserting only minimal verbal reactions, (such as “uh huh” or “yeah”). When Kamilah finished, she said, “Okay cool” and then transitioned into talk about the strengths that she observed in the class and in Kamilah’s teaching. She talked for 7 minutes, 20 seconds about 9 distinct but connected strengths that she observed, often connecting
these strengths to Kamilah’s priority of supporting students to talk with each other about math or to the questions Kamilah had articulated. As she enumerated strengths, Mia drew connections between moments of practice (what happened in class) and an ambitious and equitable vision for teaching (why this strength matters for teaching and learning). In doing so, this talk offered opportunities for new meaning-making about what is possible and desirable in classrooms, new ideas about powerful teaching practice, and invited Kamilah to identify as a teacher with meaningful competence in the realm of ambitious and equitable teaching. Mia’s talk about Kamilah’s strengths was too extensive to include in full here (lines 249-522 in the transcript, see Appendix E), so I share a few examples below.

Some strengths that Mia described were rooted in what students were doing, rather than in Kamilah’s actions. For example, in the relatively short segment below, Mia told Kamilah that she had “heard student voices,” which was directly connected to a priority that Kamilah had shared related to her goals for their work together (277-307).

<table>
<thead>
<tr>
<th>Kamilah</th>
<th>Mia</th>
</tr>
</thead>
<tbody>
<tr>
<td>I heard student voices. You know I know you have articulated-in my experience with tiny classes and first period is it’s really hard to get any momentum happening, and maybe this is related to your question about flow.</td>
<td>Mhm, right.</td>
</tr>
<tr>
<td>I feel like it's a first-period-small-class-always problem (laughs).</td>
<td>Yeah.</td>
</tr>
<tr>
<td>I was hearing voices and they were reading [the task] aloud to each other and I couldn’t remember if you told them to or if they had just taken that up as a norm.</td>
<td>Yeah, that is the norm, yeah.</td>
</tr>
<tr>
<td>That’s awesome. That’s what I thought because I didn’t hear you- I don’t think I remember hearing you.</td>
<td>No, I didn’t say it. And yeah when they broke into groups I thought about that and I looked around and I noticed that they were already reading to each other.</td>
</tr>
<tr>
<td>Yeah. Almost all the pairs just naturally started by reading aloud, which does multiple things. It gives more access to kids. It also breaks that silence barrier, so it makes talking easier because something has already been spoken, right?</td>
<td>Mhm, yeah.</td>
</tr>
</tbody>
</table>

In this example, Mia commented on a strength of the class, drawing the conclusion that students’ talk with each other was evidence that they were taking up a norm that Kamilah had worked to support. In her talk about why this matters, she named aspects of powerful teaching—“hearing student voices,” providing “access to kids,” and “making talking easier.” She also stated that achieving these things is hard, thus inviting Kamilah to interpret them as impressive and meaningful toward ambitious teaching.

In listing other strengths, Mia talked about what she had seen Kamilah do in class, connecting Kamilah’s actions to aspects of her (Mia’s) vision of powerful teaching and learning. In the following example (411-435), Mia talked about an interaction she overheard between Kamilah and one pair of students, and why she saw the choices Kamilah made in that interaction as powerful for supporting her students’ learning.
Here, Mia pointed out something that Kamilah had not noticed as mattering. In doing so, she expanded Kamilah’s understanding of her own strengths and named some aspects of powerful teaching: here a focus on student learning, rather than on particular “tools or rules.” In the following example (lines 436 to 492), Mia described a strength she had observed of Kamilah’s in relation to attending to and making sense of students’ mathematical thinking. This example is particularly significant in that Mia used it to set the stage for future work. As their coaching work continued beyond Cycle 1, Mia continued to return to this strength and use it to support collective development of teaching practice that was new for Kamilah.
Kamilah: I wish I wrote- took better notes. Err. Grr (snaps).

(protests)

Anyway, it was a moment like that I think. So, what it told me was that you were listening for what the kids were actually saying, not for like, “Are they right?”

Yeah.

Or, “Are they doing the thing I’m expecting?”

Yeah.

But you are listening to what they are actually doing, you were making sense of it, and then helping the kids to see how it made sense. Which is a super powerful pedagogical skill.

Mhm, okay (smiles).

Here Mia named some aspects of powerful teaching, namely, listening closely to students’ math talk and making sense of how students are thinking. She contrasted this with a practice of listening only for whether students are “right” and invited Kamilah to identify as a teacher with a “super powerful pedagogical skill.”

It is interesting to notice that in some sense, Kamilah’s strengths that Mia points out are at the same time large and small. Her talk points to small moments in class, which Kamilah might not have noticed, and highlights them as significant by connecting them with big ideas about ambitious teaching and learning. This feature of these strengths served multiple learning purposes. It invited Kamilah to be impressed by herself, to take small moments and notice what was impressive about them. It allowed for consideration of the ways in which the big ideas of teaching, our large and lofty goals, are instantiated (or not) in small moments of classroom instruction. It supported Kamilah’s development of a powerful vision of teaching in that as this vision was described, she was invited to connect with it; that is, it was described in a way that was not separate from her, not about some future set of goals to aspire toward, but rather was connected with what was already happening in her practice.

After Mia listed those strengths of Kamilah’s that she had observed in the lesson, she directed the conversation back to Kamilah’s questions. First, she turned Kamilah’s question about when to use pairs or groups back to her, asking for her thoughts before sharing some of her own thinking (transcript lines 527-599). Then, she suggested that Kamilah’s two other questions, about “flow” and about what to ask students during “check-ins,” were connected to each other and she connected these questions with one of Kamilah’s named strengths and used that to propose an area of inquiry for the two to take up together. (631-658)
Here Mia basically restated a question Kamilah had already posed, but did so in way that connected to a previously-identified strength of Kamilah’s. In her restatement, she framed it not as a simple question with a simple solution, but as an area of inquiry to investigate together.

The conversation went on from there, with considerations of ways to support students to develop ideas about what it sounds like for groups of students to do powerful math together. They considered ways that sentence frames might be used to support this in her class, and how that connects or might connect to their use of group roles. They considered strategies for providing public feedback to the class about powerful group work when it’s happening, with Mia commenting that Kamilah could work on some of those strategies with her teaching team.

In this first coaching cycle, Mia relied heavily on the coaching practice of naming and building from teachers’ strengths, organizing the debrief conversation to make explicit space for doing this together with Kamilah. In this strengths-based talk, opportunities were created for multiple aspects of Kamilah’s learning.

Also in this coaching cycle, particularly in the planning conversation, Mia engaged in some interrogation of the mathematical content of the lesson. Here that took the form of asking Kamilah to consider what sense-making was available for students in the lesson and the implications of what was (and wasn’t) available for what teaching decisions might be needed to support productive group interactions. Thus, this interrogation of content supported opportunities for new meaning-making and for making new sense of classroom practice. This practice of interrogating mathematical content is discussed in more detail in the following section.

Note: Kamilah’s learning exists both in in-the-moment negotiations related to teaching and in evolutions that took place over time. Learning is supported in individual interactions, but spans beyond them. This first coaching cycle was the start of this work. While it contained opportunities for learning, it can also be understood as the foundation for the rest of the coaching work. Mia was not working here to support a self-contained experience of learning that would end when she left, but to begin work that would continue throughout the year.

### 4.3.2 Students’ Smartness and Interrogating Mathematics in Cycle 2

In the planning conversation for the second cycle, Kamilah opened a topic of conversation that Mia took as an opportunity to employ two coaching practices: the interrogation of mathematical content and working from the assumption that all students are smart. In this cycle, she continued to name and build from Kamilah strengths, but this practice was less emphasized in this coaching cycle. She used the other two practices to support Kamilah to make new, more empathetic sense of a struggling student and to build, with Kamilah, pieces of classroom practice that provided opportunities for him and for other students to make sense of important math (recall the work discussed in Section 4.2.3 on the concept of angle). Below I share the unfolding of this planning conversation, demonstrating how these coaching practices
together functioned to support Kamilah in the development of new understandings of a student and of ways that classroom instruction might respond to students’ mathematical struggles.

Kamilah began the planning conversation in this second coaching cycle by asking Mia for help figuring out how to support Manuel, whom she described as “failing” most of his classes and being “really lost.” She explained that he said he has math anxiety, but, “I don’t know if I a hundred percent believe it. I think he’s scared of math and once he sees it he gets afraid, but then I don’t see that motivation in him.” Mia responded by talking about ways that student behaviors that might be perceived as evidence of lack of motivation could also result from a student’s history of being convinced that he is not smart. Mia then asked Kamilah, “Do you know what he’s good at yet? Or what he’s smart at?” Kamilah struggled with this question and described a recent lesson about congruence in which, “I explained to him what congruent is and… he was doing it but it wasn’t right.” She went on to explain that “the activity that we were doing was very hands on… and so it’s worrying me that he still…” (You may recall that this moment was examined in Section 4.2.1, as an example of ways in which students’ math challenges occurred to Kamilah as barriers.)

Another coach who was present (and mostly observing) suggested that Manuel might not understand what an angle is. From there, Mia opened a discussion about the nature of the concept of angle, pointing out that it is often a difficult concept for students, more abstract than teachers generally assume. Below is an excerpt of Mia’s talk about this.

But like, where is the angle? It’s nowhere. There is no- there’s not a thing I can point to and say that’s the angle. We try, we represent it in diagrams, but then, it’s like that non-concreteness, I think, is weird. Which is very different than a point or a line, right? Um, because you could say, well like okay a point is right THERE. Where’s the angle? Is it here (pointing to the space between the rays in a diagram of an angle)? So, it’s- is it something like area? How much space is it taking up? Right, so this idea of an angle as a measure of how open something is? Like how open is the door? That in itself I think is sort of abstract, or less totally obvious and concrete I think.

She went on to explain that this challenge…could underlie some things that otherwise you’re like, how are you not seeing this? Because if [Manuel] is saying- if he understands that congruence means sameness, and he does understand that, but he doesn’t understand what an angle is, then what is the same? He might be looking at something that IS the same and saying congruent.

Through this sequence of interactions, Mia made explicit the assumption that Manuel is smart at something, even if we do not yet know what that is and she problematized the concept of ‘angle,’ which Kamilah had not yet considered as challenging for students. Through those two moves, she helped Kamilah to see a way that Manuel’s struggles might be sensible. She also set the stage for Kamilah to be impressed when students did demonstrate understanding of angles, which was relevant to the lesson they were planning in this conversation. Later in the planning conversation, Mia returned to question of Manuel’s smartness, framing it as both an important and a challenging question.
Kamilah | Mia
---|---
So, do you have any experience- do you have any- can you call to your memory right now experience with things yet that he IS smart at, or that you see in him? () And it’s okay to say no, cuz that happens. That doesn’t make you a bad teacher, I promise. (laughs)

Yeah, Um, I’m trying to think (6s pause). I mean in terms of like his math skills, right? Or anything…

Or understanding a way of making sense of thing, or does he know the right question to ask that proves something, or does he, you know, that sort of “math” but like the broad definition of math that involved finding ways to do it, participating in practices.

I guess it’s still, I’m learning more, I mean it’s still early.

Yeah okay. That’s totally a good answer. I mean it’s an honest answer, and it’s one that I think is constructive for making progress. So, if we want to figure out how to support him, then sometime- so what that might mean is giving ourselves opportunities to listen and watch closely and try to learn that.

In this sequence, Mia implied that there must be an answer to the question, “How is Manuel smart?” and suggested that it’s okay to not yet have an answer, but framed it as their (hers and Kamilah’s) collective responsibility to look for it.

Out of this conversation, Mia and Kamilah went on to plan an introductory activity for the next day’s lesson that surfaced students’ thinking about the meaning of angles. In this activity, which was discussed in a previous section, students were asked for their ideas about what an angle is and Kamilah and Mia together collected these ideas on the board and then led a brief discussion highlighting the strong sense-making of students and putting students’ various ideas together to form a more complete description of angles. The rest of the lesson involved an activity in which students drew triangles, tore off their “corners,” and lined them up to see (Kamilah hoped) that in every case, the angles in a triangle come together to form a straight line, or a 180° angle.

In the debrief conversation, Mia and Kamilah looked together at student work and considered evidence they had seen and heard in class about how students were making sense of both angles and the Triangle Sum Theorem. They concluded that students made reasonably strong sense of angles in the opening discussion and that many of them were still struggling with whether the angles of triangles would always add to the same amount and why that might be the case. Mia pointed out that she and Kamilah together had been clear on the particularities of the math learning they wanted to support in the opening discussion about angles and less so in the portion of the lesson dealing with triangles. They considered how they might create a next lesson that would build on students’ sensible (and partial) thinking about triangles to better support their understanding of the triangle sum theorem. They considered the strategies they had used and might use in the future to support students to share their smart math ideas and to build on those ideas constructively.

In this coaching cycle, Mia used the opening conversation about supporting Manuel to lean heavily on the practices of interrogating mathematical content and working from the explicit assumption that all students are mathematically smart. In doing so, she supported multiple...
aspects of Kamilah’s learning. These two practices together supported a richer view of the mathematical content and in turn a more empathetic view of what students must grapple with as they learn this content. That, combined with the statement that Manuel must be smart at math in some ways, supported a shift of focus from all the ways in which Manuel is not meeting expectations to what it might look like to support Manuel, and other students, to have access to engaging meaningfully with mathematics. Out of this shift of focus, Mia and Kamilah engaged together in the development of classroom practice to do this and, in the debrief, in making sense of students’ mathematical thinking. Also, Mia’s questions about how Manuel is smart, and her talk about the challenges inherent in answering that question, implied the claim that it is the job of an equity-focused teacher to know, or work to know, how each of her students is smart.

4.3.3 Interrogating Content to Support and Name Students’ Smart Thinking in Cycle 3

In the third coaching cycle, Mia and Kamilah continued to interrogate mathematical content, using that content to make space for, and then to notice and name, students’ smart math thinking. Their work together in the debrief conversation, which was largely about making sense of students’ thinking, relied on Kamilah’s strength of listening well to students and making sense of what they are doing without intervening (which she had done again during the lesson). In the planning conversation, Kamilah was largely focused on considering her goals for strong student thinking as she asked Mia for support in developing a Multiple Abilities Launch (This conversation was featured section 4.2.3 in the discussion of threads of classroom practice), foregrounding for students the multiple and various ways of being mathematically smart would be necessary for each group to succeed with that day’s math task. During the lesson—in which groups of students were asked to determine whether two linear functions had a point of intersection and to support their conclusion with x-y tables, graphs, and equations—students struggled. By the end of class, no groups had yet finished their conversations or come to firm conclusions that they were ready to defend.

At the beginning of the debrief conversation, when Mia asked Kamilah how she felt about the lesson, Kamilah responded, “…there was a lot of confusion, but I feel like I have to tell myself that the confusion was good.” They spent a large portion of this conversation sharing with each other how they heard various groups of students making sense of the mathematics. They laughed and expressed both surprise and joy in the ways in which students struggled to make sense of the mathematics. They talked about students in one group who had graphed the two linear functions correctly, circled and labeled the point of intersection and then made the claim that there was no point of intersection. Mia and Kamilah eventually figured out that this confusion stemmed from students’ lack of experience working with points with non-integer coordinates.

<table>
<thead>
<tr>
<th>Kamilah</th>
<th>Mia</th>
</tr>
</thead>
<tbody>
<tr>
<td>I didn’t hear this, no.</td>
<td>I said, ‘Is there a point of intersection?’ They said, ‘No.’</td>
</tr>
<tr>
<td></td>
<td>They said, ‘No.’ And I said, ‘OK, what’s a point of intersection?’</td>
</tr>
<tr>
<td>But they circled it, right?</td>
<td>I know. And they labeled it ‘point of intersection.’ (They both laugh heartily.) And then, this is awesome, right? So then, I said, ‘what is a point of intersection?’ [They responded] ‘It’s where the two graphs cross.’ [I said] ‘OK, do these graphs cross?’ [They responded] ‘Yeah.’ I wish I could remember exactly what they said.</td>
</tr>
</tbody>
</table>
A little while later…

<table>
<thead>
<tr>
<th>Kamilah</th>
<th>Mia</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oh yeah, that’s the other thing they said. Oh yeah (claps). That’s</td>
<td></td>
</tr>
<tr>
<td>where it went. I love this conversation! ‘There’s no point of</td>
<td></td>
</tr>
<tr>
<td>intersection.’ ‘OK, what’s a point of intersection?’ … ‘It’s the point</td>
<td></td>
</tr>
<tr>
<td>where they cross.’ ‘Do these lines cross?’ ‘Yes, but not at a point.’</td>
<td></td>
</tr>
<tr>
<td>Mmmm!</td>
<td></td>
</tr>
<tr>
<td>So this was the logic, why it was totally working for them that there</td>
<td></td>
</tr>
<tr>
<td>is no point of intersection because sure they cross, but it’s not at a</td>
<td></td>
</tr>
<tr>
<td>point, so there’s no point of intersection.</td>
<td></td>
</tr>
<tr>
<td>Right!</td>
<td></td>
</tr>
<tr>
<td>There’s an intersection, but it’s not a point. Which is awesome, right?</td>
<td></td>
</tr>
<tr>
<td>Yeah!</td>
<td></td>
</tr>
<tr>
<td>So that feels actually pretty easy to take up, right?</td>
<td></td>
</tr>
<tr>
<td>…</td>
<td></td>
</tr>
<tr>
<td>Yeah, but I think that’s normal in the way that this unit has played</td>
<td>Like whole number points?</td>
</tr>
<tr>
<td>out, like we’ve never had, I mean we’ve only been like doing points,</td>
<td></td>
</tr>
<tr>
<td>like we haven’t-</td>
<td></td>
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<tr>
<td>Like we haven’t talked about decimals or whatever. So, I mean, I think</td>
<td></td>
</tr>
<tr>
<td>you that I had a feeling that’s what they were gonna think.</td>
<td></td>
</tr>
<tr>
<td>Yeah, you did.</td>
<td></td>
</tr>
</tbody>
</table>

Here we see Mia and Kamilah find the sense in student thinking. Mia made clear also that this thinking had surprised her, and that she was learning newly about student thinking from her observations. (One could imagine a different conversation between teachers who observed this lesson. Some teachers might, rather than being impressed by the sensible nature of students’ confusions, focus on “misconceptions,” or on students’ incorrect responses to the question of whether the system has a point of intersection. They might, out of that focus, decide to “fix” students’ misconceptions by explaining that points can have non-integer coordinates. This conversation, in contrast, supported Kamilah to continue to trust in the intelligence of her students, concluding that they could make sense of this themselves if they were given more time and the right kind of support.)

Throughout this coaching cycle, we can see two coaching practices coming together. First, the planning conversation, in which Kamilah and Mia interrogated the mathematical content of the lesson, supported Kamilah to create rich opportunities for students to make sense together of mathematics that was challenging for them. That conversation also primed Mia and Kamilah to see and hear students’ smart math thinking as they watched and listened to groups during the lesson. Then, in the debrief conversation, they shared their observations, with Mia starting by sharing a sense of wonder, getting joy from the ways in which student thinking, even that thinking that surprised them and was not yet “correct,” was smart and sensible. (This sense of wonder and joy is hard to convey in transcript, but clear in the audio recordings of the lesson, both in laughter, and intonation.) This focus on students’ sensible thinking also supported Mia and Kamilah in learning new ways to think about this content, through the eyes of Kamilah’s students. Their continued focus together on student thinking through the lens of students’
smartness supported Kamilah to develop ideas for future practice in which students would continue to have opportunities to make sense of the math themselves. This exchange, in which Kamilah and Mia made sense together of student thinking and were collectively impressed (or “wowed”) by that thinking, even when students were not yet “correct,” was enabled by (1) the opportunities provided in this lesson for students to make sense of rich mathematics out loud and (2) Kamilah’s and Mia’s implicit agreement (which had evolved from Mia’s initial claims) to work from the assumption of the smartness of students.

4.3.4 Three Coaching Practices come together in Cycle 4

As discussed at the opening of this chapter, something new and special happened for Kamilah in Cycle 4. With support from Mia, she tried out a new lesson structure in which students were responsible for leading the mathematical work of the class. All three coaching practices discussed here came together in this cycle to make this risky work possible. First, Mia leaned on Kamilah’s strengths (some of which had, by that time, been named and exemplified multiple times) to support her to see it as possible to take on this ambitious new way of teaching. Second, the assumption (that had been made explicit in talk numerous times) that all students are mathematically smart supported the agreement (if still scary for Kamilah) that it is possible for randomly-selected students to lead lessons. Third, for this lesson to work, students needed meaningful math content to lead and make sense of together. (Recall the earlier point that if students were asked to lead the class in doing mathematics that was rote, skill-based, or not new, this lesson structure likely serve to highlight differences between students who were more and less comfortable with the material, framing them in a dichotomy of those who “get it” and those who don’t.) Kamilah and Mia interrogated the content of the lesson to make sense of what this “meaty” math was, in this case landing on reasoning why particular “moves” can be made when solving equations, focusing on how we can be sure that any change made to an equation has not violated the statement of equality.

These three coaching practices by this time had been in place for multiple coaching cycles and the ways in which they functioned to support this risky work must have included some cumulative impact. In other words, what took place in Cycle 4 took place, in part because it was cycle 4 (and far from the first time Kamilah and Mia came together to work on teaching). After having spent this much time together doing the sorts of work they were doing, we can assume that Kamilah and Mia had some established relationship, including some negotiated norms and agreements (and, in fact, we see this in Section 4.2.5 of this chapter and in Chapter 6), that underlie their interactions and that because of this, some portion of the work that Mia does to support Kamilah has been distributed over time and is not visible here.

The place where this is most clear is in the assumption that all students are smart, which had been made explicit and connected clearly to teaching prior to this. But here, the assumption (which Mia took at this point as an agreement) was present in the suggestion, taken up by Kamilah, to select students randomly to lead the mathematical work class. While there was discussion about how this challenging work for students might be supported, there was no discussion of what might happen if the “wrong” students were selected, implying that this lesson would work with any students being selected, as each student in the class was able to do this work.

Also, as shown in the segment of talk below, when Mia suggested random selection of students, and thus implied that all students are capable of challenging work, she immediately segued to talk about supporting students in a way that was explicitly connected with a strength of
Kamilah’s that they had talked about previously, “helping them feel really smart for what they do that’s smart.” Here she used a strength of Kamilah’s to support her to see herself as able to support the challenging work she would ask of students.

<table>
<thead>
<tr>
<th>Kamilah</th>
<th>Mia</th>
</tr>
</thead>
<tbody>
<tr>
<td>And so you can just say at the beginning, “I’m gonna randomly call on kids. What your job is when you come up here is to help us make progress, and progress can look like telling us something you think and explaining why or progress can look like asking a really good question that the rest of us can respond to.”</td>
<td></td>
</tr>
<tr>
<td>So then, so I don’t choose a student to come up here. Randomly?</td>
<td>Yeah, you do.</td>
</tr>
<tr>
<td>Okay.</td>
<td>Yeah, you choose a student to come up and build. You choose another student to write the algebra, you choose- when everyone agrees and that student is done, we’re like “yay” (clapping), and then you choose another one to come up and do the next tiles manipulation up there (pointing to front), yeah.</td>
</tr>
<tr>
<td>Okay.</td>
<td>Um and I think the- that one- yeah, that’s how I see it. And we just say “why” every time and we give them, like- like you’re so good at that right? Giving, like, helping them feel really smart for what they do that’s smart, Like we don’t just let it go by,</td>
</tr>
<tr>
<td>mhm</td>
<td>we don’t let them sit down without making it clear how useful what they just did was, whatever it was, right?</td>
</tr>
<tr>
<td>mhm</td>
<td>and then the more we do that, the more kids are gonna want to come up</td>
</tr>
<tr>
<td>ok</td>
<td>and it won’t be like, (in student voice) “ahhhh, that’s scary.”</td>
</tr>
<tr>
<td>uh huh</td>
<td></td>
</tr>
</tbody>
</table>

Later in the conversation, Kamilah made it clear that she was nervous about supporting students as they were leading the class. Mia responded by both offering her support and by reminding her that she had meaningful teaching strengths that would matter for taking up this challenge:

<table>
<thead>
<tr>
<th>Kamilah</th>
<th>Mia</th>
</tr>
</thead>
<tbody>
<tr>
<td>Um, cool. so, what- what would you like my participation or support or anything with? Should I just watch so we can debrief?</td>
<td>Um, just the “why” part, because that’s new for me.</td>
</tr>
<tr>
<td>Yeah.</td>
<td></td>
</tr>
<tr>
<td>Um, just the “why” part, because that’s new for me.</td>
<td>Um, cool. so, what- what would you like my participation or support or anything with? Should I just watch so we can debrief?</td>
</tr>
<tr>
<td>Yeah.</td>
<td></td>
</tr>
<tr>
<td>So if I’m just- if [students are] not like-making sure that they’re justifying clearly.</td>
<td>Okay.</td>
</tr>
<tr>
<td>Okay.</td>
<td></td>
</tr>
<tr>
<td>Like if they need support in that, or like how can I support a kid- Because I know some kids I feel like are gonna have a blank stare and not know how to say it, so like helping me help them to come up with an idea.</td>
<td></td>
</tr>
</tbody>
</table>
Kamilah: (nods) Yeah. Well, I think if a kid is struggling with an idea, what we do is turn it to the class. Because we want to set up this dynamic where, “When you [student] go up there, the rest of our job is to support you in what you’re doing and not to like judge you for what you’re doing.”

Mia: Uh huh, mhm.

Kamilah: “So, when you’re struggling, what I want you to do is ask for help from the class and then volunteers from the class can offer support, like ways to say stuff.”

Mia: Okay.

Kamilah: And one thing I feel like you’re (she has switched to talking about Kamilah here) yeah, you’re super good at, is when kids— and I just want you to keep it for today because it’ll be helpful, is when kids, when kids say partial things or things that are not yet totally right, you’re really good at listening for the thing that’s useful in there and pulling it out.

Mia: Uh huh.

Kamilah: And I think that will help support this today. And yeah, I’ll join in with you to help you do that too.

Mia: Okay, cool.

The interrogation of mathematical content was a large part of the planning conversation for this cycle. Here that took the form of Kamilah working to get clear herself on the reasoning that they were hoping students would engage in. As she explained, “I think that for me, I need a better understanding of that too.” A significant amount of time in this planning conversation was spent talking about the mathematics itself, with Mia supporting Kamilah to make sense of solving equations with Algebra Tiles. The presence of this kind of talk is visible in the code profiles (See Appendix F) with the purple color, used to code talk about mathematics. There was also some talk aimed at getting clear on exactly what sense-making students were to be accountable for, or the mathematical goals for students. At one point, Mia summarized her understanding of what they had decided together was the important mathematical reasoning for students in the lesson:

So, I’m also hearing that, um uh, maybe something we could think about is how to integrate into [students’] sense-making a focus on “why.” … there’s two different kinds of “whys.” There’s a “why do we want to do this thing next, like why would I subtract or add six to both sides?” And then there’s the “why can I, like why is it legal, why does it not violate this expression, why is it mathematically permissible?” That’s the one I think we’re focusing on for today.

This talk from Mia, as well as the work they did helping Kamilah to make sense of solving equations with Algebra Tiles, worked to support Kamilah to feel (and be) more prepared to lead the lesson. It is interesting to point out an apparent paradox here. Kamilah needed to be clear about the mathematical goals of the lesson, even though the plan was that she would not talk about any of this mathematics in the lesson, but instead support students to talk about it. It was important for the success of this lesson, and for the mathematical development that it was a part of, that Kamilah make deep sense both of its mathematical goals, and of the mathematics that students generated in class. She needed to know whether justifications that students created
were sound, or in what ways, as well as what other justifications might be available to them so that she could make choices about when to allow students to move on and what kinds of support students might need (from herself or from each other) in this and upcoming lessons.

4.3.5 Summary of Coaching Practices' Support for Transformative Teacher Learning

Here I consider each of the three coaching practices, summarizing ways in which the data shows it connected with various strands of transformative teacher learning. The connections described are included in Figure 9 below as arrows.

### Coaching Practice

<table>
<thead>
<tr>
<th>Coaching Practice</th>
<th>Strand of TTL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Naming and building from an expansive view of teachers’ strengths.</td>
<td>1. Ongoing negotiation of meaning about students, math, and teaching.</td>
</tr>
<tr>
<td>Interrogating mathematical content.</td>
<td>2. Participation in thinking and talking about teaching.</td>
</tr>
<tr>
<td>Working from the explicit assumption that all students are mathematically smart.</td>
<td>3. Participation in classroom practice.</td>
</tr>
<tr>
<td></td>
<td>4. Ongoing development of vision and sense of competence.</td>
</tr>
<tr>
<td></td>
<td>5. Negotiation of positions and “togetherness” in shared practice.</td>
</tr>
</tbody>
</table>

Figure 9. Connections between coaching practices and strands of Kamilah’s TTL.

**Practice 1: working from an expansive view of teachers’ strengths.**

Mia’s work to name and build from Kamilah’s strengths provided opportunities for Kamilah’s learning along all strands of the TTL framework that I examined. Her talk about Kamilah’s strengths involved naming classroom moments and connecting them with claims about what matters in math classrooms, thereby providing opportunities for new meanings about math, students and classrooms (strand 1) and providing opportunities for Kamilah to develop her vision of powerful teaching and to identify as competent in aspects of that vision (strand 4). Naming Kamilah’s strengths also worked to offer her new positions (away from a “novice” end of a novice to expert hierarchy) and roles (a teacher with strengths and ideas that matter) (strand 5). This repositioning, in turn, offered Kamilah new ways to participate in their conversations (strand 2), both by creating safety to take conversational risks, and by rendering it sensible for Kamilah to contribute her own ideas and areas for inquiry. Also, this work supported Kamilah to...
try out new and ambitious classroom practices (strand 3) by helping her to see that she had
strengths to lean on as she did so. It is notable that Mia’s work to name and build from
Kamilah’s strengths was not “soft” practice that functioned simply to support Kamilah to be
comfortable or to feel good. Rather, it was used to accomplish substantive support for Kamilah’s
ongoing learning along all strands of TTL.

**Practice 2: interrogating mathematical content.**

Mia’s practice of interrogating mathematical content similarly supported Kamilah’s
learning along multiple strands. First and perhaps most obviously, talking about mathematics
itself supported Kamilah’s meaning-making about the content and about her goals for students’
learning of the content (strand 1). Similarly, this talk supported Kamilah’s developing
understanding of the relationships between the mathematics she wanted students to learn and her
vision for powerful teaching and learning of that mathematics (strands 1 and 4) and her own
sense of competence in relationship to the mathematics (strand 4). The conversations in which
Mia and Kamilah interrogated content shaped Kamilah’s classroom practices as well, helping her
to name for students the math they were being asked to think about and to notice and name
students’ strong thinking as they worked (strand 3). Also, the interrogation of content provided
new ways for Kamilah and Mia to participate together (strand 2) and, it stands to reason,
provided Kamilah with new ideas about ways that she might participate in talking and thinking
about teaching with other educators, namely by doing math together or otherwise looking closely
at the mathematical content of their lessons. While one might logically connect this coaching
practice with Kamilah’s and Mia’s developing sense of “togetherness,” connections between this
coaching practice and that strand of learning (strand 5) were less clear in the data.

**Practice 3: Working from the explicit assumption that all students are mathematically smart.**

Mia’s practice of working from the assumption, made explicit in her talk, that all students
are mathematically smart provided opportunities for multiple strands of learning for Kamilah as
well. First, this talk (connected with talk that interrogated content) provided new meanings
related to what counts as smart math, which students can be expected to engage in smart math
(all of them), which in turn provided new ways to make sense of what happens in classrooms
and, indeed, of what teachers should know about their students (strands 1 and 4). (Recall the
conversation about Manuel in which her perception of his “deficits” was recast as sensible
struggle and the job of teachers was recast to include the responsibility for learning about
students’ strengths.) This practice supported Kamilah and Mia in new ways to interact, shaping
planning and debrief conversations that focused on inquiring into, observing, and describing
students’ strengths. Also, the assumption that all students are mathematically smart supported the
development of classroom instruction (strand 3) that both relied on that assumption (e.g.
randomly selecting students to lead the class in Cycle 4) and provided opportunities for all
students to participate and to display their mathematical strengths.

### 4.4 Co-constructing the World of Ambitious and Equitable Teaching and Learning

The three coaching practices I name in this chapter are interconnected and together are
part of a larger “world-building” project, in which Mia worked to create with and for Kamilah a
world of ambitious and equitable math teaching and learning. These practices, which often
occurred together and sometimes even in the same segments of talk, can be understood as contributing to the development of a world in which teachers are seen as having meaningful strengths toward ongoing learning and innovation, students are seen as smart and teachers are people who help uncover and build on their strengths, and mathematics is rich and connected and full of opportunities for collective discovery and sense-making.

Mia engaged in practices beyond (but also related to) these three that can be understood as part of this world-building project. Throughout these coaching interactions, she worked to reposition herself and Kamilah in relation to each other in ways that would support more equitable participation and learning. She consistently talked about students, classrooms, lessons, and mathematics in ways that aligned with—and proposed—a new world of ambitious and equitable teaching and learning. (Her talk consistent with this world is represented in code profiles that were part of the analysis of meaning-making, in which coding of Kamilah’s talk and her talk is included, available in Appendix F.)

The construction and maintenance of figured worlds, or webs of meaning (Holland et al., 2001) is a cultural project, involving ongoing processes of participation and reification (Wenger, 1998) in communities. It is not something that is done to or for individuals, but something that they are actively (if not consciously) involved in. This aspect of world-building highlights ways in which supporting TTL in coaching is a joint venture. It relies on the ongoing negotiation of joint activity between coach and teacher; thus, each teacher-coach pair will create its own story, with its own successes, challenges, breakthroughs, and learning processes.

Consistent with the interpretation of negotiating new worlds as a joint venture is the awareness that learners (including teachers) are agents in their own learning. The processes of transformative teacher learning (meaning-making, participating in practice, becoming a kind of teacher, and belonging to communities of educators) are active and we expect that teachers will exercise agency, making choices that are consequential for the stories that unfold.

Certainly, the story of Kamilah’s transformative learning relied on the choices that Kamilah made, as well as on the ways that Mia worked to make productive choices available and sensible for her. For example, Kamilah chose to pose increasingly meaty questions about her practice, and chose thereby to open her practice for examination. (That choice is not one to be taken for granted, and one that we will see in Chapter 5 is sometimes harder to make than it appeared in this case.) She chose to participate with Mia in trying out new classroom practices that were ambitious, equitable, and risky. The increasing ‘togetherness’ that Kamilah experienced in her work with Mia was supported by the choices she made about allowing Mia into her classroom community and opening her practice, and her teaching self, for mutual examination and investigation.

This story also required Mia to continue to learn. To build ongoing work from Kamilah’s strengths, commitments, and questions, Mia needed to watch and listen carefully to Kamilah and work to learn about her through a strengths-based lens. She needed to seek out and take up opportunities to connect what she learned about Kamilah with her own (Mia’s) vision for math teaching and learning and with her understanding of how ambitious teacher learning can be supported. (Here we see an interesting parallel between coaching and classroom teaching. The work I name here that was required of Mia can be understood as the same work that is required of classroom teachers—and that we saw Kamilah engage in—namely watching and listening to students to learn about them through a strengths-based lens and finding ways to build instruction that connects to what she learned.)
As these world-building processes depend so clearly on the particular contributions of each teacher and coach, we should expect that other stories of transformative teacher learning will be different from Kamilah’s. However, some aspects of Kamilah’s story provide insight into processes that we might expect to be consistent across cases. First, the ways in which the strands of Kamilah’s transformative learning supported progress along the others is something we might expect to see in other investigations into this kind of learning. Second, and related to the first, we might expect to see that effective support for learning (here coaching) should attend in coherent ways to multiple strands of teachers’ learning, and that when one or more strands are not effectively supported, we will see inhibited progress along other strands.

In Chapter 5, I investigate the story of Heather (a colleague of Kamilah’s who also worked with Mia), whose story is consistent with these expectations. Analyses of her transformative teacher learning reveal significant stagnation along some strands. Most notably, her development of ‘togetherness’ with Mia was inhibited by tensions and contradictions, which remained unaddressed for some time. The continued distance that Heather experienced from Mia inhibited her opportunities to develop meanings or participate with Mia in ways that were consistent with the world of ambitious and equitable teaching and learning. When some of the tensions were addressed and resolved, ‘togetherness’ began to develop, as did other strands of learning.

4.5 Conclusion

While educators and education researchers have made progress in understanding some of the rich complexity of student learning, research that focuses on teacher learning has not yet drawn richly on social learning theory to examine teachers’ learning as socially negotiated and complex. Most research on teacher learning focuses on individual pieces of learning stories (such as teachers learning a new classroom practice, or learning to “notice” student thinking in new ways). While these pieces may matter, we are left without a holistic view of the kinds of ambitious teacher learning that I posit will lead to ambitious and equitable learning experiences for students in math classrooms.

The Mia-Kamilah story offers some insights related to such a holistic view. It reveals ways in which individual processes of learning (such as learning a new classroom practice or new ways of noticing student thinking) are intimately connected with other learning processes (such as developing new ways to participate in thinking and talking about teaching with other educators or processes of becoming a kind of a teacher). These understandings matter, not only for the pure search for more robust understandings, but also because our efforts as a field to support impactful teacher learning are more likely to be fruitful when they rest on more complete conceptions of that learning. This chapter also offers insights from a first step at unpacking coaching work that might support such learning. It demonstrates the potential power of coaching work that is strengths-based (built from teachers’ and students’ strengths) and adaptive to teachers’ needs and that inquires into important mathematics.
Chapter 5

“It feels like I’m Throwing a Bomb Out There.”
Negotiating Power and Agency to Support Transformative Teacher Learning

While researchers are clear that learners’ agency matters for their learning, and that teachers are learners (and therefore agency must matter for them), efforts to support or understand teachers’ learning tend to privilege other concerns. Indeed, it is difficult to imagine how we might do otherwise; the question of what it can mean to take teachers’ agency seriously is a sticky one. How might we design opportunities for teachers to work toward a vision that we hold, while at the same time honoring their questions, commitments, and sense-making?

This chapter examines issues of power and agency in one coach-teacher relationship, highlighting the importance of teachers’ own experiences of agency and empowerment through a case in which agency and power were significantly constrained. Findings show that (1) there were consequences of this arrangement, both for the teacher’s learning and for the work required for her to stay engaged in coaching, and that (2) when power and agency were re-negotiated in ways that resulted in the teacher making consequential choices, the nature of her work shifted dramatically and learning became newly available.

Chapter 4 used the TTL framework to support investigation of multiple processes of Kamilah’s learning and ways in which Mia’s coaching supported that learning. This chapter employs the same framework to investigate challenges, efforts, and possibilities related to power and learning in Heather’s work with Mia. The chapter contributes to our understanding of the widely-documented challenge of establishing productive coach-teacher relationships (Neufeld & Roper, 2003; Poglinco et al., 2003; West & Cameron, 2013) by documenting the importance of attending to arrangements of power to support teacher agency and learning.

The findings unfold in 3 sections that follow the developments in the Heather-Mia relationship. First, I share findings related to Heather’s learning, and her opportunities for learning, in the first phase of this coaching relationship (see Figure 10), in which Heather experienced an absence of power and agency in her work with Mia. Data reveal that her opportunities for learning were minimal along each strand of transformative teacher learning and that some of the efforts she and Mia both made to support productive development were problematic.

Second, I examine a pivotal conversation, which Heather later called the “Come to Jesus” conversation, finding that power was named, examined, and negotiated, and new relations created. Third, I examine the learning, and opportunities for learning, that were evident after this conversation (Phase 2 in Figure 10), finding that learning along each strand of the TTL framework was transformed.

<table>
<thead>
<tr>
<th>Cycle 1</th>
<th>Phase 1</th>
<th>Cycle 2</th>
<th>Phase 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sept 10-11, 2014</td>
<td>PC</td>
<td>L</td>
<td>DC</td>
</tr>
<tr>
<td>Oct 29-31, 2014</td>
<td>PC</td>
<td>L</td>
<td>DC</td>
</tr>
</tbody>
</table>

Key:
PC: Planning conversation
L: Lesson
DC: Debrief conversation

Figure 10. Heather’s and Mia’s Phases 1 and 2 and the pivotal conversation
5.1 Agency and Power in Coaching

I pause briefly to discuss how I use the terms power and agency in this chapter, and to comment on the ways in which they are closely related, but distinct.

Definitions of agency with respect to learning situations are difficult to come by, despite the prevalence of the word in contemporary educational research. Moreover, those definitions that are clearly stated do not cohere, taking up various issues of learners’ capacity to use disciplinary knowledge to solve problems, their dispositions to do so, and their access to making choices with respect to their learning. Here I focus on teachers’ experiences of choice-making, defining teachers’ agency in coaching as their experiences of control, autonomy, and power to make consequential choices in coaching situations. Teachers’ agency can manifest in choice of conversational foci, the logistics of the coaching work (e.g. time, place, duration, etc.), and the choice of modes of participation (e.g. planning, reflecting, co-teaching, etc.).

Stepping outside of teachers’ experiences, I use power in the sense of power relations, considering ways in which the social arrangements in coaching distribute power among participants (Cornelius & Herrenkohl, 2004; Foucault, 1982, 1999). I follow Foucault in considering power to be relational, inseparable from other aspects of relationship, and under continual negotiation, with the balance of power in any relationship subject to shift and change. This chapter is concerned both with teachers’ experiences of agency and with relations of power, and uses these terms accordingly throughout.

The Heather-Mia case is useful for investigating issues of power and agency in coach-teacher relationships because it contains both a common challenge and an uncommon resolution. Heather and Mia experienced difficulties establishing interactions that were productive for Heather’s learning, a common challenge in coaching. In an unusual turn of events, relations of power between Heather and Mia were challenged and renegotiated in a conversation that turned out to be catalytic for Heather’s learning. Thus, the case is ideal for investigating common, problematic dynamics and possibilities for their resolution, all in the interest of understanding teacher learning.

Teacher’s experiences of agency and the power relations that play out in interactions are embedded in the worlds in which those interactions take place, mediated by the frames made available by those worlds. This chapter finds that the dominant world of US Schooling provided Heather and Mia with meanings, roles, positions, and ways of participating that resulted in constrained agency and lack of power for Heather and had consequences for her learning. However, Heather and Mia were able to negotiate these arrangements in ways that resulted in new roles, positions, and power relations and facilitated Heather’s TTL.

5.1.1 Background

Heather worked down the hall from Kamilah (who was the focus of Chapter 4). She was in her 5th year of teaching, all of which were at Adams MS, where 33% of teachers were in their first or second year (California Department of Education, Data Reporting Office, 2017). During her previous 4 years, Heather had organized her math classes into groups and used curriculum that was designed to support group work. She had built a reputation as a good teacher and was positioned by the school administration and by her colleagues with status and power relative to other math teachers. She was seen as a teacher who could handle “tough kids,” an identity that garnered admiration at Adams MS (as it does at many urban schools). She was acting as the chair of the 7-teacher math department and she took on a mentoring and advising role with other math
teachers, sharing resources she had developed in her previous years and teaching advice to go with them.

Heather and 3 of her colleagues (fellow teachers Kamilah and Aya, and Lynn, a former math teacher who was currently in a quasi-administrative position at Adams and who often worked to support this group of math teachers) decided in the Spring of 2014 to join the district’s Complex Instruction (CI) professional development program. Their involvement began by spending 5 days in a summer workshop led by Mia and a colleague, in which they were introduced to CI. During the same year that the Adams teachers were learning about CI, they were also learning a new curriculum that the district had created in its work to organize instruction around the Common Core State Standards.

Mia was one of the designers of the district’s CI program and had been helping to facilitate it since its inception 6 years prior to the study. She worked as a consultant to the district and was positioned by the CI community as an expert in CI professional development and coaching. Lynn, the quasi-administrative member of the Adams CI team, sat in on Mia’s coaching work as a sort of apprentice and occasionally added comments or ideas.

Heather came into her coaching work with Mia, as did each teacher in the study, perceiving a hierarchy of expertise in CI, in which she was presumed to be relatively novice and Mia relatively expert. Given Heather’s positioning as a leader and “good teacher” with respect to her school community, one can imagine that this new positioning as a novice may have been uncomfortable for her and data suggest that this was the case. As we will see in this chapter, some of Mia’s attempts to support Heather’s learning reified this hierarchical positioning and, unbeknownst to Mia, worked to deny Heather a voice in their work and access to making choices. Despite these challenges, Heather continued to show up for their work and to express enthusiasm for CI.

5.2 Phase 1: Limited Opportunities for Teacher Learning

In this section, I share findings related to Heather’s TTL, and her opportunities for such learning in the first phase of her work with Mia, which spanned the first three coaching cycles. Findings indicate that processes along each of the five strands were complicated by challenges related to power. For this reason, the examination of the strands begins with a focus on the one most centrally related to power—becoming and belonging: patterns of positioning between teacher and coach. However, issues of power permeated each strand of learning, a finding that highlights the interconnected nature of these processes and the importance of attending to the ‘big picture.’ Overall, analyses across the 5 strands of Heather’s TTL in Phase 1 reveal multiple ways in which her learning was hindered by inequitably distributed access to choice-making, voice, and power in her work with Mia. Conversations were organized around Mia’s ideas and choices, and Heather’s were effectively bypassed.

<table>
<thead>
<tr>
<th>Cycle 1</th>
<th>Phase 1</th>
<th>Cycle 3</th>
<th>Phase 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sept 10-11, 2014</td>
<td>Cycle 2</td>
<td>Feb 9, 2015</td>
<td>Cycle 4</td>
</tr>
<tr>
<td>PC L DC</td>
<td>PC L DC</td>
<td>PC L DC</td>
<td>PC L DC</td>
</tr>
</tbody>
</table>

Pivotal conversation
Table 17 lists the five strands of analysis of TTL, along with summaries of the findings of each regarding Heather’s learning in Phase 1. In the sections that follow, I share each line of analysis and flesh out these findings.

Table 17. Central findings along 5 strands of Heather’s TTL in Phase 1

<table>
<thead>
<tr>
<th>Strand of Analysis</th>
<th>Summary of TTL in Phase 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Becoming and belonging: patterns of positioning between teacher and coach.</td>
<td>Heather and Mia occupied roles that were hierarchically related to each other, with unequal access to participation, power, and “voice” in the coaching work. This arrangement resulted in a lack of “togetherness.” Heather and Mia both resisted and reaffirmed this arrangement, each in ways afforded by her position.</td>
</tr>
<tr>
<td>Making meaning about students, classrooms, mathematics, and goals for teaching.</td>
<td>Heather used talk about “high” and “low” students to make predictions and reason about which opportunities to offer which students. Mia’s attempts to support shifts in this reasoning functioned to exacerbate distance between them and denied Heather opportunities to negotiate her own new meanings.</td>
</tr>
<tr>
<td>Participation in thinking and talking about teaching.</td>
<td>Heather’s contributions to coaching conversations were not deep and she offered ideas in ways that closed opportunities for herself and Mia to engage in inquiry together. She explained things to Mia and shared her thinking, but did not ask for Mia’s ideas until Cycle 3, when she did so only once.</td>
</tr>
<tr>
<td>Participation in classroom practice.</td>
<td>Heather’s and Mia’s work on classroom practice was focused on negotiating the important math in lessons and designing tasks. Only a small amount of their work on classroom practice made it into Heather’s teaching, with many of Mia’s ideas being rejected outright or agreed with, and then not used.</td>
</tr>
<tr>
<td>Becoming a kind of a teacher.</td>
<td>Heather’s vision for teaching was marked by a fundamental contradiction (seeing students as “high” or “low” and embracing CI as a powerful equity pedagogy). CI introduced new ideas about powerful teaching to Heather and threatened her previously-established sense of competence. None-the-less, she remained sure that CI is “amazing.”</td>
</tr>
</tbody>
</table>

5.2.1 Belonging and Positioning with the Coach: Unequal Relations of Power in Phase 1

The investigation of Heather’s multiple processes of TTL begins with a focus on becoming and belonging: patterns of positioning between her and Mia, as this strand of learning was found to be of particular importance in this case. To remind the reader, there are aspects of positioning and of community that matter for Heather’s ongoing learning, but are outside the scope of this study. For example, Heather’s shifting positionality in relation to other members of her community (students, administrators, fellow teachers) and her shifting belonging in various communities relevant to her teaching work (teachers in her department, the district-wide community of teachers working on CI for equity) are certainly important, but require data and analyses that are not available here. The aspect of positioning that I do take up here relates to what Wood (2013) calls micro-identity, or the moment-to-moment experiences of positioning that take place between Heather and Mia. Because I focus on positioning only in this relationship, this analysis collapses with an aspect of belonging: Heather’s experience of togetherness with Mia.

Similar to the analyses of Kamilah’s togetherness with Mia in Chapter 4, and connected to the analyses of frames in Chapter 6, the analysis in this section considers the roles and positions that govern Heather’s understanding of—and experiences in—her work with Mia. These positions are evidenced in part by Heather’s participation. As Wood argues, positions can be inferred from participants acting as if they are positioned in particular ways with respect to other interlocutors. Investigations of Heather’s and Mia’s positioning led to discoveries about power relations that were outlined to introduce this chapter. The following sections detail these discoveries.
Distant roles and imbalance of power.

In figured worlds, actors occupy particular roles, each with its own access to sensible forms of participation, power, and resistance to power. During Phase 1 of Heather’s and Mia’s work together, evidence indicates that the roles they each occupied were hierarchically related to each other and afforded and constrained access to participation and power to each of them in ways that resulted in a power imbalance and a working relationship characterized by “distance.”

There is a common-sense notion of coaching that is available to teachers, and was available to Heather, as an activity in which a person called “coach,” who is presumed to have more expertise that the person called “teacher,” comes into a teacher’s classroom to observe, evaluate, and “fix” teaching. (For more discussion of this frame for coaching, see Chapter 6.) Consistent with this notion are the understood roles of teacher as performer / coach as evaluator, teacher as sole leader of her classroom / coach as outside observer, and teacher as follower / coach as leader in the coaching relationship.

Below, I provide evidence that these conceptions were salient by showing that during Phase 1, Heather and Mia generally participated in ways that were consistent with these roles. (In Chapter 6, I examine one instance in which Mia’s participation was inconsistent with these roles and show that for Heather, Mia’s actions were read as a violation of their arrangements.) I also examine the power that was available to each of them in this arrangement, uncovering a power imbalance that turned out to be problematic in their work. I describe how these roles, and differential power afforded by them, were evidenced by Heather’s and Mia’s participation. Although these dynamics take place in interaction, and are thus deeply intertwined, I begin by describing these dynamics for Heather, looking at her participation and access to power, and then consider the same questions for Mia. I then demonstrate some of these dynamics in action by examining an interaction that took place in their first meeting.

Heather performed for evaluation, led her classroom, and followed Mia in coaching.

Heather participated with Mia in ways that suggest that she occupied the roles of performer for evaluation, leader of her classroom community, and follower in the coaching relationship. Her participation suggests that she experienced access to power in her own classroom, but limited access to power in her interactions with Mia. She performed for evaluation, implying that Mia had the right and the power to evaluate. She did this by teaching alone and then interpreting Mia’s talk as evaluative even when it wasn’t. For example, in an episode that I share in detail in Chapter 6, Heather misremembered in an interview that in their first debrief conversation, Mia had talked about “some things [for Heather] to work on.” When the interviewer probed, Heather said, “I can’t think offhand like what were her suggestions, but she definitely gave me some.” No such suggestions are evident in records of this conversation.

In her ending interview, Heather spoke about the stress associated with her perceived need to perform when Mia was observing:

I’d love to say that like, “Yeah Mia’s coming in. I’m just gonna go ahead and teach...” But when somebody is coming to observe your classroom, there’s just like a whole nother layer of added stress that happens. Um, you know, it’s just yeah, it’s just more stressful. You feel like you have to be more on.
During coaching conversations, Heather also asked questions that suggested that Mia was in possession of “right answers” about teaching and that suggested that Mia had the power to decide what good or “better” teaching is (e.g. “How could I make my lesson better?”).

Heather participated as sole leader in her classroom community, teaching alone and giving neither Mia nor her students any indication that Mia was an invited member of their activities. During the lesson in the 1\textsuperscript{st} coaching cycle, Heather taught alone and did not mention Mia to the students. During the lesson in the 2\textsuperscript{nd} cycle, Heather started class and directed students to work on the Do Now while she took roll. Mia interrupted to ask for permission to introduce herself to the students, which Heather granted and Mia did. During the lesson in Cycle 3, Heather introduced Mia to the class when Mia asked her to do so. In the domain of her classroom, Heather had the power to do what she liked, including to decide whether, or when, to invite Mia into the classroom community.

Heather participated as a follower of Mia’s lead in their coaching work. She showed up to talk when Mia asked her to, generally accepted Mia’s suggestions about what they should talk about, and went along with many of Mia’s suggestions. As will be discussed in the following section, she also exhibited some signs of resistance to Mia’s power, but this resistance did not become explicit or direct until the pivotal conversation that catapulted the coaching relationship into Phase 2.

\textit{Mia observed Heather teach, offered evaluations, and led their coaching work.}

Mia participated with Heather in ways that suggest that she occupied the roles of evaluator, outsider to the classroom community, and leader in the coaching relationship. (As we will see as this chapter unfolds, Mia’s participation both reified and resisted these roles. In this section, I focus on her participation that was consistent with them.) Mia offered evaluations of Heather’s teaching, although she did so only by naming “strengths” of Heather’s that she perceived. As we will see below, she did this to contest the hierarchical presumptions of expertise inherent in their roles. However, evaluating is evaluating and, to some extent, by doing this, Mia accepted the role as evaluator and deployed the power to evaluate associated with it.

After one early failed attempt to participate with Heather in teaching (this episode is examined in Chapter 6 with respect to frames for coaching), Mia observed Heather’s teaching and interacted with students only when doing so did not appear to get in Heather’s way. She accepted the role of outsider to the classroom community and did not contest Heather’s power to guide activity in this space.

With respect to the coaching work, Mia guided choice-making about when to meet, what to work on, and how conversations would be structured. While she used respectful language, and offered Heather opportunities to make consequential choices, most of these choices were, in the end, made by Mia. The example provided in the following section demonstrates this aspect of Mia’s participation and the power associated with it.

\textit{Dynamics of power and voice in these arrangements.}

As described throughout the sections above, Heather’s and Mia’s roles afforded them different access to power. Heather had the power to teach how and what she wanted. Indeed, some of her teaching choices that could be read as “resistant” to Mia’s influence (see section 5.2.4 on Participation in Classroom Practice) could also be read as claiming the power she was afforded in this coaching relationship. Mia had the power to make the choices that shaped their work together during coaching conversations. The following example demonstrates some of the
ways in which this power dynamic played out. I pause throughout the example to comment on issues of power and positioning.

Early in their first meeting, in a talk about scheduling, Mia had said that she could be available to come either to Heather’s 3rd or 4th period class, ostensibly offering Heather the power to choose. A couple minutes later, Heather returned to the question of which class Mia would observe, and the following interaction unfolded.

<table>
<thead>
<tr>
<th></th>
<th>Heather</th>
<th>Mia</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>I’m wondering if we should do 3rd or 4th? I mean they’re both- have their issues (laughs). They are both equally rich in that way (laughs).</td>
<td>Yeah I think, okay, so what I heard was that you have one particularly challenging student in 4th.</td>
</tr>
<tr>
<td>2</td>
<td>Well, I’ve got a few and they are all kinda- I think two of them are into each other and that’s causing a big ten- there is a lot going on in 4th. 3rd I have one particular kid that’s a ton of work and that one I’m working with.</td>
<td>Mhm.</td>
</tr>
<tr>
<td>3</td>
<td>(to Lynn) You know which one</td>
<td>Lynn: No I don’t.</td>
</tr>
<tr>
<td>4</td>
<td></td>
<td>Lynn: Oh yeah.</td>
</tr>
<tr>
<td>5</td>
<td></td>
<td>JFG?</td>
</tr>
<tr>
<td>6</td>
<td></td>
<td>Lynn: Oh yeah.</td>
</tr>
<tr>
<td>7</td>
<td></td>
<td>So my um-</td>
</tr>
<tr>
<td>8</td>
<td>But I’m doing a lot of work with him and we’re growing</td>
<td>Cool.</td>
</tr>
<tr>
<td>9</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>11</td>
<td></td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>Today was kind of crazy but-</td>
<td></td>
</tr>
</tbody>
</table>

In line 3, Heather articulated a challenge she experienced in her 4th period class in which there was “a lot going on.” This, combined with some earlier talk in this conversation, suggests that a challenge that was salient to Heather in her teaching related to managing students who she experienced as “crazy.” Mia, in the response that follows, deployed the power of her position to determine their work together in a number of ways. She claimed knowledge of (and the right to say) what Heather wanted; defined what their work should—and should not—be about; and made the choice that she had previously offered to Heather.

<table>
<thead>
<tr>
<th></th>
<th>Heather</th>
<th>Mia</th>
</tr>
</thead>
<tbody>
<tr>
<td>13</td>
<td>So, my question is- so sometimes when there is like kid drama that is really intense- sometimes it can kinda get in the way of our ability to learn together about what you really want to be learning about,</td>
<td>Yeah.</td>
</tr>
<tr>
<td>14</td>
<td>which isn’t about that- you know, cuz you’re- you have more tools than I do to deal with particular kid drama because you know the kids and you know the community and you know the resources.</td>
<td>Yeah, yeah.</td>
</tr>
<tr>
<td>15</td>
<td>I don’t know any of that-</td>
<td></td>
</tr>
<tr>
<td>16</td>
<td>I know, that’s why I was wondering if that class would be like (shrugs).</td>
<td></td>
</tr>
<tr>
<td>Heather</td>
<td>Mia</td>
<td></td>
</tr>
<tr>
<td>---------</td>
<td>-----</td>
<td></td>
</tr>
<tr>
<td>19</td>
<td>If we’re going to be distracted from being able to think about like kids’ learning and thinking about status around the room and thinking about assigning competence and all of that together, then maybe I should just stick with 3rd for now.</td>
<td></td>
</tr>
<tr>
<td>20</td>
<td>Yeah.</td>
<td></td>
</tr>
<tr>
<td>21</td>
<td>Yeah. Let’s do that.</td>
<td></td>
</tr>
</tbody>
</table>

In line 13, Mia referred to “our ability to learn together about what you really want to be learning about,” assuming some knowledge (and right to claim that knowledge) of what Heather wanted to be learning about. Then, in lines 19 and 21, she defined what kinds of thinking would be valued in their work together, namely “thinking about kids’ learning and thinking about status around the room and thinking about assigning competence and all of that…” Finally, in line 21, she made the choice about which period to attend—implying a choice related to what Heather wants to be learning about—softening that move with hedging language: “maybe I should just…” While this was spoken as a suggestion that could ostensibly be rejected, the power dynamics in their relationship didn’t leave Heather much choice. And, as we see in the final few lines of this exchange below, Heather went along with Mia’s choice.

<table>
<thead>
<tr>
<th>Heather</th>
<th>Mia</th>
</tr>
</thead>
<tbody>
<tr>
<td>22</td>
<td>Yeah. Let’s do that.</td>
</tr>
<tr>
<td>23</td>
<td>Yeah? Should we do that?</td>
</tr>
<tr>
<td>24</td>
<td>I’ll just deal with the circus in 4th. We have to like go over the rules and stuff.</td>
</tr>
</tbody>
</table>

Although Heather went along with Mia’s choice here, she also offered a small act of resistance by saying that this choice left her to “deal with the circus in 4th” on her own. The example above illustrates an imbalance of power that existed throughout Phase 1. Mia had—and took—the power to choose when they would work together, what they would work on, and how their conversations would unfold.

It is important to consider Heather’s experience in this power arrangement. While we cannot know many things about Heather’s experience, analyses in the sections that follow suggest that she may have experienced not only diminished access to making choices in her work with Mia, but also diminished access to being heard throughout Phase 1. There were instances in which she was not invited to participate as more than a listener in conversations about teaching. There were other instances, such as the episode above, in which she ventured ideas and questions that mattered to her and those offerings were side-lined in the choices Mia made about how their work together should unfold. In the following section, I examine ways in which both Heather and Mia resisted the imbalance of power and tried to offer Heather different kinds of experiences.

**Heather and Mia resist hierarchical positions and power arrangements.**

Heather and Mia both did work in Phase 1 to resist the above-described arrangements of power and positioning, although their positions afforded them different access to resistance, as demonstrated below.

**Heather’s resistance to the social arrangement.**

relates to a society-level analysis of the dominating and dominated classes, it offers insights that support our understanding of Heather’s resistance to the social arrangements I have described here in which she experienced a lack of power in her work with Mia.

The critical insights of the dominated are communicated locally off the record in what Scott (1990) calls “hidden transcripts.” Moreover, the insights do not lead to organization that results in revolution, but to action that is unplanned and sporadic, and that takes place through informal networks…Yet the dominated are not simply fooled by the common-sense understanding of things promoted by the dominating elites. Rather, they express critique through continued resistance of a muffled sort, through the everyday techniques of “foot dragging, dissimulations, desertion, false compliance, pilfering, feigned ignorance, slander, arson, sabotage… typically avoiding any direct symbolic confrontations with authority” (Scott 1985; xvi) (Erickson, 2004, p. 136)

Although Heather did not engage in each of these tactics of resistance (she did not, for example, commit arson), many of her behaviors can be understood as foot-dragging, false compliance, and mild forms of sabotage. For example, she often neglected to answer Mia’s scheduling emails to the Adams team, leaving Mia unsure about whether she would be available to meet. She often expressed that she was busy, suggesting that she did not have time to work with Mia. For example, in the following talk early in the 2nd coaching cycle, Heather said it was a challenge for her that “we’re meeting today” and that “you always come on the most insane weeks.”

<table>
<thead>
<tr>
<th>Heather</th>
<th>Mia</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oh god, and I can’t even believe we’re meeting today and I’m not even ready for advisory. <em>(puts both hands on her head.)</em></td>
<td>Do you need to- for us to something different?</td>
</tr>
<tr>
<td>What?</td>
<td>Do you need us to do something different? I’m pretty flexible. Do you want to, um, we can talk after school? If that’s better?</td>
</tr>
<tr>
<td>I know, I just forgot that- you know what, there’s just so much going on this week. You always come on like the most insane weeks.</td>
<td><em>(laughs)</em></td>
</tr>
<tr>
<td>I don’t know why but it’s like-</td>
<td>Maybe it’s meant to be.</td>
</tr>
<tr>
<td>Insane week and you show up. Um. It’s fine, I guess I’ll just wing it.</td>
<td></td>
</tr>
</tbody>
</table>

While she did not actually refuse to engage with Mia, her various expressions of reluctance can be understood as those forms of resistance that are available to people in disempowered positions.

**Mia’s work to offer more productive positions.**

Mia’s position of relative power afforded her different opportunities to work against the social arrangement. She appeared to have been aware of, and working to counteract, challenges for Heather’s learning related to hierarchical positioning and imbalanced presumptions of
expertise. She was concerned about issues of teachers’ agency in her work, expressing the need to connect her thinking about teaching to teachers’ own questions about their practice. In a conversation with Lynn about coaching in September, Mia said about her coaching approach:

There’s always for me, um, there’s some sorting out to do of what I see and my personal opinions about what I see and what teachers have articulated they want help with, and how what I saw can put me in a position to help them with that, with what they articulated they want. So how could we think together about the questions they articulated?

After some discussion about Heather, Mia summarized her intentions for their first debrief conversation:

My sense is as sweet and welcoming as she’s being, I think Heather is scared to have me there. I think there’s some anxiety for her, which just tells me that’s it’s more important that I name [her] strengths… So, I think my role then, given that, and given- I mean that’s consistent with what I was sensing, is my role is going to be, speak to a lot of strengths, only speak to her questions, make sure she- do harder work to try to connect strengths to HER questions.

However, Mia did not appear to be fully aware of the power dynamics at play in her work with Heather, or that Heather was experiencing a loss of power and voice. Perhaps because of this incomplete awareness for Mia, some of her efforts to support various aspects of Heather’s learning turned out to further complicate these dynamics.

From Mia’s place of power (as the dominating elite, as it were), her work against their unproductive positioning was different than Heather’s in that it did not take place in “hidden transcripts,” but in her talk. She spoke in ways that suggested more productive positions for herself and Heather. Some of her work on this is described in detail in Chapter 6, but I offer a few examples of her efforts below.

Mia worked to mitigate the hierarchical presumptions of status and expertise that were inherent in this relationship by talking about what she perceived to be Heather’s strengths as a teacher and by normalizing the challenges that Heather expressed. For example, she began the first debrief conversation by setting up a conversation protocol in which both she and Heather would itemize Heather’s teaching strengths that had been evident in the lesson. (For a closer look at this conversation protocol, see Chapter 4.) She normalized some of the challenges that Heather expressed by acknowledging her own experiences with similar challenges, inviting some sense of alignment or togetherness in these challenges. For example, toward the end of the first planning conversation, Heather said, “I am just not super jazzed about this lesson.” Mia responded, “Yeah, I totally feel you. I have been there so many times.” Here she invited Heather to see her as a fellow teacher who has experienced similar challenges. (For discussion of the ways in which Heather’s understanding of this work of Mia’s must have been mediated by the frames that dominated her understanding of coaching, see Chapter 6.)

She also worked to mitigate her own high status with various conversational moves, such as attributing her ideas to others or saying what she was unsure about or acknowledging her mistakes or areas for growth. Sometimes her naming of her own challenges co-occurred with her identification with Heather’s challenges. For example, as Mia arrived for the debrief
conversation in the first coaching cycle, Heather expressed that she was struggling with some
emotional challenges related to the depth of trauma that some of her students experienced. She
began to cry and the two talked for a while before recording began. A few minutes later, after
Lynn had arrived and they had begun recording and talking about the lesson, Heather returned to
considerations of her students’ trauma, explaining to Lynn that one of her students had just
experienced a tragic loss. Mia responded by supporting Heather to see that the way she had
responded to this student was positive, and acknowledged that finding such a response is
difficult, recounting ways in which she herself had failed to do this well in the past.

<table>
<thead>
<tr>
<th></th>
<th>Mia</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heather</td>
<td>(to Lynn) Well her brother just died.</td>
</tr>
<tr>
<td></td>
<td>Oh, that was the student whose brother just died?</td>
</tr>
<tr>
<td>Yeah and I don’t, she doesn’t really processed anything around that so I-</td>
<td></td>
</tr>
<tr>
<td>Lynn: (inaudible)</td>
<td></td>
</tr>
<tr>
<td>Yeah, I think that maybe like something like that her brother came up, but I don’t know. She couldn’t identify</td>
<td>What a sweet opportunity. I mean it sounds like you were- you let her- you gave her space to feel her feelings. You didn’t call her bad for them.</td>
</tr>
<tr>
<td>Yeah.</td>
<td>You still invited her back into a learning environment but on her own time.</td>
</tr>
<tr>
<td>Yeah.</td>
<td>I feel like sometimes as a teacher, I forget that other things matter too. You know (laughs) that they’re not just- I’m like (in an exaggerated voice) “GOTTA LEARN MATH NOW. GET OUT YOUR BOOKS”</td>
</tr>
<tr>
<td>“GOD DAMN IT GET OUT YOUR BOOKS” (laughs)</td>
<td>(laughs)</td>
</tr>
<tr>
<td>“You are going to learn!” (laughs)</td>
<td></td>
</tr>
<tr>
<td>No I totally get that way too, believe me. Today happened to not be one of those days, which was a great perfect timing for all that to happen.</td>
<td>(laughs)</td>
</tr>
<tr>
<td>Thank God. (laughs)</td>
<td>(laughs)</td>
</tr>
<tr>
<td>It wasn’t one of my like “you are going to learn” days, you know.</td>
<td></td>
</tr>
</tbody>
</table>

In this interaction, Mia named Heather’s handling of a challenging situation as positive,
positioned herself as a teacher who doesn’t always handle these challenges well, and normalized
and identified with the challenge. It is also interesting to notice that Heather normalized Mia’s
stated challenge in return with “I totally get that way too, believe me.”

Mia also tried to create space for Heather to guide some of their work together. She asked
Heather for her questions and often checked with Heather about whether the direction of their
conversation was acceptable. However, in a mid-year survey, Mia reported “lots of challenges”
in her work with Heather including, “Her constant state of being stressed out and unprepared
makes it hard to know how to plug in.” On the same survey, Mia was asked to assign a number
from 0 to 10 for how clear she felt about what Heather wanted her help with. She responded: “2. I have a vague sense that she wants me to help her ‘with CI’ but I don’t really know what she means by that.”

Her responses in this survey suggests that Mia wanted to know what Heather wanted, and also that she seemed to be understanding the challenges in their work as being a result of what Heather was bringing. She did not mention (and likely did not remember) that Heather had made statements about what she wanted help with (recall her talk about the “circus in here”) and she did not appear to be aware of ways in which her own interactions with Heather might stifle Heather’s ability to be more clear about what she wanted.

Heather’s and Mia’s efforts to resist hierarchical positioning (of which Mia appeared to be aware) were complicated by the unequal relations of power that were connected with this positioning (of which Mia appeared to be less aware). As will become apparent in the sections that follow, some of Mia’s attempts to support Heather’s learning along other strands worked to reify their hierarchical positions and deny Heather access to power, inclusion, and agency in her learning.

5.2.2 Meaning-Making: A Fundamental Contradiction

This section presents analyses of aspects of Heather’s meaning making about students, teaching, and learning. (As was true in Chapter 4, analyses of other strands will also include some considerations of meaning-making of various types.) Throughout Phase 1, Heather’s meaning making did not change substantially, although some aspects did begin to shift by the third coaching cycle. Heather’s meaning making was found to be influenced by her talk about students in terms of their belonging to hierarchically arranged categories, such as “high” and “low,” “smart” and “struggling,” and her perceptions of a huge “divide” between these groups. This section also shows that Mia’s attempts to support shifts in Heather’s meaning-making fell flat, and in fact denied Heather opportunities to make new meanings or to engage as an active participant in any negotiation of meaning about students and mathematical ability.

My analysis of this meaning-making in teacher-coach conversations captures categories of talk that align with the dominant world of US Schooling or the emerging world of Ambitious and Equitable Teaching and Learning. Table 9 contains names and color codes for these categories of meaning making, which are detailed in Chapter 3. Figure 11 contains code profiles for Heather’s talk in the four coaching cycles, with color-coded representations of her talk in each planning conversation followed by those for her talk in each debrief conversation, with white space indicating the separation between the two. Figure 12 contains code profiles for Heather’s and Mia’s talk, each conversation in its own column with Heather’s talk represented on the left and Mia’s on the right.

Table 18. Meaning-making codes US Schooling and Ambitious and Equitable Teaching and Learning talk

<table>
<thead>
<tr>
<th>Dominant world of US Schooling</th>
<th>Emerging world of Ambitious and Equitable Teaching and Learning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Compliance</td>
<td>Social Organization of the Class for Learning</td>
</tr>
<tr>
<td>Limiting Math Goals</td>
<td>Rich Math Goals</td>
</tr>
<tr>
<td>Smartness as Exclusive</td>
<td>Smartness as Inclusive</td>
</tr>
<tr>
<td>Students’ Math Deficits</td>
<td>Students’ Smart Math Thinking</td>
</tr>
<tr>
<td></td>
<td>Rich Mathematics</td>
</tr>
</tbody>
</table>
Figure 11. Code profiles for Heather’s meaning-making in her work with Mia
Figure 12. Code profiles for Heather’s and Mia’s meaning-making in their work together.
Table 10 contains the percentages of all of Heather’s coded talk that was captured by each code across the four coaching cycles, total portions across the broad categories of talk consistent with the dominant world of US Schooling (warm colors) and talk consistent with the emerging world of Ambitious and Equitable Teaching and Learning (cool colors). In the sections that follow this table, I interpret and investigate some of the patterns revealed here.

Table 19. Portion of each code for Heather’s talk throughout Phase 1 (entries are percentages of total coded talk)

<table>
<thead>
<tr>
<th>Code</th>
<th>Cycle 1 9/1/14</th>
<th>Cycle 2 10/30/14</th>
<th>Cycle 3 2/9/15</th>
</tr>
</thead>
<tbody>
<tr>
<td>Compliance</td>
<td>25</td>
<td>14</td>
<td>11</td>
</tr>
<tr>
<td>Limiting Math Goals</td>
<td>16</td>
<td>27</td>
<td>4</td>
</tr>
<tr>
<td>Smartness as Exclusive</td>
<td>10</td>
<td>4</td>
<td>19</td>
</tr>
<tr>
<td>Students’ Math Deficits</td>
<td>9</td>
<td>16</td>
<td>9</td>
</tr>
<tr>
<td><strong>Total talk consistent with US Schooling</strong></td>
<td><strong>60</strong></td>
<td><strong>62</strong></td>
<td><strong>43</strong></td>
</tr>
<tr>
<td>Social Organization of the Class for Learning</td>
<td>13</td>
<td>0</td>
<td>21</td>
</tr>
<tr>
<td>Rich Math Goals</td>
<td>5</td>
<td>14</td>
<td>10</td>
</tr>
<tr>
<td>Smartness as Inclusive</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Students’ Smart Math Thinking</td>
<td>19</td>
<td>15</td>
<td>11</td>
</tr>
<tr>
<td>Rich Mathematics</td>
<td>3</td>
<td>9</td>
<td>15</td>
</tr>
<tr>
<td><strong>Total talk consistent with Ambitious and Equitable Teaching</strong></td>
<td><strong>40</strong></td>
<td><strong>38</strong></td>
<td><strong>57</strong></td>
</tr>
</tbody>
</table>

The ratio of Heather’s dominant to emerging talk shifted by the end of Phase 1, with Cycle 3 having a larger portion of talk consistent with the emerging world than either of the first two coaching cycles. Heather’s talk about mathematics, both in terms of rich math goals (dark blue) and mathematics itself (purple) increased somewhat across these three coaching cycles. This pattern is consistent with findings related to Heather’s and Mia’s negotiations around participation in classroom practice (see Section 5.2.4), which reveal that their work on practice was largely focused on mathematics throughout Phase 1.

Her talk about compliance (yellow) and limiting math goals (orange) both decreased in this third coaching cycle. However, her talk about smartness as exclusive (red) increased. While in relation to other codes, the portion of Heather’s coded talk that related to “smartness” as exclusive (red) does not appear large, it is a considerably larger portion than occurred in any of the other cases I examined. (In the Kamilah case, this code appeared in only the 2nd coaching cycle, and there was only 4% of her coded talk.) Given its relative frequency in this case, the fact that it does not decrease in frequency, and its connections to some of the most limiting aspects of dominant discourse about students and math, this talk deserves further investigation. The following section contains results of such an investigation.

**Heather’s talk about “high” and “low” students in Phase 1.**

This section contains results of a closer investigation of Heather’s “smartness” talk. This talk, which I will call “high/low talk,” was examined for when it was used and for what apparent functions.

Heather used high/low talk more frequently in planning conversations than in debrief conversations, with this talk occupying an average 24% of her coded talk in planning conversations and only 5% in debrief conversations across this phase, as can be seen in Table 20.
Table 20. Percentage (of coded talk) of Heather’s talk about smartness as exclusive in each conversation in Phase 1

<table>
<thead>
<tr>
<th></th>
<th>Cycle 1 9/1/14</th>
<th>Cycle 2 10/30/14</th>
<th>Cycle 3 2/9/15</th>
<th>Average</th>
</tr>
</thead>
<tbody>
<tr>
<td>Smartness as Exclusive in planning conversations</td>
<td>15</td>
<td>11</td>
<td>44</td>
<td>24</td>
</tr>
<tr>
<td>Smartness as Exclusive in debrief conversations</td>
<td>2</td>
<td>0</td>
<td>13</td>
<td>5</td>
</tr>
</tbody>
</table>

This trend suggests that high/low talk may have served functions that were relevant for Heather in planning. To investigate this, each of the 41 instances of the appearance of this code in Heather’s talk were examined and categorized in two ways. First, the apparent purpose of this talk was examined, with the following purposes emerging: (1) to explain challenging group work (e.g. “she’s really smart, so she tends to dominate”); (2) to reason about giving opportunities to some students but not all, or to reason about the needs of some students (e.g. “If they get through both of these, then I might push some of the high kids on finding volume or thinking about volume.”); (3) to predict which students will be able to do something (e.g. “It’s pretty tricky. I think my advanced kids could do it.”); (4) to explain a challenge for planning (e.g. “There’s kids that are like, ‘boom, boom, boom, boom, checkpoint!’, you know, and then other ones that are like struggling a lot more.”) and (5) to explain attributes of a student or group, without any of the above purposes clear (e.g. about a class, “They’re high level, but they’re a rowdy bunch.”). Heather’s talk about “high” and “low” kids was then examined for which students were being spoken of, the apparent “high,” the apparent “low,” or comparisons of the two. Table 21 and Table 22 contain the results of these investigations.

Table 21. Purposes of Heather’s high/low talk across Phase 1

<table>
<thead>
<tr>
<th>Purpose:</th>
<th>Cycle 1 n = 7</th>
<th>Cycle 2 n = 3</th>
<th>Cycle 3 n = 26</th>
<th>Total n = 36</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. To explain challenging group work</td>
<td>4</td>
<td>1</td>
<td>5</td>
<td>5 (14%)</td>
</tr>
<tr>
<td>2. To reason around giving opportunities to some students, but not all, or what some students need</td>
<td>1</td>
<td>7</td>
<td>8</td>
<td>8 (22%)</td>
</tr>
<tr>
<td>3. To predict behaviors, usually who will be able to do something.</td>
<td>1</td>
<td>8</td>
<td>9</td>
<td>9 (25%)</td>
</tr>
<tr>
<td>4. To explain a challenge for planning</td>
<td>1</td>
<td>1</td>
<td>5</td>
<td>6 (17%)</td>
</tr>
<tr>
<td>5. To explain attributes or behaviors of a student or group of students (and none of the above).</td>
<td>3</td>
<td>8</td>
<td>12</td>
<td>12 (33%)</td>
</tr>
</tbody>
</table>

Table 22. Which students are named in Heather’s high/low talk across Phase 1

<table>
<thead>
<tr>
<th></th>
<th>Cycle 1 n = 7</th>
<th>Cycle 2 n = 3</th>
<th>Cycle 3 n = 26</th>
<th>Total n = 36</th>
</tr>
</thead>
<tbody>
<tr>
<td>Talk contains a clear comparison of smart to not smart, including talk about “divide.”</td>
<td>6</td>
<td>1</td>
<td>14</td>
<td>21 (58%)</td>
</tr>
<tr>
<td>Talk focused on the struggling or the not smart.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Talk focused on the smart, without comparison.</td>
<td>1</td>
<td>2</td>
<td>5</td>
<td>8 (22%)</td>
</tr>
</tbody>
</table>

This analysis reflects Heather’s focus on a substantial “divide” that she perceived in her classes between students who “get it” and those who are “totally lost.” Also, this analysis reveals that a good portion of this talk related to her reasoning about what opportunities to offer to her students and thus presented significant challenges for working toward the vision of equity that Mia and the CI program in the district were working to support.
For example, in the planning conversation for Cycle 3, Heather and Mia were talking about an activity that Heather was thinking of using that would involve students calculating the surface area of a prism. The question had arisen in their conversation whether students should also be thinking about volume in the lesson. In the talk below, Heather made predictions that her “advanced kids” were ready for this challenge and that she might thus offer them the opportunity to take it on.

<table>
<thead>
<tr>
<th>Heather</th>
<th>Mia</th>
</tr>
</thead>
<tbody>
<tr>
<td>I think [this task] is okay for surface area, but we felt it seemed really hard for volume.</td>
<td>Yeah, yeah, yeah.</td>
</tr>
<tr>
<td>It’s pretty tricky.</td>
<td>Yeah.</td>
</tr>
<tr>
<td>I think my advanced kids could do it.</td>
<td>Yeah.</td>
</tr>
<tr>
<td>and I’d love to push them to do the volume of it.</td>
<td>Uh huh.</td>
</tr>
<tr>
<td>Um, so I guess kinda what I thought about doing is, the advanced kids, if they’re pushing through this fast, like they went through this- actually pretty quickly. Like faster than I thought they would.</td>
<td>Mhm.</td>
</tr>
<tr>
<td>then I thought I could- after they do checkpoint on surface area we could have them do volume.</td>
<td></td>
</tr>
</tbody>
</table>

Heather’s conception of a group of students that she calls here the “advanced kids” supports her to consider offering different opportunities for mathematical sense-making to different students, functionally denying the students who she does not see as “advanced” opportunities for learning about volume in this lesson.

The high/low conception of students’ mathematical ability that is prevalent in Heather’s sense-making did not come from her. The world of US Schooling is replete with evidence that students are either “high” or “low,” “advanced” or “struggling” in mathematics. Heather is routinely presented with standardized testing reports and other forms of “student data,” in which students are organized in tables and spreadsheets according to “level” in mathematics, or their Special Education status, or their “level” in English language development. Discourse surrounding education, including at Adams MS, supports the notion that serving students well means meeting each student at his level and providing him with the opportunities that are appropriate, given his limitations and deficits (often called “differentiating” instruction). There is little support available for teachers to make sense of students’ mathematical capacity in terms of their strengths and to relate to students as smart sense-makers. The CI project in the district was attempting to provide such support, as was Mia. As we will see in the following section, some of her attempts to do so turned out to be problematic.

Mia’s work to support Heather’s meaning-making. Examination of coaching interactions suggests that Mia perceived Heather’s talk about “high” and “low” students as a barrier, and that she may have lacked tools or strategies for addressing this barrier constructively. While she did attempt to offer Heather new ways to make sense of smartness, the ways in which she did so functioned to reify their hierarchical positions, reinforced distance in their relationship, and did not provide Heather with opportunities to engage with agency in negotiations of meaning. These points are demonstrated below.
As the following examples from Heather’s and Mia’s interactions in the first planning conversation demonstrate, some of Mia’s attempts to rebut Heather’s high/low talk functioned to reify the power imbalance between herself and Heather. They also did not offer Heather opportunities to participate as an agent in negotiating meaning with Mia, instead offering her opportunities to hear how Mia was making sense of things. What we know about the importance of agency for learning suggests that we should not then read these interactions as providing powerful opportunities for Heather to make new sense of math, students, and teaching.

Early in the planning conversation for Cycle 1, Mia asked Heather how group work was going so far in her class. Heather responded with a comment about the class, and then by describing a number of different groups. Many of her descriptions contained hierarchical characterizations of students or groups of students. A few examples follow to provide a sense for how Heather was making sense of her students.

<table>
<thead>
<tr>
<th>Heather</th>
<th>Mia</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 This table, table 9, I’ve struggled with them communicating.</td>
<td>Mhm.</td>
</tr>
<tr>
<td>2 They are kind of a quiet table.</td>
<td></td>
</tr>
<tr>
<td>3 Lynn: These two are EL (points at seating chart).</td>
<td></td>
</tr>
<tr>
<td>4 But you know what? I had a big talk with them because Jimmy is really strong and these two are EL and they’re slower. Umm Melanie is medium but like Jimmy was just like all sitting there doing their work, so I had a talk about how she was team captain and they had to pull together and then like they communicated and they all like had this like really great moment where they all got the work.</td>
<td></td>
</tr>
</tbody>
</table>

In line 4, we seen an example of one of the ways in which Heather’s hierarchical categorization of students was supported by the narratives that existed around her. Lynn was a highly respected colleague of Heather’s who was in a semi-administrative position at the school and who acted sometimes as a math coach. Here we see her presumption that the information that two students “are EL” was relevant to Heather’s characterization of a “quiet table.”

A few minutes later, Heather described a challenge related to Eddy, a student who wanted to work independently and resisted her efforts to engage him in group work.

<table>
<thead>
<tr>
<th>Heather</th>
<th>Mia</th>
</tr>
</thead>
<tbody>
<tr>
<td>He gets very frustrated when I call on, because I do random card picks-</td>
<td>uh huh uh huh</td>
</tr>
<tr>
<td>and then, I though-, they are not totally like- you know it takes them a while to explain cuz he’s really smart.</td>
<td>Yeah.</td>
</tr>
<tr>
<td>He’s like- today he was like “ahhhh” (screams) you know, and he was just like going crazy like trying to, you know, because they were struggling with explaining and he wanted to tell me, “I want to tell, I want to tell.” You know, and then it’s like, he-</td>
<td>mhm</td>
</tr>
<tr>
<td>I had to like calm him down</td>
<td></td>
</tr>
<tr>
<td>so, yeah</td>
<td>okay</td>
</tr>
</tbody>
</table>

121
Heather Mia
but he’s getting better. He’s getting better. I think today was a better day-

After Heather had described a number of groups, Mia proposed “something we could think about together.” She went on to offer a rebuttal to Heather’s hierarchical talk about students. However, instead of offering her rebuttal directly and acknowledging it as a rebuttal, Mia framed her comments as addressing a problematic perception of students. While she may have done this in an attempt to soften her disagreement, she in fact removed any opportunity Heather may have otherwise had to participate in negotiation around competing ideas. In essence, she told Heather she was wrong, made this socially acceptable by pretending that she was naming students as wrong, and then moved on, precluding any opportunities for the two of them to think together.

<table>
<thead>
<tr>
<th>Heather</th>
<th>Mia</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Cool. so here is what I hear as something we could think about together. Um I hear that there are multiple groups that could benefit from assigning competence to particular students</td>
</tr>
<tr>
<td>2</td>
<td>Mhm.</td>
</tr>
<tr>
<td>3</td>
<td>in different kinds of ways. So I’m hearing uh, that this group (pointing to table 9) there are students that might be perceived as less competent</td>
</tr>
<tr>
<td>4</td>
<td>Mhm.</td>
</tr>
<tr>
<td>5</td>
<td>who we could figure out ways to counter that perception and that might support this group,</td>
</tr>
<tr>
<td>6</td>
<td>Mhm.</td>
</tr>
<tr>
<td>7</td>
<td>right? Umm I hear u:h that here (pointing to Eddy’s group on the seating chart)- uhh- if we could find ways to make it really clear to all of them that this is not the only smart student in the group</td>
</tr>
<tr>
<td>8</td>
<td>Mm, mhm.</td>
</tr>
<tr>
<td>9</td>
<td>right? Um I think that that could support all directions.</td>
</tr>
<tr>
<td>10</td>
<td>Mhm.</td>
</tr>
<tr>
<td>11</td>
<td>It could support kids to be more willing to speak up, it could also support him to be more willing to be patient if he like gets opportunities to see other kids doing things he didn’t do like or</td>
</tr>
<tr>
<td>12</td>
<td>Mhm.</td>
</tr>
<tr>
<td>13</td>
<td>offering things that he didn’t think of yet</td>
</tr>
</tbody>
</table>

In line 3, Mia pointed to table 9, the group that Heather had described in which Jimmy was “really strong” and his groupmates were two “ELs” who were “slower” and Melanie, who was “medium” and suggested here and in line 5 that the perception that some students were less competent—a perception that was implied in Heather’s talk but that Mia here attributed to students—was incorrect and should be countered. Then, in line 7, Mia contradicted Heather’s characterization of Eddy’s group (in which she had talked about Eddy as “really smart,” contrasting this with his groupmates where were “struggling with explaining”) by claiming that “this is not the only smart student in the group.” But by framing her contradiction as being a message for students, she did not acknowledge that she was contradicting Heather’s talk, and did not offer Heather the opportunity to respond or to negotiate meaning around this issue with her. Rather, she made a claim about student smartness and moved on.

After the talk above, Mia went on to consider what opportunities might exist (or not exist) in the content of the lesson to work on assigning competence to students. She pointed out that the content wasn’t particularly “groupworthy.” Heather responded by expressing some light-
hearted regret that this particular day was the day Mia would be “coming in” to her classroom. In her response, Mia explained how she saw opportunities, but again did not offer Heather opportunities engage in this thinking with her.

<table>
<thead>
<tr>
<th>Heather</th>
<th>Mia</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oh my god, why are you coming in this day?</td>
<td><em>(smiles and chuckles)</em> Just like randomly choosing groups, I’m randomly choosing days. So, this is what’s happening.</td>
</tr>
<tr>
<td>I’m just kidding.</td>
<td><em>Yeah.</em></td>
</tr>
<tr>
<td>No, it’s good to think about together right?</td>
<td>In a community where we learn together and where we value everyone being smart, there’s different kinds of math content we need to be able to take up and do together</td>
</tr>
<tr>
<td>Yeah.</td>
<td><em>Yeah.</em></td>
</tr>
<tr>
<td>In a community where we learn together and</td>
<td>and some of it is like the cool Apprentice Task where there really is a lot of stuff to think about. There are multiple ways to represent things, there are different ways to explain it, different solution strategies and sometimes this is just- I mean and sometimes you have to be clear with kids like it’s just a frickin’ convention</td>
</tr>
<tr>
<td>you value everyone being smart, there’s</td>
<td><em>Mhm.</em></td>
</tr>
<tr>
<td>different kinds of math content we need to</td>
<td><em>Yeah.</em></td>
</tr>
<tr>
<td>be able to take up and do together</td>
<td></td>
</tr>
</tbody>
</table>

In line 6 above, Mia named the kind of classroom community *she* values and envisions, presuming in her talk that Heather shared this vision. She did not offer Heather opportunities to enter this talk or to engage in negotiation of this vision with her.

Later in the conversation, Heather expressed an idea in a way that exposed her misunderstanding of the concept of “groupworthy” that was part of the CI course that Heather had taken (and Mia had taught) the summer that preceded this school year. In her response, Mia took the role of expert, explaining the concept of “groupworthy” to Heather. In doing so, she reified hierarchical positioning and did not offer Heather opportunities to participate in meaning making about issues of challenging math and “groupworthiness.”

<table>
<thead>
<tr>
<th>Heather</th>
<th>Mia</th>
</tr>
</thead>
<tbody>
<tr>
<td>I almost kind of want to push to see if we</td>
<td>Well what would there be to talk about?</td>
</tr>
<tr>
<td>could make this group worthy <em>(laughs).</em></td>
<td></td>
</tr>
<tr>
<td>Well I feel like even the high kids that</td>
<td>Right, so I think that- groupworthy and hard are not the same thing.</td>
</tr>
<tr>
<td>can figure this out, they need to be able</td>
<td></td>
</tr>
<tr>
<td>to explain to the other kids what the heck</td>
<td><em>Mhm.</em></td>
</tr>
<tr>
<td>is happening.</td>
<td><em>Because like, in my way of making sense of this anyway,</em></td>
</tr>
<tr>
<td><em>I do think that’s a really tough concept</em></td>
<td><em>Mmhmm.</em></td>
</tr>
<tr>
<td><em>to explain and maybe-</em></td>
<td></td>
</tr>
<tr>
<td>Heather</td>
<td>Mia</td>
</tr>
<tr>
<td>--------</td>
<td>-----</td>
</tr>
<tr>
<td>10</td>
<td>Um, if something is hard, but there is really just one way to do it-</td>
</tr>
<tr>
<td>11</td>
<td>Yeah.</td>
</tr>
<tr>
<td>12</td>
<td>So that’s why I think because there is something really to explain that’s why I would say, maybe, pairs make sense and what the pairs can be held accountable to is, you both should leave this, being able to explain</td>
</tr>
<tr>
<td>13</td>
<td>scientific notation</td>
</tr>
<tr>
<td>14</td>
<td>Whatever the end of that sentence is, but I don’t know what I need to explain in scientific notation, but maybe you need to be able to explain why- why a number is written in a particular way and what it means or- I don’t know. Something like that</td>
</tr>
<tr>
<td>15</td>
<td>Okay.</td>
</tr>
<tr>
<td>16</td>
<td>And then they could do that as an end of class, uhh- I don’t think this is ‘check-pointy’ really, right?</td>
</tr>
<tr>
<td>17</td>
<td>Ehh.</td>
</tr>
<tr>
<td>18</td>
<td>But they could like write it as an exit ticket or um you could do some spot sort of checking.</td>
</tr>
<tr>
<td>19</td>
<td>Mmmhmm.</td>
</tr>
</tbody>
</table>

After “correcting” Heather’s use of “groupworthy” in lines 6, 8, and 10, she went on to claim that “pairs make sense” for the lesson (line 12) and how she saw the lesson being handled best.

In her attempts to address Heather’s high/low talk, Mia reified her own position as an outside expert, and Heather’s position as less expert and wrong. She also did not offer Heather opportunities to negotiate meaning or make sense out loud of these issues. It is perhaps not surprising that Heather’s ways of making sense of student participation and learning remained rooted in talk about “high” and “low” kids and that she continued to use that talk to reason about what opportunities were sensible to offer students.

There is clear evidence that Mia wanted Heather to experience choice and agency in their work. She would not have wanted to see herself as a coach who would ever tell teachers they were wrong, or remove from them opportunities to make sense of things themselves. One way, then, of understanding the dynamics that unfold in this talk is that Mia perceived Heather’s high/low talk as a significant challenge for Heather’s own learning. She was unwilling to ignore this barrier, perceiving that it hindered Heather’s ability to make sense of students and teaching in ways that were more consistent with ambitious and equitable teaching. She also knew that there was social risk in taking on this barrier with Heather and she lacked tools or strategies to do so in more productive ways. So, she improvised an approach that was sensible to her, in that it was non-confrontational while still addressing problematic talk. As we see in this analysis, this approach served also to disempower Heather and did little to support her learning.

5.2.3 Participation in Thinking and Talking About Teaching

In this section, I examine Heather’s participation with Mia in thinking and talking about teaching and Mia’s work to support development along this strand. That is, I examine the ongoing negotiation and development of Heather’s planning for teaching, reflecting on teaching, asking about teaching, etc. in her conversations with Mia.

Analyses indicate that Heather’s participation with Mia in thinking and talking about teaching was not deep (as I operationalize depth; see discussion below and in Chapter 3) across
Phase 1, although this pattern did begin to shift somewhat in Cycle 3. Mia attempted to offer Heather new ways to participate, although these attempts did not appear particularly impactful. These findings are sensible, given what we know about figured worlds. Namely, that the roles and positions we see available to us have a large influence on how we choose to participate, or how we see it as possible or sensible to participate. Findings in this section suggest that Heather’s perceptions of the roles, positions, and associated ways of participating available to her guided her participation more strongly that did Mia’s suggestions that she participate in new ways.

**Heather’s participation in Phase 1.**

As is laid out in more detail in Chapter 3, Heather’s contributions in each coaching cycle were first coded using a rubric that categorized them as being of lower or higher depth. Her questions and statements about her challenges or struggles were coded for low or high depth, using a rubric adapted from Coburn and Russell (2008) and the ideas that she proposed were coded for whether they opened (or left open) lines of inquiry in her conversations or whether they closed these opportunities (see Little, 2002). Results of this coding are presented in Table 23 below.

Table 23. Heather’s low and high depth contributions to coaching conversations in Phase 1

<table>
<thead>
<tr>
<th></th>
<th>Cycle 1</th>
<th>Cycle 2</th>
<th>Cycle 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Low-depth questions</td>
<td>13</td>
<td>9</td>
<td>9</td>
</tr>
<tr>
<td>2. Ideas that close</td>
<td>3</td>
<td>12</td>
<td>6</td>
</tr>
<tr>
<td><strong>Total Low Depth</strong></td>
<td><strong>16</strong></td>
<td><strong>21</strong></td>
<td><strong>15</strong></td>
</tr>
<tr>
<td>3. High-depth questions</td>
<td>1</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>4. Ideas that open (or leave open)</td>
<td>5</td>
<td>1</td>
<td>6</td>
</tr>
<tr>
<td><strong>Total High Depth</strong></td>
<td><strong>6</strong></td>
<td><strong>3</strong></td>
<td><strong>8</strong></td>
</tr>
<tr>
<td><strong>Ratio of high:low depth contributions</strong></td>
<td><strong>0.38</strong></td>
<td><strong>0.14</strong></td>
<td><strong>0.53</strong></td>
</tr>
</tbody>
</table>

Throughout Phase 1, the majority Heather’s contributions to coaching conversation were coded as low depth, with the ratio of high to low depth contributions increasing modestly in Cycle 3. To investigate Heather’s agency in her work with Mia, or to what extent she chose to pursue particular desires with respect to this work, a finer-grained analysis was conducted of Heather’s questions, noting whether they were solicited (e.g. in response to Mia asking Heather for her questions) and whether they were questions that revealed desire for Mia’s ideas or input (as opposed to questions Heather appeared to be asking herself or wondering aloud about and not inviting Mia to answer). Table 24 contains results of this investigation.

Table 24. Heather’s unsolicited questions and requests for Mia’s ideas

<table>
<thead>
<tr>
<th></th>
<th>Cycle 1</th>
<th>Cycle 2</th>
<th>Cycle 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unsolicited questions</td>
<td>0</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>Questions requesting Mia’s ideas</td>
<td>0</td>
<td>0</td>
<td>1</td>
</tr>
</tbody>
</table>

These findings suggest again that there may have been a modest shift in these aspects of Heather’s participation by the end of phase 1. With respect to Heather making active choices in the coaching work, it is notable that for the first time in Cycle 3, she asked Mia for an idea. Below, examples are provided to give the reader a sense for Heather’s participation across Phase 1.
As revealed in Table 24, Heather asked few unsolicited questions during the first three coaching cycles. Those she did ask, as well as her statements that were coded as being about her challenges and struggles, did not in fact seek to solicit input from Mia. Rather, she explained her struggles or concerns, but did not open meaningful opportunities for Mia to contribute to addressing them. For instance, in the first planning conversation, Mia asked Heather to describe how group work was going in her class. Heather responded by describing the particular dynamics she had observed in various teams, including about one team, “This table, Table 9, I’ve struggled with them communicating. They are kind of quiet table.” (See section 5.2.2 for a consideration of Heather’s meaning making related to this example.) She went on to continue her description of dynamics in this team and did not ask Mia in this conversation to think with her about how she might support this team’s communication. Later in the conversation, Mia had suggested that Heather might close her lesson by sharing with the class strong mathematical thinking that she had observed from students during the lesson. Heather responded by sharing a “worry,” without asking for Mia’s ideas about that worry: “My biggest worry about that is that it’s still gonna be the really high kids that are going to be able to explain this, if I do 10 minutes of that. I mean I think this is a really tough concept.”

In all three planning conversations in Phase 1, Heather stated many of her own ideas for teaching, often planning out loud and offering no clear way for Mia to participate. For instance, during the planning conversation in the second coaching cycle, Heather told Mia some of what she was planning for students to do in a lesson about the triangle sum theorem.

<table>
<thead>
<tr>
<th><strong>Heather</strong></th>
<th><strong>Mia</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>And then for fourth period, they already know the triangle. Yeah, I’m gonna give ‘em compasses and I’m not gonna say anything.</td>
<td>Yeah.</td>
</tr>
<tr>
<td>I’m just gonna say, “ok”- cuz they have vocabulary worksheets as well.</td>
<td>Okay.</td>
</tr>
</tbody>
</table>

What is notable about talk of this type is not that it is unusual in any way, but that it does not function to invite Mia into conversation about teaching ideas. In fact, there was little indication through most of Phase 1 that Heather was interested in Mia’s ideas about teaching.

This dynamic began to shift in Cycle 3, when Heather asked for Mia’s input for the first time as the two discussed a lesson about surface area. Her question both suggested a direction for their conversation that she wanted to pursue and functioned to invite Mia to enter the conversation. Mia took up the invitation, proposing a nascent idea about framing the lesson for students around a math question to think about, rather than around the task of executing calculations.

<table>
<thead>
<tr>
<th><strong>Heather</strong></th>
<th><strong>Mia</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Do you have any suggestions on like, making this-Meatier, in that way? (4s pause) Like I’m not really sure what, I totally,</td>
<td>Yeah yeah, I don't either know.</td>
</tr>
<tr>
<td>This is not meaty, as far as like vocabulary wise</td>
<td>Mhm.</td>
</tr>
<tr>
<td>Or getting at like, really giant concepts.</td>
<td></td>
</tr>
</tbody>
</table>
Following this talk, Mia and Heather continued to discuss what “big question” the lesson could be framed around, and Heather went on to launch the lesson with that question. (This launch will be shared in the following section looking at Heather’s evolving *participation in classroom practice.*)

These various analyses reveal that across Phase 1, Heather’s participation was neither particularly deep or agentive. She participated relatively passively and her talk did not often function to invite Mia into her thinking processes. By Cycle 3, it began to shift in ways that signal somewhat more agency on Heather’s part and that created some opportunities for Heather and Mia to think together that had previously been missing. Given findings with respect to Heather’s and Mia’s differential power and hierarchical positioning, it is perhaps not surprising to discover a sense of distance in their talk and to see Heather rarely active in guiding their work. In the following section, I examine Mia’s talk, finding that she did make attempts to support more agentive participation from Heather and that she expressed the desire to know what Heather wanted.

**Mia’s contradictory work to support Heather’s agentive participation in Phase 1.**

Evidence suggests that Mia wanted to support Heather to make her own questions and desires clear in their coaching conversations and that her efforts to do this were not occurring for her as particularly fruitful. In this section, I examine how those efforts unfolded and how they may have communicated to Heather that what she (Heather) really wanted was unavailable in this coaching relationship.

Early in their first planning meeting, Mia asked Heather what she was hoping to get from their work together.

**Mia:** What I would like to know from you is what- what you’re thinking you’d like my help with? How things are going? I think I know a little bit about the lesson- or I know a little about the curriculum, but I don’t know what you are planning to do with it or what your structure- or what your lesson structure is. Or which problems you are doing or anything like that so we can talk about that. But I’d love to hear first sort of- what you’re wanting some help thinking about which can then tell me where to direct my focus when I’m here.

Heather thought for a bit and then responded,

**Heather:** Well, okay, a couple things that are coming up. One is, well this is moving very slow, which I assumed was going to happen, but we get to a point where I’m like, do we move on with this lesson?
She went on to expand on this challenge, describing issues of providing students with the right level of challenge (e.g. “one student told me he was not being challenged enough”), classroom management (e.g. “there’s so much going on, so many behavioral things” and “one group in particular that was goofing around so much”), and describing that some groups “get through” many problems, while others “barely got through the first one.” She gave an example from the previous lesson, and included considerations (in transcript below) of whether students were learning the math that was central in the lesson.

**Heather:** Um, I felt like overall though, the idea here was to try to get the fact that when we have like bases, we are adding exponents, is pretty much a lot of what was happening here, which I think most groups pretty much got on that page.

Mia responded by addressing Heather’s thinking about what math mattered in the lesson she had described and relating that to the question of moving on or not.

**Mia:** Okay, so to go back to your question about moving on or not moving on- I think what I heard you articulate was that the big idea of this lesson, or this part, was that they understand, they could make sense of these um- multiplying these exponential expressions. They know what they mean so that they understand that you are adding exponents and the bases are the same because it just means you are counting how many of them you have and you have that many more, right? And then you pretty much think that happened mostly.

From there, the two went on to talk about how the smaller math concerns that came up might be addressed. As will be apparent in the section about participation in classroom practice, Mia and Heather continued to focus together on considerations of what math matters in lessons.

What is notably absent here is any talk together about the aspects of this concern that related for Heather to students “goofing around” or being “off task.” While it is impossible to know how Heather understood this, it is reasonable to conclude that she may have understood that those aspects of her concerns either did not matter to Mia or were not worthy of their time. Given the fact that Heather had expressed similar concerns earlier in the conversation, this move of Mia’s may have contributed to Heather’s interpretation that what was available in the coaching work was not of great importance to her, and may have led to some of the “foot dragging” or other forms of resistance that are evident. (See section 5.2.1 for discussion of this behavior.) The following episode demonstrates ways in which Mia’s efforts to build coaching around Heather’s own questions and needs fell short.

At one point in the second planning conversation, after Heather had expressed that she was busy and it would be helpful to keep the conversation short, Mia presented Heather with some options, and asked what she was hoping to get out of the visit.

<table>
<thead>
<tr>
<th>Heather</th>
<th>Mia</th>
</tr>
</thead>
<tbody>
<tr>
<td>So in the- in the pre-observation kind of conversation we could sort of get into planning and thinking together about the lesson or we could totally not</td>
<td></td>
</tr>
<tr>
<td>Mhm.</td>
<td>and you could just sort of catch me up and help me think about what you are hoping to get out of the visit and what you want to be able to talk about in the debrief</td>
</tr>
<tr>
<td>Mmm.</td>
<td></td>
</tr>
</tbody>
</table>

128
Heather responded with some reiterations of her general overwhelm, and what the math topic of the lesson would be:

<table>
<thead>
<tr>
<th>Heather</th>
<th>Mia</th>
</tr>
</thead>
<tbody>
<tr>
<td>and then we- and that can help sort of structure what I’m doing during class, what I’m attending to and how I set myself up to be able to be useful to you.</td>
<td></td>
</tr>
<tr>
<td>Heather responded with some reiterations of her general overwhelm, and what the math topic of the lesson would be:</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>I have five different lesson plans today too, by the way.</td>
<td></td>
</tr>
<tr>
<td>Which, all my kids are off, because of the lock down. 1st and 2nd, 3rd, 4th, and 6th, and advisory they’re all different. Like oh my god I’m gonna lose my mind. So, I think tomorrow for third</td>
<td>(laughs)</td>
</tr>
<tr>
<td>We’re doing (...) the uh angle conjecture of uh mhm (gets up and walks away from the table, comes back with papers, which she hands to Mia)</td>
<td>Ooh, pretty.</td>
</tr>
</tbody>
</table>

Lynn, who had been listening, then asked Mia a question about a video camera and a short conversation unfolded about that. Mia then got the conversation back to teaching by saying, “Okay, triangle angle conjecture… What are you hoping they’re learning?” and the conversation never returned to the question of what Heather wanted to get out of the coaching visit.

While Mia expressed interest in what Heather wanted to work on together, her efforts to solicit this information and use it effectively were mostly unsuccessful. Also, as was apparent in an earlier section, there were times in which Heather made statements about what mattered to her that Mia did not take up. And yet, as we saw earlier, Mia reported in a survey that her level of understanding of what Heather wanted to get out of their work was a 2 of 10. This all suggests that there were some aspects of Heather’s talk that Mia just did not hear, or that talk that fell outside of her ideas about what mattered in their work just did not count for her as meaningful talk. Taken in light of the power issues in this relationship, these blind spots for Mia may have contributed to Heather’s experience of not being heard.

Overall, this analysis shows that Heather’s participation with Mia in thinking and talking about teaching across phase 1 did not delve deeply into issues of mathematics, teaching, or classroom dynamics and did not indicate agency on Heather’s part. It would be possible to interpret these findings in unfortunate and unproductive ways if we did not have the benefit of insights from the other lines of analysis here. We could, for example, interpret this as a story of Heather’s failure to “show up” in the right ways. And it is likely that Mia, without the ability to see all the issues at play, experienced her work with Heather in this way. However, situating this analysis among considerations of other strands of learning, and issues of power and voice in particular, supports a more generative understanding of Heather’s participation. It can be understood as sensible in light of the opportunities she was given to see her concerns as central and to perceive that she had access to shaping her work with Mia in meaningful ways. In other words, if she experienced coaching as being “about” what mattered to Mia and not what mattered to her, and she did not think she had any power to change that, then it is sensible that she might simply show up and try to make it through each coaching visit.
The following section takes up analyses of Heather’s participation with Mia in negotiations of classroom practice.

5.2.4 Participation in Classroom Practice

Analyses of Heather’s participation with Mia in negotiations of classroom practice throughout Phase 1 yield some limited evidence of learning. In particular, it is clear that few of the classroom practice negotiations that took place in talk led Heather to take up teaching newly, although these negotiations did seem to support Heather to become increasingly specific with students about what math learning the lessons’ activities were intended to support.

As in the Kamilah case, a threads of classroom practice analysis was used to investigate how Heather and Mia engaged in the ongoing negotiation of classroom practice, how their work together on classroom practice traveled in and out of the classroom, and how the classroom practice that they talked about did (or didn’t) get taken up or tried out with students, and by whom. (See Chapter 3 for discussion of this strategy). The 10 threads of practice that were salient in Heather and Mia’s work are listed below. (These 10 threads are a subset of the 12 that were revealed in similar analyses of the Kamilah case.)

A. Organizing students into groups or pairs.
B. Interventions into student groups.
C. Making expectations for group or pair work explicit.
D. Using strategies (Participation Quiz, huddle, sentence frames) to support productive participation in groups.
E. Making important math ideas central to the lesson.
F. Using manipulatives and other tools to support student learning.
G. Building norms to support equitable participation and learning.
H. Leading equitable and rich whole class discussions.
I. Naming and building from students' math strengths in lessons.
K. Task design or redesign.

Figure 13 contains diagrams that trace these 10 threads of practice through Heather’s work with Mia (in below). Darker dots represent moments of work done by Heather and lighter dots work done by Mia. (To remind the reader, I consider this “work” to consist of talk and/or other action that signify ongoing negotiation of classroom practice, which includes envisioning, describing, proposing, trying out, and/or interpreting elements or moments of classroom practice.) Each vertically-oriented diagram represents one coaching cycle, with the planning conversation first, followed by the lesson, and the debrief conversation at the bottom, each of these parts separated by a strip of white space. Stars represent those actions that involve the uptake with students of practices that have been (or will be) under discussion. They signify the engagement in new practice, or practice directly related to the work Heather and Mia did together. So, for example, if Heather had already planned to use particular tools to support student learning and the conversations did not push or change these plans, Heather’s use of these tools in class would not be represented by a star. Thus, the absence of a star does not mean the absence of classroom practice in a given strand, but the absence of new classroom practice in that strand.

Lines and arrows connect moments of action in each thread of practice. The start or end of lines represent the first or last action taken in that thread. Arrows signify that the thread is continued from or continues to another coaching cycle.
Figure 13. Threads of practice for Heather and Mia
This analysis yields the following information about Heather’s ongoing work with Mia related to classroom practice. First, most of their work throughout the first three coaching cycles was concentrated in two threads of practice: making important math ideas central in lessons (Thread E) and task design and redesign (Thread K). Second, relatively few of their negotiations around classroom practice in conversation (dots) were connected with new practices being take up with students (stars). Third, each time a new practice was taken up with students, it was Heather who took it up. In other words, the existence of dark stars and no light stars in Figure 13 indicate that Mia did not engage in the new practices they discussed, which was not true in her work with Kamilah. (This is a necessary byproduct of the arrangement in which Heather taught alone and Mia did not teach.)

For each of the coaching cycles in Phase 1, threads E and K together made up most of these negotiations (together 61% in cycle 1, 68% in cycle 2, and 56% in cycle 3). Much of this work was about negotiating math learning goals for lessons; considering which math goals were “big” and worth collective sense-making in lessons, and which were more trivial and could be handled in other ways, such as with Do Now prompts; and crafting prompts or activities for students that would get at the math under discussion.

6 of the 10 threads of practice contain evidence of “uptake” in the classroom in Phase 1, although none with more than two identified instances of “uptake.” Also, the overall number of moments of classroom practice that were identified as coming out of these negotiations, represented by stars in Figure 13, is relatively low: 3 in cycle 1, none in cycle 2, and 6 in cycle 3. Together, this suggests that while Mia and Heather negotiated classroom practice frequently in terms of important mathematics and task design, most of their work together did not make it into Heather’s practice during the observed lessons.

The absence of lightly shaded stars in Figure X indicates that each time the negotiated practiced did make it into the classroom, it was Heather who engaged in these new practices. This can be understood as a logical consequence of the roles available to Heather and Mia. With Mia as an outsider in the classroom and Heather the sole classroom teacher, the burden of trying out new practices was entirely on her. This contrasts with the work Kamilah and Mia did together on classroom practice, where they discussed and tried out practices together, with both darkly and lightly shaded stars appearing in the threads of classroom practice diagrams. This highlights a consequence for learning of the sustained distant roles in this relationship, namely that these roles resulted in Heather having fewer opportunities to engage in risky new classroom practice, as she had no partner with whom to do so.

**Lesson launches: increasing talk about math learning across Phase 1.**

In line with Heather’s and Mia’s negotiations about what math mattered most for students and how to best make that mathematics central, Mia made a consistent effort to support increasing specificity in Heather’s planning talk about the mathematics that she was hoping students would learn in the lessons she was planning. One example of this effort came in the planning conversation for Cycle 3, in which they were talking about a lesson that was to deal with surface area of prisms.

<table>
<thead>
<tr>
<th>Heather</th>
<th>Mia</th>
</tr>
</thead>
<tbody>
<tr>
<td>but what I thought I'd want to work on today and I kind of thought this may take a lot of the period</td>
<td>Mkay.</td>
</tr>
<tr>
<td>is the trapezoidal [prism]. Cuz this is the one that's on the test</td>
<td></td>
</tr>
</tbody>
</table>
Mia went on to talk about what she perceived to be the core math ideas related to this and the two considered this issue together for some time. In many instances of this kind of talk from Mia, there is little evidence that Heather’s thinking is changing in response, or that Mia’s questioning has supported much development. However, as can been seen in the frequency of dots on the threads E and K lines, talk about important math persisted.

And while Heather’s talk about math learning goals did not get markedly more specific in her conversations with Mia, the ways in which she launched lessons for students did shift in ways that relate to this work. The transcript below is of Heather’s talk in each lesson launching the pair- or group-work portion of each lesson in Phase 1. These launches progress in terms of the extent to which they frame lessons as being about mathematical ideas. Table 25 contains transcript of Heather’s talk to her students as she launched the group or pair work portions of the three lessons in Phase 1.

<table>
<thead>
<tr>
<th>Heather</th>
<th>Mia</th>
</tr>
</thead>
<tbody>
<tr>
<td>and it's the hardest because they'd have to- oh, no they can measure this. So, they're gonna have to measure all the lengths. And they're gonna have to measure a height on these too, which is gonna be harder, so…</td>
<td>Mkay.</td>
</tr>
<tr>
<td>Uh, surface area of a trapezoidal prism at this point.</td>
<td>Mmm. So, what are you wanting them to learn?</td>
</tr>
<tr>
<td>(4s pause) I mean honestly the goal is to get them to figure out how to do a trapezoidal prism. That's the goal.</td>
<td>What about it? What do you want them to learn about it?</td>
</tr>
<tr>
<td>Oh, how to find the surface area.</td>
<td>How to do what?</td>
</tr>
<tr>
<td>How to find it. So, do you want them- So do you want them to find it successfully? Or do you want them to generalize a process? Or do you want them-</td>
<td>Mmm.</td>
</tr>
<tr>
<td>(.) mmm (4s pause) I'd like them to be able to- like completely calculate it. I mean generalizing is great too.</td>
<td>like what's the- what's the thing we want them walking out with?</td>
</tr>
<tr>
<td>So, I definitely want them to be able to generalize too.</td>
<td>Mhm.</td>
</tr>
<tr>
<td>And what would they be generalizing? So, would they be generalizing ideas about surface area versus- or like what surface area is or something?</td>
<td></td>
</tr>
</tbody>
</table>
The progression of mathematical specificity in these lesson launches suggests that Heather’s practice was in fact developing in ways that are not evident from her talk with Mia about her practice. In other words, while Mia’s efforts to push for more mathematical specificity in their conversations did not appear to get much traction in the conversations themselves, they may have been in fact making a difference for Heather.

Table 25. Heather’s task launches across Phase 1

<table>
<thead>
<tr>
<th>Lesson date and content</th>
<th>Heather’s talk launching student work</th>
<th>Mathematics</th>
</tr>
</thead>
<tbody>
<tr>
<td>9/10/14; Scientific Notation</td>
<td>…Okay, so, yesterday we left off our sheets- We are going to start today at 8 dash 3, uh sorry, 8 dash 4 0 (writing on board “8-40”). We’re going to be doing A, B, and C. And then we’re going to move on to the back side, 8 dash 4 1 to 8 dash 4 4. (writing on board “8-41 to 8-44”) Okay? On the back side of our sheet. Alright. And since we don’t have a Resource Manager to get task cards today, let’s say the youngest person in your group will come up and get task cards. (Puts papers on the table in the middle of the room.) Youngest person in your group.</td>
<td>Did not mention mathematics at all; only problem numbers.</td>
</tr>
<tr>
<td>10/30/14; Triangle Sum Theorem</td>
<td>Okay, so today we’re going to be doing a little discovery work. You’re going to have some sheets of paper. And you’re going to be doing what we call a- (stops to deal with some classroom management challenge) Today, what you’re going to be doing- in mathematics we like to show something is true by proving it. This is called a proof. You probably are already doing some of this work in science. In science, you have theories and you have to have a proof to make them true. So, you might make a hypothesis, and then you have to do some experiments to prove that something is actually true. Today you’re going to be doing a proof by construction. This is true mathematics. True mathematics, you’re always proving everything you do.</td>
<td>Connected the lesson to the mathematical and scientific practice of proving, but did not mention the mathematical content or goals of the lesson.</td>
</tr>
<tr>
<td>2/10/15; Surface Area</td>
<td>Okay, today, we are going to continue on our work we did on Friday, talking about surface area. Friday, we looked at a rectangular prism and we also looked at a cube, and we measured all of the lengths and we found the area of each piece and found surface area. Then we put it together into a 3D object. Today we’re going to look at a much more difficult prism, it’s a trapezoidal prism, okay? (some student noise) I’ll wait till we’re all focused. Okay, and what I want you to do first, we’re gonna do things in a little different order than we did on Friday. Today after you get your paper, the first thing you’re gonna do is cut it out and put it together, okay. Then we’re gonna find surface area. So, our closing question for today, this will be our task. I want you to think about this throughout the entire period, at the very end we’re gonna go around, Mia and I, we’re gonna do checkpoints at each table on this question. And do not say it out loud right now, you can talk to your groups about it, but everybody at your group should be prepared to checkpoint on this question. How do we find surface area of ANY prism? ANY prism. Okay, so think about that as you’re working today. All right, can I get a volunteer to pass these out?</td>
<td>Described content, posed a math question that framed the particularities of the lesson as connected with a larger mathematical idea.</td>
</tr>
</tbody>
</table>

5.2.5 Becoming a Kind of Teacher in Phase 1

This section presents analyses of Heather’s figurative identity (ongoing negotiation of meaning about ideal teaching) and identity of competence (sense of her own competence in relation to that shifting vision) throughout Phase 1, and considers ways in which Mia worked to support these processes of becoming. The data drawn on include Heather’s talk in an interview in September about the kind of teacher she hoped to become and about her own developing sense of competence in relation to that vision as well as her talk throughout her work with Mia. Findings suggest that Heather’s vision for powerful teaching was complicated by contradictions between
her understanding of students and their needs in terms of “level” and her commitments to CI as “amazing.” Analyses show that the introduction of CI to Heather’s life as a teacher came with some new threats to her sense of her own competence. During Phase 1, these threats remained hidden and did not enter into Heather’s conversations with Mia. As we saw in Section 5.2.2, Mia’s attempts to address Heather’s high/low talk and the associated contradiction she saw in Heather’s developing vision for teaching were problematic.

**A contradictory vision.**

Heather’s processes of becoming a kind of teacher (including her shifting notions of the kind of teacher she wanted to be), were marked by a contradiction that is pervasive in dominant narratives about math teaching and equity. On the one hand, Heather cared deeply about her students and wanted each of them to learn math. She saw CI as a set of practices that would support that aspiration. On the other hand, as is clear from the analysis in section 5.2.2, she understood her students and their needs in terms of the categories of “high” and “low”, with the presumption that students’ membership in these categories was related to what they could be expected to do and learn in math class.

The contradiction here did not appear to be apparent to Heather, and may not be immediately apparent to a reader, so I elaborate here. Ambitious and equitable teaching, and the CI program in this district, was built on the premise, made explicit in workshops and other spaces, that all students are mathematically smart and that each student is capable of engaging meaningfully in rich and rigorous mathematics. Teachers in the CI program were supported to develop inclusive conceptions of “smartness” as multidimensional, and of students as each having meaningful mathematical “smartness,” moving away from simplistic and limiting notions of students as “high” or “low” in math. Teachers were encouraged to find ways to remove “scaffolding” that (often in the name of “supporting students”) constrains opportunities—often only for some students—to grapple with mathematical challenges. Teachers are encouraged instead to support students to engage productively with each other, trusting that when they do this, they can and will navigate challenging mathematics together. Teachers are encouraged to understand problematic student participation (e.g. students dominating group discussions, or students appearing to be unengaged) as *status problems* (E. G. Cohen & Lotan, 1997), related to unequal distribution in the group of expectations for competence. (Students who see themselves as the smartest students in the room—and who are seen by others as such—and who do not expect that they have anything to learn from other students are likely to dominate (and be allowed to dominate) group discussions and are unlikely to ask other students for their ideas. Students who are taken by themselves and others to be “low” are unlikely to offer or be asked for their own ideas or questions.) Teachers are encouraged in the CI program to learn to treat unequal expectations of competence, and to thus support more equitable participation and richer math learning for all students.

While Heather’s talk suggests that she saw the tools and strategies of CI as useful, she did not talk in ways that suggest that she was making sense of students’ participation in the ways described above. Rather, she consistently reasoned about student participation in terms of whether students where “high,” “low,” “smart,” “struggling,” “IEP,” and even “super IEP.” Following from these ways of making sense of students, her vision for teaching related to supporting students “at all levels” and she predicted often in her planning conversations that her students would not be able to do rigorous mathematical work. (It is useful to note that these aspects of Heather’s vision are supported by common valorization in the world of *US Schooling*.
of “differentiating instruction,” which is taken to mean offering students tasks appropriate to their “level,” with different students presumed to be at different levels being given therefore different opportunities to learn.)

**CI is “amazing” but creates new challenges, threatening Heather’s sense of competence.**

In the September interview, Heather articulated ways in which she saw CI as powerful and the struggles she was experiencing as she took it on. It is clear from her talk that her exposure to CI had led to some developments in her thinking about powerful teaching, it had not yet seemed to trouble her notions of students being at different “levels” in mathematics.

At one point, Heather said, “Complex instruction has been amazing. And it’s, you know, changing the classroom for sure,” explaining that CI is “a whole different way of teaching.” She went on to explain,

Um, well I think it’s a new way of thinking for me. Like I always did group work and I thought that I understood group work, until I really learned what cooperative learning is about. Um, and what complex instruction entails and it’s way more than just saying, like, “okay go ahead and work in groups.” It’s like- it’s a whole shift. It’s like, I don’t know I think of it as like losing weight. Like you can, you know lose or shed 10 pounds, but if you want to really lose significant weight, you have to change your whole style of eating and your whole lifestyle around it. And I feel like CI is that way. Like, once you go to CI it’s hard to go back, you know, it’s like once you’re in it, it’s kind of hard to want to do anything else because it is really a great way to teach.

When asked to elaborate about this new “great way to teach,” she described,

Group roles, tables in groups of 4, [students] have different responsibilities depending on the lesson. Makes the group accountable to each other cooperatively, but also it makes them accountable individually because I come over and do checkpoints so they have to know what they are talking about when I come over.

This talk makes clear that Heather was experiencing a lot of “newness” along with her involvement in the CI project. Here she talked about this “newness” mostly in terms of structures and strategies. (Recall that Kamilah also described CI mostly in terms of structures and strategies in her September interview.)

Heather’s talk in the September interview also made clear that the newness of CI combined with other aspects of her teaching life to present significant challenges for her. Her description of her challenges also included talk pointing to her previous experiences of feeling (and being seen as) competent.

This year for example has been a tough year for me. It’s my 5th year teaching, and I have some tough classes. And like I think I’ve gotten established here enough to where they throw more tougher students with me, tougher classes, and higher demands. I have a lot more things I’m juggling. You know, I’m head of the math
department and doing so many things that I’m just kind of *(pause)* feeling overwhelmed, I guess, I don’t know… Yeah, so I think that’s been a struggle for me. I’m not so much worried about like the basics of teaching anymore, but you know, constantly updating my craft and taking in the Common Core and all this new curriculum, and a new way of teaching with CI has been a struggle, it’s been tough. Yeah. *(laughs)* Huge learning curve.

Recall that Heather came into this school year having a reputation in her school as a teacher who could be trusted with “tough classes” and with the position of department chair. Her talk makes clear that she was no longer concerned about “the basics of teaching.” Her talk about her “huge learning curve” suggests that the challenges she was experiencing during this year may have introduced new struggles and thus threatened her sense of her own competence as a teacher.

A piece of evidence that supports this interpretation is that when Heather was asked to describe her strengths as a teacher in the September interview, none of the strengths she named related to her descriptions of CI, but instead related to aspects of her perceptions of strong teaching that seem to predate her exposure to CI.

My strengths I would say are because I have a lot of life experience and a lot of work experience, um, a lot of customer service experience, um and I know what it’s like working my way up, and working really hard to get what I want, that’s really helped me in the classroom. It’s helped me manage what happens in here, it helps me with working with kids, and understanding what their needs are. So I think those are definite strengths. So I have a bit more wisdom than an early-you know, 22-year-old coming in here with like no job experience and no life experience other than being in school.

None of Heather’s talk in this interview about her own competence (and none of her talk about her own competence in the strengths-questions protocol in the debrief conversation in Cycle 1) resembled her talk about CI. This, along with her statements about struggle and the “huge learning curve,” suggest that her exposure to CI may have threatened her sense of competence as a teacher. (If her ideas about good teaching shifted such that her own strengths were no longer central to that teaching, her identify of competence would suffer.) It is interesting to note that throughout Phase 1, while Heather did make it clear that she was struggling, she talked about her struggles in terms of the demands on her and how little time she had to do all that she needed to do. She did not talk about being unsure of her own competence.

Along with her expression of struggle, Heather did describe some success in her early work with CI:

We use [CI] almost every single day. Um, every lesson we get, we try to make it into a CI lens type lesson as much as we can. There are some things that are tough to make that happen. And we’re going through those kinks with that. But um, overall it’s gone pretty well almost daily.

Heather’s processes of *becoming a kind of teacher* early in her work with Mia are characterized by a contradiction between her way of making sense of students, and the approach to equity underlying the CI program. Despite this contradiction, Heather was clear that she saw
CI as “amazing” and that for her, “it’s kind of hard to want to do anything else because it’s a
great way to teach.” Her commitment to and enthusiasm for CI is perhaps surprising, given the
ways in which it seems to have introduced threats to her sense of herself as a good teacher. Also,
her clear enthusiasm refutes any potential hypothesis we might harbor that Heather was
“resistant” or did not want to learn or change.

Heather’s status as a “good teacher” and therefore her value as a professional was also
under threat in her work with Mia, as it appears to be in other aspects of her working life. (She
spoke in interviews of administrators who tell her what to fix and of having more demands on
her at once than she can manage well.) This point is taken up in more detail later.

**Mia’s work to support Heather’s processes of becoming.**

Code profiles (Figure 12) make it clear that Mia’s talk about students, teaching, and
learning consistently aligned with the world of *ambitious and equitable teaching and learning*,
suggesting that she was working to provide resources for Heather to develop her vision of
teaching in these ways. However, the broader analyses indicate that she and Heather talked past
each other, and Mia’s talk may not have functioned as a resource for Heather throughout
Phase 1.

Evidence suggests that Mia was aware of the contradiction present in Heather’s vision
and she experienced Heather’s high/low talk as a barrier to Heather developing an ambitious
vision for her students. In a mid-year survey, Mia wrote:

> When I asked questions to try to get at what she wants kids to learn, she reverted
to talk about what her kids don’t know and how hard it is to teach them, rather
than thinking deeply about the learning goal. I feel like in her case, her experience
(years of teaching) is a barrier, as she’s got some pretty cemented ideas about
what is possible and I feel like it’s hard to convince her that more is possible.

As was clear in Section 5.2.2, Mia made attempts to address the contradiction she saw in
Heather’s vision by addressing conceptions of students as ‘high’ or ‘low,’ and trying to
“convince” her that all of her students were more capable than she thought to engage with
challenging mathematics. But, as we also saw in Section 5.2.2, her efforts did not provide
opportunities for Heather to engage in conversations in ways that would support her own sense-
making and thus were limited in their power.

Mia also worked to support Heather’s sense of her own competence by building talk
about Heather’s teaching strengths into the coaching work. As she had with Kamilah, Mia began
the first debrief conversation by focusing the conversation around Heather’s strengths. This
effort was clearly powerful for Heather. When asked in the September interview about the
beginning of her work with Mia, Heather said that in the first coaching cycle, “our follow up
meeting was great.” When asked to elaborate, Heather went on:

> We talked about like what are my strengths and then like some things that, uh, to
work on. Um, and it was really nice to talk about strengths, like as a teacher,
getting complimented on anything is very rare. Um, middle schoolers definitely
are not very complimentive. and it’s tough with everything, with administration,
with, just getting people to appreciate what you do and all the hard work you put
in doesn’t happen very often. So it was really nice for her- to hear some compliments about things that I’m doing.

Recall from Section 5.2.1 that her talk reveals a mistaken memory; they did not talk about things for Heather “to work on.” However, it is clear that Heather remembered and valued their talk about her strengths.

Overall, Mia’s efforts to support Heather’s processes of becoming were complicated. It is possible that her work to name Heather’s strengths supported the development of a positive relationship that led to the slight improvements that were evident in Cycle 3 and that made space for Heather to take the substantial risks necessary to enter into the pivotal conversation, which will be the subject of Section 5.3.

5.2.6 Summarizing Relations of Power and Heather’s Learning in Phase 1

Overall, examination of Heather’s processes of TTL throughout Phase 1 reveals a picture of learning hindered by issues of inequitably distributed access to choice-making, voice, and power in the coaching work. Mia’s ideas, questions, and choices prevailed while Heather’s were sidelined. In this section, I summarize the issues this presented for Heather’s learning, and I consider the work Heather needed to do to navigate this arrangement.

First, a picture emerges across Phase 1 of power-related challenges for multiple processes of learning. While some of these challenges may have existed without the presence of problematic power relations, these relations clearly hindered Mia’s and Heather’s ability to make progress. Heather’s meaning-making processes did not progress significantly toward the world of ambitious and equitable teaching and learning and problematic relations of power resulted in missing agency for Heather, or a dearth of opportunity to make her own new meanings. Mia’s attempts to support emerging meaning making exacerbated these challenges. Heather’s participation (in conversations and in teaching) was constrained by these problematic power relations; her questions and concerns were sidelined, so it made no sense to continue to offer them. Mia’s continued occupation of the role of outside expert left Heather with no teaching partner with whom she might try out new or risky classroom practice. Heather’s processes of becoming a teacher in the emerging world were stymied by threats to her identity of competence related to her positioning as a novice in relation to Mia’s expertise.

Second, the analyses in this section invite us to consider the work that Heather engaged in as she navigated coaching interactions. It is clear from her talk in interviews, including the comment below from the interview in September, that she experienced her interactions with Mia as work, and not the source of support that Mia had hoped she would.

I think coaching is a tricky thing. I think it’s really important that coaches come in with a lens of “I’m here to support you and not create more work in your life,” and I think it’s really important that a coach says that... Like, “Hey, I know your life is ridiculously busy and I really want to make sure that this is a, you know, helping you relationship and not I’m trying to make your life miserable or create more work for you.” You know? I think that really needs to be said in a good coaching relationship. Because there’s nothing like feeling like somebody is, you know not- teachers don’t want to feel like there’s more work being put on them.
Use of the phrase “put on them,” connects to the power relations that were a central focus of the analyses in Phase 1. This comment also calls for consideration of the work that Heather experienced as necessary to navigate coaching, a consideration I take up briefly here.

The data are clear that Heather was doing various kinds of work to navigate her interactions with Mia. It is useful to notice that this work was necessary for her, given the arrangements, and none of it is the kind of work that Mia was trying to support for Heather’s learning.

First, Heather did work to resist domination, or to preserve a sense of dignity in the face of missing voice and power. This includes the “foot dragging” discussed earlier and is visible in each of the small ways that Heather resisted the goings on, by not answering emails, by stating her lack of availability, by naming those things she was not getting help with from Mia. Also, Heather worked, especially early in the relationship, to assert her voice, attempting to be heard. She asked her own questions, shared her struggles, and continued to do these things despite receiving messages that her questions and concerns were not central to the coaching work. Heather worked also to navigate within the bounds of an interactional space that was being defined by Mia. She figured out what was and what was not acceptable in this space, and tailored her participation accordingly. For instance, she stopped asking about classroom management issues and considered instead the issues of mathematics and tasks that Mia had signaled were welcome topics of conversation.

Heather also did protective work in her interactions with Mia, protecting her status as professional with value. This calls to mind Goffman’s (1955) notion of face work, or the work interlocutors consistently do to preserve their own and others’ dignity in interactions. The aspect of this work that is relevant here is about the maintenance of professional dignity, or status as a valued professional, and it is clear in Heather’s talk that this status was under threat in various ways, some of which had nothing to do with Mia (e.g. by administrators who evaluated and by the extreme demands placed on her). Inside the coaching work where her questions and concerns were sidelined, Heather seemed to feel threatened by the possibility (or existence) of negative judgments from an outsider who did not seem to “hear” or understand her as a professional, and she protected herself accordingly. She provided reasons things might not go well that did not relate to her professional competence, such as the “insanity” of the times Mia happened to come. She maintained a safe distance from Mia by, for example, providing information but not inviting collaboration and by keeping those questions she was prompted to ask surface-level and free from personal risk. With this distance, she ensured that any judgments that might come would be minimally hurtful.

These considerations of Heather’s work help us to see it as sensible that coaching occurred for her not as desired support, but as work that was “put on” her. It is clear also that Heather engaged in all this work to navigate the learning space, but NOT to learn. Her need to invest considerable energy in being okay in the space of coaching may have left her unavailable to do the kinds of work that Mia was hoping she would do (negotiate new meanings, try out risky new practice, etc.).

The problematic arrangements of power, agency, and voice that prevailed throughout Phase 1 were upended in a catalytic conversation, which is examined in the following section.
5.3 Negotiation of Power in the Pivotal Conversation

In the pivotal conversation, Heather and Mia named, centered, and negotiated power relations in their work together. Out of this negotiation, new roles were created, new relations of power established, with new access available to Heather to feeling heard in her work with Mia.

<table>
<thead>
<tr>
<th>Cycle 1</th>
<th>Cycle 2</th>
<th>Cycle 3</th>
<th>Cycle 4</th>
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This conversation took place as Mia and Heather sat down during the time that had been scheduled for their 4th and last planning conversation in March. Just before recording began, Mia had asked Heather, “How’s it going?” Heather’s response, shared in the transcript below, made it clear that she was not happy and that something was upsetting her that she wasn’t sure was appropriate to share. With some encouragement from Mia, she explained that she felt disempowered, overwhelmed, and frustrated by the coaching arrangement.

<table>
<thead>
<tr>
<th>Heather</th>
<th>Mia</th>
</tr>
</thead>
<tbody>
<tr>
<td>As good as it can be at this point in the year. <em>(laughs)</em> just trying to /barrel through /<em>Tired, yeah./</em></td>
<td></td>
</tr>
<tr>
<td>the last week before spring break</td>
<td>Yeah.</td>
</tr>
<tr>
<td>counting /every minute/</td>
<td>/Yeah, it feels like a little bit of a/ marathon, yeah.</td>
</tr>
<tr>
<td>Well, it’s more- for me it’s more about survival right now but I, /than a marathon/ but, I wish it was a marathon, I’m just trying to survive right now. /Yeah./*</td>
<td>/Yeah./*</td>
</tr>
<tr>
<td></td>
<td>Yeah.</td>
</tr>
<tr>
<td></td>
<td>OK, so then what I want to know is, um, how can I support your survival at the happiest level it could be?</td>
</tr>
<tr>
<td>u:::m, I don’t know <em>(laughs)</em>.</td>
<td>Yeah.</td>
</tr>
<tr>
<td>u::h <em>(8s pause)</em> I mean, I’ll be like super frank with you.</td>
<td>Do it.</td>
</tr>
<tr>
<td>I’m just checked out as well and trying to get through this so, you know <em>(deep breath)</em> I don’t know <em>(small laugh)</em>. And I feel like um- Yeah, whatever, I don’t know. So:::</td>
<td>No I do want to know what you feel like if you want to tell me.</td>
</tr>
<tr>
<td>U:::m, <em>(inhale)</em> I guess I just like, I didn’t know that doing CI meant I had to do all this. Like it just feels like a lot all the time, and a lot of times I feel like I’m not really even asked. Like it’s sort of like,</td>
<td></td>
</tr>
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</table>
A long conversation unfolded following this. In this section, I summarize this conversation in segments, commenting throughout on the ongoing negotiations of positions, power, and voice. Because the conversation is long (about 20 minutes), I provide a synopsis of each segment (rather than transcript). Segments are separated by who is the primary speaker, denoted in bold in each case. (As in the transcript above, both Heather and Mia speak in each segment. However, each segment unfolds with one interlocutor’s ideas privileged. For readability, I leave out the small interjections of the other interlocutor in each segment.) I maintain the first person voice in each summary, except in descriptions or comments, which I distinguish with italics. Line numbers in the Heather-Mia cycle 4 debrief transcript in Appendix E are provided for reference, so the reader can access transcript of line-by-line talk.

**Segment 1: Heather Expresses Her Experience of Disempowerment, Lines 9-102**

**Heather:** I didn’t know that engaging in the CI project would mean I had to do all this [coaching]. I’m not asked, but expected to perform and it’s frustrating. I feel like I’m a new teacher all over again. Sometimes I just want to teach. Is it a requirement? I love CI and don’t want to get to the point where I hate it.

Here Heather expressed that she has experienced herself being positioned as powerless, without the freedom to choose her engagement and that she saw herself as “expected to perform” for Mia. She was clear that this arrangement was frustrating for her. Also, with “I feel like I’m a new teacher all over again,” she connected this powerlessness to being positioned as a novice, without presumed competence.

**Segment 2: Mia Offers New Positions and Power, Lines 105-155**

**Mia:** It’s not a requirement. I intend to support you. CI is hard. Coaching is intended to support you in doing this hard work, but if it’s not, we don’t have to do it.

In this chunk, Mia offered Heather the power to choose her engagement with coaching, positioning her as a teacher doing something hard, for whom support might be useful. She framed coaching as “intended to support you.”

**Segment 3: Heather States a Need for Power and Recognition, Lines 156-327**

**Heather:** I wasn’t ever asked. Sometimes things are put upon us [teachers] without us being asked. I want to be asked. It’s been a tough year. I’m feeling stretched and need appreciation. Teachers don’t get enough support. We’re asked to do many things. I’m feeling resentful lately. I want to appreciate this. I’ve just been going along, but now I needed to say something about it. It feels like I’m throwing a bomb out there.
In this segment, Heather expressed a general sense of disempowerment as a teacher and stated clearly that she wanted the power to choose her engagement with “things.” She also expressed a need for appreciation, for her efforts to be seen and acknowledged. With “I’ve just been going along,” she suggested that these challenges had been present for her for some time but, until now, they have remained unspoken. With “it feels like I’m throwing a bomb out there,” she acknowledged the social risk and discomfort inherent in this direct challenge she was presenting to the relations of power.

Segment 4: The Tone Softens, Lines 328-374

Both: There is some transitional talk, in which Heather softens the tone and Mia thanks her for being honest, saying that this is necessary to support ‘good things to happen.’ Heather ends this with, ‘I said what I needed to say. I’m fine with you coming in here. I just needed to say that.’

During this brief segment, both Heather and Mia worked to make the conversation safe and free of conflict. With, “I said what I needed to say,” Heather made clear the importance for her of speaking and being heard. She then made a statement of choice (“I’m fine with you coming in here.”), although her choice was still constrained, as she was choosing to go along with something that was already set up, rather than choosing freely for herself.

Segment 5: Mia Offers Her Own Experience and New Power to Heather, Lines 375-619

Mia: I’ll be honest too. My experiences make sense given what you said. I haven’t known what you want from our work. We have fun, but I don’t know our shared purpose. I haven’t known if our work is supporting you. Maybe that’s because you don’t yet want my help. We can decide: do you want my support? We could find a way for me to support you or we could not, and come back to it next year. If this isn’t supportive, let’s hold off or make something new. We could think together now about what DO you care about? How could I be part of that thing you care about? We could do that now or next year.

Here Mia matched Heather’s honesty, offering her own experiences in their coaching work. In doing so, she acknowledged that what Heather said made sense in relation to her own perceptions. With the statement, “I haven’t known what you want from our work,” Mia acknowledged that Heather’s voice had been missing. She again positioned Heather as both powerful and at the center of their coaching work, in the position of choosing whether to engage with coaching and, if so, what coaching would be about.

Segment 6: Heather Uses Her Voice, Expressing Her Struggles, Lines 620-774

Heather: It’s so much work every day for me to keep my cool. Going deep with CI has been tough. I’m just trying to keep students in their seats. I’m struggling. Also, Pythagorean Theorem isn’t group worthy. We’ve been on the same 3 problems for 3 days. I would redo the next section of the curriculum, but I don’t
have the energy. I want you here, but I need more bodies babysitting children. I
hate saying that, but I need someone to keep José in his seat. A lot of teachers are
behind. It’s hard with CI to know when it’s OK to move on. Maybe that’s where I
need support.

Here we can see Heather take up Mia’s offer to speak about what matters for her by
sharing what she was struggling with. She named a number of tensions in her work (between ‘going deep’ with CI and classroom management, between CI and math content she does not perceive to be “groupworthy,” between the desire to “redo” the curriculum to work with CI and her level of exhaustion). She also said that it’s hard with CI to “know when to move on,” proposing this as a possible focus for their work together. It is significant that of all the challenges she listed, the one she proposed to work on together was firmly inside the bounds of what Mia had previously established their work could be about. This suggests that Heather’s power to make choices about their work was still bounded.

Also, Heather’s use of “I hate saying that, but…” in her talk about needing support with
classroom management, and her referring to that support as “babysitting children,” suggests that she perceived these concerns to be out of bounds or somehow in conflict with what or how she was supposed to be talking about her practice or what she was supposed to want to work on with Mia. This is sensible considering earlier conversations in which Mia ignored Heather’s talk about classroom management or told Heather what she (Heather) should really want to work on. (See section 5.2.1.)

Segment 7: Mia Presents Options that Respond to Heather’s Overwhelm, Lines 774-814

Mia: We can do whatever we want. For instance, we could say, “Bye let’s talk in
a month.” I won’t take that personally. Or I could just teach your class and you
could take a break and watch and see what happens.

In this segment, Mia presented Heather with both the power to choose and options she
might choose among. Each of the options Mia offered (not participating in coaching work
together at all and Mia teaching while Heather takes a break), connect to Heather’s previous
expression of overwhelm and exhaustion, inviting Heather to experience herself as heard in this
conversation. Also, both options were new in that they were outside of the activities that had
previously been part of their coaching work.

Segment 8: Heather Chooses with Pleasure, Lines 911-978

Heather: Do you really want to do that? Yay! Yeah, let’s do it. This sounds
great! I feel like I’ve just taken a shower! Thank you!

Heather’s expression of surprise (“Do you really want to do that?”) suggests that the
option of Mia teaching her class was outside of what she had previously understood to be
possible in their coaching work. She then made this choice with clear expressions of pleasure.
This series of events makes it clear that the two have negotiated new roles (Mia as teacher and
Heather as observer in the classroom; Mia as follower and Heather as leader in their coaching
work) and new relations of power (Heather as the one who chooses and whose concerns are centered).

By the end of this conversation, roles, positions, power-relations, and access to voice in this relationship had been renegotiated. As the following sections will reveal, this transformation resulted in vastly different conditions for Heather’s learning along all strands. Her processes of meaning making, participation of various kinds, becoming, and belonging were each transformed.

### 5.4 Phase 2: New Opportunities for Transformative Teacher Learning

This section demonstrates the transformation for Heather’s learning that took place along each strand of TTL after the pivotal conversation. Table 26 summarizes these findings, which are then fleshed out in the sections that follow.

<table>
<thead>
<tr>
<th>Cycle 1</th>
<th>Phase 1</th>
<th>Cycle 2</th>
<th>Phase 2</th>
<th>Cycle 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sept 10-11, 2014</td>
<td>PC</td>
<td>L</td>
<td>DC</td>
<td>PC</td>
</tr>
<tr>
<td>Oct 29-31, 2014</td>
<td>PC</td>
<td>L</td>
<td>DC</td>
<td>PC</td>
</tr>
<tr>
<td>Feb 9, 2015</td>
<td>PC</td>
<td>L</td>
<td>DC</td>
<td>PC</td>
</tr>
</tbody>
</table>

Table 26. Summary of Heather’s TTL along each strand across Phases 1 and 2

<table>
<thead>
<tr>
<th>Strand of Analysis</th>
<th>TTL in Phase 1</th>
<th>TTL in Phase 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Becoming and belonging: patterns of positioning between teacher and coach.</td>
<td>Heather and Mia occupied roles that were hierarchically related to each other, with unequal access to participation, power, and “voice” in the coaching work. This arrangement resulted in a lack of “togetherness.” Heather and Mia both resisted and reified this arrangement, each in ways afforded by her position.</td>
<td>Heather’s and Mia’s roles were nearly flipped and Heather gained access to power that had been missing for her in Phase 1. Out of the newly negotiated roles and the new power arrangement, a new sense of “togetherness” was achieved in the coaching work.</td>
</tr>
<tr>
<td>Making meaning about students, classrooms, mathematics, and goals for teaching.</td>
<td>Heather used talk about “high” and “low” students to make predictions and reason about which opportunities to offer which students. Mia’s attempts to support shifts in this reasoning functioned to exacerbate distance between them and denied Heather opportunities to negotiate her own new meanings.</td>
<td>Overall, Heather’s meaning making was more in line with the world of ambitious and equitable teaching and learning than US schooling in Phase 2. Her talk about “high” and “low” students was less frequent and was no longer used to reason about which opportunities to provide to which students. This talk also focused only on “smart” students, and there is indication that Heather may have begun to question this system of categorization of students.</td>
</tr>
<tr>
<td>Strand of Analysis</td>
<td>TTL in Phase 1</td>
<td>TTL in Phase 2</td>
</tr>
<tr>
<td>--------------------</td>
<td>---------------</td>
<td>---------------</td>
</tr>
<tr>
<td>Participation in thinking and talking about teaching.</td>
<td>Heather’s contributions to coaching conversations were not deep and she offered ideas in ways that closed opportunities for herself and Mia to engage in inquiry together. She explained things to Mia and shared her thinking, but did not ask for Mia’s ideas until Cycle 3, when she did so only once.</td>
<td>Heather’s contributions to coaching conversations were deeper and the ideas she offered opened or left open opportunities for conversation. She asked unsolicited questions, seeking out Mia’s ideas in relation to ambitious teaching. She paused the planning conversation so she could get a notebook to write down new ideas she was getting.</td>
</tr>
<tr>
<td>Participation in classroom practice.</td>
<td>Heather’s and Mia’s work on classroom practice was focused on negotiating the important math in lessons and designing tasks. Only a small amount of their work on classroom practice made it into Heather’s teaching, with many of Mia’s ideas being rejected outright or agreed with, and then not used.</td>
<td>The focus of their work on classroom practice shifted to supporting productive and equitable group work. Mia taught an ambitious lesson in Heather’s class and Heather, without prompting from Mia, chose to teach the same lesson herself in other classes, trying out the same lesson elements that Mia used.</td>
</tr>
<tr>
<td>Becoming a kind of a teacher.</td>
<td>Heather’s vision for teaching was marked by a fundamental contradiction (seeing students as “high” or “low” and embracing Complex Instruction as a powerful equity pedagogy). CI introduced new ideas about powerful teaching to Heather and threatened her previously-established sense of competence. None-the-less, she remained sure that CI is “amazing.”</td>
<td>Heather continued to see CI as powerful, but came to attend to it as being about centering of students and heterogeneous grouping with the awareness that all students have something to offer. She contrasted this with teaching that separates kids based on their supposed “smartness.” Her vision for teaching as “meeting students at their level” may have been shifting as her notion of “level” was being called into question. Heather’s concerns about her own competence come out of the shadows and into her conversations with Mia, and she reported experiencing success in terms of students’ accomplishments “with CI.”</td>
</tr>
</tbody>
</table>

Each of these findings with respect to Heather’s learning in Phase 2 are fleshed out in the following section.

### 5.4.1 Transformed Belonging and Positioning, ‘Togetherness’ with Mia in Phase 2

The pivotal conversation resulted in new roles for Heather and Mia, and in Heather gaining access to power that had been missing for her in Phase 1. These newly negotiated roles and positions of power supported a new sense of “togetherness” between Heather and Mia. These points are elaborated below.

**New roles support new participation and a corrected balance of power.**

As was clear in the first part of this chapter, Heather’s and Mia’s work throughout Phase 1 was characterized by a sense of distance, with the roles and positions available to each of them contributing to an imbalance of power that impeded Heather’s learning. After the pivotal conversation, markedly different roles and positions became available to both Heather and Mia and power was distributed in ways that supported Heather’s learning along all strands. In this section, I examine the roles that were evident after the pivotal conversation for Heather and Mia and the ways in which power functioned newly. I then provide evidence that, along with these shifts, there was a new sense of ‘togetherness’ in their work. Table 15 contains a summary of the roles evident for Heather and Mia in both phases of their work together, showing that the new roles available to each of them in Phase 2 were dramatically different, almost opposite.
Table 27. Role shifts for Heather and Mia from Phase 1 to Phase 2

<table>
<thead>
<tr>
<th></th>
<th>Phase 1</th>
<th>Phase 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heather</td>
<td>• Teacher as performer for evaluation.</td>
<td>• Help-seeker.</td>
</tr>
<tr>
<td></td>
<td>• Sole leader of her classroom community.</td>
<td>• Observer in her own classroom.</td>
</tr>
<tr>
<td></td>
<td>• Follower in coaching work.</td>
<td>• Driver of the coaching work.</td>
</tr>
<tr>
<td>Mia</td>
<td>• Coach as evaluator.</td>
<td>• Coach as helper/supporter.</td>
</tr>
<tr>
<td></td>
<td>• Outsider to the classroom community.</td>
<td>• Teacher.</td>
</tr>
<tr>
<td></td>
<td>• Leader in the coaching work.</td>
<td>• Co-participant in the coaching work.</td>
</tr>
</tbody>
</table>

Heather transformed from a performer for Mia’s evaluations to a help seeker, from a solitary leader to an observer in her classroom, and from follower to leader in the coaching work. Mia transformed from an evaluator of Heather to a support-provider, from an outsider in the classroom community to teacher, from leader to follower in the coaching work. Below I examine each of their participation in Cycle 4, demonstrating ways in which it is consistent with their new roles and is connected with new relations of power.

**Participation shifted in accordance with new roles.**

As will be examined more closely in the participation in thinking and talking about teaching section below, Heather’s and Mia’s participation shifted dramatically in Cycle 4 in ways that are consistent with the roles described in Table 15. This section focuses on the power dynamics related to these new roles that are evident in their new modes of participation.

Most obviously relevant to issues of power, Heather became a driver in their coaching work. Choices became hers to make, and her questions and other choices determined the direction of her conversations with Mia. In fact, when Heather participated in ways that were inconsistent with this new arrangement (e.g. she asked Mia if she “should” do things), Mia reminded her of the new arrangement, as in the example below where Mia reminded Heather that she had freedom to choose.

<table>
<thead>
<tr>
<th>Heather</th>
<th>Mia</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yeah, do you think I should do this for all periods tomorrow?</td>
<td>Whatever portions of it you want- you feel comfortable doing. Sure, play with it, yeah. Have fun. See what happens.</td>
</tr>
</tbody>
</table>

After some consideration of what aspects of the lesson Heather might like to do in various classes and why, Heather asked again. This time, though, her language suggests that she already knew what she wanted to do. Mia responded by saying “you might as well,” supporting Heather to make a choice based on what would “make your life easier.”

<table>
<thead>
<tr>
<th>Heather</th>
<th>Mia</th>
</tr>
</thead>
<tbody>
<tr>
<td>So, for 1st period, do you think I should just boycott this too (indicating a worksheet) and do that (indicating the task that Mia was planning to use)?</td>
<td></td>
</tr>
</tbody>
</table>
Heather did choose to teach the lesson, and there was some discussion about how the participation quiz strategy, for which Mia planned to use posters and recruit Lynn’s help, might work for Heather when she was teaching alone. Heather asked,

<table>
<thead>
<tr>
<th>Heather</th>
<th>Mia</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yeah, you might as well keep- if you feel comfortable doing it, you might as well keep your- make your life easier, keep your kids in pace, right? /</td>
<td></td>
</tr>
</tbody>
</table>

A few lines later, Mia encouraged Heather to make her own decisions and to base those decisions on what would feel “fun and easy.”

<table>
<thead>
<tr>
<th>Heather</th>
<th>Mia</th>
</tr>
</thead>
<tbody>
<tr>
<td>For my 1&lt;sup&gt;st&lt;/sup&gt; and my 4&lt;sup&gt;th&lt;/sup&gt; period should I not do the poster things?</td>
<td>Whatever you wanna do, it’s a lot to do.</td>
</tr>
</tbody>
</table>

Throughout this conversation, Heather related to Mia as a source of desired support. She asked questions about the lesson that they would each teach and was eager to hear Mia’s ideas. (This will be examined in more detail in Section 5.4.3.) Then, during the lesson, Heather watched while Mia taught. In the debrief conversation, the two engaged together on making sense of what had happened during the lesson.

**New sense of togetherness.**

There was a marked shift in the feel of Heather’s and Mia’s conversation in Phase 2, with a greater sense of ‘togetherness.’ First, coming out of the pivotal portion of their conversation and beginning a planning conversation, Heather expressed a sense of feeling refreshed and being “on the same page” with Mia.

<table>
<thead>
<tr>
<th>Heather</th>
<th>Mia</th>
</tr>
</thead>
<tbody>
<tr>
<td>This sounds great!</td>
<td>Oh.</td>
</tr>
<tr>
<td>Like I feel like I’ve just been like, taken a shower right now.</td>
<td>Yay!</td>
</tr>
<tr>
<td>Like I just, I can’t-</td>
<td>Yeah.</td>
</tr>
<tr>
<td>do another day of this (gesturing to the worksheets on her table).</td>
<td></td>
</tr>
</tbody>
</table>
This sense of ‘togetherness’ sustained throughout the 4th coaching cycle with no signs of the “foot dragging” that had marked their earlier work. Also, in contrast to Phase 1, where Heather’s and Mia’s laughter and friendliness had been mostly contained in “off task” talk, in this cycle, the two smiled and laughed together frequently during their talk about the lesson. To illustrate these points, I share first an email exchange between Mia and Heather and then some moments from the debrief conversation in this cycle.

In the morning following the pivotal conversation and before Mia was to teach in Heather’s class, Mia sent Heather an email containing the following text:

I just wanted to say, before the hustle and bustle of class, thank you for our conversation yesterday. It takes real courage to be as honest as you were, and the fact that you acted with that courage gave me the opportunity to understand you in new ways, to learn from you in new ways, and to connect with you in a way that I am super excited about. I’m excited for class today and for whatever we decide to do together in the future.

Heather responded:

Thank u for letting me be honest and hearing me out. It’s been a tough year. I am feeling it in many ways. I am sooooo appreciative of you teaching my class today and I couldn't think of a better way than that to support me!! Thanks and I'll see u 3rd.

In this email exchange, Mia and Heather communicated in a way that was newly vulnerable and transparent. Heather’s email suggests that she felt supported in their work, possibly for the first time.

As the two sat down for the debrief conversation after the lesson, Heather again expressed her appreciation, thanking Mia for teaching the lesson and for the email she had sent, and then got the conversation about the lesson started quickly, clearly wanting to hear what Mia thought and share her own thoughts. It is notable that she said nothing here about being busy, instead getting right into the conversation:

<table>
<thead>
<tr>
<th>Heather</th>
<th>Mia</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mia is moving around, getting a notebook and pencil. Heather is moving toward the table.</td>
<td></td>
</tr>
<tr>
<td>(gesturing to a pile of materials on the desk) Do you need me to move this stuff?</td>
<td></td>
</tr>
</tbody>
</table>
Heather | Mia
---|---
Eh, I’ll just do this *(moves a box)* and then I’ll come sit next to you.

Okay. Um, yeah *(small laugh)* that was so nice of you to teach.

*(walking across the room.)* Oh my god. Wow! Um, and thank you for that email.

Yeah!

Um, do you want a piece of gum?

Sure. I’m chewing a really old nasty one so that’ll allow me to cycle out *(laughing).*

I have like teacher breath by the end of the day,

So I like to throw in a piece of gum at the end of the day. And my throat’s been all messed up lately. Okay. *(walks back to table).* Okay. So *(sitting down)* yeah. Tell me what you thought. *(laughing)* I have some interesting thoughts, too. *(laughs)*

With “tell me what you thought,” Heather claimed the power to call the conversation to order and to direct it and she communicated her wish to hear Mia’s thoughts. “Tell me what you thought” is not something that Heather could or would have said before the pivotal conversation transformed the arrangements in this relationship.

Mia followed this by redirecting the conversation back to Heather’s thoughts:

Heather | Mia
---|---
*(sits down and opens notebook)* Yeah, no I actually would love to hear what you thought first.

Um.

I have lots of thoughts but they’re very jumbly right now. I don’t have anything coherent.

Heather did share her thoughts here, beginning with a reflection that in all three classes (the one Mia taught and the two she taught), students “took on the task without much feeling like they needed me for something… Most of them at least tried to attack the problem or do something.” She then commented (in the segment below) on Mia’s handling of the “high needs” in 3rd period, with her talk and Mia’s listening both punctuated by smiles and laughter.

Heather | Mia
---|---
Um, and I will say with the high needs of third period *(laughing)*, Yeah, uh huh *(smiling).*

which you took on really well *(laughs)*, *(laughs)*

they were pretty well behaved for the most part, Yeah!

and good. Yeah.

You know, with the exception of a couple toughies.
In another indicator of ‘togetherness,’ Heather expressed vulnerability in new ways with respect to teaching. As is discussed in Section 5.4.5, she made four statements that contained concerns about her own competence with teaching the lesson the two were planning. While she had frequently expressed a sense of struggle related to being overwhelmed, she had not in Phase 1 ever made statements like this. For example, in a segment of talk that is shared in Section 5.4.3, Heather worried aloud whether “I’m gonna be able to run [the lesson] as well as you.”

Along with these ‘softer’ signifiers of togetherness, segments of their conversations in Cycle 4 sound more like two people exchanging ideas than they previously had. The following example came during an extended discussion about the inequitable participation they had observed in one student group during the lesson, and Mia’s attempts to intervene with that group. They reflected together on what happened and how students responded to Mia’s interventions. At one point, Heather interrupted Mia to propose an idea for a group intervention, called a group huddle, that the two had not previously considered. During the segment that followed Heather’s suggestion, she and Mia were leaning toward each other, listening intently, and built on each other’s ideas:

<table>
<thead>
<tr>
<th>Heather</th>
<th>Mia</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maybe that would have been a good time to do like a group huddle with like her role.</td>
<td>O::h, uh huh.</td>
</tr>
<tr>
<td>Or with Thomas’s role or Faith.</td>
<td>Yeah.</td>
</tr>
<tr>
<td>So that we could have gotten them /a little bit more/ involved. I forget about the group huddle all the time. (Gesture with arm of exaggerated frustration.)</td>
<td>/Interesting./</td>
</tr>
<tr>
<td>(Mirrors Heather’s arm gesture.) Uh, yeah. I didn’t think of it either.</td>
<td></td>
</tr>
<tr>
<td>It’s like such a good, yeah that might have been a good one, yeah.</td>
<td>Yeah, I feel like we could have huddled around that with Faith or Thomas.</td>
</tr>
<tr>
<td>/Yeah./</td>
<td></td>
</tr>
<tr>
<td>Or we could’ve huddled with Kalea around /like in a way that was really not/ pointing at anyone, / backing off (laughing)/</td>
<td>but because we had that one- we had a representative from every group.</td>
</tr>
<tr>
<td>Right.</td>
<td></td>
</tr>
<tr>
<td>but just to say to that huddle, um, “I’m seeing something that concerns me a little bit, which is just I really need to hear people asking for other people’s ideas.”</td>
<td></td>
</tr>
<tr>
<td>Yeah.</td>
<td>“So, I need you guys to go back to your groups and just make sure that happens.”</td>
</tr>
<tr>
<td>Yeah.</td>
<td>“Can you do that?” /you know like in a really soft way/ that wasn’t pointing her out.</td>
</tr>
<tr>
<td>/Maybe that would’ve been good./ Yeah, yeah.</td>
<td></td>
</tr>
</tbody>
</table>
This section has established that the micro-identity/relational positioning strand of Heather’s transformative teacher learning underwent dramatic shifts following the pivotal conversation. In the following sections, findings are shared from analyses along the other four strands of TTL, revealing that these shifts in power and positioning had far-reaching consequences for Heather’s learning.

5.4.2 New Meaning-Making in Phase 2

Analysis of code counts and code profiles revealed some shifts in Heather’s meaning making between Phases 1 and 2. In total, Heather’s talk was coded as significantly more consistent with ambitious and equitable teaching in Phase 2, with the ratio of emerging to dominant talk increasing from 0.9 across Phase 1 to 1.6 in Phase 2. Looking at particular emerging codes, the significant increase lies in the portion of her talk that was focused on the social organization of the class for learning. (This relates to a shifted focus in this coaching cycle to supporting productive and equitable group work. See section 5.4.4.). While this focus matters for ambitious and equitable teaching and certainly might support Heather’s TTL, without more coaching cycles to examine, it is difficult to know whether this shift of focus was anomalous or how it might have been significant in the long term.

Table 28. Portion of each code for Heather’s talk in Phase 1 and Phase 2 (entries are percentages of total coded talk)

<table>
<thead>
<tr>
<th>Code</th>
<th>Phase 1</th>
<th>Phase 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Compliance</td>
<td>16</td>
<td>29</td>
</tr>
<tr>
<td>Limiting Math Goals</td>
<td>13</td>
<td>2</td>
</tr>
<tr>
<td>Smartness as Exclusive</td>
<td>13</td>
<td>6</td>
</tr>
<tr>
<td>Students’ Math Deficits</td>
<td>11</td>
<td>2</td>
</tr>
<tr>
<td><strong>Total talk consistent with US Schooling</strong></td>
<td><strong>53</strong></td>
<td><strong>39</strong></td>
</tr>
<tr>
<td>Social Organization of the Class for Learning</td>
<td>14</td>
<td>43</td>
</tr>
<tr>
<td>Rich Math Goals</td>
<td>9</td>
<td>0</td>
</tr>
<tr>
<td>Smartness as Inclusive</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Students’ Smart Math Thinking</td>
<td>14</td>
<td>17</td>
</tr>
<tr>
<td>Rich Mathematics</td>
<td>10</td>
<td>2</td>
</tr>
<tr>
<td><strong>Total talk consistent with Ambitious and Equitable Teaching</strong></td>
<td><strong>47</strong></td>
<td><strong>61</strong></td>
</tr>
<tr>
<td><strong>Ratio of Ambitious and Equitable to US Schooling talk</strong></td>
<td><strong>0.9</strong></td>
<td><strong>1.6</strong></td>
</tr>
</tbody>
</table>

However, as was true with respect to Phase 1, deeper analysis of Heather’s talk about “smartness” as exclusive is instructive. This analysis in Section 5.2.2 that this talk was more common in planning conversations and that if often served a planning function for Heather. She used her hierarchical understanding of students’ smartness to plan lessons, reasoning about what opportunities made sense to provide to which students. As captured in Table 29 and Table 30, this shifted dramatically in Phase 2. First, the planning conversation in Cycle 4 was the first planning conversation in this coaching relationship that contained no instances of talk that were coded this way. (See the absence of red in Heather’s code profile for the planning conversation in Cycle 4, and the presence of red in every other planning conversation in Figure 11.)

Table 29. Instances of Heather’s “smartness” talk in planning and debrief conversations in both phases

<table>
<thead>
<tr>
<th>Code</th>
<th>Phase 1 average</th>
<th>Phase 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Smartness as Exclusive in planning conversations</td>
<td>24</td>
<td>0</td>
</tr>
<tr>
<td>Smartness as Exclusive in debrief conversations</td>
<td>5</td>
<td>5</td>
</tr>
</tbody>
</table>
Second, the categorical analysis of Heather’s smartness talk, by purpose and by which groups of students were named, shed light on this shift. As Table 30 reveals, none of Heather’s smartness talk in Cycle 4 was used to reason about which opportunities should be given to which students or to predict what students would do or to explain challenges for her planning. (Together these 3 categories made up 64% of the instances of Heather’s smartness talk in Phase 1.) The 5 instances of this talk in Cycle 4, each of which took place in the debrief, were used for explanatory purposes, to explain a challenge for group work (e.g. “Kalea and Jimmy were kind of owning everything because they’re both really high-level thinkers.”) or to explain individual students (e.g. “She’s actually generally pretty soft-spoken, but she’s super smart”). Another trend revealed in Table 30 is that each of the 5 instances of this talk in Cycle 4 was concerned only with the high end of the high/low hierarchy. Heather did not talk about “low” students, or “the divide” at all in this conversation. Rather, her smartness talk was about explaining group work or students in ways that named them as “smart.” For instance, when Mia asked about one student’s status (E. G. Cohen & Lotan, 1997) in class, Heather responded, “Oh, Jenna’s really smart. Like top of the class.”

The shift described above is particularly notable in light of the fact that the lesson Heather and Mia were discussing in the fourth coaching cycle was a more ambitious lesson than Heather was accustomed to teaching. It was structured around one open-ended problem that they expected would be challenging for students, and that did not resemble problems students had seen before. Given this context, it is remarkable that Heather made no predictions about which kids would or would not be able to take on this challenge or suggest anything to “scaffold” the task for her “struggling” students.

Table 30. Categories of Heather’s “smartness” talk in Phase 1 and Phase 2

<table>
<thead>
<tr>
<th>Smartness talk by category:</th>
<th>Phase 1 ( n = 36 )</th>
<th>Phase 2 ( n = 5 )</th>
</tr>
</thead>
<tbody>
<tr>
<td>Purpose:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. To explain challenging group work.</td>
<td>5 (14%)</td>
<td>1 (20%)</td>
</tr>
<tr>
<td>2. To reason around giving opportunities to some students, but not all, or what some students need.</td>
<td>8 (22%)</td>
<td>0</td>
</tr>
<tr>
<td>3. To predict behaviors, usually who will be able to do something.</td>
<td>9 (25%)</td>
<td>0</td>
</tr>
<tr>
<td>4. To explain a challenge for planning.</td>
<td>6 (17%)</td>
<td>0</td>
</tr>
<tr>
<td>5. To explain attributes or behaviors of a student or group of students (and none of the above).</td>
<td>12 (33%)</td>
<td>4 (80%)</td>
</tr>
<tr>
<td>Which students are being named?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Talk contains a clear comparison of smart to not smart, including talk about “divide.”</td>
<td>21 (58%)</td>
<td>0</td>
</tr>
<tr>
<td>• Talk focused on the struggling or the not smart.</td>
<td>6 (17%)</td>
<td>0</td>
</tr>
<tr>
<td>• Talk focused on the smart, without comparison.</td>
<td>8 (22%)</td>
<td>5 (100%)</td>
</tr>
<tr>
<td>“Smartness” talk qualified (air quotes)</td>
<td></td>
<td>1</td>
</tr>
</tbody>
</table>

Analysis of Heather’s smartness talk revealed one other interesting development, as is represented in the last row of Table 30. In the debrief conversation in Cycle 4, Heather gave the first indication in all of her work with Mia that she might see something to be questioned about high/low talk. In this instance, she was describing her 4\(^{th}\) period class: “They’re one of my (air quotes) highest scoring kids, if we’re gonna talk about, like, test scores.” Here the use of air
quotes suggests that she may have been calling into question the validity of the category “highest scoring,” even as she was using it.

This interpretation is supported by a moment that took place during Heather’s final interview in May. She had told the interviewer that when she was a child, she had experienced a “not great model” of instruction. She described a number of aspects of that model, including:

It’s classifying kids based on their, um, you know, skills at math and so what happens is that all these kids that are quote unquote (makes an air quotes gesture) smart kids end up in one class and then you get students who have had bad experiences with math, and they all get lumped into another class.

Her use of the words “quote unquote” along with the air quotes gesture suggests that she was calling into question the validity of “smart kids” as a category. This is notable because she used this category label so frequently in her earlier talk, with no indication that she saw it as problematic.

5.4.3 Transformed Participation in Thinking and Talking about Teaching in Phase 2

Heather’s participation in thinking and talking about teaching with Mia was markedly different after the pivotal conversation than it had been throughout Phase 1. A previous section detailed some of the ways in which her participation changed, with a focus on her power and agency in the coaching relationship. Here I return to considerations of the depth of her contributions and the extent to which she sought out Mia’s input. As is clear in Table 31, the ratio of her contributions coded as high depth to those coded as low depth almost doubled. This trend is attributable primarily to an increase in her high-depth questions (from an average of 2 per cycle in Phase 1 to 6 in phase 2) and the disappearance of the practice of sharing ideas that closed opportunities for inquiry (from an average of 7 per cycle in Phase 1 to 0 in Phase 2).

Table 31. Heather’s low and high depth contributions to coaching conversations in Phase 1 and Phase 2

<table>
<thead>
<tr>
<th></th>
<th>Phase 1 Average</th>
<th>Phase 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Low-depth questions</td>
<td>10</td>
<td>13</td>
</tr>
<tr>
<td>2. Ideas that close</td>
<td>7</td>
<td>0</td>
</tr>
<tr>
<td>Total Low Depth</td>
<td>17</td>
<td>13</td>
</tr>
<tr>
<td>3. High-depth questions</td>
<td>2</td>
<td>6</td>
</tr>
<tr>
<td>4. Ideas that open (or leave open)</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>Total High Depth</td>
<td>6</td>
<td>9</td>
</tr>
<tr>
<td>Ratio of high to low depth contributions</td>
<td>0.35</td>
<td>0.69</td>
</tr>
</tbody>
</table>

Also, as Table 32 shows, Heather asked many more unsolicited questions in Cycle 4 than she had previously. The great majority of these questions (10 of the 12) were clearly intended to solicit Mia’s input.

Table 32. Heather’s unsolicited questions and requests for Mia’s ideas

<table>
<thead>
<tr>
<th></th>
<th>Phase 1 average</th>
<th>Phase 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unsolicited questions</td>
<td>2</td>
<td>12</td>
</tr>
<tr>
<td>Questions requesting Mia’s ideas</td>
<td>0</td>
<td>10</td>
</tr>
</tbody>
</table>
Another shift, which is discussed also in relation to “togetherness” with Mia and *becoming a kind of teacher*, is that Heather expressed doubts about her own capacity to teach CI lessons well—or as well as Mia—4 times in this coaching cycle. Previously, Heather had expressed struggles related to being overwhelmed or not having the bandwidth required for various things, but she had never articulated concern about her teaching competence before this coaching cycle.

The following segment of talk exemplifies a number of the shifts described above. In the pivotal conversation, Heather and Mia had agreed that Mia would teach a lesson in one of Heather’s 8th grade classes the next day. The lesson, which Mia had co-planned and co-taught with a colleague of Heather’s the previous day, was built around one problem that they anticipated students would find challenging. Before the following talk, Heather had decided that she would teach the same lesson in her other 8th grade classes. (This choice was the subject of some examination in Section 5.4.1.)

After a bit of discussion about how the lesson had been structured to support students to use their teammates as resources and persevere through the challenge of getting started, Heather asked Mia about the lesson launch, focusing in particular on the things that would get written (the “opening notes”) as Mia set students up for the group task. In doing so, she expressed her wish for Mia’s input and inquired into a substantive question of teaching (how lesson launches can serve to support students’ participation). She also expressed doubts about her own relative capacity to teach this challenging lesson and she expressed the wish to take notes.

<table>
<thead>
<tr>
<th>Heather</th>
<th>Mia</th>
</tr>
</thead>
<tbody>
<tr>
<td>Your like opening notes are pretty important for this task, wouldn’t you say?</td>
<td>Yeah.</td>
</tr>
<tr>
<td>I’m just wondering if I’m gonna be able to run it as well as you, like I don’t know if I’m gonna have the same- if I do it for all the classes, I- unless I- like I feel like this one <em>(pointing to something in the coach’s notes)</em> is like really key to like setting it up how you are explaining it.</td>
<td>Well, I think there are a couple key aspects. I think there’s a lot of room to play-</td>
</tr>
<tr>
<td>Okay.</td>
<td>and it'll just unfold differently. I think the key aspects are, whatever you think you need to say to [students] to get them to be willing to try things that they don’t already know.</td>
</tr>
<tr>
<td>Okay, let me- can I write this down?</td>
<td>Yeah, of course.</td>
</tr>
<tr>
<td><em>(Gets a notebook from across the room.)</em> ‘Cause I’m gonna forget all this.</td>
<td></td>
</tr>
<tr>
<td><em>(Arriving back to the table) Okay, so to open this and launch it, (pauses, then laughs) I was like this notebook’s full! OK. (5s pause while she finds an empty page)</em> OK, so launch, alright.</td>
<td>Yeah.</td>
</tr>
</tbody>
</table>

Also, the ways Heather shared ideas about teaching shifted in this coaching cycle, as is captured in Table 31. Whereas many of the ideas she shared previously had functioned to close
opportunities for collective inquiry, each of the ideas she shared in this conversation opened or left open these sorts of opportunities. For example, in the debrief conversation after Mia had taught, she and Mia were considering ways that the next day’s lesson might build from the strong mathematical thinking that students had done in this lesson. Mia suggested wording Heather could use to highlight the smartness in the math thinking from groups who had not yet finished solving the problem. Heather responded with an idea, using rising intonation (indicated in transcript with the use of a question mark) to invite Mia’s input: “Maybe I can like, yeah, say like, ‘Here’s some highlights of a few [student ideas] that I saw were getting closer.’ Maybe we could have a group discussion?” The two went on to discuss language Heather could use with her class that would most effectively highlight the “smartness” of students’ mathematics.

Overall, Heather’s contributions to coaching conversations were deeper after the pivotal conversation and the ideas she offered opened or left open opportunities for further conversation and investigation. She asked numerous unsolicited questions, seeking out Mia’s ideas in relation to ambitious teaching.

5.4.4 Transformed Participation in Classroom Practice in Phase 2

Two shifts are evident in Heather’s and Mia’s negotiations of classroom practice in this last coaching cycle. First, as is evident in Figure 13 (threads of practice diagrams), the focus of their work in this cycle shifted from negotiating important mathematics and task design (Strands E and K)—where it had been throughout Phase 1—to supporting productive and equitable participation in groups, an aspect of ambitious teaching that is both central and unique to CI.

Second, Heather’s choice (and action in accordance with the choice) to teach the lesson Mia would teach was a more ambitious step in trying out new teaching than had happened in her coaching work prior to this. Recall that before this cycle, Heather had shifted launched lessons in ways that were increasingly tied to mathematics, and she had tried out some Do Now activities that she and Mia had discussed. Other than these relatively small shifts, her teaching routines appeared to have remained unchanged in Phase 1.

Given this background, and the ambitious nature of this lesson (recall that the lesson was built around a single problem that they expected students would struggle to make progress on), Heather’s choice to try out this lesson and try to model the lesson after Mia’s was a considerable transformation in her work with Mia on classroom practice. While observational data from the lessons Heather taught is not available, her talk made it clear that she tried out many of the lesson elements that she and Mia had discussed. Other than these relatively small shifts, her teaching routines appeared to have remained unchanged in Phase 1.

5.4.5 Becoming a Kind of Teacher in Phase 2

Analyses of Heather’s processes of negotiating her figurative identity and identity of competence reveal that the contradictory vision articulated in Section 5.2.5 may have been in revision, as suggested by the analysis of her meaning-making in Section 5.4.2. As demonstrated in the sections below, her talk in the ending interview was different from her earlier talk in that she shifted from a primary focus on CI’s tools and strategies to consider student-centered instruction and assumptions of competence and student ability. Her talk about her experiences with CI suggest that she found resources to identify as competent with respect to her notions of CI teaching. These points are elaborated below.
Developing a vision for powerful teaching.

Heather’s talk in the end-of-year interview in May suggested that she continued to understand CI as powerful teaching and that her ideas about CI had developed beyond a focus on structures and strategies to focus on (1) the centering of students and decentering of the teacher; (2) heterogeneous grouping, with the assumption that all students “have something to offer;” and (3) students being challenged to teach each other. This, along with the shifting function of high/low talk that was examined in Section 5.4.2, suggests that the contradictory thinking about students by level may have been shifting or loosening. Her talk also suggested that while her experiences with CI over the course of the year were challenging, she also perceived success for her students. In this section, I examine Heather’s talk about these aspects of her vision of powerful teaching and evidence related to her sense of competence with respect to this vision.

Heather’s talk in the end-of-year interview included greater emphasis on the student-centered nature of powerful teaching. When asked to describe her vision for powerful teaching, she responded,

Uh, to me it would be one where there is structure, um where there is collaborative group work with the students, um, one where the teacher talks very little. Um, and one where the students are pushed and challenged, um, to high standards. And I would add to high standards not only in math but in being able to communicate their ideas as well and explain them.

She elaborated on her vision by drawing contrasts to math teaching that she had experienced as a child, which she dubbed “not a great model.” This model, she explained, was “very much about textbooks…worksheets, it was not group work. It was very teacher-centered.” She went on to describe that in this model that she experienced,

We were classed by level. Like I distinctly remember taking a test in 8th grade where if you passed it you went onto an algebra class early in 8th grade, which I made it into that class, and I remember feeling so proud that I was in that class, um but I never experienced what the other classes were like for the kids that didn't make it. …[This model involves] classifying kids based on their, um, you know, skills at math and so what happens is that all these kids that are quote on quote (air quotes) smart kids end up in one class and then you get students who have had bad experiences with math, and they all get lumped into another class. and you know it gets really segregated, and it’s not a great model. They don’t tend to learn as well and a lot of times there’s these stigmas of, you know, them not being smart.

She went on to say that CI has “changed my entire instruction,” drawing contrasts between CI and this old model in relation to the issue of “segregation.”

[CI has] completely changed my entire instruction. It’s just changed everything. It’s changed the way I thought about group work, it’s changed what I thought was a good- what I thought was doing group work was just having kids work in groups, and it’s SO much more than that, there’s so many components to it, um it really encompasses, you know, learning on every level within groups. Um, it
doesn’t segregate, it allows [students] to teach each other instead of me teaching them.

The interviewer asked Heather to explain CI, and Heather responded,

It is a way of learning, a way of teaching, that encompasses all levels of learning. In a way where the students are the focus and not the teacher. And it’s in a way that students are challenged but without the intimidation. For example, if I do a checkpoint, if [students are] not ready, I ask them if they need me to come back. Like it’s not this on the spot kind of having to know everything. And it also really encompasses the group dynamic, which means that no one person knows everything. And that’s really great because I think a lot of students go into life thinking that there’s the smart kids and the not smart kids and then there’s- that’s it. You know, and here it’s like everybody has something to offer.

Across these interview responses, Heather’s talk about CI and powerful teaching went beyond the structures and strategies that had been her focus in the first interview. She talked about the centering of student and decentering of the teacher, about heterogeneous grouping with the assumption that all students have something to offer, and about students being challenged without intimidation. Also, related to Heather’s understanding of students in terms of their membership in categories labeled “high” and “low,” it is interesting to notice that her talk in this final interview both included talk about students’ levels, as if that were meaningful, and talk that troubled the notion that there are smart kids and not smart kids. This, along with the analysis in Section 5.4.2, suggests that Heather’s conceptions of students and smartness and her development of a vision around that conception may have been in revision.

Experiences of competence with respect to powerful teaching.

As was discussed in Section 5.4.3, Heather began to share with Mia concerns about her own competence with respect to CI during their last coaching cycle. The analysis in Section 1.5 (becoming a kind of teacher in Phase 1), suggests that these concerns were not new for Heather, but newly expressed, which arguably tells us more about the coaching relationship than about Heather’s sense of her own competence over time. But it does tell us that at the end of their coaching work, Heather had concerns in this regard.

Her talk about CI having “changed everything” helps us to see these concerns as sensible. One can imagine that a teacher in her 5th year, who has been positioned prior to this year as highly competent, but who encounters new pedagogy that “changes everything” would experience challenges to her sense of her own competence. Some of Heather’s talk in the end-of-year interview suggests that, despite the challenges she experienced with CI, she also experienced success.

Like I said, [CI has] completely changed my classroom this year, so, um, I mean it’s been amazing. I think this has been one of the toughest years and one of the best learning years I feel- I mean I’ve learned so much this year. And I’ve had some of the strongest work this year come out of students. I also think CI has really created this sense of independence in the students in a weird way, even though they are doing group work, I feel like because they’re given so much
space and independence, they do so much more on their own. And they own more as well. Like I don’t have to really run as much. You know, it’s more about they do the work, they know what to do, they know where to grab materials, they know that when I come by there’s gonna be a checkpoint and they need to be ready, like there’s just been certain things that they know they are gonna get pushed for and they need to come up to those standards. But I feel like they’ve really met them, in an awesome way.

A remarkable feature of this talk is that the ways in which Heather talked about her successes were each centrally related to her conceptions of powerful teaching, suggesting that she had tools for understanding herself as competent in new ways. (Remember that in the September interview, her talk about her own strengths was entirely separate from her talk about powerful teaching.) In the excerpt above, she talked about students doing more “on their own” and that she did not “have to run as much.” Given that she had named “student-centered” as a central feature of powerful teaching, this observation claims some competence for herself with respect to powerful teaching.

5.4.6 Summarizing Relations of Power and Heather’s TTL in Phase 2

Across Section 5.4, analyses indicate that the new relations of power that Heather and Mia negotiated in the pivotal conversation opened opportunities for Heather’s TTL along all five strands. It also became clear that much of the interactional work that Heather engaged in during Phase 1 (e.g. preserving “face” and navigating within—or resisting—Mia’s conversational boundaries), was absent in Phase 2. New roles, power relations, and ways of participating allowed Heather to relax, leaving her more available to engage in TTL.

5.5 Discussion and Conclusion

Examination of the Heather-Mia case in this chapter yields a number of conclusions that relate to power, learning, and the negotiation of these issues in coaching relationships. First, imbalances of power and missing teacher agency in coaching are problematic for teacher learning. Second, this case demonstrates that it is possible to renegotiate and rearrange problematic relations to create interactions that do support learning. Third, these analyses demonstrate that without considering issues of power, we might easily misunderstand the dynamics of coaching in unfortunate ways. Each of these points is elaborated below.

5.5.1 Suppressed Teacher Agency Was a Barrier for Learning

While “agency matters for learning” has become part of current discourse around student learning, consideration of agency and power are missing from most studies of teacher learning. The analyses in this chapter provide opportunities to consider issues of agency in teacher learning, and to look closely at how agency matters for teachers’ learning in the context of coaching.

Findings suggest that power relations and teacher agency can hinder or support multiple processes of learning. We saw that (1) challenges related to power and agency negatively influenced each identified process of learning and that (2) transformed power relations and restored agency positively influenced each process. When Heather did not have agency broadly in her interactions with Mia, her opportunities to participate as an agent in challenging
negotiations of meaning were hindered, limiting opportunities for her to transform her meaning-making. Conversely, when she had agency in these conversations, she was free to participate actively in negotiation of meaning with Mia, opening opportunities for learning.

When Heather did not have the power to define acceptable forms of participation in her work with Mia, her participation was limited. But when she had the power to choose how these conversations would be structured, and how she would participate with Mia in conversations and in the classroom, her participation transformed, gaining depth and engagement and she began to experiment with the new and challenging teaching that Mia was working to support.

When Heather’s own sense-making about powerful teaching was framed as outside of acceptable ways to talk about teaching, her ability to negotiate her vision with Mia was hindered, and distance between the two was increased. But when she was allowed the space to talk how she liked about what she liked, her vision for powerful teaching and her sense of her competence with respect to that vision entered her conversations with Mia in ways that made them available for negotiation.

This all helps us to see the interconnectedness of learning processes. In particular, we see here that issues of positioning and “togetherness” impact all the other strands of transformative teacher learning. This is different from “it’s nice when people feel good in learning situations.” It shows us that when learners do not have access to agency, their abilities to engage in learning along all strands is hindered. This brings us back to Wenger’s notion of ongoing negotiations being part of learning. Learning is not about simply receiving, but negotiating with our communities. Here we saw negotiations of power and positioning resulting in limited agency for Heather with respect to negotiations of other learning processes.

Similar to these points, but separate from considerations of particular processes of learning, findings here indicate that teachers who we may perceive to be “disengaged” in challenging coaching relationships may actually be engaged in considerable work to navigate their interactions inside of these relationships. This work, which the Heather-Mia case supports us to see as challenging and exhausting, is not the same work required for learning about teaching. And we see that when power relations are negotiated productively, much of this work is no longer required, and teachers may be free to engage in the kinds of learning coaching intends to support.

5.5.2 Power and Agency Can be Re-negotiated in Ways that Support Learning

The Heather-Mia case provides an existence proof of sorts, demonstrating that it is possible for problematic relations of power and agency in coaching to be reinvented in ways that transform the learning environment. Heather’s and Mia’s accomplishment of this reinvention required direct and explicit attention to these issues; problematic relations had to be named to be negotiated. It is useful to consider what made this risky work possible.

Courage was required for Heather and Mia to engage in the pivotal conversation. Heather’s naming of her challenges breached the bounds of safe conversation and involved considerable personal risk. Mia’s willingness to hear Heather’s concerns, and her support for Heather’s associated risk-taking, required her to put aside any instinct she may have had to defend herself from criticism. The negotiations that unfolded required considerable skill, as Heather and Mia both needed to (1) find a balance between the honest presentation of challenging perspectives and the creation of safety in the conversation so that it could continue and be productive and (2) find ways to offer and accept alternatives.
However, it is likely that more than courage and skill was required to make this conversation possible. From Erickson (2004) and Scott (1985, 1990), we saw that missing power and voice lead to “underground forms of resistance.” The pivotal conversation was not underground. This suggests that Heather must have had access to some power and voice by the time she began this conversation. So, despite the challenges that were pervasive across Phase 1, Heather’s and Mia’s joint navigation of these challenges must have laid the groundwork for the pivotal conversation in some way. Indeed, their third coaching cycle was more “together” and productive than the previous two cycles had been. It is promising that even in the face of unresolved power dynamics, incremental progress is possible.

The accomplishment of the challenging negotiations in the pivotal conversation arose spontaneously in this case. Heather experienced a need and brought it to Mia. While Mia met this need with skill, it is clear that she did not see it coming. It is interesting to consider whether she might have been able to support productive negotiations of power and agency before this, had she been aware of the challenges these issues were posing for Heather.

5.5.3 A Power Lens Supports Understanding of Coaching

Another useful consideration is ways in which considerations of power support a better understanding of teachers as they navigate coaching situations, not only by coaches, but by analysists and professional development designers. To this end, I take a moment to consider how we might understand Heather if we were not aware of these issues.

Heather could easily be described, as are many teachers in teacher learning literature (e.g. Ms. Oublier in Cohen (1990)), as resistant to change or as a teacher with the wrong beliefs or knowledge about students, math, or teaching. Without looking at her experiences of agency and voice, or the lack thereof, we might read her as unreflective, uncooperative, or otherwise difficult. The analyses in this chapter make it clear that we would be wrong. We see that Heather did a significant amount of work to stay engaged with Mia in coaching. Despite numerous challenges to her professional identity and dignity, she remained committed to making sense of a whole new way of teaching that she perceived to be powerful for her students.

Just as blaming challenging student learning on the attributes of students is minimally productive (and often wrong), so we find that blaming teachers for challenging coaching is minimally productive (and here wrong). By incorrectly attributing the challenges of difficult coaching to the non-optimal attributes of teachers, we miss the opportunity to design more effective learning experiences for them.

Without the lens of power and agency however, it is difficult to understand teachers in more productive ways. Indeed, Mia was at a loss in her work with Heather, as she perceived Heather’s resistance, lack of depth in talk about teaching, and unwillingness to take risks as attributes of Heather, about which she had minimal control. As noted above, had she earlier recognized ways in which power relations were setting up these dynamics for Heather, she may have worked more effectively to create productive learning interactions. For outside observers and interested parties such as analysts and designers of learning spaces for teachers, these misunderstandings have similar consequences. Teacher learning literature abounds with analyses of teachers’ varying types and degrees of wrongness, with the wrong beliefs, knowledge, or skills (e.g. D. K. Cohen, 1990; Ernest, 1989; Leikin & Levav-Waynberg, 2007). Rarely do we have opportunities to understand struggling teachers as resourceful, committed humans navigating deeply challenging teaching contexts and learning spaces. Analyses of power and agency provide such an opportunity.
As discussed in Chapter 2, the issues of power and agency that were of central focus in this chapter connect with the notion of frames, or the ways in which participants understand and negotiate the kinds of interactions they are involved in. Frames organize participants’ understanding of their own and others’ roles, positions, and ways to participate in interactions. For Heather, coaching was framed in a way that supported her to understand a presumed expert-novice dichotomy between herself and Mia, and that constrained her forms of participation in ways that were uncomfortable and minimally constructive. The pivotal conversation supported a reframing of coaching in ways that offered more productive ways for Heather and Mia to participate together in making sense of teaching.

Chapter 6 zooms out to consider issues of framing more broadly, identifying three frames that mediated Kamilah’s and Heather’s experiences with Mia. It examines ways in which these frames developed over time, and how various frames functioned to support learning, and how productive reframing was accomplished in these relationships.
Chapter 6
Learning to Learn Together:
(Re)Framing Coaching to Support Transformative Teacher Learning

It would have been really helpful if we had gone into [coaching] with a bit more of a contract, like this is what I’m here for and this is what our relationship will be about.

-Heather (teacher), about her work with Mia (coach)

Chapters 4 and 5 demonstrated ways in which transformative teacher learning (TTL) unfolded differently for Kamilah and for Heather, despite similarities in their teaching contexts and in their work with Mia. Chapter 5 established that problematic positioning and relations of power inhibited Heather’s learning throughout much of her work with Mia, and that when these were negotiated and rearranged, TTL became newly available for her. Chapter 5 also established that the positioning and power relations that mediated Heather’s experiences connected with particular ways of understanding what coaching was about, or frames for coaching. Heather points to importance of this “about”ness in the statement above.

This chapter investigates frames for coaching that supported Kamilah and Heather to understand differently what the coaching work with Mia was “about.” It investigates how these frames developed over time and the relationships between these developing frames and Kamilah’s and Heather’s different stories of TTL. This chapter asks,

1. What frames for coaching were at play for Kamilah and Heather in their work with Mia?
2. How did these frames develop over time? Were there progressions of frames that were consistent across cases?
3. How did different frames provide different opportunities for TTL?
4. When productive reframing was accomplished in these coaching relationships, how did that happen? What can we learn from these cases about this interactional accomplishment more generally?

Through the investigation of connections between frames for coaching and teachers’ opportunities for TTL, this chapter continues the work begun in Chapter 5 to explore alternative ways of understanding teacher-coach relationships. Understanding issues of power (Chapter 5) and framing (this chapter) supports more generative investigation than considering whether teachers are resistant or coaches have good “people skills.”

6.1 Three Frames for Coaching Mediated Teachers’ Experiences

Across the data, three frames for coaching were evident for teachers: coaching as evaluating and fixing teaching, coaching as helping, and coaching as learning together. These frames were linked with particular frames for teaching and for teacher learning.

6.1.1 Coaching as Evaluating and Fixing Teaching (Frame A)

The first frame for coaching that most teachers in the study operated within was coaching as evaluating and fixing teaching. In this deficit-focused frame, teaching is framed as a collection of best practices, and one’s mastery or deficiency with these practices is presumed to be measurable. The coach is positioned as better at these practices than the teacher. A central
purpose for coaching in this frame is for the superior coach to evaluate the practice of the inferior teacher (in particular, to identify teaching weaknesses) and work to improve that practice (by fixing or ameliorating the diagnosed weaknesses).

In this frame, teachers are sole leaders of their classrooms, while coaches are observers outside of the classroom community. Teaching becomes in part a performance, with teacher as performer and coach as observer and evaluator. The coach is presumed to have the “right answers” and is positioned as the giver of these answers, while the teacher is the receiver.

Domains of control and responsibility for the coach and teacher remain distinct in this frame. The coach controls and is responsible for coaching, while the teacher controls and is responsible for teaching. Along with this responsibility for teaching, the teacher carries the risk; when things go wrong, it is the teacher’s practice that is presumed to be at fault. Coaches carry little risk. They could perhaps be judged ineffective, but the power relations make even this unlikely. If coaching is unsuccessful, blame can easily be placed on teachers; they can be (and often are) interpreted as unreceptive, slow, or deficient in any number of ways.

This frame renders certain forms of participation sensible for coaches and teachers. In coaching conversations, it makes sense for teachers to ask the coach for answers or evaluation (e.g. which teaching ideas are better than others, whether they did something right or well), to agree or disagree with the coach’s ideas or suggestions, to explain lessons or the classroom community to the coach, and to justify or defend their teaching. This frame supports coaches to evaluate teaching ideas, offer answers, or ask for background necessary to make good evaluations. In the classroom, this frame supports teachers to teach alone and coaches to watch, formulating evaluations, and diagnosing maladies. What gets taken up as the content of coaching, or what gets worked on, is determined by coaches and comes from their evaluations and assessments of teaching deficiencies. Coaches determine what needs fixing and then organize the coaching interactions as attempts to fix these things.

This frame sits squarely in the world of US Schooling and is thus readily available for teachers. This point is elaborated later in this chapter.

6.1.2 Coaching as Helping (Frame B)

Another common frame for teachers was coaching as helping. In this frame, teaching is still framed as a set of best practices, with teacher learning framed as the development of mastery of those practices. There is an underlying assumption that teachers need help and that coaches have the expertise to offer it. A central purpose for coaching here is to determine what help is most needed and to supply it.

In this frame, teachers are presumed to be more novice, or in more need of teaching help than the coach, who is presumed to be a more expert teacher. The coach is positioned as a giver and the teacher as a receiver of assistance. Teachers are still leaders of their classroom communities, although there is room in this frame for them to invite coaches in as participating guests. Coaches are helpful outsiders, with some more possibility for inclusion in the classroom goings on. To operate within this frame during lessons, teachers must be willing to share publicly some of the ownership for teaching, and to be positioned as needing help, a move that is challenging for some teachers.

In this frame, the boundaries between domains of responsibility become blurred. The coach comes to have some say in the teaching and the teacher begins to assume some agency and responsibility for the coaching work. The coach is still responsible for making coaching helpful for teachers and the teacher is still mostly responsible for the success or failure of the teaching.
In the classroom, teachers must be vulnerable in front of students, risking the public perception of themselves as less expert. Taking on this frame requires then that teachers trust their coaches. Teachers must trust that their coach will handle that vulnerability gently and avoid actions that would undermine their authority or position in their classrooms. In this frame, the teacher’s practice is still on display, although in receiving help she may be engaging in practices for which the coach shares some ownership.

This frame renders different forms of participation sensible for coaches and teachers. Since this frame implies teaching as a set of best practices, it makes sense for teachers to ask for help planning for or implementing these practices and for coaches to offer such help. Teachers still teach mostly alone but may make space for coaches to teach or to help in various ways during class. Coaches may take on some of the teaching, but this is done mostly alone, rather than collaboratively with the teacher. The content of coaching can be determined by the teacher and the coach. Coaching interactions serve to offer help, either help that has been requested by the teacher, or help that is offered by the coach.

Frame B, while less deficit-focused than Frame A, is still consistent with the world of *US Schooling*.

6.1.3 Coaching as Learning Together (Frame C)

The least common frame that was evident in the data was *coaching as learning together*. In this frame, teaching itself is framed as complex, contingent, and worthy of ongoing, collaborative investigation. This frame supports the assumption that all teachers (including the coach) can and should continue to learn with others about teaching and that all teachers have meaningful contributions to make to this collective learning. In this frame then, teachers and coaches are each positioned as experts and learners, each with different kinds of expertise and areas for learning. They share leadership in the classroom and support each other in teaching and learning about teaching.

In this frame, coaches and teachers share control and responsibility for both coaching and teaching. Generally, teachers remain the final word on what happens in their classrooms, but coaches have more voice in instructional decisions and share the responsibility for the success or failure of teaching. Teachers in this frame assume more control over coaching conversations as well. Responsibility for teaching successes and failures is shared and coaches and teachers can rejoice and reflect in their shared experiences.

In this frame, sensible forms of participation for teachers and coaches are more aligned. They can both share or ask for ideas. They both wonder about teaching aloud or say what they do not yet know or understand. They can each teach, either alone or together. Since teaching is presumed here to be complex and contingent, help-seeking makes sense in this frame, but the kinds of help sought are different from those in a *coaching as helping* frame. Rather than asking for help planning for or implementing best practices, teachers (or coaches) in this frame might ask for help taking on new and challenging practices or making sense of some of the complexity of the classroom. What gets taken up in coaching interactions is decided collaboratively between the coach and teacher based on what areas of collective investigation appear to be most rich for the teacher. These areas are generally connected to the teachers’ own articulation of what she wants to be investigation in her own practice. (While this work is often oriented to teachers’ questions, coaches and teachers engage together in investigations around the complexity and contingency of ambitious and equitable teaching. Thus *learning together* involves learning for both of them.)
Frame C is inconsistent with the world of US Schooling and sits squarely in the world of Ambitious and Equitable teaching. It is thus unsurprising that it was the least common in the data. This point is taken up in Section 6.4.1.

These three frames for coaching are summarized in Table 33 below, along with their accompanying frames for teaching and teacher learning, as well as their implied roles and sensible forms of participation.

<table>
<thead>
<tr>
<th>Table 33. Frames for coaching</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Coaching is:</strong></td>
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<tr>
<td><strong>Teaching is:</strong></td>
</tr>
<tr>
<td><strong>Improving teaching is:</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Teacher</th>
<th>Coach</th>
<th>Teacher</th>
<th>Coach</th>
<th>Teacher</th>
<th>Coach</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sole classroom leader</td>
<td>Classroom leader with some sharing.</td>
<td>Classroom leader with some sharing.</td>
<td>Classroom leader with some sharing.</td>
<td>Classroom leader with some sharing.</td>
<td></td>
</tr>
<tr>
<td><strong>Roles and positions</strong></td>
<td><strong>Evaluating and fixing teaching</strong></td>
<td><strong>Helping</strong></td>
<td><strong>Learning together</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Sensible forms of participation</strong></td>
<td>Asking for right answers about teaching.</td>
<td>Asking for help doing something better.</td>
<td>Asking for help navigating challenging teaching.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Explaining or justifying teaching.</td>
<td>Explaining challenges.</td>
<td>Teaching together with coach.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Teaching alone.</td>
<td>Asking for help while teaching.</td>
<td>Trying new ideas together with coach.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Agreeing or disagreeing with coach.</td>
<td>Accepting help.</td>
<td>Asking for or offering help with challenging teaching.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Giving answers.</td>
<td>Offering ideas or help.</td>
<td>Teaching together with teacher.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Asking for information.</td>
<td>Inquiring into challenges.</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>Observing lessons quietly.</td>
<td>Helping teaching or teaching, mostly alone.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Asking for help doing something better.</td>
<td></td>
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### 6.2 Frames Progressed and Differently Supported Teacher Learning

Primary frames at play for both Kamilah and Heather shifted over time. In the following sections, I trace these shifts and examine ways in which different frames were at play for teachers and connected with opportunities to learn during different phases of the coach-teacher work.

To be clear, these 3 frames are not mutually exclusive. There are instances in which a coaching as evaluating frame seems to be mostly at play for a teacher, but she also accepts help. There are numbers of interactions between Kamilah and Mia in which both a helping and a learning together frame seem to be at play for Kamilah. The phases I identify below, then, are
characterized by frames that appear to be most strongly shaping teachers’ participation in the coaching interactions at each time.

6.2.1 Three Phases of Kamilah’s Frames for Coaching

Primary frames at play for Kamilah shifted across the year from coaching as evaluating and fixing to coaching as helping and then to coaching as learning together. As shown in Figure 14, the first frame was primary only briefly for her, with the second frame taking over by the first debrief conversation. This second frame was gradually replaced by the third frame, coaching as learning together, with that third frame becoming primary by the debrief conversation in the third coaching cycle.

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<thead>
<tr>
<th>Frame A</th>
<th>Frame B</th>
<th>Frame C</th>
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</thead>
<tbody>
<tr>
<td>Cycle 1</td>
<td>Cycle 2</td>
<td>Cycle 3</td>
</tr>
<tr>
<td>PC</td>
<td>L</td>
<td>DC</td>
</tr>
</tbody>
</table>

Key:
- PC: Planning conversation
- L: Lesson
- DC: Debrief conversation

Frame A: Evaluating and Fixing
Frame B: Helping
Frame C: Learning Together

Figure 14. Kamilah’s primary frames for coaching over time

In the sections that follow, I share vignettes from each phase. In each vignette, I examine first the primary frame at play for Kamilah and how it shapes her participation and then I examine the opportunities for learning that are evident alongside the frames.

**Kamilah’s Frame A phase: 1st planning conversation and lesson.**

For Kamilah, the coaching as evaluating frame was not at play for long. Evidence suggests that it was at play in the first planning conversation and into the first lesson, but that it had been replaced by the coaching as helping frame by the debrief conversation in the first lesson cycle. Below, I share some of what happened in that first planning conversation, looking at both framing and opportunities that existed for Kamilah’s learning.

<table>
<thead>
<tr>
<th>Frame A</th>
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<th>Frame C</th>
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</thead>
<tbody>
<tr>
<td>Cycle 1</td>
<td>Cycle 2</td>
<td>Cycle 3</td>
</tr>
<tr>
<td>PC</td>
<td>L</td>
<td>DC</td>
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</tbody>
</table>

Figure 15: Kamilah’s coaching as evaluating and fixing teaching phase, Vignette 1
Vignette 1, Frame A: getting started.
Kamilah’s and Mia’s work together started off friendly, if a little stiff. Table 34 contains an overview of their first planning conversation, which lasted about 22 minutes, along with some comments related to frames. (Comments about frames include those both about evidence of Frame A in Kamilah’s talk, as well as talk from both Kamilah and Mia that might function to frame or reframe coaching. Points related to the latter are a more central focus of Section 6.3.) In the table, paraphrased talk is indicated with italics, while Kamilah’s and Mia’s own words are surrounded by quotations. The left column of the table contains line numbers that correspond to lines of transcript included in Appendix E.

Table 34. Summary of first Kamilah-Mia planning conversation

<table>
<thead>
<tr>
<th>Lines</th>
<th>Kamilah</th>
<th>Mia</th>
<th>Comments about Frames</th>
</tr>
</thead>
<tbody>
<tr>
<td>94-111</td>
<td>Kamilah responds by describing the functioning of the student groups in her class, some of which she is “struggling with a lot” and some of which are “so awesome.” After describing one group of 5 students, she asks about how to group students when 4 students per group isn’t possible. “Should I have two groups of 3 or should I have one group of 5?”</td>
<td>Mia asks about what’s going on and what “you’re hoping for help thinking about.”</td>
<td>Mia frames coaching as “help thinking about” things related to teaching.</td>
</tr>
<tr>
<td>112-143</td>
<td>Kamilah responds by describing the functioning of the student groups in her class, some of which she is “struggling with a lot” and some of which are “so awesome.” After describing one group of 5 students, she asks about how to group students when 4 students per group isn’t possible. “Should I have two groups of 3 or should I have one group of 5?”</td>
<td>Mia asks about what’s going on and what “you’re hoping for help thinking about.”</td>
<td>Mia frames teaching as contingent (“let’s watch and see”), contesting the framing of teaching as something with right answers.</td>
</tr>
<tr>
<td>150-161</td>
<td>“I can watch and see, I don't think there's a right answer for that… so let’s watch and see.” She asks Kamilah to say more about a group she had said she was struggling with.</td>
<td>“I can watch and see, I don't think there's a right answer for that… so let’s watch and see.” She asks Kamilah to say more about a group she had said she was struggling with.</td>
<td>Mia frames teaching as contingent (“let’s watch and see”), contesting the framing of teaching as something with right answers.</td>
</tr>
<tr>
<td>203-271</td>
<td>“I'm just really struggling with them being able to communicate with each other, and I feel like they get really stuck because they're not talking to each other.”</td>
<td>“I'm just really struggling with them being able to communicate with each other, and I feel like they get really stuck because they're not talking to each other.”</td>
<td>Kamilah frames her struggle as relating to something students are not doing that they should be. This is something to fix.</td>
</tr>
<tr>
<td>272</td>
<td>Kamilah describes the lesson she had planned, which drew from the district curriculum and dealt with scientific notation. She explains how the lesson will unfold, beginning with a video, then a “Do Now” activity asking students to identify patterns related to powers of 10, and then some problems from the curriculum to be done in groups.</td>
<td>She acknowledges this and says, “Let’s talk about the lesson.”</td>
<td>Mia shifts talk toward the lesson, which Kamilah is responsible for.</td>
</tr>
</tbody>
</table>

168
<table>
<thead>
<tr>
<th>Lines</th>
<th>Kamilah</th>
<th>Mia</th>
<th>Comments about Frames</th>
</tr>
</thead>
<tbody>
<tr>
<td>296-302</td>
<td>Mia asks about what math groups might talk about in the lesson. “Through his lesson as we look at it maybe tell me what is there for them to talk about. Like where would you hope there would be talk? and what do you imagine them talking about?”</td>
<td>Mia connects students’ communication, which Kamilah was concerned about, with features of the lesson, framing the issue as actionable, and in the domain of teacher responsibility.</td>
<td></td>
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<tr>
<td>303-375</td>
<td>Kamilah says, “right” and continues to describe the lesson, including a planned routine that she learned from the CI course called “checkpoints.” Responding to prompting from Mia, she describes how these have been going in her class so far. She ends this with, “Would you recommend me like, before they start getting into group work, like getting how to like do this kind of scientific notation or have them kind of discover it first?”</td>
<td>Kamilah ends this talk with the presentation of two different conceptualizations of teaching, asking Mia which she would recommend. Kamilah’s notions about teaching seem to be in flux, and she is orienting to Mia as “expert” who can recommend.</td>
<td></td>
</tr>
<tr>
<td>376-458</td>
<td>“Great question.” Mia talks about the content of the lesson, saying “it’s hard for me to find the conceptual teeth in it” and explaining that scientific notation is a convention, but that she doesn’t see multiple ways for students to see it and that it doesn’t force students to talk to each other. She suggests that maybe to avoid exacerbating “status issues,” this lesson could be organized with students working in pairs.</td>
<td>Mia acknowledges the question, but does not answer it. She instead connects back to the “conceptual teeth,” framing teaching as providing students opportunities to grapple with mathematical concepts together.</td>
<td></td>
</tr>
<tr>
<td>509-513</td>
<td>Kamilah agrees and asks, “Do you still imagine having checkpoints after they work with pairs?”</td>
<td>Again, Kamilah asks for Mia’s expert advice.</td>
<td></td>
</tr>
<tr>
<td>514-565</td>
<td>Mia suggests that K might be “run ragged” trying to do checkpoints with pairs and describes a similar structure that will avoid this.</td>
<td>Mia offers advice.</td>
<td></td>
</tr>
<tr>
<td>567</td>
<td>Kamilah agrees.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lines</td>
<td>Kamilah</td>
<td>Mia</td>
<td>Comments about Frames</td>
</tr>
<tr>
<td>---------</td>
<td>-------------------------------------------------------------------------</td>
<td>----------------------------------------------------------------------</td>
<td>---------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>569-608</td>
<td>Mia suggests, “We could experiment tomorrow with some pair structure when it doesn’t feel very groupworthy, but we’re still maintaining this [classroom] culture of togetherness, like learning is not something you do all by yourself. You have to watch out for each other too.” She ends with “Does that feel good?”</td>
<td>Mia suggests that “we experiment…,” framing coaching as a “we” endeavor, and framing teaching as experimental. Her ending question implies that Kamilah has the power to decline Mia’s suggestions about how they work together.</td>
<td></td>
</tr>
<tr>
<td>609</td>
<td>Kamilah agrees throughout, ending with, “Yeah”</td>
<td></td>
<td>Kamilah follows Mia’s lead.</td>
</tr>
<tr>
<td>610-623</td>
<td>Mia describes that during the lesson she will pay attention to those students Kamilah has said she is concerned about and try to “make sense of what is happening for them so we can think together about what the [pair] structure is doing for them.” She asks, “Does that feel useful?”</td>
<td>Mia frames their work as involving thinking together about how teaching choices impact students. She ends with a question implying that coaching should “feel useful” to Kamilah.</td>
<td></td>
</tr>
<tr>
<td>624-627</td>
<td>Kamilah says, “Okay” and then asks, “Should [group] roles not be a part of [the lesson]?”</td>
<td>Kamilah asks another “should” question, continuing to position Mia as an expert with the right answers.</td>
<td></td>
</tr>
<tr>
<td>628-656</td>
<td>Kamilah says that roles might be less useful than focusing on norms and lists some norms that might matter.</td>
<td>Mia offers a suggestion.</td>
<td></td>
</tr>
<tr>
<td>657-670</td>
<td>“Yeah.” Then they are out of time and wrap up.</td>
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</table>

Kamilah taught the lesson as the two had discussed it. She started with the video, did a “Do Now” (a lesson-opening type of activity that was a common part of her teaching routines) and then arranged students into pairs to work on problems from the district curriculum. She launched the pair work portion of the lesson by explaining that students would work in pairs and by naming some norms for pair work.

Today, we are going to do pair work, a new structure. We’re not going to talk about specific [group] roles, but we’re remembering to take care of each other, right? So, instead of 4 people, it’s gonna be 2 people, same kind of dynamics, taking care of each other, talking to each other, communicating, checking in with each other, like “Do you get it? Are we clear? Can we move on?” All that stuff is still going on in pairs, but not with four people.

She went on to list the problem numbers students would work on and explain the structure that she would use instead of “checkpoints.”

In this first planning conversation, Kamilah’s participation suggests that the frame for coaching of *evaluating and fixing teaching* was primarily at play for her. She explained her mostly-planned lesson to Mia, which she would teach alone. She asked questions that implied both the presence of right answers about teaching and Mia’s possession of these answers. When
Mia offered ideas or suggestions, she listened, agreed, and took them up. By participating in these ways, she positioned Mia as an outside expert who held answers about teaching and herself as the sole classroom leader who was ready to perform for Mia’s evaluation.

This conversation and the lesson that followed may have contained some opportunities for Kamilah to learn, but there is no evidence of transformative teacher learning yet (although the conversation may have set the stage for learning that came later). Mia offered ways to think about some aspects of teaching, to which Kamilah was receptive, but there is not yet evidence of Kamilah engaging in her own new meaning making about these things. Her participation in the conversation was open and friendly, but did not involve deep inquiry or investigation.

Kamilah’s Frame B phase: from first debrief conversation through third lesson.

Beginning in the debrief conversation of the first coaching cycle, Kamilah’s participation with Mia suggests that coaching as helping was primarily at play for her. During these conversations, she asked for and accepted help from Mia with various aspects of her teaching. In the planning conversations in cycles 2 and 3, she told Mia about some aspects of her plans for lessons and asked for Mia’s input in shaping them. (This contrasts with her talk about lessons in the planning conversation in cycle 1, where she reported to Mia about a lesson plan that she had already completed.) Below, I share an episode from the planning conversation for Cycle 2. I then examine how the coaching as helping frame is consistent with Kamilah’s participation and I describe the opportunities for Kamilah’s learning that are evident.

<table>
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<tr>
<th>Frame A</th>
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<th>Frame C</th>
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<tbody>
<tr>
<td>Cycle 1</td>
<td>Cycle 2</td>
<td>Cycle 3</td>
</tr>
<tr>
<td>PC L DC</td>
<td>PC L DC</td>
<td>PC L DC</td>
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Figure 16. Kamilah’s coaching as helping phase, Vignette 2

Vignette 2, Frame B: Kamilah getting help.

The following episode took place during the planning conversation in Kamilah and Mia’s second coaching cycle. Earlier in the conversation, the two had identified that students often do not know what angles are (which is a more complex concept than many educators initially realize) and that this confusion can sometimes cause it to appear that students do not understand other ideas (such as congruence). (For an in-depth look at the conversation that led to these conclusions, see Section 4.3.2.) In response, they had decided to pose a “Do Now” prompt at the start of the next lesson asking students to articulate their understandings of what angles are. They were planning to then lead a whole class discussion in which students’ various ideas would be shared and combined into a more complete articulation of the concept of angle. Kamilah expressed concern about students’ participation in whole class discussions like the one they were planning:
Um, the other question I had is, um, I have a tough time with participation, I think I mentioned that before, my first period’s really quiet? So, what if, when we’re trying to have a discussion, what would be your suggestions on how to get [students] to share their responses and participate?

Here Kamilah is asking for “how to” suggestions, suggesting that it’s possible for Mia to tell her how to engage more effectively in teaching practices related to soliciting students’ oral participation. This is consistent with the coaching as helping frame, in which coaches as presumed to have mastery of the best practices of teaching.

Mia then asked a few clarifying questions and offered an idea:

I’m thinking about what the Do Now is going to be. It’s around angles, generating- okay yeah, what if they get to generate (3s pause) Okay, so they’re trying to explain what an angle is, right? So what if they do that on their own for a minute or two or something. And then they share with a partner, and then what you ask them to share out loud is something that they saw their partner do or something your partner said that you thought was cool or interesting or useful in some way.

Mia went on to say that this might create safety for students to share ideas out loud and then asked Kamilah, “Then do you think that would maybe get them to try it?” Kamilah agreed that this might work and that she would try it, which she did in the lesson. After students had worked on the Do Now, she asked them to talk in pairs and then invited them to share ideas from their partners. Various students shared ideas, and Kamilah, with some help from Mia, led a whole-class discussion combining these ideas.

During the planning conversation and during the lesson that followed, Kamilah asked for, received, and accepted help from Mia. She did not ask for a single ‘right’ way to do things (which would signal an evaluating frame). Rather, her participation was consistent with the notion that there were “good” teaching practices that Mia could help her with. By asking for this help, Kamilah positioned herself as a teacher working to improve her practice and as a novice in need of help. In turn, she offered Mia the position of helper and more expert teacher. These forms of participation and positions are consistent with coaching as helping. (See Table 33.)

Some opportunities for learning are evident in this episode as well. Mia offered Kamilah both new meaning-making (for example, about connections between a particular participation structure and students’ experiences of safety, about how the complexity of the concept of angle might point to important learning opportunities for students, etc.) and new ideas for teaching practices connected to that meaning-making (for example using a partner share structure, or leading a whole class discussion that combines students’ partial ideas about a mathematical concept). In accepting the positions offered by Kamilah, it is unclear whether Mia offered new or more productive ways to identify to Kamilah. Her use of “you” in “and then what you ask them to share” suggests that she is positioning Kamilah as the sole teacher and is not yet sharing the risk or responsibility of teaching, and may not yet be offering new sense of community or togetherness.

The fact that Kamilah took up the suggested practices and that the two debriefed around them, using them to make sense together of teaching suggests also that this episode was
productive for Kamilah’s ongoing learning as well as for her progress toward the coaching as learning together frame.

**Kamilah’s Frame C phase.**

Kamilah seemed to move through frame B toward Frame C relatively smoothly and the boundary between these phases is blurry. However, by the debrief conversation for Cycle 3, Kamilah’s and Mia’s participation suggests that learning together was most strongly at play for both of them. In the following episode, I describe some of what happened during their 4th and last coaching cycle, in which they were both operating strongly in coaching as learning together, and powerful teaching and learning was available. (The work the two did in this 4th cycle is described in detail in the opening of Chapter 4. The vignette is shared again here to support the analysis of framing.)

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<thead>
<tr>
<th>Frame A</th>
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<th>Frame C</th>
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<tbody>
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<td>PC</td>
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Figure 17. Kamilah’s coaching as learning together phase, vignette 3

**Vignette 3, Frame C: trying out challenging teacher together.**

Early in the planning conversation for the 4th coaching cycle, Kamilah told Mia that the next day’s lesson would be the second lesson in a series about supporting students to make sense of solving equations using a manipulative called “Algebra Tiles.” She explained that she was working in a whole class format and that she wanted to take up the issue of “how to make it more- less me up there and talking about how to do it and more them trying to figure out how to do it.” After some conversation, the two decided that they would try out an ambitious lesson structure that Kamilah had not previously attempted. Randomly selected students would be called to the front of the room to lead the class in figuring out a ‘legal move,’ or a manipulation to an equation that would not disrupt the equivalence of the expressions on either side of the equals sign. Students would be asked to come to the front of the room to propose and justify a manipulation to the equation or to ask the class for support in doing so. The students’ work at the front would be considered complete when the whole class agreed about how the equation might be manipulated and why that manipulation preserved the integrity of the equation.

This kind of lesson is challenging to teach, especially when it is the first time a classroom community has been structured in this way, as was the case in Kamilah’s class. It requires allowing students to be in control of the mathematics of the lesson, which in turn requires trusting that students are collectively capable of making sense of the mathematics without intervention from the teacher. It requires supporting students to take on roles and responsibilities that are new and scary as they are called on to share their partial or unsure thinking publicly and to trust the class to be both able and willing to support the development of their thinking in ways that will help them learn and that will strengthen or preserve their sense of belonging and acceptance in their community.
This high degree of challenge calls for the support of a co-learner and partner, someone with whom to share the challenges, risks, and rewards. In other words, taking on this kind of challenge is made possible, at least in part, by the coaching as learning together frame. And this challenging teaching together is rich in opportunities for learning. To teach this lesson, Kamilah needed to be a new kind of teacher, one who relinquishes control of mathematics to the students. She needed to see (and act on seeing) her students as mathematically smart, as capable of taking on challenging mathematics together, and support her students to see each other this way. During the lesson, she needed to be ready to support her students as they took on new roles and challenges and to do so in ways that did not undermine students or the classroom community. She needed to trust in Mia, her partner in teaching and learning, to do these things with her.

Kamilah was nervous about this lesson. She anticipated that students might “draw a blank” when they were on the spot. She understood that it would be her job to support them but also that in trying to do this, she might unintentionally undermine them. (For example, if she were to support a student by doing the thinking for her or by asking guiding questions, she would be sending a message to the class that she didn’t think the student was able to do the mathematics without that support.) When Mia asked Kamilah what she’d like her to do during the lesson, Kamilah asked her to be ready to join in if she got stuck supporting students who were leading the class:

So if I’m just- if they’re not like, making sure that they’re justifying clearly. Like if they need support in that, or like how can I support a kid- cuz I know like some kids I feel like are gonna have a blank stare and not know how to say it, so like helping me help them to come up with an idea.

Here Kamilah was asking for support, but rather than asking for suggestions about how to do something, as she did in the previous episode, she was inviting Mia to participate in teaching with her to navigate a challenge of the lesson. She was seeking help in ways that are consistent with framing coaching as learning together and framing teaching as complex, contingent, and worthy of collective practice.

Mia agreed to “play it by ear” and “join in” if it seemed useful. The lesson unfolded successfully. Students came to the front of the room and shared ideas, asked questions, got stuck, and fielded input and support from their classmates. Kamilah and Mia worked together to support them to do this, for example by working to establish the norm that students at the front of the room can and should ask for help when they need it. Kamilah and Mia provided only support for participation, but offered no mathematical ideas or feedback. Instead, they insisted that it was up to the students to determine as a class when they were satisfied with a mathematical idea that had been proposed.

As an example of students’ work at the front of the room, I describe the work of Emelyn. When she was called to the front, she told Mia and Kamilah that she did not know what to do. Mia thanked her and asked the class to support her: “She doesn’t know what to do. Awesome, let’s help her. Thank you for saying that. She wants help from her team.” Multiple students raised their hands and offered and justified ideas. Emelyn took up these ideas and manipulated the tiles, interpreting a ‘legal move’ suggested by other students. Multiple students participated in justifying this move, explaining that whatever you do to an equation must “keep it equal.”

After class was over, Mia rejoiced with Kamilah about the risky and challenging work the students had done and the possibilities that were created for the math classroom learning
community out of this work. For example, to start their conversation, Mia shared the following successes, with Kamilah smiling, nodding, and adding in “yeah!” throughout.

Yay! Yeah I mean, we just built so many awesome norms! I don’t know if you notice all of them, but I think very successfully [students] made mistakes in the front of the room and were fine, right? They went up there randomly and knew they would be fine. Like people were scared and then totally taken care of. They got fully supported by each other. Emelyn went up there and said, “I need help from my class,” was willing to say that and got help from her class, which is amazing right?

After Mia enumerated more successes, Kamilah commented on her take on the lesson:

I like it! I mean it just kind of reminded me of like how important it is to make sense of it, you know. I want to do the same thing with my other two classes and then continue this with my 6th [period]. So, yeah, and then I feel like we just need to-like when we come back from [Spring] break, like doing it all over again.

This is coaching that supports TTL. Kamilah, supported by Mia and by the learning together frame, took up a deeper challenge than she was prepared to take up on her own. As a result, she had opportunities to engage in multiple strands of learning. Her tentative trust in her students’ mathematical competence was reinforced, and she was supported in transformative meaning-making about what is possible for students’ equitable learning of rich mathematics. She tried out teaching practices that support the development of student-led and equitable mathematics classrooms. She discovered her own capacity for taking on challenging teaching and accepted new positioning as agent in her own learning of teaching. She experienced togetherness and collaboration with Mia.

These possibilities stayed with Kamilah as she continued in her development as a teacher. In an interview that took place in September 2016, a year and a half after her work with Mia ended, Kamilah talked about having “learned SO much” from Mia. When pressed for details, she talked about this coaching cycle:

Another thing I feel like I took away from working with [her] is umm when [she] had me have students come up to the board and even if they weren’t sure to come up, like that was so huge, so nice... just creating that uncertainty and making them feel comfortable about coming up and you know come up to the board and ask for help and you know, that was really cool.

While Mia’s learning is not the focus of analysis of this dissertation, it is notable that by engaging with Kamilah in planning for, enacting, and reflecting on teaching and making sense of student thinking and the lesson enactment, she was engaging in learning alongside Kamilah. Thus, this was truly the accomplishment of learning together about teaching.

In the following section, Heather’s frames for coaching during her work with Mia are examined and then conclusions are drawn across cases.
6.2.2 Two Phases of Heather’s Frames for Coaching

Heather’s and Mia’s work together started off friendly, but distinctly awkward. As was clear in Chapter 5, Heather often began their meetings by describing her general sense of chaos and overwhelm, and did not express that she was glad Mia was there. There was little indication that Mia’s visits occurred to her as any kind of reprieve or opportunity; rather they seemed to be one more demand on her time that she needed to juggle. Mia reported feeling unsure about what Heather wanted to learn from their work together and she struggled to find ways to interact with Heather that honored both Heather’s communicated overwhelm and what Mia understood to be the purpose of her coaching work: to support the development of ambitious and equitable math teaching and learning. (As was clear in Chapter 5, these challenges were related to an imbalance of power associated with the positions available to each of them.)

Things went on mostly like this until the two sat down together to begin their fourth and final coaching cycle of the year in March, when a pivotal conversation unfolded, which shifted the trajectory of their work. (Heather later referred to this as a “come to Jesus” conversation, and it was the object of a good deal of focus in Chapter 5.) At the beginning of the conversation, Mia asked about how Heather was doing, and Heather again communicated that she was overwhelmed. This time however, she went on to explain that she was confused about their coaching work and unsure about its purpose and whether it was required. She was unhappy and expressed a sense of powerlessness, saying that she had not been consulted about whether or how she wanted to engage in the coaching work.

Mia listened and thanked her for her honesty and explained that she, too, had felt confused and unsure about their shared purpose. She described being unsure about what Heather wanted to get out of their work. She explained that engaging in coaching was not required and that she and Heather were free to choose whatever they wanted to do together, which could range from ending their work together immediately to crafting ways to move forward that would feel more supportive for Heather. One of the options that Mia mentioned was that she could teach Heather’s class and Heather could take a break and watch. To Mia’s surprise, Heather expressed excitement about this offer and took her up on it enthusiastically. As this portion of the conversation wrapped up, Heather expressed relief and pleasure (“This sounds great! Like I feel like I just took a shower right now!”) and they went on to talk about the lesson that Mia would teach in Heather’s class the following day.

The planning conversation, lesson, and debrief conversation that followed were strikingly different from those that had come before, as was demonstrated in Chapter 5. Heather participated in these conversations with enthusiasm. She decided early in the planning conversation that she would teach the same lesson as Mia during her classes that Mia would not be attending. She asked Mia numerous questions about this lesson, taking careful notes and accompanying many of her questions and comments with deeper pedagogical reasoning than she had shared with Mia prior to this. Also, in the planning and especially in the debrief conversation, she attended more to issues of student status and equitable participation than she had in other coaching conversations. She expressed vulnerability and concerns about her own competence as a teacher for the first time, for example by telling Mia that she was concerned that she would be “as good at this as you are.”

Multiple lines of analysis demonstrate that the pivotal conversation shifted Heather’s and Mia’s coaching work and opened opportunities for Heather’s learning that had not previously been present. The analysis of framing reveals that it, and the work that followed, also decisively displaced the coaching as evaluating and fixing frame for Heather, inviting coaching as helping...
to become the primary frame at play for her. (It is unfortunate, for Heather and Mia and for the present analysis, that their work together ended when it did.)

<table>
<thead>
<tr>
<th>Frame A</th>
<th>Frame B</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>PC L DC</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>Cycle 3</td>
<td>Feb 9, 2015</td>
</tr>
<tr>
<td></td>
<td>PC L DC</td>
</tr>
</tbody>
</table>

Key:
- PC: Planning conversation
- L: Lesson
- DC: Debrief conversation
- Frame A: Evaluating and Fixing
- Frame B: Helping
- Frame C: Learning Together

Figure 18. Heather’s primary frames for coaching over time

**Heather’s frame A phase.**

For Heather, the *coaching as evaluating and fixing teaching* frame dominated her experience for more time than it had for Kamilah. The dynamics detailed in Chapter 5 suggest that this may have been, at least in part, because Mia’s efforts to offer more productive positions and dislodge this frame were hindered by unrecognized power issues. (For more about Mia’s work to offer more productive frames, see Section 6.3). In the following sections, I share two episodes that took place in the Frame A phase for Heather. In each episode, I examine both framing and the opportunities to learn that existed (or were notably missing) for Heather.

**Vignette 1, frame A: missing each other in the classroom.**

First, I share a vignette from the lesson that took place in Mia’s first visit to Heather’s classroom in September. This 50-second episode began shortly after Heather had launched the group work portion of a lesson about scientific notation. She had distributed task cards (papers containing mathematical tasks for groups). As is common in CI classrooms, she expected that students would read the task card aloud in their groups and share two task cards among four students.

Heather approached a group, leaned down, and spoke to them quietly. Mia approached from the other side of the room and stood a few feet away, watching and listening. One task card was positioned at the edge of the table, and Heather asked, “How is it working with the task card over there?” The student she was speaking to said something inaudible in the recording and she responded, “Okay, but how does everybody else get a chance to see it?” At this point, Mia...
moved toward the group and suggested a way that students might get started. As she spoke, she stepped next to Heather and leaned toward the group, putting one hand on the table. Heather said, “Oh, sorry” and stepped back to give Mia room. Mia continued talking with students in the group and Heather turned and walked away. Mia finished what she was saying to students and moved away from the table in the opposite direction from Heather saying, “I’m sorry.”

In this episode, it appears that Mia intended to offer an idea related to Heather’s interaction with this group of students (seemingly operating within Frame B and offering help), but Heather either did not orient to Mia’s actions as help or rejected the help. If we consider that Heather was operating within the **coaching as evaluating** frame (which was evident in her conversation with Mia prior to this visit), her decision to walk away is sensible and this episode is understandable. In that frame, in which Heather is responsible for teaching alone and Mia is responsible for observing, Mia’s intervention in the group can be read as either a confusing and off-putting violation or as evidence that Mia saw a problem so severe that it needed to be immediately remedied and could not wait until after class. If Heather saw no such problem, she might then be both offended and confused and take this as evidence that she and Mia do not share understandings of teaching.

Here there is a clear absence of opportunities for Heather’s learning. She and Mia did not end up with shared experiences about which they could make meaning. Heather got no access to new or different teaching practice. Her sense of her own competence as a teacher may have been threatened by the perceived implication that she had done something wrong that needed fixing. She and Mia accomplished no sense of togetherness or community. In fact, this episode may have been distancing and alienating, creating barriers to the development of meaningful community between them.

**Vignette 2, frame A: “You could try…”**

<table>
<thead>
<tr>
<th>Frame A</th>
<th>Frame B</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cycle 1</td>
<td>Cycle 1</td>
</tr>
<tr>
<td>PC</td>
<td>L</td>
</tr>
<tr>
<td>Cycle 2</td>
<td>Cycle 3</td>
</tr>
<tr>
<td>PC</td>
<td>L</td>
</tr>
<tr>
<td>Cycle 4</td>
<td>Cycle 4</td>
</tr>
<tr>
<td>Mar 23-24, 2015</td>
<td>PC</td>
</tr>
</tbody>
</table>

Figure 20. Heather’s **coaching as evaluating and fixing teaching** phase, Vignette 2

Mia’s and Heather’s second coaching cycle took place late in October, during the week of Halloween. Heather began this planning conversation by expressing a high degree of chaos and stress (“There’s just so much going on this week. You always come on like the most insane weeks. I don’t know why, but it’s like insane week and you show up.”). She went on to explain that due to a variety of recent events, including a police lock-down of the school that took place recently during 3rd period, she needed to teach 5 different lessons to her 5 math classes the next day. It was clear that Mia’s visit did not occur for Heather as an opportunity to receive support or to learn, but rather as an event that carried the expectation that she would do something more or different than she otherwise might, suggesting her perception of the need to “perform” teaching for Mia’s visit, consistent with coaching as **evaluating and fixing teaching**.
Heather showed Mia a math activity she was considering doing in 3rd period the next day. After a brief conversation in which Mia asked a few questions such as, “What do you hope [students] will be learning?” Heather said that 3rd period was behind so “we’re probably just gonna have to tell the kids that triangles are a hundred and eighty. I don’t know.” From there, an 11.5-minute conversation unfolded in which Heather and Mia each offered ideas for potential math activities for 3rd period, none of which seemed to resolve Heather’s indecision. She expressed tension between on the one hand not wanting to “take away from their learning” by telling students things they might otherwise discover and on the other hand needing to progress through material so students might be prepared for the district-wide assessment that was “rapidly approaching.” She also expressed a desire to realign her same grade-level classes so that she didn’t need to continue teaching so many different lessons each day.

Throughout this conversation, Heather shared some of her thinking, but did not ask for Mia’s or indicate a desire to negotiate her tentative ideas. Instead she reported to Mia what she did or did not know about what she would be doing the next day. Consistent with a coaching as evaluating frame, Heather positioned Mia as an outside observer and herself as the one solely responsible for the teaching that she will engage in, in part as a performance for Mia’s observation.

The following 2-minute sequence was part of this conversation. In it Mia offers a few ideas (positioning herself as a helper) and Heather rejects these ideas and continues thinking aloud, with coaching as evaluating continuing to be at play.

<table>
<thead>
<tr>
<th>Heather</th>
<th>Mia</th>
</tr>
</thead>
<tbody>
<tr>
<td>Do [students] need anything like a make-up day? Or an opportunity to redo anything? Or would that be a logistical nightmare?</td>
<td>U:::m</td>
</tr>
<tr>
<td>(4s) [You could] do study teams like for, for like content, like they could self-select into content-based groups to work on practicing stuff in advance of the [district assessments] or whatever assessments you’re doing, like, “if you feel like you need more work on bla bla bla, go to that side of the room.” you know that kind of thing?</td>
<td>(pause) They can’t really, but (laughs)</td>
</tr>
<tr>
<td>If you think they can handle that um,</td>
<td>They can’t?</td>
</tr>
<tr>
<td>(pause) They can’t really, but (laughs)</td>
<td>Yeah.</td>
</tr>
<tr>
<td>They’re so crazy. (holds her forehead, whispers)</td>
<td>Yeah.</td>
</tr>
<tr>
<td>Yeah, they’re a little crazy.</td>
<td>Yeah yeah yeah.</td>
</tr>
<tr>
<td>They’re- I mean they’re just, they’re a rowdy bunch? They’re high level, but they’re a rowdy bunch. they get off task really easy.</td>
<td>Um, I mean it’s fi- maybe, I mean- (3s, head in hand) u:::m (pause) I know, in this unit we’re kinda like (pause) we’re sort of skipping around too like we skipped dilations to come back to it</td>
</tr>
<tr>
<td>Mhm.</td>
<td>Mhm.</td>
</tr>
</tbody>
</table>
Here, despite multiple offers for help, Heather continued to participate in ways consistent with Frame A. She said what she did not yet know about her lesson, but did not ask for Mia’s help to figure it out. Instead, she reported about what would happen or what she was thinking and gave Mia information that she might need to make informed evaluations. She continued to position herself as the one solely responsible for the teaching and offer Mia the position of outside (and not particularly welcome) observer. When Mia offered ideas, Heather responded coolly or with reasons that those ideas wouldn’t work.

This episode, and others like it, is devoid of evidence of TTL. To the extent that teaching practice is up for conversation, it stays at the level of “what to teach,” with no deep considerations of pedagogy, student learning, or mathematics. There is no evidence that either Heather’s vision for teaching or her identity of competence are being supported productively. Her position remains fixed. There is no evidence that her relationship with Mia is yet progressing toward a shared vision of or responsibility for teaching.

**Heather’s Frame B phase.**

Frame A did finally give way for Heather to Frame B. This shift may have begun in Cycle 3, but it wasn’t until Cycle 4 that coaching as helping was clearly the primary frame at play for her. Below, I share a vignette that took place during the planning conversation in this fourth cycle, after the pivotal portion of the conversation was complete.

<table>
<thead>
<tr>
<th>Frame A</th>
<th>Frame B</th>
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<tbody>
<tr>
<td>Cycle 1</td>
<td>Cycle 4</td>
</tr>
<tr>
<td>P</td>
<td>P</td>
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<td>L</td>
<td>L</td>
</tr>
<tr>
<td>D</td>
<td>D</td>
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</tbody>
</table>

Figure 21. Heather’s coaching as helping phase, vignette 3
Vignette 3, frame B: “Can I write this down?”

In this episode, Heather and Mia were discussing the lesson they would both teach (in separate classes) the following day. Prior to the segment below, Mia had been describing the lesson, which she had developed and co-taught with Heather’s colleague Lori the previous day. The lesson centered on one problem, in which students are asked to find (and defend) the shortest path that touches each fence (side) of a rectangular school yard once. Mia had shared some things she and Lori had done to support students to be willing to attempt a problem that they would not immediately have known how to solve, which they predicted would be a new and scary experience for students. At the start of the following segment, Heather was looking at a page of writing that Mia had shown her (she calls this the “opening notes” below), consisting of items on a “multiple abilities” list that Mia had used to launch the lesson in Lori’s classroom (c.f. the “multiple abilities orientation” strategy from Cohen and Lotan).

<table>
<thead>
<tr>
<th>Heather</th>
<th>Mia</th>
</tr>
</thead>
<tbody>
<tr>
<td>Your like opening notes are pretty important for this task, wouldn’t you say?</td>
<td>Yeah.</td>
</tr>
<tr>
<td>I’m just wondering if I’m gonna be able to run it as well as you, like I don’t know if I’m gonna have the same- if I do it for all the classes, I- unless I- like I feel like this one (pointing to something in the coach’s notes) is like really key to like setting it up, how you are explaining it.</td>
<td>Well, I think there are a couple key aspects. I think there’s a lot of room to play- and it'll just unfold differently. I think the key aspects are (pause) whatever you think you need to say to [students] to get them to be willing to try things that they don’t already know.</td>
</tr>
<tr>
<td>Okay.</td>
<td>Okay.</td>
</tr>
<tr>
<td>Ok let me, can I write this down?</td>
<td>Yeah, of course.</td>
</tr>
<tr>
<td>(going to get a notebook) cause I’m gonna forget all this.</td>
<td>(arriving back to the table) OK, so to open this and launch it, (pause then laugh) I was like this notebook’s full! OK. (5s) OK, so launch, (3s) alright.</td>
</tr>
</tbody>
</table>

In this vignette and in the rest of the conversation and the debrief conversation that followed the lesson, Heather’s participation suggests that coaching as helping was now at play for her, and not coaching as evaluating. She asked new kinds of questions, took notes, and expressed enthusiasm and desire to hear Mia’s thoughts. Many of her questions were about how to teach this lesson and not yet about deep and connected pedagogical concerns (which would have suggested coaching as learning together). Throughout these conversations, Heather positioned herself as a learner and Mia as a resource, which had not happened before this. By expressing the desire to “write this down,” which she had not done before, Heather framed this coaching conversation as useful for her.
These new ways of participating for Heather, connected to new framing for coaching, opened new opportunities for her TTL. Her questions invited new conversations about pedagogy (new meaning-making about practices of teaching). For example, her question above about how the lesson should be launched and her claim about what matters in that launch opened opportunities to consider how a lesson launch can support students’ participation and learning. By telling Mia that she was concerned about her own capacity to teach this lesson, Heather invited identity negotiations into the coaching work, opening further opportunities for learning. While in such a short episode we cannot know how much Heather learned about launching lessons in general or whether her identity of competence shifted, this coaching work clearly invited new opportunities for TTL.

6.3 Learning to Learn Together: the Joint Accomplishment of Productive Framing

As frames for coaching are consequential for transformative teacher learning, with some frames more productive for such learning than others, it is useful to consider how productive framing of coaching can be accomplished. This is a sticky question that reveals a significant challenge for coaches. Any attempts to travel between frames, or to reframe coaching, are made within coaching interactions that are, themselves, governed by extant frames. For instance, if a coach attempts to reframe the coaching work away from evaluating and fixing teaching are understood through the lens of evaluating and fixing, how might any shift of frame get accomplished?

This section takes up this question. It begins with an examination of the coaching work that Mia employed that can be understood as work to reframe. It examines how Mia’s reframing moves are situated within interactions, in that they both rely on opportunities provided by those interactions, and are received in interactions that are situated within extant frames. After examining coaching moves that Mia employed to support reframing, the focus shifts to the accomplishment of productive reframing for Kamilah and Heather (from evaluating and fixing to helping and from helping to learning together), asking what supported this accomplishment, given the challenges outlined above. Analyses reveal teachers’ opportunities to participate in new ways were central in each instance of this accomplishment.

6.3.1 Mia’s Work to Support Productive Framing in Interactions with Teachers

Throughout her work with teachers, Mia engaged in interactional work to support productive framing of coaching. Table 35 contains categories and examples of framing moves that Mia made in her work with Kamilah and Heather. In the examples that follow, the situated nature of this work is examined.

<table>
<thead>
<tr>
<th>Name and content of category</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>New Roles and positions:</strong></td>
<td>• Teacher asks, “Should I have two groups of 3 [students] or 1 group of 5?” Coach says, “There’s no right answer. Let’s watch and see.” And then goes on to consider ways these grouping choices sometimes effect participation and learning.</td>
</tr>
<tr>
<td>• Stating that her role is not to evaluate or give answers.</td>
<td></td>
</tr>
<tr>
<td>• Claiming that there is no right answer.</td>
<td></td>
</tr>
<tr>
<td>• Inviting teachers to think together with her about teaching.</td>
<td></td>
</tr>
<tr>
<td>• Talking about what she does not yet know or mistakes she is making while learning.</td>
<td></td>
</tr>
<tr>
<td>Name and content of category</td>
<td>Examples</td>
</tr>
<tr>
<td>------------------------------</td>
<td>----------</td>
</tr>
</tbody>
</table>
| Coaching and teaching as experimental, playful, involving ongoing learning: | • After commenting on an algebra idea students were not yet making full sense of, “It doesn’t mean they’re not getting it sometimes and in some ways, but it means that there’s deepening to happen still.”
• After doing some teaching in a classroom, Mia says, “Well, thank you. That was a fun experiment.”
• “What are you thinking? What did you learn from students?” |
| • Talking about teaching moments that don’t yet work (including math content that students are not yet making sense of) as normal, part of teaching always, and as resources for moving forward. |
| • Talking about moments of coach teaching or of co-teaching as “play” or experimentation that will support collective learning. |

| Renegotiating risk and responsibility: | “… the discussion we did at the beginning where we wrote [students’] ideas on the board, if felt really powerful that the sense-making we did was connected back to their thinking.” |
| • Coach talks about responsibility for perceived successes, challenges, and teaching moments that don’t yet “work” as shared. This is often accomplished in part by the use of “we” or “us” in examination of teaching moments. |
| • Coach takes (and states taking) risks, trying things she isn’t sure will work. |
| • In a debrief, coach calls attention to something she had done in the lesson. “I want to be transparent about why I wanted to do that and what I was trying to do and I don’t think all of it was necessarily great work.” |
| • To Kamilah, “Heather helped me understand a thing that I think I was seeing in your class that we could be more clear about on the task card.” |
| • “You set up [group roles] awesomely. The kids totally got it. But then we didn’t use them. Like we didn’t go back to them to support what needed supporting.” |

| Teacher strengths: | I think that the extent to which you were so clear about what you wanted them learning and making sense of and what it needed to sound like was super powerful. (k deb 949) |
| • Coach names teachers’ strengths. |
| • Coach creates opportunities for teachers to name their own strengths. |

| Coaching to serve teacher: | “So how are you feeling about…”? |
| • Creating opportunities for teachers to state their questions or needs, and for coaching work to take up those questions or address those needs. |
| • Talking about serving teachers as a central purpose of coaching. |
| • “Where do we go from here? What do you want to do with it? What do you want to make sure students learn?” |
| • How are you feeling about participation issues? Is there anywhere there you want to talk about? |

| New forms of activity: | So let’s talk about the lesson more broadly, and then we can think about what are the opportunities there for him to do smart things? And we can watch him do smart things. |
| • Offering teaching activities to engage in together |
| • Proposing new coaching activities that support learning together. |
| • Talking about ways particular activities supported learning together. |
| • Cool, so we’ll go around together and listen to groups talk about it. So then we’ll be able to debrief around where students are with this [math] question. |
| • We can do as much thinking or planning about the lesson as you want. |
| • “We did a lot of thinking together in our planning about… We could reflect on that together. Like what did we try? What did we learn from what we tried?” |
Framing teaching as complex, situated, and worthy of collaborative investigation*

- Asking important questions about students, teaching, and mathematics.
- Relating considerations of teaching both to particularities of the classroom, the content, rich mathematical goals, and individual students, and to principles and visions for ambitious and equitable teaching.

This category is so closely tied with the ongoing meaning-making work that Mia did in her interactions with teachers (and thus captured in the Code Profiles shared in previous chapters), that I did not pull out separate examples. Mia does this kind of work frequently enough that coding for it was unnecessary. Basically, it’s happening all the time and often overlaps with framing work captured by other codes.

While these coaching moves are identified in the coach’s talk, they do not exist outside of the interactions in which they occur. Each time Mia made a “move” to reframe coaching, she acted on the opportunities to do so provided for her in the interactions. And each move that she made landed into the interaction; the ways it could be taken up or understood by Kamilah or Heather were mediated by the frames that governed that teacher’s experiences in these interactions.

In the following examples, I consider (1) the opportunities that were available for Mia to engage in reframing work, (2) Mia’s reframing work, and (3) ways in which that work was (or might have been) taken up or understood by the teacher in the interaction, given the extant frames. The first example took place during Heather and Mia’s first planning conversation (lines 385-415). In this example, previous conversations about logistics had wrapped up and Heather and Lynn (the apprentice coach who was present in these conversations) looked to Mia for what was to come next. Mia took this opportunity to frame the purpose of the coaching work.

<table>
<thead>
<tr>
<th>Heather</th>
<th>Mia</th>
</tr>
</thead>
<tbody>
<tr>
<td>Okay so um, so the- um what I would like to know from you is what- what you’re thinking you’d like my help with? How things are going? I think I know a little bit about the lesson- or I know a little about the curriculum, Mhm.</td>
<td>but I don’t know what you are planning to do with it or what your structure- Mmm. or what your lesson structure is. Or which problems you are doing or anything like that so we can uh talk about that. But I’d love to hear first sort of- what you’re wanting some help thinking about which can then tell me where to direct my focus when I’m here. Umm, what do I need help on? I think- (6s pause) Well, okay a couple things that are coming up. One is, well this is moving very slow, which I assumed was gonna to happen, but we get to a point where I’m like, do we move on with this lesson?</td>
</tr>
</tbody>
</table>

Heather went on to talk more about what has been happening in her class that leaves her unsure about when to “move on.”

In this interaction, Mia talked about coaching as being in service of Heather (coded as coaching to serve teacher), and framed her own decisions about foci as dependent on Heather’s
needs or desires for help. She asked what Heather might want help “thinking about,” which suggests a framing of teaching as complex and worthy of thinking together. Heather appears here to have accepted Mia’s invitation to ask for help, and there is no evidence in the short terms that she rejected Mia’s offered framing. However, as the earlier analyses made clear, Heather continued to experience the coaching as *evaluating and fixing* for quite some time.

To understand this, it is useful to take a broader view of the interaction within which Mia’s conscious framing work is embedded. Before this piece of conversation, the two had discussed video-taping and video permissions and had considered which class period Mia should watch. As discussed in Chapter 5, this decision-making process was rife with positioning and Mia’s deployment of power. It served to clarify that Mia would lead the coaching work, including determining the valued topics of conversation, and that Heather was expected to follow. So even before Mia made conscious attempts to offer productive frames, Frame A had been established and reinforced. Also, although Mia offered Frame B, nothing she offered contradicted Frame A. With Frame A mediating Heather’s understanding of Mia’s talk, it is reasonable that she heard Mia’s offer to “help” her in ways that were different than Mia intended. For instance, “what do you want help with?”, mediated through Frame A, could easily be heard as, “What are the deficits in your teaching that you want me to fix?” And her response to Mia in the segment above is consistent with this interpretation. Rather than asking Mia to help her accomplish something or make sense of something, she described an aspect of her teaching that wasn’t working.

In the following example, Mia did similar work with Kamilah to frame coaching explicitly, but into a different interactional context. At the time of this interaction, Kamilah was orienting to *coaching as helping*, and was thus differently set up to interpret Mia’s framing work. (plan 2, 121-167). Before this moment, Kamilah had been telling Mia about a recent meeting in which she and two other teachers had met with Arne Duncan, the current federal secretary of education. After wrapping up her story, she turned the conversation to her perception of its purpose, providing Mia with an opportunity for framing.

<table>
<thead>
<tr>
<th>Kamilah</th>
<th>Mia</th>
</tr>
</thead>
<tbody>
<tr>
<td>So, we’re basically just gonna talk about tomorrow’s plan, right?</td>
<td>Yeah, so what I was thinking we could talk about, um, and we can do- we can sort of go as deep as we want to,</td>
</tr>
<tr>
<td></td>
<td>Mhm.</td>
</tr>
<tr>
<td></td>
<td>or be as quick as we are able to, What I’d like us to get to in this conversation is just get me oriented,</td>
</tr>
<tr>
<td></td>
<td>Okay.</td>
</tr>
<tr>
<td></td>
<td>and figure out how to set us up for whatever we want to be able to talk about in the debrief, like, where do you want my eyes? what are you hoping to be thinking about together?</td>
</tr>
<tr>
<td></td>
<td>Okay.</td>
</tr>
<tr>
<td></td>
<td>Cuz that will help me figure out how to plug in in the class or how to observe, or what I’m looking at,</td>
</tr>
<tr>
<td></td>
<td>Yeah.</td>
</tr>
<tr>
<td></td>
<td>And sort of, taking note of so that I’m armed to help you with what you want help with.</td>
</tr>
<tr>
<td></td>
<td>Yeah.</td>
</tr>
<tr>
<td></td>
<td>Um, so that, that’s sort of the basics. The fundamental,</td>
</tr>
<tr>
<td></td>
<td>Yeah.</td>
</tr>
</tbody>
</table>
Kamilah went on from here to describe the challenges she was having with Manuel and to ask Mia to help her figure out how to support him. This conversation that developed out of this turned out to be important for Kamilah, one that she described in an interview more than two years later as particularly powerful for her learning.

In the segment of interaction above, Mia took up Kamilah’s offer to set up the interaction with explicit framing work. She pointed to the importance of Kamilah’s needs and questions (coded in the category coaching to serve teacher), stated the intention of thinking together (coded as new roles and positions), connected this to what the coach would do in the classroom (coded as activity), suggested something she and Kamilah could do together (coded as activity), and talked about the possibility of playing with the lesson together (coded as coaching and teaching as experimental, playful, involving ongoing learning).

To understand the probable impact of this framing work, it is useful to consider the extant frames that governed Kamilah’s understanding of what was taking place. Kamilah was already orienting to Mia’s coaching as helping, having moved away from her previous understanding of Mia’s coaching as evaluative. Thus, it makes sense that Mia’s work to frame the interaction as in service of Kamilah was understood as such, and Kamilah asked for help with a substantive challenge, which ended up being fruitful for her learning.

These examples demonstrate that Mia’s work on framing is best understood not as a list of framing moves, but as ongoing, cumulative, and situated interactional work. Mia found opportunities to frame the coaching work, did so in various ways, and her work was received in ways that were mediated by extant frames. All of this leaves us with a sticky question: if a coach’s framing work is taken up in ways that are mediated by current frames, it does not seem likely that this kind of framing work would be enough to accomplish productive reframing. So how does this accomplishment happen? The following section investigates this question by examining the productive reframing that did happen in the Kamilah-Mia and Heather-Mia cases.

### 6.3.2 How Were Productive Framing Transitions Accomplished?

First I investigate the work that contributed to dislodging the unproductive coaching as evaluating frame for both Kamilah and Heather. Then I consider how coaching as learning together was accomplished in the Kamilah-Mia case. Across these instances of reframing, I find that teachers moving into new frames can productively be understood as learning about coaching or learning about learning together about teaching. Seeing this as learning invites the consideration of the multiple, intersecting processes of meaning making, practice, identity, and community, but here in relation to learning about coach-teacher work itself.

The data show that in each case in which productive reframing was accomplished, teachers were given opportunities to make new meaning of coaching (largely through the
framing work described in the previous section) and to participate in ways that were consistent with new frames. They were also given opportunities to take up positions and other aspects of identity consistent with new frames and to experience community, or togetherness, with the coach in new ways. In this section, I identify ways in which these processes played a part in the accomplishment of more productive coaching frames for teachers. An important finding is that opportunities to make new meaning, to identify in new ways, and to experience togetherness with the coach, all of which can be seen in the coaching work described in the previous section, seem to be insufficient without new ways to participate in learning about teaching with the coach. As such, this section focuses primarily on participation, finding that in each accomplishment of reframing, the teacher and Mia participated in new ways that were outside of the extant frame and that participation appears to be essential for these reframing accomplishments.

**Kamilah’s shift from coaching as evaluating and fixing to helping.**

Productive framing for Kamilah took place across the three components of the first coaching cycle: the planning conversation, during the lesson, and in the debrief conversation. Below, I consider opportunities to learn about coaching that she had in each of these settings, or opportunities to make new meaning, participate in new ways, identify newly in relation to the coach, and experience community with the coach.

This first planning conversation started out with some discussion of data collection logistics, such as permission forms and plans for video recording. Mia then asked Kamilah to describe “what’s going on in your class, what you’d like help thinking about” and “what you know about the plan” for the lesson that Mia would attend. Kamilah described some of how group work had been going and asked for some advice about how she should arrange students. She went on to describe her plans for the lesson and to ask for advice about her approach to the lesson. (For more detailed description of Kamilah’s talk in this conversation, see Section 4.3.1.)

Throughout this conversation, Mia engaged in several of the framing practices named in the previous section, offering Kamilah opportunities to understand coaching in new ways (meaning), to identify in new ways in relation to her coach (identity) and to see opportunities for togetherness with Mia (community). Mia offered more productive roles and positions 5 times; talked about coaching and/or teaching as experimental, playful and involving ongoing learning 3 times; and talked about the coaching work as in service of Kamilah 6 times. However, each of these attempts were made into Frame A. That is, Mia made moves to re-frame coaching, but the interpretations available to Kamilah of these moves was mediated by the frame currently at play. Thus, it is not surprising that in this conversation, Kamilah’s participation remained mostly consistent with the frame coaching as evaluating. We saw this in Section 6.2.1.

During the lesson in this first coaching cycle, Mia participated in ways that gave Kamilah access to new ways to understand the coaching work. She watched some portions of the lesson quietly and when students were working in pairs, she listened to them, took notes, and reported some of her observations back to Kamilah. In an interview that took place a week or so after the first coaching cycle, Kamilah said that during this lesson, it became clear to her that Mia wanted to help her students, and that this interpretation supported her to relax and worry less about Mia’s evaluations of her teaching.

I really appreciated like, it wasn’t just her just observing me and then like writing down notes and then like, “Oh this is how your lesson went,” but like she actually
participated in the lesson and like would jump in with conversations or like, she wasn’t there just to observe, she was there to support my kids and my students and to, if she could help them, she would do it, you know?

This suggests that Mia’s participation in Kamilah’s class provided opportunities for Kamilah to make new meaning of coaching.

Mia began the debrief conversation following this lesson by setting up a conversation protocol focused on Kamilah’s strengths and questions. (For a detailed description of this conversation, see Section 4.3.1.) This conversation, which began with some quiet time to think and takes notes, unfolded as follows: Kamilah took 1 minute, 47 seconds to talk about three strengths of hers that she thought had been apparent in the lesson. She then posed five questions, which focused mostly on what she “should” do in response to various challenges or how her lesson should have gone. Mia then took 7 minutes, 20 seconds to describe nine strengths of Kamilah’s that she had observed. This talk included the following example, which turned out to be referred to throughout their coaching work together:

<table>
<thead>
<tr>
<th>Kamilah</th>
<th>Mia</th>
</tr>
</thead>
<tbody>
<tr>
<td>You said something to a kid- as I was writing this- I can’t remember. Maybe you can, because I wish I could remember the details. What I wrote down was- and I remember this. You said to a kid- I don’t even remember who, “You made an awesome connection here.” And you helped the kid connect something they had done to the problem. To the task the way it was printed in a way- and I don’t remember. I wish I could (inaudible).</td>
<td><strong>Oh, I think it was right here (points).</strong></td>
</tr>
<tr>
<td><strong>Okay. And what was the connection?</strong></td>
<td>I think it was like um moving the decimal and looking at the exponent.</td>
</tr>
<tr>
<td>So, it was something- what I remember about it, at least my impression of it, was that it wasn’t a connection that you were expecting. Like you were listening to the kid,</td>
<td><strong>Oh right.</strong></td>
</tr>
<tr>
<td>and you heard the kid say this thing. And you recognized the math in what they said and you recognized how that math was connected to the task,</td>
<td>Right.</td>
</tr>
<tr>
<td>even though it wasn’t exactly what the task was asking for.</td>
<td><strong>Yeah.</strong></td>
</tr>
<tr>
<td>So, you were helping them to see how what they were doing was connected like to the formal task.</td>
<td><strong>Oh yeah.</strong></td>
</tr>
<tr>
<td><strong>Does that feel right?</strong></td>
<td>I wish I wrote- took better notes. Err. Grr (snaps).</td>
</tr>
<tr>
<td><strong>(laughs)</strong></td>
<td>Anyway, it was a moment like that I think. So, what it told me was that you were listening for what the kids were actually saying, not for like, “Are they right?”</td>
</tr>
<tr>
<td><strong>Yeah.</strong></td>
<td><strong>Or, “Are they doing the thing I’m expecting?”</strong></td>
</tr>
</tbody>
</table>
Kamilah | Mia
---|---
Yeah. | But you are listening to what they are actually doing, you were making sense of it, and then helping the kids to see how it made sense. Which is a super powerful pedagogical skill.
Mhm, okay (smiles).

Following the listing of strengths and questions, Mia directed the conversation to Kamilah’s questions, drawing connections between them and the strengths they had discussed. Largely in response to the conversation protocol that structured their talk, Kamilah and Mia participated in this conversation in ways that were inconsistent with the deficit-focused evaluating and fixing teaching frame. Notably absent from this conversation was any opportunity for Kamilah to ask or Mia to offer her evaluations of Kamilah’s teaching deficits. Kamilah named her own strengths and posed her own questions. She listened to the coach tell her about ways in which her current teaching practice was powerful for students and could productively be used to investigate her questions. None of these ways of participating is consistent with the evaluating and fixing teaching frame.

**Heather’s shift from coaching as evaluating and fixing to helping.**

The story of Heather’s shift out of coaching as evaluating and fixing teaching and into coaching as helping is different in that it required more time and more opportunities to participate in new ways. However, as with Kamilah, new forms of participation were essential for the eventual reframing accomplishment.

As she had with Kamilah, Mia did intentional reframing work in the first planning conversation. In class, she tried to offer help, but as we saw in Heather’s Vignette 1, her attempts fell flat. As was clear in the analyses of power in Chapter 5, Mia’s work to reframe productively was complicated by her talk that served to reify her and Heather’s distant positions and the uneven distribution of power between them. Also, data suggest that Mia may not have been aware of the extent to which the coaching as evaluating and fixing frame was mediating Heather’s experience, and may thus not have been prepared for her own participation to be understood through that frame. This is likely behind the moment described in Section 6.2.2, in which Mia entered Heather’s conversation with a group of students and Heather walked away.

Mia organized the first debrief conversation in the same way she had with Kamilah, setting up a protocol that focused on Heather’s teaching strengths and her questions about teaching. In doing so, she offered Heather ways to participate in the coaching conversation that were inconsistent with evaluating and fixing. Evidence suggests that participation in this conversation was powerful for Heather, even though it was insufficient to support a stable shift for her out of Frame A. Heather’s talk about this conversation in an interview a few weeks later reveals both the power of frames and the complexity of productive reframing. She recounted her recollection of what had happened in that coaching cycle: “We talked about what are my strengths and then some things that- to work on.” She went on to talk about the power of the strengths-based part of this conversation for her.

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17 As discussed in Chapter 5, naming teachers’ strengths is evaluating and can thus cue an evaluative frame. However, the practice of naming strengths is inconsistent with an evaluation frame that is focused on deficits, as is coaching as evaluating and fixing teaching.
It was really nice to talk about strengths, like as a teacher, getting complimented on anything is very rare. Um, middle schoolers definitely are not very complimentive. And it’s tough with everything, with administration, with, just getting people to appreciate what you do and all the hard work you put in doesn’t happen very often. So it was really nice for her- to hear some compliments about things that I’m doing.

However, she had trouble remembering the rest of the conversation. She was certain that Mia had made suggestions related to what she could improve in her teaching, but couldn’t remember what they were:

I can’t remember exactly what we talked about. It was a little while ago, but we did talk about the lesson. We did talk about- I can’t think off hand like what were her suggestions, but she definitely gave me some. (laughs)

What is interesting is that Mia made no such suggestions. The second part of the conversation protocol, following talk about Heather’s strengths, was about Heather’s own questions. However, in the deficit-focused coaching as evaluating and fixing frame, it is logical and expected for coaches to share their suggestions for teachers’ improvement. The fact that Heather was sure this had happened (although it hadn’t) attests to the strength of this frame for her.

Part of the strength of this frame for Heather was likely connected to Mia’s unintended coaching moves. We saw in Chapter 5 that before Mia asked Heather in this debrief conversation for her questions and before she said that those questions would guide their work, she had constrained the scope of acceptable topics of conversation. Thus, some of the power of this coaching move may have been reduced. Heather may have heard Mia saying that her questions matter and would guide their work, but she also had experienced previously that some of her questions were sidelined and named not central in their conversations. Evidence suggests that while participation in this strengths-based conversation was powerful for Heather, it was insufficient to dislodge the coaching as evaluating and fixing frame.

Throughout the second and third coaching cycles, Heather and Mia had few opportunities to participate in new ways that could have dislodged this frame. My analysis suggests also that Mia struggled to find opportunities to offer Heather new meanings about coaching or new ways to identify or connect. This is evident in Table 36 below.

Table 36. Mia’s framing work with Heather (frequency per hour)

<table>
<thead>
<tr>
<th></th>
<th>Frame A Cycle 1</th>
<th>Frame A Cycle 2</th>
<th>Frame A Cycle 3</th>
<th>Frame A Cycle 4</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Plan Debrief</td>
<td>Plan Debrief</td>
<td>Plan Debrief</td>
<td>Plan Debrief</td>
</tr>
<tr>
<td>New roles &amp; positions</td>
<td>9  2  4</td>
<td>3</td>
<td>7  4</td>
<td></td>
</tr>
<tr>
<td>Experimental / learning</td>
<td>8  6  4</td>
<td>9  9  5</td>
<td>13  20</td>
<td></td>
</tr>
<tr>
<td>Negotiating risk</td>
<td>2  2  2</td>
<td>2  2  2</td>
<td>4  5</td>
<td></td>
</tr>
<tr>
<td>Teacher strengths</td>
<td>1  25  1  2  7</td>
<td>1  3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Coach to serve teacher</td>
<td>9  3  8  5  2  2</td>
<td>20  5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>New activity</td>
<td>3  1  7</td>
<td>9</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>30 37 18</strong></td>
<td><strong>18 20 19</strong></td>
<td><strong>53 37</strong></td>
<td></td>
</tr>
</tbody>
</table>
What made a dramatic difference for Heather’s reframing took place in the pivotal conversation at the beginning of Cycle 4 and was a central focus of Chapter 5. In that conversation, Mia recognized and capitalized on new opportunities for productive framing. These opportunities were largely created by Heather, as she shared her discomfort and opened conversation about the purpose of the coaching work. By telling Mia that she was not happy and did not feel consulted, she brought the nature of the work into focus, where it was then available for negotiation. Mia took up these opportunities and stated her intention that coaching should be of service to Heather and that Heather should choose her own participation (or non-participation) in the work. Mia offered Heather new ways to understand the possibilities of the work of coaching, new ways to be positioned in that work with Mia (with agency), and new ways to understand their relationship.

This conversation also provided Heather with opportunities to participate in dramatically different ways. As part of the negotiation about what might happen moving forward, Mia presented various options to Heather about what the two could do together, including the opportunity for Heather to “take a break” while Mia taught her class. In other words, Mia invited Heather to participate in coaching work by talking about and watching teaching, rather than by teaching herself. Heather accepted this offer enthusiastically.

In this exchange, Heather and Mia together constructed powerful opportunities to participate in coaching in new ways, completely outside of coaching as evaluating and fixing teaching. Suddenly, Heather had opportunities to talk together with Mia about teaching without the threat of evaluation and to consider teaching from the position of observer. These new forms of participation in coaching rendered evaluation and fixing irrelevant and created rich opportunities for shifts in meaning, identity, and community related to the coaching work. And indeed, Heather did participate in new and more generative ways with this shift.

Kamilah’s shift from coaching as helping to learning together

By the end of the coaching work, Kamilah had shifted in to the ideal frame of coaching as learning together. In this section, I look at this framing accomplishment, again finding that opportunities Kamilah had to participate with Mia in new ways were powerful.

Table 37 shows the results of my coding for Mia’s reframing work in conversations with Kamilah. One thing that becomes clear is that through the period of time in which Kamilah was relating to coaching as helping (Frame B), Mia found many opportunities to offer new meanings, identities and togetherness to Kamilah.

| Table 37. Mia’s framing work with Kamilah (frequency per hour) |
|-----------------|-----------------|-----------------|-----------------|-----------------|
| Frame A | Frame B | Frame C |
| Cycle 1 | Cycle 2 | Cycle 3 | Cycle 4 |
| Plan | Debrief | Plan | Debrief | Plan | Debrief | Plan | Debrief |
| New roles & positions | 10 | 17 | 14 | 16 | 4 | 13 | 2 | 11 |
| Experimental / learning | 8 | 12 | 9 | 24 | 29 | 12 | 28 |
| Negotiating risk | | 18 | | | | 7 | 14 | 15 |
| Teacher strengths | 27 | 5 | 27 | 19 | 14 | 2 | 4 |
| Coach to serve teacher | 16 | 10 | 7 | 15 | 4 | 6 | 18 | 15 |
| New activity | 3 | 2 | 9 | 9 | 2 | 20 | 4 |
| Total | 39 | 68 | 45 | 109 | 26 | 72 | 68 | 77 |
A closer look at the coaching work reveals that many of these opportunities were connected to ways in which Kamilah and Mia participated together in activities related to teaching, or to their development of shared practice. Once Kamilah related to Mia as a source of meaningful support, she and Mia found numerous opportunities to participate productively in activities central to teaching. For instance, by Cycle 2, Kamilah was asking for Mia’s help in planning her lessons. During the lessons in Cycles 2 and 3, Mia participated in teaching. In the Cycle 2 lesson, she helped to lead a whole class discussion supporting the development of students’ ideas about angles, and in Cycle 3, she interacted with students during group work, asking them questions that both pushed and investigated their thinking about solutions to systems of equations in multiple representations.

Throughout this time, Mia and Kamilah were establishing shared practices. These shared practices supported Mia to do framing work and for this work to be meaningful for Kamilah. Also, these shared practices, along with the new ways being offered to Kamilah to identify as competent and to see herself as working together with Mia supported her to take on new and challenging teaching. This, in turn, supported her learning with Mia, and the eventual accomplishment of learning together as Kamilah’s primary frame for coaching. Once again, Kamilah’s and Mia’s participation (both in teaching and coaching) appears to be essential for the accomplishment of productive new frames.

It is interesting to notice, too, that the more productive the framing, the more opportunities seem to exist for continued productive framing. We see that when Kamilah and Mia took on challenging new teaching together (which was both facilitated by and in turn facilitated Frame C), powerful opportunities for further framing and learning became available. Earlier in this chapter, we examine the opportunities for learning that were available for Kamilah in Cycle 4, where she and Mia together supported students to take on full responsibility for the mathematical work of the class. Here it’s interesting to notice the opportunities for productive framing that came along with this learning, which we can see Mia capitalizing on in Table 37.

**Opportunities to reframe productively.**

The previous analyses reveal patterns that are useful for understanding how productive reframing of coaching can be accomplished. First, a number of challenges surface with respect to coaches’ potential work to offer new frames for coaching to teachers.

The dominant world of US Schooling, in which teaching and learning are situated, supports teachers to orient to Frame A, and this is where each teacher in this study started. And, as we saw in this section, Frame A provides few opportunities for reframing. Moreover, teachers’ understanding of coaches’ talk, including talk that contains attempts to reframe, is mediated by Frame A. But as Frame A is so unproductive for learning, coaches need to figure out how to work with teachers to leave it behind.

A promising finding across these cases (summarized in Table 38) is that each reframing accomplishment was supported by participation that is inconsistent with old frames. This suggests that coaches who wish to disrupt coaching as evaluating and fixing teaching might find ways to offer opportunities to teachers to participate—and participate themselves—in ways that contradict this frame.

These analyses also suggest that once Frame B is accomplished, the work of continued reframing is easier. In Frame B, shared practice is available, and participating together in teaching and sharing the associated risks provides rich opportunities for reframing work, including for finding new forms of participation.
Table 38. Participation outside of extant frames that was part of each reframing accomplishment.

<table>
<thead>
<tr>
<th>Framing Accomplishment</th>
<th>Participation Outside of Extant Frame</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heather: Frame A → B</td>
<td>• Mia teaches and Heather watches</td>
</tr>
<tr>
<td></td>
<td>• Heather leads the coaching conversations</td>
</tr>
<tr>
<td>Kamilah: Frame A → B</td>
<td>• Mia engages with students</td>
</tr>
<tr>
<td></td>
<td>• Mia and Kamilah talk about Kamilah’s teaching strengths</td>
</tr>
<tr>
<td></td>
<td>• Kamilah’s questions guide conversation</td>
</tr>
<tr>
<td>Kamilah: Frame B → C</td>
<td>• Mia and Kamilah teach together, participate jointly in experimenting and risk-taking in the classroom</td>
</tr>
</tbody>
</table>

6.4 Conclusions and Discussion

6.4.1 Conclusions

The area of central concern in this dissertation is understanding and supporting teacher learning that leads to ambitious and equitable math teaching. In previous chapters, I fleshed out a framework for this ambitious learning and uncovered ways in which coaching supported this learning differently in different cases. In this chapter, I set out to investigate why coaching that may have looked roughly “the same” to Mia or to an outside observer played out differently in these two focal cases. To do this, I examined teachers’ frames for coaching, the ways in which these frames shaped their opportunities for transformative teacher learning, and the ways in which more productive frames could be accomplished as coaches and teachers interact.

The analyses uncovered three central ideas, which I restate and develop below. First, different frames exist for teachers, with different affordances for TTL. Second, particular kinds of coaching work can support productive reframing for teachers. Third, coaching as learning together, the optimal frame for TTL, is furthest from “normal” for teachers, and thus most challenging to achieve. However, coaching as helping provided many opportunities for the coach to frame coaching productively and was relatively accessible. It can therefore be seen as a bridging frame, supporting teachers toward coaching as learning together. These ideas are encapsulated in Figure 9 and I elaborate on each of them below.
**Big idea 1: different frames exist for teachers and differently support TTL.**

Analyses revealed that teachers’ experiences with coaching were shaped by three distinct frames for coaching. Each was accompanied by frames for teaching and for teacher learning, and each frame for coaching had different affordances for TTL.

The first frame at play for Kamilah and Heather was *coaching as evaluating and fixing teaching*. This deficit-focused frame was a sensible default for them, as it is for teachers broadly, as it is tightly connected to their various experiences in schools and as the district CI project positioned Mia as an expert. (I return to this point later.) This frame for coaching was coupled with a conception of teaching as measurable implementation of best practices and of improving teaching as fixing teachers’ deficits in relation to these practices. This frame also carried a presumption that coaches hold “the answers” and are bestowed with the expertise to measure teaching; they can and should say what teachers need to work on and are thus the drivers of the work of coaching. Teachers’ questions and ideas are irrelevant.

This frame tightly constrained teachers’ opportunities for TTL. It offered roles and positions that maintained separation between teachers and coaches, limiting opportunities for shared sense making. It shaped sensible forms of participation in ways that left few opportunities for trying out challenging new teaching or for inquiring into questions of teaching that matter to teachers.

The next frame at play for Kamilah and Heather was *coaching as helping*. This frame differed from the first in that it was not focused on teachers’ deficits and teachers’ were presumed to have questions and ideas that matter for their practice. While coaches are no longer presumed to be in sole possession of expertise to evaluate teaching here, teaching is still
conceived of as a collection of “best practices.” However, teachers are positioned as having expertise that matters in the development of these practices.

When this frame was at play for Kamilah and Heather, they engaged in TTL. They had (and took) opportunities to inquire into questions of teaching that mattered to them. They had (and took) opportunities to make new meanings that matter for equitable teaching. They tried out (in Kamilah’s case) or observed (in Heather’s case) new classroom practices connected to their own goals for students. They had opportunities to negotiate their own identities as teachers, and to connect in new ways with their coach.

The final frame at play for Kamilah was coaching as learning together about teaching. This frame implied a new conception of teaching: as complex, contingent, and worthy of ongoing, collective investigation. The accompanying conception of improving teaching, then, is ongoing experimentation, sense-making and co-investigation. In this frame, Mia and Kamilah were positioned as co-learners, each with different experiences and expertise to bring to their collective learning. As co-learners, they tried out new teaching ideas together and reflected together on what they were learning as a result.

This frame supported Kamilah to try out more challenging teaching than she was prepared to take up alone. She and Mia together set up (and taught) a lesson in which students took on the responsibility for developing mathematical ideas together, relying on each other—and not on teachers—to decide when their ideas made sense and when they needed refuting or further development. Through this adventure into challenging teaching, Kamilah had opportunities to understand new and powerful possibilities for teaching. This experience influenced her teaching in lasting and powerful ways.

**Big idea 2: coaches can support productive reframing of coaching for teachers.**

Mia engaged in work with Kamilah and Heather that supported them to orient to new frames for coaching. Examination of the ways in which these framing transitions were supported (and unfolded) yields conclusions, both about possibilities for coaching and about the frames themselves, that may be useful broadly. Of course, our understanding of these dynamics would be enhanced by examination of more cases; however, there are conclusions suggested here that I contend are useful. First, when different frames were at play for teachers, Mia was differently able to find (and take up) opportunities to reframe productively. This suggests that frames differently afford opportunities to reframe productively. Second, while Mia’s reframing work was multifaceted, she could not accomplish teachers’ productive reframing alone. Teachers needed opportunities (which Mia provided or recognized in each case) to participate in new ways that were inconsistent with the old frame and consistent with the new ones. This idea is developed more in a moment.

**Frames differently afforded opportunities for Mia to support productive reframing.**

When coaching as evaluating and fixing teaching was the primary frame at play for Kamilah and Heather, it was challenging for Mia to find opportunities to frame coaching productively. Without some way “in” to the workings of the classroom, Mia was relatively restricted in her ability to share responsibility for the challenges of teaching or to contest the default positions of herself as a presumed expert and of the teacher as a novice. For example, recall the interaction between Heather and Mia during class in which Mia stepped into an interaction Heather was having with a group of students. To Mia’s surprise, Heather responded to her intervention (which may have been intended as an attempt to create shared practice) by
leaving. The interaction provided no opportunities for Mia to support Heather to understand their work together differently or for her to position herself as a learner alongside Heather.

When coaching as helping was the primary frame at play for teachers, Mia found more opportunities to reframe coaching toward learning together. When teachers were oriented to coaching as helping, Mia found opportunities to get into classroom activity (e.g. by doing some teaching alone or alongside the teacher), which then gave her opportunities to make her own ongoing learning explicit. This allowed her to contest the simplistic and limiting positions of coach as expert and teacher as novice and to frame teaching explicitly as complex and requiring ongoing learning. For example, when Kamilah asked for Mia’s help supporting Manuel, Mia used the ensuing conversation to propose a Do Now activity and accompanying whole class discussion to surface, connect, and build on students’ thinking about angles. She then participated with Kamilah during the lesson in surfacing students’ ideas and connecting them. This gave her opportunities in the debrief conversation that followed to talk reflectively about her own practice and about what she was still learning, and to position herself and Kamilah as together in the joint endeavors of teaching and learning about teaching.

**Productive framing transitions involved new ways for teachers to participate in coaching.**

Analyses across each of these transitions revealed that Mia’s work to offer new frames was insufficient without teachers’ own participation in the work of coaching in ways that were incompatible with the less productive frames. Teachers needed to participate with their coach in ways that supported practices, roles, and positions outside of the frame they were otherwise in. For example, Heather’s opportunity to watch Mia teach her class provided her with ways of participating (e.g. watching), roles (observer), and positions (from one being evaluated to one being consulted about teaching) that were outside of evaluating and fixing frame. Similarly, Kamilah’s shift to coaching as learning together was supported by opportunities she had to try out challenging teaching alongside Mia, taking up the role of co-teacher, and to think alongside Mia about their collective learning, taking the position of co-learner.

Noticing the importance of teachers’ participation in these processes reveals an interesting dilemma with implications for coaching. Teachers’ participation in coaching is constrained by the frames that are guiding their understanding of the coaching work. When they are guided by unproductive frames, their participation is unlikely to support the development of more productive ones. Here we see a mandate for coaching: coaches can create (or recognize and capitalize on) opportunities for teachers to participate in coaching in ways that would not otherwise occur naturally. We saw Mia do that by instituting a conversation protocol for debrief conversations with both teachers that disallowed participation consistent with Frame A and by teaching Heather’s class. It will be instructive to uncover other strategies coaches can use to offer teachers ways to participate in coaching that “break out” of unproductive frames.

**Big idea 3: each frame is situated differently with respect to US Schooling and Ambitious and Equitable Teaching and Learning and Frame B may act as a bridge to Frame C.**

Here I examine the progression of frames that were primary for Kamilah and Heather in their work with Mia, and consider the logic of this progression—from Frame A to B to C. I start by considering Frames A and C and the ways in which teachers’ experiences in cultural worlds support these two frames for coaching to be more and less logical or “normal.” I then examine
the transition between frames (the two arrows in Figure 9, from Frame A to B and then from Frame B to C), and consider what these transitions might reveal about the importance of Frame B for the eventual accomplishment of Frame C.

**Frame A is a logical starting point for American teachers.**

Kamilah and Heather both began their relationship with Mia in the default frame of *coaching as evaluating and fixing teaching*. I contend that this frame was default for them, as it is for many teachers interacting for the first time with a coach, because of its centrality in the world of *US Schooling*.

There was nothing I could find in Kamilah and Heather’s introduction to Mia that would have cued this frame, other than Mia carrying the title “coach.” In fact, there were experiences that the three shared that might have supported them to orient to coaching quite differently. Before Mia came to coach at Adams MS, she had facilitated a week-long workshop about CI, which Kamilah, Heather, and 22 other teachers attended. While her role as facilitator must have bestowed her with presumed expertise, Mia had repeatedly positioned herself in that course as learner, posing questions she did not know how to answer and naming her own “mistakes” or moments for learning publicly.

However, the frame *coaching as evaluating and fixing teaching* is logical in the world of *US Schooling*. Its general deficit focus on learners and its view of learning as fixing what is wrong or filling in what is missing are familiar to most American teachers. Before they were teachers, they were students themselves, steeped in US schools, which were organized to identify and “fix” knowledge problems. The world of *US Schooling* is situated within US society, which has a longstanding deficit view of teachers and simplistic “how to” view of teaching. As Heather said, teachers are rarely told what they do well. Narratives of “failing” children and schools connect to narratives of teachers who “don’t know how to teach.” It’s easy to understand teachers as unskilled when teaching is seen to be a relatively context-free collection of practices to be mastered. Schools are organized in ways that isolate teachers and presume their individual responsibility for what happens in their own classrooms. Many schools lack a sense of shared responsibility for student learning, although at Adams MS, Heather had been working toward undoing this a bit in the math department.

**Frame C is the most divergent from dominant culture and therefore logically the last.**

Frame C, which is consistent with the emerging world of *Ambitious and Equitable Teaching and Learning* and inconsistent with *US Schooling*. For this reason, it is logical that it would be the most foreign and least accessible for many American teachers. It is connected to conceptions of teaching and of learning that are rare and teachers rarely have experiences in schools that would support them to orient to this frame, or even to see it as possible. Frame C, and the world of Ambitions and Equitable Teaching and Learning, suggest an orientation to improvement, or learning, as building on strengths, rather than fixing deficits. They conceive of teachers as ongoing learners, continually working to respond to the complexities of teaching. They conceive of teaching, not as best practices that could look the same in any classroom, but as complex, contingent, and always developing in response to teachers’ learning and the particularities of students, their experiences, and the school environment. Frame C and the emerging world imply that teachers are not isolated and solely responsible for what happens in their classrooms, but that teaching should be organized with shared experimentation and shared responsibility. This is not how US schools are organized.
Given how far Frame C is from what is normal in *US Schooling*, we might expect that it would be difficult to achieve. However, the data suggest that this may not be the case, or that Frame C might be relatively accessible once Frame A has been disrupted and teachers are orienting to Frame B. (While Heather and Mia did not accomplish Frame C in the time they had together, their interactions in the final coaching cycle give no reason to believe that they could not have done so had they worked together longer.) This calls for a closer look at the transitions from Frame A into Frame B, and from Frame B into Frame C and consideration of the features of Frame B that allow it to act as a bridge between the polar frames of A and C.

**From A to B: from coaching as evaluating and fixing to helping.**

Supporting teachers to shift from *coaching as evaluating and fixing teaching* to *coaching as helping* involved dislodging some, but not all, elements of *coaching as evaluating and fixing teaching*. These two frames are different, but also share some aspects that may serve to make *coaching as helping* an accessible next step.

To accomplish this transition, Kamilah and Mia needed support to move away from the more limiting focus in Frame A on teachers’ deficits and from the assumption that coaches’ (and not teachers’) ideas are relevant to improving teaching. With both teachers, Mia worked to move conversations away from any potential focus on teachers’ deficits and toward their strengths and questions. This is most clear in the conversations protocol that she used in her first debrief conversation with each teacher, which created opportunities for discussion of both teachers’ strengths that had been evident in the lesson and of teachers’ own questions about teaching. Notably absent was any opportunity to talk about what Mia thought the teachers had done “wrong,” or could have done “better.”

However, the shift into *coaching as helping* required neither significant work to conceptualize teaching in new ways nor to create drastically new positions for coaches and teachers. In other words, it did not require movement between worlds. The shift from relating to teaching as *measurable implementation of best practices* (in Frame A) to a *collection of best practices* (in Frame B) is not a large one; it merely requires moving away from a focus on measurement or evaluation. Similarly, *coaching as helping* preserves the expert/novice positioning that is inherent in *coaching as evaluating and fixing teaching*, but with some more room for the (novice) teacher to have meaningful strengths and ideas to contribute; coaches are still presumed to have expertise to “help” teachers get better at the practices of teaching. The similarities in these frames, represented with brackets in Figure 9, may make Frame B a logical and accessible next step for teachers.

**From B to C: from coaching as helping to learning together.**

The transition that Kamilah experienced from *coaching as helping* to *coaching as learning together* was relatively smooth. And the reframing work that took place in the last Heather-Mia coaching cycle suggests that Heather could have taken up Frame C at some point had time allowed.\(^{18}\)

One reason that this framing transition looked surprisingly smooth may lie in the observation made in a previous section: that when teachers were orienting to *coaching as help*...\(^{18}\)

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\(^{18}\) While Frame C is positioned here as a terminal and ideal frame, reaching Frame C is not, nor should it be, the endpoint of Kamilah’s learning. The goal of coaching in this project, was to support TTL in ways that result in teachers becoming life-long learners about teaching.
helping, Mia found numerous opportunities to engage in productive framing and found ways to work actively toward coaching as learning together. In Frame B, Mia and each teacher established some shared practice that facilitated the accomplishment of “togetherness” in making sense of teaching. (In this study, teaching together appeared to be important for the establishment of shared practice. Further research will be necessary to determine how else shared practice might be established.)

Taken together, examination of these two transitions suggests that Frame B may function as a necessary (or at least helpful) bridge between the logical and unproductive Frame A and the “abnormal” and highly productive Frame C. Frame B, which sits within the world of US Schooling, seems to provide opportunities to do some of the work required to move away from this world and into the emerging world of Ambitious and Equitable Teaching and Learning.

6.4.2 Contributions

In the investigation into frames and their implications for Kamilah’s and Heather’s learning, this chapter has discovered that there are multiple levels of teacher learning that are consequential. First, there is the learning related to the target content. Here that is how teachers can learn toward ambitious and equitable teaching, which was a central focus of the previous two chapters. This chapter brings to light another level of teacher learning in coaching that needs attention: coming to frame the work of coaching in productive ways, or teachers’ learning to learn productively together with coaches.

Previous literature has shed light on similar phenomena in relation to different learning in different settings. Discourse scholars concerned with learning have shown us ways in which students need to learn to navigate the discursive environments of classrooms, and ways in which this level of learning is more and less challenging for students depending on the degrees of difference between their home environments and those of school (e.g. Erickson, 1996, 2004). Hand et al. (2012) demonstrated that frames matter for students’ math learning in classrooms, that the dominant frame (here “doing school”) is unproductive for ambitious math learning, and that because of its dominance, it takes cultural work to disrupt.

This chapter applies this notion to teachers’ learning with coaches and provides some suggestions for what some of that cultural work, at least in the coaching setting, might look like. Like Hand and colleagues, I find that the dominant frame (here “coaching as evaluating and fixing teaching”) is unproductive and difficult to disrupt. Investigating the “cultural work” of reframing, I discovered that teachers need opportunities to participate in activities that are outside of unproductive dominant frames that support them to orient to new, more productive ones. (It is important to note here that we can expect that cultural work in the context of a coach-teacher relationship might be different from cultural work in the context of professional development workshops, teacher workgroups, or classrooms.)

This investigation of frames in the context of coaching provides new ways to understand longstanding and long recognized challenges of coaching. In research related to instructional coaching, there has been clear understanding that (1) there’s a lot of “it depends” in coaching (or that coaching practices may “work” differently in different contexts); (2) relationships matter for powerful coaching; and (3) some teachers are “resistant” to coaching or have “beliefs” that make them unable to engage in particular learning. (See Chapter 1 for further elaboration of each of these points.)

Some of the “it depends” nature of coaching has been investigated, often with a focus on factors external to coach-teacher interactions, for example support from school administrators as
in (Coburn & Russell, 2008). But little has been done to uncover the “it-dependedness” within the ongoing interactional work of coaches and teachers. Why do coaching practices that appear to be the same play out so differently in the context of different coach-teacher relationships? Understanding the importance of frames lends a valuable insight to this question. Coaching practices that appear to be the same from the perspective of the coach, or of an outside observer, may be experienced differently by teachers who are relating to different frames for coaching.

Some coaching literature has come to the unsurprising conclusion that “relationships matter” in coaching and that good coaches are good at relationship-building with teachers. These findings are minimally useful for understanding the potential for supporting teacher learning through coaching. Human “relationships” are idiosyncratic, complex, and dependent on the personalities, compatibilities, and habits of the people involved.

This chapter suggests a more productive way to understand ways in which the interactions between a coach and teacher can come to develop in ways that increasingly support learning. Rather than suggesting that coaches should be good at “developing strong relationships,” we can suggest that coaches be good at supporting teachers (and themselves) to learn to learn together. They can consider ways in which they, and the teachers they work with, frame their interactions and work toward the development of frames that support ambitious learning together. This is something all coaches can work on and can consider in their interactions with any teacher, regardless of the personalities or habits of the individuals involved. It moves us away from an overly simplistic notion of “good” and “bad” coach-teacher relationships to more actionable understandings of what might need developing between coaches and teachers.

Similarly, these findings offer productive alternatives to simplistic notions of “good” and “bad” teachers as learners. All too often, supporters of teachers’ learning can explain away cases in which teacher learning is challenging or does not yet look successful by naming teachers as “resistant” or as having the wrong “beliefs.” When we decide that some teachers don’t learn because they are resistant or have the wrong beliefs, we set ourselves up to give up on teachers as learners, which is both morally dubious and counterproductive for the goal of supporting improved experiences for students. Considering issues of framing offers a more generative way to think about why learning is harder to support in some cases than in others. If we understand teachers as orienting to unproductive frames (and having good reasons for doing so), rather than as resistant, we can create actionable responses. We can consider how teachers might be supported to frame their learning environment differently, through new opportunities to make meaning about the learning environment and to participate in it in ways that preserve their agency, autonomy, and authorship.

6.4.3 Directions for Further Research

This chapter raises questions that could be investigated through further research. First, how common are the three frames for coaching identified here? Are there others? If other frames exist, what are the affordances of those other frames for ambitious and equitable teacher learning? And, in settings outside of coaching that are designed to support teacher learning, what frames can be at play? For example, what frames exist for math departments meetings? (See (Louie, 2016) for analysis of equity-focused teachers’ framing and opportunities to learn in their workplace interactions.)

How does the cultural work of reframing learning setting productively vary across contexts? For example, are there similarities (as well as the obvious differences) between the
“cultural work” I have examined here of reframing coaching and the work that might be required to support productive framing in professional development workshops or in math classrooms? Also, how might the “cultural work” of reframing coaching (or any other learning setting) be supported by the contexts within which it is embedded? (In her coaching work, Mia leaned heavily on “cultural work” that had been done in other settings related to the Complex Instruction professional development project, including the workshop she facilitate, district-wide facilitated planning time, video clubs, etc.)

This study also raises the question of why unproductive frames are differently difficult to disrupt for different teachers. How might teachers’ experiences in dominant school cultures relate to the ‘stickiness’ of dominant frames for them? For example, did Heather’s more extended time as a teacher in the dominant world contribute to the relative stickiness of this frame for her? Did her greater number of experiences being evaluated by administrators and other people with the title ‘coach’ support her to more easily relate to coaching as evaluating and fixing? Did her experiences as a middle class White student and then teacher in schools support her to question the dominant world less and thus have a harder time moving away from it? Did Kamilah’s experiences as a student and then teacher of color support her to more easily recognize and move away from some of the limiting elements of dominant culture, and therefore dominant frames? (The larger data corpus from which these two focal cases emerged support these tentative hypotheses. Heather was the only White teacher in the study and she had the most difficult time moving away from a coaching as evaluating and fixing teaching frame.) While we may never know this about these two teachers, these questions could be productively explored by new research.
Chapter 7
Conclusions

In this dissertation, I set out to investigate possibilities for teacher learning toward ambitious and equitable teaching through coaching. To do this, I aimed to articulate a rich picture of this kind of learning, and to investigate conditions of coaches’ and teachers’ work together that support (or fail to support) this learning. These investigations yielded a robust picture of (1) conditions that can support coaches and teachers to construct new, more ambitious and equitable worlds for themselves and for students; and (2) ways in which cultural frames and distribution of power can support or inhibit teachers’ learning in coaching and ways in which coaches might productively attend to these issues. Below, I summarize the contributions to this effort of each chapter. I follow that summary with commentary about implications of this dissertation for research about, and the practice of coaching.

7.1 Summary of Dissertation

Chapter 1 introduces the dissertation, describing its main findings and situating it with respect to current literature related to teachers’ learning in work-embedded interactions. It demonstrates that these bodies of research could benefit from a richer view of teacher learning toward ambitious and equitable teaching, and from methodological tools to support the study of such learning.

Chapter 2 works to contribute theoretically to our understandings of such learning by fleshing out a multi-strand framework for transformative teacher learning toward ambitious and equitable teaching (in short, TTL). This framework names four socially-negotiated and culturally-embedded learning processes—meaning, practice, identity, and community—and articulates ways in which each process takes place consistently with the dominant world of US Schooling or, alternatively, with the emerging world of ambitious and equitable teaching and learning. It names TTL as the shift in any number of processes from the dominant world toward the emerging one.

Chapter 3 details the comparative case study design of the dissertation, introduces focal teachers Kamilah and Heather and their coach Mia, and offers methods for the study of five strands of TTL: (1) negotiation of meaning about students, mathematics, teaching, and smartness; (2) participation in thinking and talking about teaching; (3) participation in classroom practice; (4) becoming a kind of teacher; and (5) positioning with respect to the coach.

Chapter 4 examines Kamilah’s TTL—a story of coming to notice, be impressed by, name, and build on her students’ strong mathematical thinking—and the coaching that supported it. It demonstrates ways in which multiple strands of TTL are interconnected and mutually supportive. It finds three coaching practices that together support all strands of Kamilah’s TTL: (1) naming and building from teachers’ strengths, (2) working from the explicitly-stated assumption that all students are smart in math, and (3) examining mathematical content to make sense of the ideas that students are and should be grappling with. Each of these practices is fleshed out, revealing ways in which their consistent, interconnected use over time provided opportunities for Kamilah’s TTL.

Chapter 5 investigates Heather’s TTL, which was found to be inhibited by issues of power, positioning, and agency. For much of her work with Mia, Heather was positioned a follower in the work of coaching, and as less expert than Mia. She experienced a lack of power...
and agency, and this arrangement introduced serious challenges to her opportunities for TTL. In a pivotal conversation, Heather and Mia took up these challenges, renegotiated agency and power in their work, and created new roles, positions, and ways of participating for themselves and each other. After this conversation, Heather’s engagement with Mia in thinking and talking about teaching was found to have shifted dramatically, and new opportunities for TTL were evident.

Chapter 6 looks across these two cases to consider ways in which teachers’ opportunities to learn were connected with frames for coaching that mediated their experiences with Mia. Three frames were found to be at play at various times for Kamilah and Heather. Both oriented to coaching as evaluating and fixing teaching at the beginning. They each experienced a shift to making sense of coaching as helping, Kamilah early in her work with Mia and Heather after the pivotal conversation examined in Chapter 5. Kamilah came eventually to orient to coaching as learning together about teaching. Coaching as evaluating and fixing teaching, which is provided by the dominant world of US Schooling, was found to be unproductive for TTL. Coaching as learning together about teaching, consistent with the emerging world of ambitious and equitable teaching and learning, was found to be the most productive for TTL. Coaching as helping was found to be productive for TTL, and seemed to act as a bridging frame from the readily available, but unproductive dominant frame to the least available, but most productive frame. Productive reframing was found to be a joint accomplishment, and in every case to involve new opportunities for teachers and coaches to participate that were inconsistent with extant, less productive frames.

7.2 Takeaways About Teacher Learning Toward Ambitious and Equitable Teaching

This dissertation proposes—and then works from—a view of teacher learning toward ambitious and equitable teaching as progress away from the dominant world of US Schooling toward the emerging world of Ambitious and Equitable Teaching and Learning. This view, and the analyses consistent with it, flesh out the goal that teachers come to think, do, be, and belong in the emerging world. Given the relationship between these worlds (the omnipresence of the dominant one, and the nascent nature of the emerging one), this movement is revealed as a sizeable accomplishment. While the strands of TTL articulate some of the nuance of this learning project, their intertwined and mutually constituting nature supports a holistic view of teacher learning toward ambitious and equitable teaching.

Kamilah’s story of coming to be “wowed” by her students provides an existence proof of this sort of ambitious transformation. Kamilah gave up deficit-focused perspectives, shifting to see her students as sensible, smart, and capable of making sense of challenging math together. She came to organize her classroom around this way of seeing, naming her students’ smartness and organizing lessons that relied upon it. Her vision of what is possible in teaching expanded to connect student processes (e.g. productive struggle) to the mathematics they should be given opportunities to grapple with. She came to inquire deeply into teaching together with Mia, taking risks that allowed her to dive into ambitious and equitable teaching.

This dissertation supports understanding of ways in which the culturally-situated nature of TTL bears on its processes. TTL was found to be mediated by frames, which are part and parcel of cultural worlds. Kamilah’s and Heather’s stories of learning were both mediated by ways in which they, supported by their cultural worlds—and by Mia—understood the endeavors of coaching and of teaching.
A rich tradition of scholarship has focused on revealing what is required from students as they navigate the interactional spaces designed to support their learning. For instance, Erickson (1996), in his study of a first-grade classroom, shows how 6-year-olds must learn to claim and hold the “floor,” navigating turn-taking norms and fending off “turn sharks” in order to be included in classroom discourse. This dissertation supports a parallel perspective with teachers at the center. It reveals some of what teachers must navigate to benefit from interactions that are designed to support their learning. It shows that they must navigate negotiations of power, agency, positioning, and frames to co-construct with coaches—or, we might assume, other PD providers—an interactional “space” that effectively supports their learning.

7.3 Takeaways About Coaching Toward Ambitious and Equitable Teaching

The perspectives and analyses in this dissertation support a view of coaching as a dual project of working to build and maintain emerging worlds at the same time as inviting and supporting teachers to leave behind dominant worlds and take up these emerging ones. Like the view of teacher learning outlined above, this supports our understanding of coaching toward ambitious and equitable teaching as a sizeable undertaking that is both complex and contingent. The endeavor of coaching is further complicated by its own situatedness in cultural worlds. Mia worked with Kamilah and Heather to construct the emerging world and to coach from its premises and at the same time, the dominant world was evident in her coaching (through, for example, her failure to frame Heather’s concerns and questions as sensible and an important part of their collective learning project).

This dissertation offers some ideas about coaching from the world of ambitious and equitable teaching and learning. It does this in part by articulating some of what coaches might do to support TTL. A view emerges of coaching from strengths, rather than deficits. This played out in Mia’s practices of presuming, and building coaching and teaching practice from, teachers’ and students’ strengths. Her ways of investigating mathematical content with teachers carried these presumptions; talk about content was intertwined with talk about students as smart math thinkers. (One could imagine interrogation of math content being very different, focusing for example on student “misconceptions.”) Interrogating content here supported teacher-coach conversations to relate to students as sensible, and their struggles as evidence of navigating complex terrain, rather than evidence of their deficits.

Building new worlds requires ongoing maintenance and contention with dominant worlds, which in turn requires continual, collective learning along multiple processes. Coaching from the ambitious and equitable world also means learning together about teaching. Part of coaching toward this new world is coaches’ own continual learning, about teachers and about teaching. In order to learn together with teachers, coaches must attend to “togetherness,” taking on the issues of frames, positioning, power, and agency that mediate the extent to which learning is available to teacher in teacher-coach interactions and relationships.

While this dissertation offers ideas for what coaches might do, it also suggests that coaching is about more than that. It reveals that coaching practices that a coach or an outside observer might see as “the same” in different teacher-coach relationships can be significantly different for teachers. Teachers’ opportunities to learn come out of their experiences, which do not follow directly from coaches’ actions, but are mediated by frames. Thus, a “best practices” approach to coaching is insufficient. While this dissertation articulates practices that have the
potential to support TTL, coaches must also learn to attend to the situated particularities of each teacher-coach relationship, attending to issues of power, positioning, voice, and agency.

7.4 Implications for Research

These perspectives reveal potential pitfalls of narrow foci for studies of teacher learning and of studies that ignore the culturally-situated nature of this learning. Research organized around narrow, or decontextualized foci (e.g. teachers learning a particular practice or gaining a particular kind of knowledge), underestimates teacher learning and misses opportunities to understand teachers as sensible and their actions as logical responses to their worlds. For instance, if Heather’s work with Mia had been examined for evidence only of shifting thinking or classroom practice, it would have been easy to conclude that she did not learn much and that the apparent failure of coaching was due to her resistance to change. The more holistic analyses here reveal that such conclusions would be incorrect. Heather was not resistant to change, but her learning processes were inhibited by missing agency and lack of power that resulted from the influence of dominant cultural worlds, both on her perceptions of coaching and on the coaching itself. This implies that research on teacher learning could benefit from studies that focus broadly on teachers’ learning. Such studies would support our understanding of ways in which teachers’ knowledge, practices, identities, and communities mutually constitute each other and are situated in the worlds that dominate their working lives.

This also implies that research might productively find ways to study teachers as participants in, rather than subjects of, their own learning. Broad views of learning might support researchers to examine processes of teachers’ learning in ways that center their experiences and seek out what is sensible in their successes and in their challenges. Doing this here supported the discovery of phenomena that yield a more generative understanding of ambitious teacher learning through coaching.

Given the ambitious nature of this kind of learning, and given what is uncovered about its culturally situated nature, design-based research that attends to culture and includes teachers in the design of their own learning spaces is a promising direction for future investigations into what it means to support these kinds of teacher learning. Researchers engaged in this kind of work have demonstrated ways in which these approaches can yield understandings of ways in which activity systems can be co-designed with participants to support the development of tools, practices, norms, and frames that can support ambitious learning for teachers and for communities of teachers (Cole & Engestrom, 1997; Gutierrez & Vossoughi, 2010).

The strategies developed in this study for capturing the complexity of teacher learning toward ambitious and equitable teaching, while well suited for case-study analyses, are too time-consuming to apply at larger scale. It will be important for researchers to develop tools that allow for the examination of complex and ambitious teacher learning in ways that can be employed in various research designs that capture a broader range of teachers’ experiences in coaching.

7.5 Implications for Coaching and the Preparation of Coaches

Conceiving of coaching as world-building carries implications for coaching and for the preparation and support of coaches. These are outlined below.
7.5.1 Implications for Coaching Toward Ambitious and Equitable Teaching

Building ambitious and equitable worlds with and for teachers is incompatible with common-place understanding of coaching as evaluating and fixing teachers and teaching practice. This suggests that rather than draw and share conclusions about which aspects of teachers’ practice need improvement, coaches might more productively look for teachers’ and students’ strengths that are related to ambitious and equitable teaching and learning, and find ways to connect those strengths with the development of mathematical and pedagogical ideas and investigations. Coaches could then engage with teachers in these investigations, developing teacher-coach relationships around collective learning and investigation.

To accomplish this engagement with teachers, coaches might seek out ways to frame and reframe coaching with teachers in ways that support learning together. This dissertation suggests some strategies for doing this. Coaches can talk explicitly and directly about their interactions with teachers as being about learning together and talk about teaching as complex, contingent, and worthy of mutual investigation. Coaches can attend to positioning, working to position themselves and teachers as partners in learning together about teaching. This positioning work takes place in talk (by offering and accepting productive positions) together with participation (acting in ways that suggest particular positions). It matters that talk and actions support each other in this, as we have seen in this dissertation ways in which both talk and action can be interpreted by teacher in ways that do not accomplish the intended positioning work. (Recall the incident described in Section 6.2.2, in which Mia interacted with a group of students, likely intending to position herself as with Heather in teaching. The frame of evaluating and fixing teaching made it sensible for Heather, however, to understand Mia’s action as an intrusion and indictment of her teaching.)

The case of Heather supports the awareness of coaches attending to teacher voice and agency, especially in teacher-coach relationships that occur as challenging, or in cases in which coaches may be tempted to understand teachers as resistant. This need raises tricky questions for coaching: how can coaches continue to support movement away from the dominant world toward a world of ambitious and equitable teaching while centering teachers’ own questions and concerns? In the case of Heather, we saw Mia failing to do the latter in service of the former, which did not serve well to support Heather’s learning.

Finally, this dissertation revealed the importance of coaches engaging with teachers—and offering teachers ways of engaging—that are inconsistent with extant, unproductive frames. In particular, coaches might consider ways of arranging coaching that disrupt the ubiquitous evaluating and fixing frame. Mia accomplished this through organizing conversations around teachers’ strengths, leaving no room for naming deficits that need fixing, resisting teachers’ answer-seeking questions about teaching, teaching with teachers, or, in the case of Heather, teaching for her, rendering Heather’s own teaching practice unavailable for evaluation.

7.5.2 Implications for Preparation and Support of Coaches and the Design of Coaching Programs

Making sense of the culturally-situated and ambitious aspects of coaching requires more than learning about already-established coaching practices. It requires learning about practices that are promising (such as the strengths-based practices outlined here), as well as ongoing innovation and adaptation. As community can support students to learn rich math and teachers to make sense together of complex and contingent teaching, so too might community support
coaches in doing this ambitious work. Indeed, as we learn from Holland et al. (2001), world-building is a collective endeavor. This suggests that coaches should not work in isolation, but should learn from and with other coaches about coaching. Coaching programs might therefore include dedicated time for coaches to be together, both in coaching with teachers, and in learning spaces designed for coaches to learn together. This suggests the design and support of coach learning communities as well as an observation and apprenticeship model for the training of new coaches. (The coaching program of which Mia was a part included both structures. Future research might productively investigate how these learning spaces support coaches in this program to develop collective practice.)

7.6 Ongoing Questions and Limitations of this Research

In Chapter 2, I commented on my own positionality as a researcher with respect this work, both in terms of my relationship to Whiteness and in terms of my relationship to the ideas and communities of Complex Instruction. It is appropriate here to acknowledge that research, like teaching and coaching, is situated in cultural worlds. As a researcher, my perspectives, participation, ways of being, and ways of belonging relate both to dominant worlds that perpetuate inequities and to emerging worlds of more equitable relations. Acknowledging the centrality of Whiteness in dominant worlds, and my own close relationship to Whiteness has implications for my ability, and the ability of my research, to support departure from inequity. In particular this acknowledgement implies that in order to engage productively in such a world-building project, I need community. Not only does world-building require collectivity, but my position in particular requires that I learn with and from those who are differently positioned than I am with respect to dominant worlds. The research presented in this dissertation reflects some of this sort of learning (with and from differently-positioned coaches, teachers, and program designers), as well as the limitations that result from what is yet left to learn.

This dissertation also raises questions about power, world-building, research, and Whiteness with respect to who gets to build new worlds. Whose voices are included in the collective activity of defining ambitious and equitable teaching or defining research perspectives and questions? I raise these questions here not to offer answers, but to acknowledge their importance. I can only hope to have opportunities to continue to investigate them collaboratively in the future and to learn from others who have done so.

A central aim of the research presented in this dissertation is to support my own and others’ ongoing investigation and learning into what it means to support the kinds of teacher learning necessary for the achievement of ambitious and equitable classrooms, as we currently understand them. We know, however, that achieving such classrooms is a matter of much more than teaching and teacher learning. Thus, my hope is that ideas that come out of this study will be included among many others in efforts that address these issues at multiple levels, including cross-classroom arrangements of students and teachers; school and district organization; relationships between classrooms, teachers, schools, and the communities they aim to serve; local, state and federal advocacy and policy; and arrangements that govern which voices are included in research and policy conversations about education.
References


Jilk, L. M. (2009). What is Complex Instruction?


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Appendix A: Personalized Interview Protocols for Kamilah and Heather

Focused Teacher Interview End – Kamilah

Hello and preamble:
Thanks for taking the time to meet with me again. I know you’re busy and I appreciate this a lot. Some of what I’ll ask you about today will overlap with stuff we’ve talked about before. Don’t worry about trying to remember anything you said before. I’m interested in your thinking now.

Development of teachers’ ideas about math teaching and learning
OK, I want to start by learning a little bit more about your ideas of great math teaching.
1. Describe to me your vision of great math instruction. (If necessary, probe for detail with: What are students doing? What is the teacher doing? What makes the instruction great?)
2. Were there other people or experiences in your life, past or present, have been influential in building your vision of good instruction?
3. Has your work with complex instruction, this year or in the past, influenced your vision of good instruction at all? If so, how?

Experiences with CI in their own practice
4. Can you tell me, what is complex instruction?
5. What are your experiences so far using CI in your own classroom? (If necessary probe for detail with: How is it hard? Useful? Powerful? Rewarding? What are you appreciating about it? How has applying it to your practice shifted how you think about it?)
6. **For Kamilah:** You talked in September about the importance you were seeing of supporting students to struggle, and coming to see struggle as a good thing. Has CI supported that to happen in your classroom? Explain.

Development of teaching practice
7. I want to get a sense for what you were like as a teacher before I met you. Would you walk me through a typical day in your classroom before this year? (If necessary, probe with: what happens right after the bell rings? Can you continue from there?)
8. Thanks. Now would you walk me through a typical day in your classroom now? How is it different? How is it the same?
9. If it’s not already been answered: So how would you say your teaching practice has shifted in the past year?

Perspectives on Coaching and on their own learning
10. In this research, we are interested in the relationships that coaches and teachers build that support their work together. Can you tell me about your relationship with Mia across the year? (How comfortable do you feel with her? Did that change over time?)
11. How did your work with your coach go for you throughout this year? Did it feel useful? How? Did you learn? What and how? Did it feel hard or frustrating? In what ways? (Listen to responses and ask probing questions here, pushing for specifics as much as possible that might help us connect their comments to our video data of the interactions. You can push with questions like: Can you remember any specific parts of your conversations with Mia that felt particularly helpful or challenging this year?)
12. **For Kamilah:** In September, you talked about wanting to get new strategies for getting your kids to talk about math. Has your work with Mia supported that? How?
13. As you worked with Mia this year, did new goals develop for you in relation to your practice? Tell me about that.

Things I want to follow up on for Kamilah, if they haven’t come up already and if there’s time:
• When we talked in September, you talked about struggling a bit with time in two ways: adjusting to lessons taking more time and also the time it takes to plan and prepare with your colleagues for teaching. How has that developed this year?

14. Is there anything else that you want to tell me that you think might help me understand your experiences with coaching or the complex instruction project in general?

Demographic stuff:
15. How old are you?
16. How many years have you been teaching?
17. How do you identify racially/ethnically?
18. Are there other aspects of your identity that are central for you?
19. Where and when did you do your pre-service training / get your credential?

Focused Teacher Interview End - Heather

Hello and preamble:
Thanks for taking the time to meet with me again. I know you’re busy and I appreciate this a lot. Some of what I’ll ask you about today will overlap with stuff we’ve talked about before. Don’t worry about trying to remember anything you said before. I’m interested in your thinking now.

Development of teachers’ ideas about math teaching and learning
OK, I want to start by learning a little bit more about your ideas of great math teaching.
1. Describe to me your vision of great math instruction. (If necessary, probe for detail with: What are students doing? What is the teacher doing? What makes the instruction great?)
2. What people or experiences in your life, past or present, have been influential in building this vision of good instruction?
3. Has your work with complex instruction, this year or in the past, influenced your vision of good instruction at all? If so, how?

Experiences with CI in their own practice
4. Can you tell me, what is complex instruction?
5. What are your experiences so far using CI in your own classroom? (If necessary probe for detail with: How is it hard? Useful? Powerful? Rewarding? What are you appreciating about it? How has applying it to your practice shifted how you think about it?)

Development of teaching practice
6. I want to get a sense for what you were like as a teacher before this school year. Would you walk me through a typical day in your classroom before this year? (If necessary, probe with: what happens right after the bell rings? Can you continue from there?)
7. Thanks. Now would you walk me through a typical day in your classroom now? How is it different? How is it the same?
8. If it’s not already been answered: So how would you say your teaching practice has shifted in the past year?
Perspectives on coaching and on their own learning

9. In this research, we are interested in the relationships that coaches and teachers build that support their work together. Can you tell me about your relationship with Mia across the year? (How comfortable do you feel with her? Did that change over time?)

10. How did your work with your coach go for you throughout this year? Did it feel useful? How? Did you learn? What and how? Did it feel hard or frustrating? In what ways? (Listen to responses and ask probing questions here, pushing for specifics as much as possible that might help us connect their comments to our video data of the interactions. You can push with questions like: Can you remember any specific parts of your conversations with Mia that felt particularly helpful or challenging this year?)

11. **If this hasn’t been answered already, for Heather:** When we talked in September, you talked about feeling overwhelmed with all the new stuff this year, like the new curriculum, and CI, and coaching, and your department chair work. As the school year progressed, how did coaching relate to that? Did it help? Further overwhelm you?

12. **For Heather:** You said in September that you felt like it was important for coaches to make clear to teachers that they are there to provide support, and not create more work. Did Mia make that clear to you? (If so, how?)

13. **For Heather:** You talked at the beginning of the year about wanting to become more comfortable with CI this year and have some things under your belt for next year. Did that happen for you? (If she talks about learning or improving, ask: What do you think supported you to learn what you described?)

14. As you worked with Mia this year, did new goals develop for you in relation to your practice? Tell me about that.

**If there’s more time and these things haven’t come up already:**

- Last time you talked about your experiences with two different [local new teacher support program] coaches and how one felt really supportive to you by checking in about how you were doing a lot. Did Mia do that too? Now that you’ve worked with her over the year, how did your experiences with her compare to your experiences with those two [local new teacher support program] coaches?
- When we talked in September, you said that it had been really nice to hear from Mia about your strengths as a teacher and what was working well. Did you hear more of that throughout the year? Did it continue to be helpful?

15. Is there anything else that you want to tell me that you think might help me understand your experiences with coaching or the complex instruction project in general?

Demographic stuff:

16. How old are you?

17. How many years have you been teaching?

18. How do you identify racially/ethnically?

19. Are there other aspects of your identity that are central for you?

20. Where and when did you do your pre-service training / get your credential?
### Appendix B: Transcript Conventions

Following are the transcript conventions adopted for this analysis. Note that in some cases, transcript included in the dissertation has been simplified (and deviates from these conventions) for readability.

<table>
<thead>
<tr>
<th>Meaning</th>
<th>Inscription Used</th>
<th>Example (if necessary)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pause less than three seconds</td>
<td>(.)</td>
<td></td>
</tr>
<tr>
<td>Pause of 3 seconds or more</td>
<td>Length of pause in seconds denoted in parentheses</td>
<td>(4s) or sometimes (4s pause)</td>
</tr>
<tr>
<td>Nonverbal act of significance</td>
<td>Act described in italics and surrounded by parentheses</td>
<td>(laughs)</td>
</tr>
<tr>
<td>Emphasis</td>
<td>Emphasized portion in all capitals</td>
<td>HE should have done it instead of me.</td>
</tr>
<tr>
<td>Intonation rising, as in the end of a question</td>
<td>Use of “?”</td>
<td></td>
</tr>
<tr>
<td>Intonation falling, as in the end of a sentence.</td>
<td>Use of “.”</td>
<td></td>
</tr>
<tr>
<td>Interruption or simultaneous talk</td>
<td>/ used to indicate point of interruption; for extended simultaneous talk, another / used to indicate the end of overlapping speech</td>
<td>Do you know/what I mean? /Yeah.</td>
</tr>
<tr>
<td>Elongation of a sound</td>
<td>::</td>
<td>Oh, tho:::se students.</td>
</tr>
<tr>
<td>Author’s insertion used to clarify meaning</td>
<td>Author’s insertion is surrounded by square brackets</td>
<td>[this class]</td>
</tr>
</tbody>
</table>
Appendix C: Code Book for Analysis of Meaning-Making

**Compliance (Yellow):**

This is talk about student compliance, and whether and how students are doing what they are supposed to do. Talk about students being on or off task falls into this category.

**Examples**
- This kid doesn’t do anything. He won’t even like, really struggles with even taking out the Do Now and getting started on the Do Now, comes in tardy like almost every day.
- one particular kid that’s a ton of work (Heather plan 1, 211)
- I’ll just deal with the circus in 4th [period]. We have to like go over the rules and stuff. (Heather plan 1, 244, 245)
- is that there is so much going on, that there’s so many behavioral things, that some of the groups that ARE good are like…(Heather plan 1, 429-431)
- like I don’t know how far to trust/cuz some- this group over here barely got through the first problem, and then his group was like almost all the way almost through the page (Heather plan 1, 447-451)
- and I had some groups that barely even check-pointed this. Like one group in particular was goofing around so much (Heather plan 1, 476-477)

**Examples that help us to clarify distinctions from other codes:**
- So I have to really push him to work with his group (Heather plan 1, 859-860). *We consider this to be about compliance and not the social organization of the classroom because it is a behavioral consideration, about whether or not the student is doing what is expected of him, which in this case is to work with his group.*

**Limiting Goals (orange):**

This is talk about goals that are consistent with the limiting aspects of traditional education. This includes goals driven by procedural math (that is not examined as such) and goals driven by issues of content, pacing, and standardized testing. It also includes talk about “getting through” math problems or math tasks as desirable.

**Examples**
- like the idea here was to try to get the fact that like when we have like bases, we are adding exponents (Heather Plan 1, 505-509)
- I am not as concerned, we decided, about this stuff. It’s more like commutative property, which is important, but I don’t think it was like necessary for this unit, but the scientific notation is really big (Heather Plan 1, 555-562)
- Like if you look at the Milestone Task, they need to know scientific notation (979-980)
- The advanced kids, if they’re pushing through this fast, like they went through this- actually pretty quickly. Like faster than I thought they would. Then I thought I could do… have them do volume (Heather plan 3, lines 608-615)
Example that helps us to clarify distinctions from other codes:
• but like not everyone’s done with the page. Like do I go on to the next lesson? (Heather Plan 1, 465-466). This is coded in this way not because of the questions, “do I go on?” but because the sentence before it shows us that the question of whether or not to move on is being driven by whether kids are done with the page and not by, for example, whether they have learned what we hoped they would learn.

**Exclusive Smartness (red)**
Talk about ability or smartness as global, binary, and/or hierarchical. For example, statements that some students are smart, implying that others are not.

Examples:
• I wouldn’t say they are like my smartest skilled class (Heather Plan 1, 676-677)
• Because Jaime is really strong. These two are EL and they’re slower… Chelsea is like medium (Heather Plan 1, 722-725)
• She is really good. Like she’s smart (Heather Plan 1, 792-794)

**Students’ Math Deficits (pink)**
Talk about what mathematics students do not or cannot do, do not or cannot understand, or what they are doing, have done, or might do incorrectly.

Examples:
• He’s really lost. He really is. (Kamilah Plan 2)
• He wasn’t able to understand like, that’s congruent to that. (Kamilah Plan 2)
• we got some struggles going on with exponents (Heather Plan 1, 497)
• they were all totally lost, all three of them (Heather Plan 1, 740-741)

Helpful non-example:
• And that is why I think that’s the space where your kids are at right now. It is they were still challenged by how to build and how to solve using the geometric representation. (Katy debrief 1, 287-294). This is not a focus on what kids cannot do or do not know, but where they are challenged right now, implying a continuum of learning.

**Social Organization of the Class for Learning (light blue):**
This is talk about the social organization of the classroom environment, which includes talk about group work, norms, safety and risk taking, students’ feeling about learning and working in the class, etc. General talk about social organization that does not relate to important equity concerns is NOT coded.

Examples:
• It’s really hard [for Tony] to communicate because [he] feels like no one else is conversing with him, so it’s really hard for him to have those [math] conversations. (Kamilah)
• [so sometimes when there is like kid drama that is really intense]-Sometimes it can kinda get in the way of our ability to learn together about what you really want to be learning about (Heather Plan 1, 223-224)
• Like how is group work happening? And how are the kids talking and thinking together about math (Heather Plan 1, 661-662)
• But they have amazing conver- They fight over problems, like tooth-and-nail, but they get really loud, but it is great conversation (Heather Plan 1, 686-690)
• Do you think they understand that that moment was cool? Like did they get that they learned more because they came together? (Heather Plan 1, 736-737)
• And you’re team captain. Like how is that building people up? (Heather Plan 1, 750-752)

Examples that help us clarify distinction from other codes:
• The reason why I am asking you what kids know and how they understand things is because that helps us then think about what might be mathematically interesting and worthwhile to have them discuss while they are taking on this objective. (Katy Plan 1, 120-128). Even though this is not a complete thought on its own, it’s a place where we tag that Jess is relating this to the social part of supporting discussion in the class. This coded line falls between talk about goals for student learning (dark blue). In this chunk, we are focusing on the word “discuss.” We don’t mean she stopped talking about goals and then started talking about social organization; we are saying she is connecting these ideas together.
• I mean the idea of giving them a shot of trying it / and honoring all the different answers that come up. This is about building a culture by honoring all the different answers that come up. It’s a culture in which an expansive notion of smartness is at the center. So, while it implies an inclusive notion of smartness (dark green) it’s more directly about culture building. This is signaled by “honoring.” It’s not about strong student thinking (light green) because he isn’t saying kids are going to have good ideas, but rather that their answers can be honored.

***Rich Goals (Dark Blue):***
Consideration of goals for strong student thinking and considering what content matters for student learning. This includes talk about rich goals for learning as well as talk about whether the goals at hand are rich or not.

Examples:
• I think what I heard you articulate was that the big idea of this lesson, or this part, was that they understand, that they could make sense of these multiplying exponential expressions. They know what they mean, so that they understand that you are adding exponents and the bases are the same because it just means you are counting how many of them you have and you have that many more. (Heather Plan 1, 578-582)

Examples that help us clarify distinctions from other codes:
• So that [scientific notation] doesn’t worry me too much. It’s like a thing that they will need to understand at some point. (Heather Plan 1, 609-611). This is Mia saying that scientific notation isn’t that important. She’s been saying that kids might have the big idea down fine and be missing a more detailed thing that isn’t a big idea.
• And to get that we do that, and we do that because it makes sense because of what the exponents mean (Heather Plan 1, 512-514). Here Mia is pushing goals talk into the area of what the exponents mean, going deeper.
• [In a conversation about letting students discover that without an agreed upon order of operations, the value of some numerical expressions is unclear.] You’re giving them the experience that the world experienced. (Katy Plan 1, 1159-1160). This is about a goal that students get something about why the order of operations matters, rather than just knowing the order itself.
• So I think tomorrow we are going to go back because I think it is really important. Because I- I know that Natalie, when they get to eighth grade or Lu really appreciate their students being very familiar with algebra tiles and they start doing more like solving actual equations and like you know. So I think it is really important that we- and it is also for them like to understand. They need to understand this basic foundation stuff before they can do like. (Katy debrief 1, 751-756). Here we code the latter part as rich goals, because it’s about what students need to understand. The earlier goal statement is about vertical articulation. This seems to us to be right in between pacing goals (which we consider to be limiting) and rich ones, so we don’t code it.

Smartness as Inclusive (dark green):
This is talk about smartness that is inclusive, an opposite to the exclusive smartness (red) code. It includes talk that explicitly states that all students are smart or that is dismantling limiting views of smartness.

Examples:
• How is he smart? (Kamilah Plan 2?)
• Since all students are smart…
• If we could find ways to make it really clear to all of them that this is not the only smart student in the group (Heather Plan 1, 934-936)

Examples that help us clarify:
• We could listen for kids, listen and watch for kids to do smart stuff together (Heather Plan 1, 960-961). This makes the assumption that all students have something smart to offer.

Smart Math (light green)
Students’ mathematical thinking (or doing) is being talked about as a resource or strength or as sensible. This code also includes talk about (1) creating opportunities for students to make sense
of rich and interesting mathematics, assuming that students are capable of doing this sense-making (see note below) and (2) recognizing or building on students’ strong thinking.

Examples:
- You helped the kid connect something they had done to the problem, to the task the way it was printed. (Kamilah debrief)
- As [students] get into [the task], they are going to produce stuff that you can do, you know, that amazing listening you know how to do, you will have stuff to listen to. (Kamilah Plan 2)
- Um, Part A was really great, because they were looking at patterns of exponents, and they had to like discover that. (Heather Plan 1, 483-486)
- I got a lot of really good explanations [from students]. (Heather Plan 1, 523)
- He really explained it in such a cool way. (Heather Plan 1, 761)
- I was like, “Oh my god, he made so many connections.” (Heather Plan 1, 813-814)
- And just saying you are all mathematically correct. (Katy Plan 1, 1146)

Note about coding for talk about creating opportunities for strong student thinking.
- Sometimes talk about creating opportunities includes explicit utterances assuming students’ capability for strong thinking (e.g. reasoning, thinking about, etc.). This kind of explicit talk is justification for this code. When the talk is missing this explicit talk, we do not code it, unless there are context cues around it that make the case that it’s assuming capability for strong thinking.
- The particular case of proposing the removal of ‘scaffolding’ is a central idea of creating ‘groupworthiness’ in Complex Instruction and it relies on us believing that students can figure stuff out without it. That particular kind of planning talk counts for this code, even without the explicit references above.

Examples that help us clarify here:
- They could very well have that like big idea very firmly and have this one wrong (Heather Plan 1, 599). Here Mia is helping to point out that there may have been important, powerful thinking from students despite what Heather was seeing as wrong.
- All of these answers in an ideal world could be correct. (Katy Plan 1, 1150). In the context of a conversation about teaching order of operations, Thien is explaining that students could be doing correct arithmetic with an expression, but in different orders. So even though they get a bunch of different answers, their arithmetic was correct. He’s acknowledging the correctness behind answers that may at first appear to be wrong, which is pointing out strong student thinking.
- But Okay, so Jimmy knows how to do a bunch of math, but Jimmy doesn’t yet know how to explain his ideas very clearly. (Katy debrief 1, 1317-1318). Because of the word ‘yet,’ this gets coded as strong thinking. The ‘yet’ implies that the strong thinking will come.

Rich Math (purple):
This is talk about mathematics of the following three kinds: (1) talk about math that is rich, connected, detailed, conceptual; (2) talk that is about whether or not the mathematics at hand is rich, connected, detailed, or conceptual with the idea that pushing for this type of mathematics is desirable; or (3) talk that is about what richness or complexity may be present in content that had not previously been related to as challenging or conceptual. This also includes talk relating to teachers or coaches trying to (or wanting to) learn more about mathematics conceptually.

Examples here:
- It’s hard for me to find the conceptual teeth in it because it’s just a convention…there’s not really multiple ways to think about things. It’s just like you get it or you don’t. (Kamilah)
- But like where IS the angle? There’s not a thing I can point to and say that’s the angle. We try to represent it in diagrams, but then it’s like, it’s that non-concreteness. (Kamilah Plan 2?)
- Because that’s just notation, that’s all it is. It’s not like an understanding thing (Heather Plan 1, 629-631)
- So it’s like an order of operations and notation issue, and not the idea of exponents (Heather Plan 1, 603-607)

Non-Example:
- I think it was really cool for students to see what the power of ten was… (Kamilah debrief 1, line 90). Not purple because it is only about what students are seeing. It’s not about the math being cool only, it’s about the kids SEEING that the math is cool, so they are acknowledging strong student thinking: in this context, “see” is a synonym for understanding or experiencing the math. Because it is past tense, she means that they already did see this, not so much what they might understand.
Appendix D: Moments of Action for *Threads of Practice* Analysis

### Kamilah Cycle 1

<table>
<thead>
<tr>
<th>Event</th>
<th>Analysis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mia asks, “what can I help with?”</td>
<td></td>
</tr>
<tr>
<td>Kamilah expresses struggles getting kids to talk with each other about math.</td>
<td></td>
</tr>
<tr>
<td>Conversation around this focuses on the nature of the math task, and whether it provides students with important stuff to talk about.</td>
<td></td>
</tr>
<tr>
<td>Mia suggests grouping students in pairs, since there isn’t much for groups to talk about.</td>
<td>A</td>
</tr>
<tr>
<td>Kamilah agrees.</td>
<td>A</td>
</tr>
<tr>
<td>Mia suggests a practice of random pair check ins to support students to be ready to explain their pair’s thinking.</td>
<td>B</td>
</tr>
<tr>
<td>Kamilah agrees.</td>
<td>B</td>
</tr>
<tr>
<td>Kamilah asks if she should use group roles with the pairs.</td>
<td>C</td>
</tr>
<tr>
<td>Mia says no, but launch with clear expectations for pair work.</td>
<td>C</td>
</tr>
<tr>
<td>Kamilah organizes students into pairs and launches problem numbers (no mention of learning here)</td>
<td>A</td>
</tr>
<tr>
<td>Kamilah launches with expectations for pair work (take care of each other, check in).</td>
<td>C</td>
</tr>
<tr>
<td>Kamilah announces random check ins.</td>
<td>B</td>
</tr>
<tr>
<td>Mia suggests that Kamilah (1) tell students why they are doing these problems and (2) clarify expectations for pair work.</td>
<td>C</td>
</tr>
<tr>
<td>Kamilah stops the class and clarifies (important because it’s connected to science, I’m gonna check in in a few minutes, so make sure we’re getting stuff done); this feels distinctly awkward.</td>
<td>C</td>
</tr>
<tr>
<td>Kamilah checks in with groups.</td>
<td>B</td>
</tr>
<tr>
<td>K asks Mia about what she should be doing during random check ins.</td>
<td>B</td>
</tr>
<tr>
<td>K asks when to use pairs and when to use groups.</td>
<td>A</td>
</tr>
<tr>
<td><strong>Mia named strengths of K’s related to getting students to talk about math:</strong></td>
<td></td>
</tr>
<tr>
<td><em>Launched with clear norms promoting collective responsibility: “we take care of each other”</em></td>
<td>C</td>
</tr>
<tr>
<td><em>Students were talking to each other: reading task aloud.</em></td>
<td></td>
</tr>
<tr>
<td><em>K intervened in groups in ways that held students accountable while still maintaining safety and assuming kids’ best intentions.</em></td>
<td>B</td>
</tr>
<tr>
<td><em>K made decisions based on learning, not rules (can we use a calculator?).</em></td>
<td>B</td>
</tr>
<tr>
<td><em>K helped one group of students see how what they were doing was connected to the task.</em></td>
<td>B</td>
</tr>
<tr>
<td>Mia turns K’s question about pairs or groups back to K.</td>
<td>A</td>
</tr>
<tr>
<td>K says, when it’s not group-worthy, we can use pairs.</td>
<td>A</td>
</tr>
<tr>
<td>Mia agrees and suggests that part of deciding pairs or groups is “what is there to talk about?” and suggests that we can do the math ourselves. If there’s something for us to talk about, then there’s something for kids to talk about.</td>
<td>A</td>
</tr>
<tr>
<td>Mia refers to her intervention with K during class, saying ‘sorry if that didn’t work out very well. It was an experiment and we can learn from it.’</td>
<td>C</td>
</tr>
<tr>
<td>Mia suggests that K’s questions about ‘flow’ and what to ask at check ins are related. She connects them to needing more opportunities to see and name students’ strong thinking, which K is good at doing.</td>
<td>B</td>
</tr>
</tbody>
</table>
Mia talks about supporting students to understand what productive participation can look like (e.g. asking questions, not just knowing answers) and connects this to the sentence frames.  
K has a poster with sentence frames and offers to put up another one.  
Mia suggests that participation quizzes can help, connecting them to allowing K to emphasize students’ positive talk in groups to build more of it.  
K says, ‘I like that.’  
Mia suggests that K and the teachers she works with can all work together on participation quizzes.  

### Kamilah Cycle 2

<table>
<thead>
<tr>
<th>M suggests that they can talk about the lesson and think about ways to give themselves opportunities to see how Manuel is smart.</th>
<th>E</th>
</tr>
</thead>
<tbody>
<tr>
<td>Together they plan a warm up surfacing and connecting students’ thinking about what angles are.</td>
<td>E</td>
</tr>
<tr>
<td>M suggests figuring out a big question for students to think about, which will give them something to talk about.</td>
<td>E</td>
</tr>
<tr>
<td>K says, ‘that’s a good idea’ and they work together on figuring out the big question.</td>
<td>E</td>
</tr>
<tr>
<td>M and K consider whether manipulatives might support the sense making.</td>
<td>F</td>
</tr>
<tr>
<td>M suggests for triangle task emphasizing norms again (we take care of each other), since there isn’t much to talk about.</td>
<td>G</td>
</tr>
<tr>
<td>K asks for suggestions about how to get kids to talk in whole class discussions.</td>
<td>H</td>
</tr>
<tr>
<td>M considers the do now angles question and suggests a routine of asking students to partner up and then share one of their partner’s ideas with the class, rather than their own.</td>
<td>H</td>
</tr>
<tr>
<td>K asks about pacing, saying she was considering moving on.</td>
<td>E</td>
</tr>
<tr>
<td>M suggests that if there’s time, their big question for closing the class will provide lots of opportunities to surface student thinking.</td>
<td>E</td>
</tr>
<tr>
<td>K says, ‘maybe I could have them reflect and share their thinking.’</td>
<td>H</td>
</tr>
<tr>
<td>K poses &quot;do now&quot; about angles</td>
<td>E</td>
</tr>
<tr>
<td>K begins WCD out of do now about what angles are, using the ‘share an idea from your partner’ thing.</td>
<td>H</td>
</tr>
<tr>
<td>M steps in and helps, naming students’ ideas, connecting them, and assigning competence.</td>
<td>I</td>
</tr>
<tr>
<td>K poses big question to the class: how do you know that a triangle equals 180 degrees?</td>
<td>E</td>
</tr>
<tr>
<td>M suggests strategy for giving students time to make sense of the three angles. (build it under doc cam)</td>
<td>J</td>
</tr>
<tr>
<td>K takes it up.</td>
<td>J</td>
</tr>
<tr>
<td>K asks, how can we prove a triangle is 180 degrees?</td>
<td>E</td>
</tr>
<tr>
<td>M asks, what do you mean a triangles IS 180 degrees?</td>
<td>E</td>
</tr>
<tr>
<td>K sees there are 4 minutes left of class and asks Mia if she should pose the big question.</td>
<td>E</td>
</tr>
<tr>
<td>M says yes, maybe as an exit ticket.</td>
<td>E</td>
</tr>
<tr>
<td>K poses as an exit ticket: do you think the sum of the angles of a triangle is always 180 degrees?</td>
<td>E</td>
</tr>
<tr>
<td>M asks, why or why not?</td>
<td>E</td>
</tr>
<tr>
<td>K repeats, why or why not?</td>
<td>E</td>
</tr>
<tr>
<td>M writes the question on the board.</td>
<td>E</td>
</tr>
<tr>
<td>M asks K if they can have access to students’ exit tickets so they can think about them together later.</td>
<td>E</td>
</tr>
<tr>
<td>After students leave, Mia points out that kids are doing a lot of reasoning in writing (as evidenced by the exit ticket writing they did), so they can think together about how to turn some of that into talk.</td>
<td>E</td>
</tr>
</tbody>
</table>
M recalls that K said she had wanted help with kids making sense of angles – we could reflect on that, maybe look together at exit ticket.

K says let’s look at their exit tickets.

M shares why she had asked permission to step into the whole class discussion around angles. She wanted student thinking that K was surfacing to be written down so it could be a resource for assigning competence, for status (using students’ names with their strong ideas),

K says she did the same thing (wrote it down) in a different class afterward and said her students felt smart and that it was a good resource also for herself to remember what was said.

M points out that it helps encourage conversation too, demonstrating that no one has all the ideas and everyone has some of them.

M points out that K’s deep knowledge of students matters for managing status in WCDs.

M says the ‘share your partner’s thinking’ structure supported Gabriela to share smart thinking.

M proposes talking about planning next steps, given kids’ thinking. She proposes a way to use kids’ thinking from exit tickets as starting point for next lesson.

M says that K’s clarity about the learning objective was a strength that allowed them to watch for and make use of student thinking.

M suggests that in their next meeting they think about how to build on students strong thinking to create more out-loud math talk.

Kamilah Cycle 3

(Background: K has told M that she will be doing a multiple abilities (MA) launch.)

K tells M she wants to write the MA list as she does the launch for the class (rather than have a prepared slide)

M says that’s also how she does it, as it feels more authentic that way to her. She says there are lots of ways to do it. (37)

K shares items from her MA list. First, “think outside the box” (110)

M says it’s really smart and restates: “something about creativity or generating ideas you haven’t heard before or finding new ways to think about things.” Says all those could be included. (137)

K reads the rest of her items: “use different representations to justify your thinking,” “making connections between different representations,” “and then making sense of those connections like what does that mean?” (148)

M says ‘there are a lot of smart things inside’ the second one (use different representations…) and suggests that they articulate those so there are more smart things on the list. She names “understand similarities and differences in what we can learn from a table and a graph or what we can see in a graph that we can’t see in a table,” “make sense of point of intersection in a table, graph, and rule,” (158-209)

K says “that’s where I was going with ‘make sense of those connections and what does that mean’” (216)

M says, “there’s different sense making going on here: what is the intersection? Where do we see it in the table? What’s an intersection on a graph? What’s an intersection in the rules? And then there’s the connections.” (217)

M asks: “what connections are they gonna see?” And they talk about this. (229)

M suggests using the words “table, graph, rule” rather than just “multiple representations,” saying, “because they’re different.” (267)

K agrees and says “it’ll be good to have it, cuz it’s language that they’re familiar with.” (273)

M says, ok what else do students need to do? She names a few things (graph accurately, calculate with non-integer values, explain what you see in each representation, using representations to justify)
K asks if she should require students to use all representations. (396)  
M says yes because students see the math in different ways through the different representations. (401)  
K agrees and says what she could imagine her students saying in their explanations. (440)  
M suggests therefore a rephrasing of part of the task. (removing two questions and adding “Jerrod wants to find the point of intersection of these. Use tables, graphs, and rules to help him. And be ready to explain what you’re finding.”) (447)  
K mentions practices planned in this lesson: multiple abilities (492)  
K mentions practices planned in this lesson: participation quiz (492)  
K mentions practices planned in this lesson: group roles (492)  
M asks K to introduce her to the class.  
K introduces M to the class.  
K begins a WCD about the Do Now. Tony student shares an idea and K asks “do you want to share another example of how that works?” to which Tony says, “No.”  
M joins in and says his idea was “super important and I wanna make sure everyone caught it.” M leads a WCD about his idea and then hands the reins back to K.  
K does MA launch with these items: “think outside the box, find new ways to think about things.” “understand similarities and differences between tables and graphs” “we need to be able to graph accurately and precisely.” “computing [with] rational numbers.” “explain what you see in each representation (tables, graphs, and rules)” and “making sense of a point of intersection”  
K launches roles: RM middle space, team questions, F quick start and make sure everyone understands what to do, RR make sure everyone ready for checkpoint, help your group practice, TC make sure everyone is participating, recording ideas, keep group together and address off task behavior.  
K directs RMs to get 2 task cards per group (it has the newly suggested wording for Part 2)  
K circulates, often watching students without intervening.  
M says H helped her understand something they could be more clear about on the task card. Students didn’t understand what was meant by “demonstrate your thinking using different representations.” (43) She suggests they reword it to “show/prove how you can see the intersection in the table, equation, graph.” (61)  
K changes it and says “I like how you worded that.” (79). She restates “prove this is the point using tables, graphs, solutions.” (107)  
K says students need more time to have conversations, to see there could be other possibilities for x values. She questions if she should finish up, spend another day on it, showing them the point using tables, graphs, solutions. (122-148)  
M says that’s why she had wanted to grab Tony’s idea (substitution), to assign competence and to see if it was making sense for other students. (156)  
M and K talk about what they heard in groups, what students are understanding and what they are not yet making sense of. (197-353) M asks where they should go from here, what K wants to make sure students learn. (428)  
K wants to spend more time on the lesson, so students can make sense of the point of intersection that they can’t see written in the table. (433) and suggests a main goal is to understand there are many solutions. (471)  
M agrees that it’s worth more time because the goal is a big, important idea and students are on their way to understanding it in a deeper way than if K just tells them. (571)  
K says she doesn’t want to tell them, she wants them to play with it more and then the class can discuss it. (575)  
K proposes a Do Now similar to what she did that day. (588)
| M suggests a similar Do Now where they limit the domain to students can see non-whole number integers can also be on the table. | K |
| K suggests a way she could debrief that Do Now. | H |
| K says they need graph paper to reduce time spent on graphing. | F |
| M asks about participation or status issues. | D, C |
| K is worried about off task, off topic conversations. | D |
| M says K set up roles beautifully (gives examples) ‘but then we didn’t use them.’ She suggests huddles or participation quizzes as ways to reinforce roles. | D, C |
| K says she tried to do a PQ in this lesson, but was running around too much. | D |
| M suggests a huddle with task managers as an accountability tool and describes how it could go. | D |
| K says she hasn’t done a huddle and ‘I need to try that strategy.’ | D |
| K says she’s been randomly assigning seating and changing it every two weeks. | D |
| M suggests having a particularly off-task student read the task card to get him into the task. | D |
| M describes asking a group which role is in charge of middle space, which also reminded the group about middle space. | G |
| K says she hasn’t been working on middle space, but wants to. | G |
| M talks about how powerful the middle space is. | G |
| K says she should have been practicing middle space from day one and acknowledges she is still learning. | G |
| M talks about taking time at the beginning of class for students to clear tables and K agrees | G |
| M talks about a student at a group who could have benefitted from reinforcing middle space. | G |
| M says she’s happy that this lesson was framed by a big question because it helps us to know if we should continue or not. In this case, we should continue, because students didn’t yet get to the big question. | E |
| M suggests launching the lesson with the learning goals and telling kids they made good progress toward those goals the previous day. M says she can’t remember if anyone ever articulated for kids what we hoped they would learn. | E |
| K says, “I’ll bring that up tomorrow.” | E |
| M suggests that when K and her teaching team get together to plan, they talk about what they want students to learn and then base their planning decisions on that. | E |

**Kamilah Cycle 4**

| M asks, “Do you want to give me something to think about before you go?” | E |
| K says, “how to kinda make it less me up there talking on how to do it and more them trying to figure out how to do it.” | E |
| M asks her what do students know before the lesson about tiles and solving. | E |
| K explains what content students knew and some difficulties. She explains how students worked in pairs and took turns drawing vs setting up with the tiles. | E |
| M asks for clarification on the lesson. | E |
| K elaborates that she had students build while she walked around and checked that everyone had it correctly. She says, “there was a lot of blank stares” when she tried to do a WCD. | E |
| M explains there may be something to be gained from trying to give students a sense of play (because students freeze up with solving and don’t know what to do next) | E |
| M suggests a “focus on why” – why do they want to do something next and why do they want to subtract or add a number to both sides, etc, to get a sense that there’s not one right thing to do at any given point. | E |
M suggests still allowing time for whole class sense-making but having it kid led (referring to Kamilah’s initial question) by having a kid build the tiles under the doc cam. Then it’s up to the class to agree or disagree with that the student did and to say why.

K asks if the class will be building the tiles while the student is also doing it under the doc cam

K clarifies that if students disagree, this gives them an opportunity to talk about it. She also asks if she will be projecting the equation mat, not the worksheet.

M says yes and suggests setting up the worksheet on the white board some way. She wants to make sure kids are writing, not K.

K wonders about the SBAC coming up and feeling like she has so much material to cover. She worries the lesson will take the whole period and questions how it’s going to pay off in the end.

M talks about the foundation around sense making is a barrier for a lot of kids since they are often really scared. M says the SBAC doesn’t count for anything that year.

K laughs and says, “yeah, I know.”

M moves on. She suggests a student should be building under the doc cam for every step and has to say why they did it that way.

K asks if they should also do it on the board algebraically

M suggests having another student on the board writing the steps the first student did algebraically. She also suggests maybe having another student or themselves say it with words. She says the focus is making students responsible for saying whether they are convinced or not.

M talks about how important it is for students to feel safe and happy while they are doing this. That they should thank kids when they make mistakes.

K says, “sounds good.”

M suggests going through one problem to model what it means to draw, write algebraically, and write with words. And then giving the next problem to just pairs.

M says she has one recommendation to the worksheet, deleting a part of it and ask them to build the exact expression.

K asks for clarification, “they’re just building it here and drawing it… is that what you mean?”

M explains they won’t be distributing. She elaborates more on how students will be working on task in class where students make a decision and have to say why.

K says she also needs a better understanding of the steps (flipping tiles over to the other side) and how students should be justifying.

M talks about how students should see they are maintaining the relationships and the difference between “why I want to add” vs “why I can add”.

M adds again how important it is to make it fun for students to go to the front. She suggests randomly calling on students. She says K is already good at making students feel really smart and that making it clear that what the student did was useful makes it less scary.

K says, “they’re a great group. They’ll be up for it.”

M asks what support K wants with, “should I just watch so we can debrief?”

K asks how can she support students to come up with an idea (not have a blank stare)

M suggests turning it to the class, not judge, encourage them to ask the class for help so that volunteers from the class can offer support. She says K is really good at listening for and pulling out the useful things kids say. M says she will join in with K on doing that.

M asks that K introduce her to the students so the students know she will be participating.

M offers to AC if she sees an opportunity.

K asks about her Do Now. “Is it okay?”
M suggests a quick Do Now to get kids to think about what “equal” means. She suggests giving them a couple different values of x and putting it into an equation, like multiple choice (674) “which of these values of x makes this a true statement?”

<table>
<thead>
<tr>
<th>K</th>
<th>M suggests a quick Do Now to get kids to think about what “equal” means. She suggests giving them a couple different values of x and putting it into an equation, like multiple choice (674) “which of these values of x makes this a true statement?”</th>
</tr>
</thead>
<tbody>
<tr>
<td>K</td>
<td>explains the Do Now, reminding students they need to justify and explain “why and how it works”</td>
</tr>
<tr>
<td>E</td>
<td>K leads WCD out of Do Now pushing David for “why”</td>
</tr>
<tr>
<td>E</td>
<td>M joins in, assigning competence to David’s method.</td>
</tr>
<tr>
<td>I</td>
<td>K continues, calling on another student</td>
</tr>
<tr>
<td>H</td>
<td>M joins in again, again assigning competence to Jamar’s method and engaging other students in explaining and asking questions about his method.</td>
</tr>
<tr>
<td>I</td>
<td>K continues the discussion, continuing to push for justification, this time also encouraging student to re-explain and saying “that’s great” and supporting students to try things out loud.</td>
</tr>
<tr>
<td>E, I</td>
<td>S asks a question about the first problem and K goes back to explain it again, leading students in the process.</td>
</tr>
<tr>
<td>H</td>
<td>K asks students to clear middle space.</td>
</tr>
<tr>
<td>G</td>
<td>K launches, explaining that randomly selected students will come to the front to lead.</td>
</tr>
<tr>
<td>L</td>
<td>M and K work together to clarify for students how this student-led process will go and what students should do when they are confused or feeling stuck.</td>
</tr>
<tr>
<td>L</td>
<td>K draws a stick and calls on Ashley.</td>
</tr>
<tr>
<td>L</td>
<td>Ashley builds the equation, changing her mind a few times.</td>
</tr>
<tr>
<td>L</td>
<td>Mia asks her to explain to the class how she built it and M and K support her as she does so.</td>
</tr>
<tr>
<td>E</td>
<td>M writes her words down, assigning competence.</td>
</tr>
<tr>
<td>I</td>
<td>K explains the job of the next student and calls on Nicole.</td>
</tr>
<tr>
<td>L</td>
<td>Nicole writes the expression and says it out loud to the class.</td>
</tr>
<tr>
<td>L</td>
<td>M explains that the class should decide if they are convinced and ask, if not.</td>
</tr>
<tr>
<td>L</td>
<td>S asks a question, pointing to a mistake in Nicole’s work.</td>
</tr>
<tr>
<td>L</td>
<td>M says “N and I both forgot!” and students in the class explain that it should have been negative. Nicole fixed it.</td>
</tr>
<tr>
<td>G</td>
<td>M thanks the student, saying “that’s exactly what I want all of you to do.”</td>
</tr>
<tr>
<td>L</td>
<td>K calls on the next person and explains their job.</td>
</tr>
<tr>
<td>L</td>
<td>Ruvelin comes up and says quietly that she doesn’t know what to do.</td>
</tr>
<tr>
<td>L</td>
<td>Mia pushes for justification and asks other students to help justify.</td>
</tr>
<tr>
<td>E</td>
<td>K calls on the next student and explain their job.</td>
</tr>
<tr>
<td>L</td>
<td>Student comes up and leads next part, writing algebraically what’s left on both sides.</td>
</tr>
<tr>
<td>L</td>
<td>K asks students to keep these sheets, saying the class will continue tomorrow.</td>
</tr>
<tr>
<td>I</td>
<td>A student stays behind and M and K together discuss how strong her method had been.</td>
</tr>
<tr>
<td>G</td>
<td>M: we just built so many awesome norms: names a bunch</td>
</tr>
<tr>
<td>E</td>
<td>M: students caught a mistake I didn’t catch</td>
</tr>
<tr>
<td>L</td>
<td>M: students were making sense of relationship btwn tiles and algebra, which is a big deal</td>
</tr>
</tbody>
</table>
K: yes! I’m gonna do it with my other classes tomorrow

M: once there’s a rhythm, it will go faster and you don’t have to do this with every problem. You can go back and for between whole class and pairs.

M: Algebra tiles is a great way to get kids to the front of the room leading math discussions. You can build on that with other content, though.

K: yes, I want to do it more, like keep doing it.

K asks a math question about the tiles.

M supports her to use the tiles to figure it out, like she would with students. M points out that that’s the same thing you can do with students.

M asks about status implications of students calling on other students as they lead WCD. M talks about a moment in which a black boy was ignored by other students in WCD.

K says she noticed what M did with that, trying to make space for his ideas.

K suggests that she could do some intervening in these student-led discussions so opportunities to participate are more equitable.

M agrees, suggests a couple things (wait time, etc.)

K proposed another idea (calling on students after the student leader has)

M proposes a routine for this where groups check in with each other for a few seconds after each question and then RM raises hands to volunteer team ideas.

M wonders aloud how equitable the pair work is and proposes norms K could use for this.

K says she liked the “do now” because students were so lost and then made sense of substitution.

M talks about her efforts to shift status by assigning competence in that discussion.

Heather Cycle 1

M asks H what she would like help with. H says the class moves slowly and she doesn’t know when to move on. Some students aren’t challenged, some finish the page while others barely finish one problem; behavioral issues; sometimes she doesn’t get to every group.

M suggests the ‘table’ problem was with notation, not deep understanding, so it’s not important.

H says ‘right’ and maybe she can address the issue as a Do Now tomorrow.

M suggests a problem to pose to support students’ use of correct notation.

H suggests another way (pose 2 problems to compare / contrast).

M suggests that many groups could benefit from AC and suggests they could do it together. She worries whether the lesson will provide opportunities.

M relays her conversations with Kamilah about SN not being group worthy and decides to group students into pairs. She encourages H to tell kids that they are just learning a convention.

H wonders about whether to let kids use calculators.

H wants to push to make the task groupworthy.

M asks what would kids be able to talk about

H says “high kids” should be able explain to other kids.

M says ‘hard’ and ‘groupworthy’ are not the same. Pairs make sense and both kids should be able to explain.

M suggests H could do “spot checking.”

M suggests a second Do Now problem and worries that pretending there’s something to talk about will exacerbate status.

M says ‘explaining SN’ isn’t worth a checkpoint, but could be an exit ticket.
M suggests stopping 10 min before class ends and asking students to show how SN makes sense.

M says it would allow H to assess students’ learning and to AC.

H worries only “high kids” will be able to explain.

M suggests they listen together, hoping to prove H wrong. If H is right, she suggests not attaching names (not AC) when naming strong math thinking.

H feels like they’re stretching it (by asking kids to explain SN). She asks, “How would you explain it?”

M says they need a different prompt. She suggests a few and says if it’s not authentic, don’t do it.

H asks for share outs on patterns from the second Do Now M suggested. She tells them to keep an eye on their work to see if they discover anything about patterns.

H tells her class they will be doing partner work instead of group work. She pairs students up and launches problem numbers.

H tells the class they will do “checking in” not check points with questions like, “I wanna see what your thoughts are.”

H says she’ll be doing a participation quiz

H has students clean up at the end of class. M and H do not AC.

H does not have an exit ticket.

Mia described her strengths: she saw a clear launch, kids knew what was expected, they started right away, her launch into pair work was quick, clear, she explained what she was expecting, communicated high expectations and what their work should look like. Mia says one of the things she noticed was Heather’s way of interacting with groups was different and effective

H is surprised her class was working so well

M says pair work allowed students to share, move forward, not try to generate conversations that weren’t really there, be willing to say they didn’t know and to ask questions

M compliments H on an interaction where she gave one student an opportunity to speak which allowed another student to see that her peer had something to offer.

H asks how to make the lesson better, how to get the outcome she wants, where does she go from there, and closure.

H asks how to make partners work more efficiently bc it’s her first time. How does she get partners that seem disjointed to work together? Does she change them?

M says there is room in her class to talk about what it means to take care of each other and fostering community. She suggests a strategy of picking a few students to attend to and find ways to support them when planning her lessons.

H mentions she could use a huddle to support a student with low self esteem.

M says exit tickets can give a sense of what did or didn’t happen. The more clear H is about what she wants students to learn, the easier it is to frame that question.

H suggests an exit ticket “describe the pattern in the table” and explains the two ways students can answer that question. (1423)

M adds “describe the pattern and why it makes sense” that would give them more information about how students are making sense of it.

H says doesn’t care if they don’t understand the differences, she cares if they understand how to write it down (1732)

Heather Cycle 2
M offers to: (1) get into planning and thinking of the lesson or (2) catch up and think about what H is hoping to get out of the visit and what to talk about in the debrief. H expresses concern about her 3rd and 4th period being at different places. M asks her what she’s hoping her students will learn.

H says she wants to take up ‘angle measuring’ but doesn’t know if it should be in this lesson.

M suggests using protractors since students don’t know how to use them.

M says there might be a warm up they can use to pull content out of kids.

H asks about K’s lesson.

M describes the Do Now: what is an angle? (1008)

H says, “I like that, okay.”

M describes K’s decision to pose the big idea question (will this work for every triangle? Why or why not?) with 10 minutes left in class. (1162)

H worries that if they design their own angles, they won’t add up to 180

M assures her that the triangle sum theorem will work for every triangle and having students draw them out will support students to see that they aren’t special

M brings back the big idea question for the last 10 min of class and

M says K was going to give them spaghetti

H asks what the spaghetti is for

M describes how it relates to the big question

H says “ooh, I like that, okay,”

M asks if there are any other CI structures that H wants to work on

H suggests using protractors since students don’t know how to use them.

H suggests adding a column to the original worksheet and have students measure angles. She suggests adding what’s the total of the triangle? (725)

H suggests using protractors since students don’t know how to use them.

H sees that the measurements are off and says she could change them, but has already printed the worksheets

M suggests having students correct the numbers instead of a warm up.

E

(later in the day) H asks about K’s lesson.

M describes the Do Now: what is an angle? (1008)

H says, “I like that, okay.”

M describes K’s decision to pose the big idea question (will this work for every triangle? Why or why not?) with 10 minutes left in class. (1162)

H worries that if they design their own angles, they won’t add up to 180

M assures her that the triangle sum theorem will work for every triangle and having students draw them out will support students to see that they aren’t special

M brings back the big idea question for the last 10 min of class and

M says K was going to give them spaghetti

H asks what the spaghetti is for

M describes how it relates to the big question

H says “ooh, I like that, okay,”

M asks if there are any other CI structures that H wants to work on

H suggests a participation quiz in the 10 min end discussion to reinforce what good group work looks like. She clarifies they could, but she’s not suggesting they should.

H says she’s too exhausted to even think about it.

M volunteers to do that part at the end of the class and a quick launch of the ending conversation.

H agrees and suggests putting up posters on the wall to write on.

M says it might be simplest to write the team numbers and notes on the board due to space issues. She says she’ll do the launch and tell kids what they’re writing and why.

H says, “that’ll be fun, Sounds awesome! I’m super excited.”

H tells M she forgot to change the Do Now. Instead, it is “Name these points” and defines what points are

M says, “No Worries.”

H launches the lesson by explaining “proofs by construction” are true mathematics.

H has students work in partners and gives them the materials and a recording sheet.

H does not add the second question to the activity, but does have students draw 4 triangles themselves.

M asks H if she still wants M to do a participation quiz.

H says, “what ever you want.”
There is no participation quiz (the ending discussion in which it would have happened never takes place.)

H says her goals weren’t clear and students did good stuff, but she hadn’t been sure what they should be learning and that’s why the lesson fell apart. She didn’t have closure and didn’t have a good set goal in mind. Students are confused about angles.

L suggests an applet or something for angles.

M says K’s Do Now was powerful and describes how it went.

H says I want to start with a do now next week of “What is an angle?” (this is the same as what had been proposed in the planning conversation) and give homework to help students see angles.

H describes ideas for multiple Do Nows to help students make sense of angles.

M says, ok, so you’re gonna do some sense making around angles.

H says maybe that’s what I’ll do all day Monday.

M says it feels really worth it. Maybe you could do a combined lesson that has sense making about angles and how to use protractors.

H says maybe ‘angle day’ is Monday. She describes an idea for an activity.

M asks what we want students to learn from the angle day and proposes some ideas.

H says make sense of what an angle is, how to measure it, and notation.

M says if we want students to make sense of angles, they should generate their own sense making about lots of different kinds of angles. Suggests that kids can get practice with the protractor by using it to generate lots of different angles to make sense of.

H says maybe she could make a creative picture with lots of angles in it that students could measure.

M suggests that the questions they wrote can ground her decisions about lessons and what to do with kids. Says that it’s important to decide what we want kids to learn before making lesson decisions and that it makes teaching easier.

(Lynn has found the lesson with lots of angles.) H looks at the screen and describes what she did with it before. Describes a few ideas of what she could do with it.

(At the end of this conversation) M said they can try participation quizzes next time. She says they can figure out a lesson that would be supported by this.

H says, ‘that’d be great.’

Heather Cycle 3

H describes yesterday’s lesson and the “big discrepancy.” She says the next task is difficult because it includes trapezoids, but it’s on the test.

M asks her what she wants students to learn: finding the SA successfully or generalizing a process?

H says the goal is to calculate the surface area of a trapezoidal prism. She adds generalizing would be great too.

M asks what they want students to understand and whether there are opportunities in the proposed task for them to articulate their understanding.

H asks if M has suggestions to make the lesson “meatier” in terms of vocabulary or getting at bigger concepts.

M suggests they could experiment with framing the lesson about what IS surface area, and proposes, “how can we find the SA of any prism?”

M asks if they can pose the big question at the beginning and come back to it with 10 minutes at the end of class for discussion.

H says, “I think that is a really good question.”

H wants to add volume to the task.
<table>
<thead>
<tr>
<th>H suggests the cereal box problem since its easier and includes both volume and SA (356). She says they could use blocks.</th>
<th>K</th>
</tr>
</thead>
<tbody>
<tr>
<td>M explains Aya just did it and it didn’t go as planned. She elaborates.</td>
<td>K</td>
</tr>
<tr>
<td>H proposes ways to get around those problems. She says it’s a really great lesson to introduce volume vs SA.</td>
<td>K</td>
</tr>
<tr>
<td>H doesn’t want to teach SA of trapezoidal prism, but it’s on the unit test.</td>
<td>E</td>
</tr>
<tr>
<td>M says giving students a clear understanding of surface area is better than having them construct/calculate one once. She suggests putting trapezoidal prisms on the homework.</td>
<td>E</td>
</tr>
<tr>
<td>H says she did put them on the homework.</td>
<td>K</td>
</tr>
<tr>
<td>M suggests asking groups to come up with a summary statement about what surface area means that each student can explain and then listen to those conversations.</td>
<td>E</td>
</tr>
<tr>
<td>H worries that the “super high” kids will answer in an open class discussion and that skill levels are too divided for a good whole class discussion. She says again that she wants to push her high kids to do volume, but still pose the surface area question for all kids.</td>
<td>H</td>
</tr>
<tr>
<td>Mia clarifies they will pose the surface area question to groups (and not in whole class format) and do a shuffle quiz, requiring each person in the group to be ready to explain.</td>
<td>D</td>
</tr>
<tr>
<td>H worries that her high kids get really excited to do check points. She asks if the check point is only on finding surface area.</td>
<td>D</td>
</tr>
<tr>
<td>M explains they won’t get excited because it’s not on the board until the last section. She reiterates that it would be a shuffle where they would be randomly called on to explain the group’s thinking (811).</td>
<td>D</td>
</tr>
<tr>
<td>H asks if she could random call and do checkpoints on finding the surface area (prior to the question about what surface area means).</td>
<td>D</td>
</tr>
<tr>
<td>M asks what she expects students to say.</td>
<td>D</td>
</tr>
<tr>
<td>H says they would explain how they found the areas of each shape and she might ask specific questions like “what do you mean? How did you find the area?”.</td>
<td>D</td>
</tr>
<tr>
<td>M says it could be an opportunity to make sure students are connecting their calculations to their meaning. (850)</td>
<td>E</td>
</tr>
<tr>
<td>H explains the Do now, “Find the Area” of a rectangle and a triangle. She calls two students to come to the board. She reviews the Do Now and asks about the relationship between a triangle and rectangle.</td>
<td>E</td>
</tr>
<tr>
<td>H launches the task and gives the class the closing question : “How do we find the surface area of ANY prism”?</td>
<td>E</td>
</tr>
<tr>
<td>In the lesson launch, H says she and Mia will be doing checkpoints at each table when the whole team thinks they can answer it. She says that every student in the group needs to have the ideas written down.</td>
<td>D</td>
</tr>
<tr>
<td>After teams have gotten started, M asks what the expectations for group work are since a lot of the task could be done individually.</td>
<td>C</td>
</tr>
<tr>
<td>H asks if she should make an announcement.</td>
<td>C</td>
</tr>
<tr>
<td>M says sure, if she thinks it’ll help</td>
<td>C</td>
</tr>
<tr>
<td>H announces to the class that she and Mia will be “looking for groupwork participation, helping each other out, working on calculations, comparing measurements, that everyone has work on their paper, and working as a team.”</td>
<td>C</td>
</tr>
<tr>
<td>M and H walk around the room and check in with groups.</td>
<td></td>
</tr>
<tr>
<td>M encourages one group to talk with their team about their question before calling H over.</td>
<td>G</td>
</tr>
<tr>
<td>One RM calls Heather over for a team question. M suggests to Heather that someone else in the group ask it.</td>
<td>G</td>
</tr>
<tr>
<td>H says she usually has the RM ask team questions, but says OK and asks another student.</td>
<td>G</td>
</tr>
<tr>
<td>That student doesn’t know the question, and Mia suggests that the team talk about it more and call them back over if it’s still a question.</td>
<td>G</td>
</tr>
<tr>
<td>Line</td>
<td>Source</td>
</tr>
<tr>
<td>----------------------------------------------------------------------</td>
<td>--------</td>
</tr>
<tr>
<td>H and M leave the group.</td>
<td>G</td>
</tr>
<tr>
<td>Away from the group, M explains to H that the RM hadn’t consulted with the whole group.</td>
<td>G</td>
</tr>
<tr>
<td>The student calls the teachers back over and asks her question, which Heather addresses.</td>
<td>G</td>
</tr>
<tr>
<td>With about 8 minutes left in class, H tells M it’s the end of class but doesn’t feel like students are ready for the big question.</td>
<td>E</td>
</tr>
<tr>
<td>M says the big question would offer a chance to make sure students are connecting calculations to their meaning. She suggests she and Heather find a way to check in with the big question before class is over.</td>
<td>E</td>
</tr>
<tr>
<td>H suggests quickly going around to each table and says they only have 7 minutes left.</td>
<td>E</td>
</tr>
<tr>
<td>M suggests that they could direct teams to stop calculation and to work with their group on the big question and write down what they figure out. She and Heather could walk around and listen as groups work on that.</td>
<td>E</td>
</tr>
<tr>
<td>H expresses some doubt, but stops the class and redirects teams to the question, “how do we find surface area of any prism?” Tells groups to talk and then write it down.</td>
<td>E</td>
</tr>
<tr>
<td>M adds (to the class) that groups should be having conversations before writing and ‘that’s what we’re going to be coming around and listening to.’</td>
<td>E</td>
</tr>
<tr>
<td>H and M go around checking with students.</td>
<td>E</td>
</tr>
<tr>
<td>(reflecting on the lesson) M says she doesn’t know what one group left the lesson thinking surface area was because we didn’t ask.</td>
<td>G</td>
</tr>
<tr>
<td>M asks, what does it mean to do groupwork with tasks that aren’t groupworthy? She suggests that it’s even more important to emphasize norms to keep students together.</td>
<td>G</td>
</tr>
<tr>
<td>H says even our big question seems procedural and not groupworthy.</td>
<td>E</td>
</tr>
<tr>
<td>M says that because the big question isn’t groupworthy, norms matter even more.</td>
<td>G</td>
</tr>
<tr>
<td>H says that interactions with groups in class were good and says that in one group, Mandy can dominate.</td>
<td>G</td>
</tr>
<tr>
<td>M describes a group interaction in which she supported a low status student to speak for the group and the reactions of the students.</td>
<td>G</td>
</tr>
<tr>
<td>H says I’m glad you incorporated Vanessa. She has a lot to offer but doesn’t always.</td>
<td>B</td>
</tr>
<tr>
<td>H explains that she normally randomly selects students to share using cards, but this task wasn’t ‘cardworthy.’</td>
<td>B</td>
</tr>
<tr>
<td>M says that maybe makes cards MORE important, not less. Says she forgot about cards and that could have worked.</td>
<td>B</td>
</tr>
<tr>
<td>M suggests that she and H experiment with using cards for random selection with every group interaction, not just planned checkpoints so that students experience ongoing responsibility to each other.</td>
<td>B</td>
</tr>
<tr>
<td>H says I like that. I want to use it with my 8th graders too. It will hold students accountable to sticking together in groups.</td>
<td>B</td>
</tr>
<tr>
<td>H proposes an idea for a surface area task for tomorrow to help students visualize 3D prisms from 2D representations.</td>
<td>K</td>
</tr>
<tr>
<td>M agrees and suggests starting the next lesson with the big question they ended with.</td>
<td>E</td>
</tr>
<tr>
<td>H suggests a checkpoint question: draw every surface on your paper with dimensions.</td>
<td>E</td>
</tr>
<tr>
<td>M suggest the task could be to figure out how to draw a diagram to help calculate surface area. Then there’s something for groups to talk about and smart stuff to do.</td>
<td>K</td>
</tr>
<tr>
<td>M suggests two different prisms so there’s more smart stuff for students to share.</td>
<td>K</td>
</tr>
<tr>
<td>H suggests the task could be to find more than one way to find surface area</td>
<td>K</td>
</tr>
<tr>
<td>M agrees and they work on refining the prompt</td>
<td>K</td>
</tr>
<tr>
<td>H asks if she could give students a hint about combining shapes.</td>
<td>K</td>
</tr>
<tr>
<td>M asks, why are we asking students for two ways again?</td>
<td>K</td>
</tr>
<tr>
<td>Name</td>
<td>Text</td>
</tr>
<tr>
<td>------</td>
<td>------</td>
</tr>
<tr>
<td>H</td>
<td>says to address status and incorporate many kids’ ideas. (1124)</td>
</tr>
<tr>
<td>M</td>
<td>says for that reason we don’t want a hint. (1130)</td>
</tr>
<tr>
<td>H</td>
<td>asks, could I put actual 3D objects on tables? (1166)</td>
</tr>
<tr>
<td>M</td>
<td>says that would be awesome and says anything that approximates a right rectangular prism can support students (a box from playing cards, shoe box, etc.) (1178)</td>
</tr>
<tr>
<td>H</td>
<td>agrees</td>
</tr>
</tbody>
</table>

Heather Cycle 4

(Come to Jesus conversation where Mia offers to teach for Heather, a lesson that had been developed with Lydia, another teacher, 1-817)

Mia describes the lesson, shows H the task and says they ran a participation quiz and told the students that teachers were not going to talk to them for the whole class.

M describes the lesson beginning, starting with the Do Now, “write everything you know about the PT,” not debriefed (873)

M says she and Lydia ran a participation quiz with posters on the wall. (877)

M says they stopped class halfway through and gave students two silent minutes to read the posters from the participation quiz, so they could see other things that were happening around the room. (884)

H says, “I like that idea. Let’s do it.” [M teaching the lesson as described.] (911)

M says, “there were a number of things we did that made it work” and describes using a paper in the middle and launching with the expectation that students’ paper’s needed to touch it at all times. (929)

H expresses happiness and appreciation many times: “I love it” and “this sounds great! I feel like I’ve taken a shower right now.” (960)

M proposes that if Joaquin keeps getting up, that they prioritize the learning of the class (1002)

M says students won’t know the answer by the end of class, but that’s okay because the content objective is that students use the Pythagorean theorem. (1040)

M describes a lesson decision with Lydia responding to students using unexpected mathematics (proportional reasoning) and not the PT.

M says Lydia had been worried about students getting stuck because there are so many decisions to make in the task, so they thought about what participation they needed to support so that students could get past that.

Describes the MA-like launch making expectations for groupwork explicit

Describes launching the PQ and stating norms that would matter

M describes the ‘10-minute rule’ of not letting students ask questions the first 10 minutes of class. (1227)

H says, “I’ve done that as well, it’s really powerful.” (1234)

M describes using two colors in the participation quiz, one for things that are helping students move forward and the other for questions/things not helping/feedback (1220)

M suggests she do the PQ with Lynn with Heather watching. She will set up the class so that students know not to talk to H. (1283)

H asks if she should do this [lesson] for all periods the next day (1398)

M says whatever portions H is comfortable with. (1399)

M says students will have to be supported to try new things in the launch. (1416)

M suggests H do a mini-PQ, writing on the board evidence she hears of students being willing to try things (1418)

M describes set up for Participation Quiz. (1630)

H asks if she should do posters for her other classes cuz it would be hard for just one person (1658)
M describes a simplified participation quiz on the board, focusing on just the most important norms for this lesson (paper in the middle, being willing to try things) (1708)

H says, your opening notes are important for this task, right? She expresses doubt in her ability to launch the task as well as M. (1719)

M says there are just a couple key aspects (1726)

H gets paper and says she wants to take notes on the lesson launch so she doesn’t forget (1735)

M describes important aspects of the launch: telling students how you’ll give them feedback (1744), tell them the participation behaviors you’re looking for, middle space, quick start, ask people for ideas, or say things like ‘what should we try’. M says that’s it. It doesn’t need to be big deal. (1812)

M adds telling students the teacher won’t talk to them because they can do it without the teacher (1815)

H asks if M didn’t really talk to any of the students all period (1818)

M says pretty much. Started to talk to groups in the last 10 minutes to push participation. (1822)

M says ‘sure’ (1831)

H asks if M did checkpoints. (1855)

M says no, I didn’t talk to groups at all. (1859)

M describes assigning competence to a math idea and simultaneously pushing students to explore other math ideas, to direct them toward the content objective. (1876)

M asks if M said anything in the launch about giving students a really hard problem (1912)

H asks, did you give students calculators? (1941)

M says yes to support students to get into rich problem solving, rather than calculations. (1942)

H asks whether any groups said they figured it out and asked for a checkpoint. (1951)

M says no, and describes one group that was maybe thinking they were done, so I asked them to generate another pathway, relying on ideas from students who had not yet given them (1959)

H says, “I’m super excited.” (2007)

Mia taught the lesson as discussed and Heather observed.

H says students in all 3 of the classes she taught took on the task without depending on her. (32)

H says that with the ‘high needs’ of 3rd period (which M taught), students were well behaved with a few exceptions. (65)

H says that, as M pointed out, Kalea and Jimmy were dominating and their other two group members were feeling left out or maybe feeling stupid, so “it was kind of a good perspective you brought up” (185)

M elaborates on what was happening at that group and her response. Kalea was telling and not asking and told Thomas to shut up when he tried to talk. M tried to use the PQ to support a shift, but it didn’t work partly because of where it was in the room: behind Kalea. She was the one who needed to make the shift, but she wasn’t seeing it. (218-273)

M describes that she had asked H for permission to intervene in a new way (have that group come up with one more path that had to come from the other side of the table), acknowledging that it was hard for her to know if that was safe, given her limited knowledge of the students. (278)

M describes what she ended up trying: based on what she noticed on students’ papers, she asked where the numbers had come from. She acknowledges their strategy as valid, but pointed out that it led only to approximate distances. She pushed for another strategy coming from the other side of the table. (338)
M says she chose to talk to this group about grades, telling them that what they would need to do to get an ‘A’ was by getting everyone’s ideas into the conversation and explaining that she knew that students would learn more if they did that. (360)

M describes what happened after this, Kalea asked useful questions, even though she was maybe mad while she did it. (407)

H said that group was mad and Jimmy yelled at the group that they needed to talk because M told them they had to come up with an answer and that it felt threatening. (410)

M laughs and says when Kalea said ‘how do you know?’ to her team in a mad voice, she interpreted this generously and gave her credit for asking a good question. (462)

M asks if H would be willing to tell the group they got their A tomorrow, because she had run out of time. (471)

H agrees (473)

H describes a ‘stigma’ around Thomas as a bad group member who is often off task and asks how she can get that stigma off him. She says to M, ‘I think you started getting there.’ (557)

M says yes, it felt like a promising moment that could be built on more (559) and suggests that we ask students to be generous with each other and be ready to be surprised.

M says next time she would have found a way so that the PQ poster wasn’t behind Kalea. (643)

H suggests it might have been a good time to do a group huddle with Kalea’s role and elaborates on ways to use huddles (704)

H says she hadn’t done any huddles yet but that she loved it from the PD (756)

H says it was nice to do an activity on a task card that wasn’t really wordy. (805)

H says she loved the blue paper for the middle space and said it was great in all her classes. (822)

H describes an interaction with a group that had different numbers on all their papers, so she assumed they weren’t working together. But in fact they had been. (984)

(After looking at student work and seeing that groups did not use the PT) H suggests telling students, “Okay, here’s a path that somebody did. How can you use PT to try to go further with this?” (1130)

M says I like it, but suggests getting PT from student work, rather than just saying it, “here are three different groups that came up with ways to connect the PT… none of them finished yet, but that’s super smart. Let’s look at those.” (1136)

H says that she did a gallery walk in another classes so students could see each other’s work and suggests building from that, ‘here are some highlights I saw from groups, “We’re getting closer [to figuring it out].”’ (1168)

M says it doesn’t yet sound like telling kids they did smart math. She suggests ways to do that. (1174)

H describe kids who are scared to put anything on paper and says she challenged one group to take a risk and draw something. She says it was hard for them because they were scared to be wrong, but they did it. (1256)
Appendix E: Coaching Conversation Transcripts

Kamilah Cycle 1 Planning Conversation

Kamilah  

cool, so
what's up for tomorrow, first period right?

yeah oh and um-

did you and Aya combine classes?

no

I'm fine (.)
with it.

But I just feel like
we might be at different places
I don't know if she's on a different day

uh huh

uh
I wasn't asking cuz I was hoping that your answer
would be any particular thing
but just because I wanted to know when I come in if
I'll be coming in to (both) or would it just be you

no it just be me

okay cool. Cool, ok

Yeah and
the permission slips so

oh

I had a hard time getting it back,
I have 13 kids, and I got three,
three said no.

and three um returned the parent ones
and some of them are going to give it tomorrow

and do you know the 3 who said no what there issues
were?

I think when I told them,
when we read the letter

uh huh

when it was like-
and when you mentioned that it might be shown to
people like in your
research or program whatever

mhm

okay, I can check in with them in the morning and see
how they're feeling.
Sometimes I've had kids once they talk to me they're
like oh yeah it's fine

mhm
and sometimes where they say well lets put it, or if you can put them so that there back is towards the camera, so its mostly in the back of their head right

they are more fine, something like that. I'm okay taping before the parent ones come in and not using it until I have all the permissions checked off

Okay if thats okay with you okay And I can explain that to them okay and I can, you know if one of the parent ones doesn't come back or comes back with a no, then I figure out ways to not use that clip or share that clip okay, that makes sense then I have to be careful with which video I use for sharing purposes but its still yeah. Is that okay with you? mhm, totally okay um, and sometimes kids need to be off camera if its not too disruptive we might shift where they are sitting that day yeah so it's possible to keep them off camera yeah but we can play that by ear. Are the three scattered around in different places right now? um, there's two here at this table and then there's one here, In this front middle table yeah okay um I feel like you can kinda convince this one okay if not these two then maybe I can set up the camara in that back corner and be facing it this way so they're off screen anyway, right yeah cool, okay and I don't want it to be a big disruption,
okay

awesome. sooo anything else I need to tell you about that-

oh you know I want to get this just so we have this dealt with.

uh huh

I don't think I ever got you to sign anything (laughs)

so I just happen to have that with me. (sound of papers shuffling)

So I can get this from you later.

This is the one that I eventually need on file for you.

Okay,
don't need that right now?

No

Okay

We don't have that much time,

so let's use it for what's useful (laughs)

OKay

So what's up and what do you want me::

I guess what I would like to know is what ever we have time for.

We have about 20 minutes it looks like, is that right?

1:18?

yeah

yeah,

um sooo

what- what you know about what the plan is

okay

um, what's going on in your class,

um and what you're hoping for help thinking about

okay

and that will inform me sort of what to focus on when I'm here and

how to

train my eyes so that I can be/ thinking about things

that are more useful// for talking together about

uh

so this group, table 1 is the one that I'm like

yeah

is the one that I am/ struggling with a lot

/ok

mhm

um table 2 is,

they are so awesome

because they're just like-

actually the kid that says he does not want to be recorded

mhm

he's soo,
he's such a team player, like
He checks in with everyone/ like
/What's his name?
um Abdon.
say it again
A-b-d-o-n
okay

Abdon um,
he like checks in with everyone like, 'okay we got it?
are we ready to move on' like.
Oh, I just love/ like hearing him talk, /mm
um so he is like really helpful in that group
mhm
uh, and then the other group I have
mhm
So I have three tables cuz I have one, two, and three? Ok
um, so I have a group of 5
okay
and that's another question I want to ask
Is like is that o-
should I have two groups of 3, or should I have one
group of 5 cause I feel like
the 5 is better than 3
okay
I'm feeling like.
okay,

/in the beginning/
/yeah, I don't think/ I don't think there's a right answer for that.
In my practice
I have trouble with 5's just cause I feel like it's too easy for someone to hide
and not really-
for everyone to participate is really hard with 5 but um
but 3's are hard too
I know
so let's just watch and see what-
yeah.
okay

Because a lot of times sometimes and you know
it's first period so some kids come in tardy
yeah
and so it's hard like when start group work
yeah
I have to rearrange groups
so it gets hard right
three's are especially hard in an early class, that's true right?
I know, so it gets really tricky-
cool
so in the beginning of class I have those. I have them seating in that table,
but when we do group work they move,
okay
according to who's absent and like what spaces are available
so this is table three?
table four
four
yeah
okay and then you have four students here.
4. 4...
Three
3.. and then 2?
3, oh wait
I can't do math,
Lynn: that would be fourteen
that would be 14
So four and four is eight... I have a three.. and a two
Okay mhm
yeah that's what it is, yeah
I see
and then those two pretty much just fill in the spots
who ever's absent as they come in
I see
cool
and sometimes it ends up with a group of 5
mhm
you're saying
and um...
so I would love to hear about how table three is going in your opinion
/they're doing well /and what your/ struggles are like in table one,
or like what is hard for you
um..
oh my God.. (laughs)
this kid/ right here /yeah
yeah,
/he will not talk/ /is there a seating/ chart by the way that I can tell yeah
or it's private
uh he does not talk,
okay
Like not even does he talk to you privately, like in uh, if I ask him a question he'll answer it? Ok like group work? oh my god, it's so-
and that's what's really struggling for me cuz he andy
and he is uh- scored that highest in the last test mhm

Lynn: I just had him to take the CELT. Andy Lopez?
Yeah. No, Tiejo.
Lynn: oh He's not EL.
I don't think he is.
But, uh yeah, very independent.
Very.
okay
uh,
and this kid is sitting here now um (.)

Lynn: oh
And Antonious?
Yeah,
he goes by Tony
Okay

Uh so I'm just really struggling with them like being able to communicate with each other, and I feel like they get really stuck because they're not talking to each other.

Cool.
Um,
and so then,
and like they're friends so they got to get off task a lot who are?

Uh,
these 3 okay

this kid, ok this kid doesn't do anything (laughs), won't even like-
mhm

really struggles with even taking out the do-now
and getting started in the do-now,
comes in tardy like almost every day

um (.) yeah

okay

but these two yeah,
and then so it's really hard to communicate cause then   
it's like .
Tony feels like-
He feels like um,  
like no one else is like conversing with him, so it's   
really hard for him to have those conversations   
mhm
They do have personalities like being able to talk   
but like they feel awkward, because it's like-   
I think it's also awkward cause they have this guy   
mhm
and they're just like okay like   
I don't know it's just the dynamic is interesting.   
You'll see tomorrow.
Okay, okay
so this group is the one that works really well   
okay.
So lets think about-   
let's talk about the lesson   
um   
so it's gonna start with a video   
(background noise)
We are in unit 2?
Yes,
we are in unit 2, yes.   
(turning pages and speaking softly) forty one to forty four (.)
So we're getting into scientific notation.   
Today we um talked about exponents,   
um..   
and then..   
some groups got into like base 10,   
and like base 10 to the second and seeing what   
happens   
mhm
like when you're multiplying by a power of 10

mhm
um, but we didn't- not all groups got to this.   
So I feel like for a do now tomorrow I'm going to like   
have this /and um talk about it. /okay
Cause I need to make sure we are all-   
before we get into scientific notation   
so what is there,
I'm asking this question to frame my thinking around   
your um...   
thinking about this group.
Um, So my question is what do you-   
through this lesson as we look at it maybe tell me   
what is there for them to talk about.
Like where would you hope there would be talk? and what do you imagine them talking about?

right.

Um,

so we're gonna show video and then we're gonna do, uh Eight forty one to eight forty four,
um so a lot of times how I am structuring these is there is a checkpoint after each problem um

And this is group work?

Eight forty one to eight forty four?

uh huh

OK. (.)

and what is expected from them at the checkpoint?

just to like explain so they're answering-
like so I'll randomly pick someone and then umm they'll tell me what happens when you multiply by one point three nine,

umm

mhm

and then whatever their-
you know like just ask them questions depending on what their answer is

mhm, cool. (4s)

And what's your experience so far with this group and checkpoints.
cuz you're randomly picking right?

right

so what what have you seen them do with that?

Or does it just stress them out and they struggle (talk) or

no, u::m (4s)

I feel like its slow with them

mhm

so it's like sometimes like we won't even get to a checkpoint,
because like this kid is really like, not doing much

so they have to like push each other to get-
mhm

cause they're not getting to those checkpoints

mmm, mhm

because like you have to slow the group down.

umm so often times it's like I-

I kinda force a checkpoint because I like want to be able to have those conversations with them
um, even though they don't have something written down,
even just asking them that question can get it going
um, but often times you have to like force checkpoints.
And have they had success on them?
yea, umm,
I'm trying to think,
like Tony and Shaquir are like-
and Andy have been-
I don't think Manuel has ever had a checkpoint
(inaudible)
(inaudible) like randomly, yeah
yeah, uuh, okay. okay
um, I'm trying to think (4s)
but yeah I think just that group is just slow.
ok (.) ok
um (5s)
so, I haven't decided
how I want to introduce scientific notation, but we're
going to watch a video.
I don't know if um
is that the one about like you go out into space?
uhuh
Lynn: the powers of ten, the Ames video?
yeah the ames video yea
okay
ok, so would you like recommend me like,
before they start getting into group work,
like getting how to like do this kind of scientific notation or have them like kinda discover it first
and then (.)
Great question.
So this is like, uh, for me this is one of those content-
and Lynn maybe you can chime in,
this is one of those content pieces that's really hard?
mmh
because
it's just,
in some ways, I mean there's like-
it's hard for me I guess to find the conceptual teeth in it,
because it's like, it's just a convention.
Lynn: right, it's not conceptual.
so I mean there is-

it is related-

It's a convention that works because of our base ten
number system

you know, um

but it (. )

I feel like um (. )

yeah, like what is there-

it doesn't feel very group worthy to me,

so it feels like what- how-

right.

it doesn't force kids to talk to each other

right

because there's not like-

there's not really as far as I can find anyway

multiple ways to think about things,

mhm

it's just like you get it or you don't, /which can

actually

Lynn: there's no multiple representations involved, or

right, and the (. )

and so sometimes that can serve to sort of exaserbate

status issues

right

because its one of those like,

Well, the same kids that I am used to thinking of-

(interruption from a student)

the same kids I am used to thinking of as the smart

kids

are the same ones who are like, who get this and like I

totally don't

because I am not very good at like figur-'

like parsing all of that is not an easy task, right?

like all the words and connecting it to the symbols

mhm

like there's numbers written in different places and

mhm

you know?

Um (. )

I know.

I am not looking forward to it

So it almost makes me wonder whether we just don't,

like maybe it's a pair activity where it's not framed as

group worthy

mhm

there like isn't something for a group to talk about

Lynn: that's ok

but your job is to make sure-

and maybe we use-
like focus on norm building that will support nobody getting left behind in the pair, you know like

mhm

I don't know how it's been talked about yet, so far in this class but like taking care of each other, no one is done until everyone is done, whatever those kinds of norms are.

yeah

and frame it as just two people who um-

and maybe

yeah

there's some kind of accountability for how do we know that they both-

they both are like uh, being supported

yea
to understand it you know.

um (.)

yea I worry a little bit about content like this sort of cheapening group work a little bit before we have it really well established or right

like early in the year.

Because

Lynn: because it's not.

because it's not really-

I mean, when we have norms really well established for group work, then it doesn't matter that much right and we can be like yeah, yeah, this one's not that group worthy but you guys know you are going to be checking in with each other

yeah

you are going to make sure everyone's got it, you know

And that's why we're struggling a lot in seventh because of our unit on rational numbers not feeling very group worthy?

yeah, well I mean today-

I like the apprentice task that we did

yeah

but um

before that like allt he other stuff was very hard to-

yeah

cause there was a lot of status issues that came up
yeah.
so maybe we can play with some other structures that
are still giving kids a chance to talk

mhm

cause I think that's important
Lynn: and maybe it's easier to get this kid to talk if
there's only one other person that he has to talk to
Thats what I was wondering.
Yeah, and this kid.
If he feels really responsible to one other person
might show up in a way,

right

that he doesn't-
you know you can hide when there is/ three other
/right people doing the work, right?

yeah yeah that's true

but if it's just one
and like it's really easy to tell/ if there is any
/right conversation happeing
or if there's sharing you know,

yeah

like the middle space in use can be the middle space
between the two

mhm

um, and you can launch it with clear expectaions for
what is it that I want you to talk about.
This is- and you can just acknowledge,
This is kind of just a convention
we are trying to make sense of this convention that
someone came up with.

mhm

its not a deep concept
but it's useful to make sense of
Lynn: its useful
'because it's gonna keep coming up
and it's useful, you'll see it in your science classes.
So it's not super rich today
but let's support each other to make sense of this
thing.
So by the end of class
I hope that this way of writing numbers is making
sense,

yeah

so you're gonna work with partners to try to make
sense of it today,' or something

yeah

you know what I mean? (.)

yeah. (3s)

So then they'll just-
so do you still imagine like having check points
after they work with their pairs.
Like kinda having that same style but like in pairs?

(side talk to with a student)

I wonder if there's, um.
I wonder if you're gonna be run ragged if you have
pairs to handle in check points after every single
problem.

Although it's a small class.

It's a small class yeah

But I wonder if um

Lynn: And could I jump in and do check points
Could you?
Lynn: If I'm here
uh
you could,
sure.
Um,

I think that maybe (.)
There's also the flip-
so check points are when they call you over at a
certain time
and you've been saying that you've been forcing check
points
mhmm
so that's actually another way were do it on purpose,
not making it- like just-
I should be able to come by at any moment
and randomly pick one of you guys
and that person should be able to explain to me where
you guys are
and how you-
what you are and are not understanding
right
so its not that they're responsible for being done
but they're responsible for explaining to you um

where they're at
where they're at,
what they're struggling with,
you know.
And then you can-
so you can kinda do,
if you suspect some people are not working together,
you can be like "remember I'm doing shuffle quizzes
and I'm thinking I might come to you in a couple
minutes."
You know what I mean?
So give them the chance be like
"oh, oh yeah what are we I gonna say to her?"
You know what I mean?
   Um, so it's sort of the same structure but you're not bound to-
   And if you know-
   if you can tell by watching that a group is doing fine,
   and they're working together
   you don't have to go to them.
   yeah
   I don't think there is any deep justification necessarily
   that you are listening for anyway
   okay
   right?
   yeah
   I mean I don't know,
   there might be.
What happens when you multiply (.)
Yeah not really,
I can just look at their work and see like, you know (3s)
and some of these too,
I feel like what does this number mean?
Yeah
I don't frikkin know what that number means.
(laughs)
I mean, it means one nine nine with a bunch of zeros,
but what does-
it means really really big (laughs)
is what it means, you know
yeah
Lynn: as one of my students once put it, it's a big humungous number
Yeah its a big humungous number,
that's kind of all the sense making there is right?
I mean you could write it.
you can write the thirty zeros and get-
and maybe understand why you don't want to write it like that every time.
But as far as the deep- like what does that number actually mean.
I don't know if that's gonna happen
Lynn: no
yeah,
and then they are having them write it
Lynn: I have to run to advisory.
yeah. Which I kinda like that.
and it won't take for-its only 30 zeros right or 28 of them.
yeah
(to Lynn) You're running to advisory?
Yeah

Okay

(The three talk briefly about schedules and classroom numbers)

Lynn: sorry, see you later.

Cool, see you soon. (.)

Yeah, so maybe we could experiment tomorrow with

some pair structure when it doesn't feel very
groupworthy

but we're still maintaining this like,

this culture of togetherness,

like learning is not something you do all by yourself

Mhm

Like you have to watch out for each other too:

Mhm

You're gonna be held accountable,

all that kind of stuff.

Does that feel good?

Yeah (3s)

Cool and I can listen for-

How we doing on time? Oh we're almost done okay.

I can listen

I'm thinking then I'm watching the pair structure.

I'm watching them work in pairs

and I'm listening for in particular the kids that you've
told me you're a little concerned about,

it's a small class so I can probably listen to all of them.

Yeah

And um trying to make sense what's happening for

them

so we can think together about what that structure is
doing for them,

Okay

What this task is doing for them

Yeah

Does that feel useful?

Okay

And then before

Um I get into the pair work should I-

Should the roles not really be part of it, right?

Say that again,

Roles?

Oh yeah,

No.

I don't think we're-

I don't think it's a roles day.

Yeah

I think it's a- yeah
I think what you spend the front of the room time doing is being really clear about your expectations for what work should look like today.

yeah so in- if we’re doing a new structure. Have they done pair work before?

no okay so it's a new structure and when we work in pairs, your job is to stay on the same thing at the same time, make sure both of you to have the same understanding.

I'm gonna hold you accountable to that by kinda like a check point but I decide when I come to you right and also maybe make sure they get when you come to them they don't have to have right answers

okay right, they don't have to be done, they have to be ready to talk about it okay Does that sound good?

yeah awesome I look forward to it, sorry we didn't have much time to chat.

Lunch time is hard maybe next time, I'll find a different time for our chat yeah, cause I usually have kids here everyday yeah I realized when I watched this why do I think lunch times work No I thought it would be fine too. I mean our schedules are always crazy yeah, yeah maybe next time we can do an after school chat, yeah okay awesome well that was good I feel excited okay yeah cool

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**Kamilah Cycle 1 Debrief Conversation**

<table>
<thead>
<tr>
<th>Kamilah</th>
<th>Mia</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ok, do you have paper or a notebook or anything?</td>
<td>Ok, so I have a suggestion for how we can start.</td>
</tr>
<tr>
<td>(goes to get a notebook)</td>
<td>mmmmm.</td>
</tr>
</tbody>
</table>
Um.
Thank you for letting me come into your classroom.

Of course.
I really enjoyed it.
Um okay.
So if we take a few minutes
to um
think both-
like start with some writing.
I am going to do it too
and then we will talk

Okay.
about um (.)
I like to do it in this T-chart kind of way,
so the strengths
of your own
or of your class
or of your kids,
but I would like you to try to own them
so, what you feel like you are really good at and
strong with that happened today in class
or that you feel you know

mhm
connected to for today?
And um
questions.
What are you feeling curious about, wanting to work
on

Okay.
Yeah?
And then we will do-
let’s just think about that a little bit
and I am going to use my notes.

And are they in terms of today’s lesson
or the (door slams) ?

Um,
well so I think the strengths um, it helps to be really concrete,
so let’s think about today

Okay.
And knowing that you have way more strengths than
we could name or see in one day.

uhuh.
Um
the questions, I think you might-
whatever is feeling pressing for you.

Uuhuh.
Um
yeah.
I think it helps me to understand your questions when they are connected in some ways to what we saw together.

Mhm

Right? Because then I could be like
“oh yeah, I know what you mean. I saw this thing happen.”

Mhm

“I get that.”
Or I can plug in more easily, but you can ask whatever questions you want.
And then we’ll decide together,
based on the questions, which ones we want to take up today,
because we can’t take up everything in one conversation.

Yeah.

All right?

Okay.

Sound reasonable?

Yeah.

Cool.
(moving papers around) Too many things.

(6 minutes of silent writing)

Okay.

Are you ready?

Mhm

I see you pausing.

Okay,

I could probably keep on going, but I’ll (smiles).

Yeah.

Um,

oh yeah and let’s just check on our time so we can be (inaudible)/

(inaudible)

Lynn: 1:18 is it?

1:19?

1:15

1:15. Okay.

Lynn: I forgot to get ready for advisory.

Okay (.)

Cool (.)

So will you share yours first?

Um

I really liked the video.

Um

I think it was really cool for students to see what the power of ten was and

I think it was um
interesting for them

to see.

mhm

Um there was the comments they were making like
“oh that’s nasty.” But like, you know, I mean it wasn’t
like-
they were still thinking about,

you know, what that means. You know?

uh huh

Um and then-
yeah so that was I felt I really liked the video.
Um and then I noticed like proximity really works
well with my kids, um
and like
if they're talking and I come over
they'll stop

uh huh

um, or like
I felt like
to me-
in table one like,

mhm

who wasn’t getting anything started, but when I came
over
um like there was that motivation to like “okay let me
actually read or like try and do something.”

mhm mhm

Like let me work with a calculator

mhm

or let me write something down.

uh huh

So I feel like my kids do feel like
they do need to like do something in my class.
I feel like it’s positive that they are
tyhe're feeling like I am coming over and that they do
have expectations and they /are trying to, /mhm
you know,

mhm

fulfill it.

Uhuh uhu.

So um that
and then I felt like my students um-
especially on the do-now problem I think it helped
them like see
patterns,
like early on and then it kind of like
overflowed and they were able to see-
I mean not all students but I think most students were able to see “okay the decimal is moving” or like “when we add a zero, this is happening.”

Um I think the do-now problem kind of helped them? with that.

Um, and then should I get into questions?

Umm let me add to your list first

Okay. and then we can go there.

Or (2s, looking up) actually let’s hear your questions-let’s hear em and then we can decide what we can do with them.

Okay.

Yeah.

Um so the flow of class of like whether or not- I wonder what your were thinking about the flow. Was it too slow?

Like how much should I have been pushing forward? Like when you came in and checked in with me during the lesson like you know, "maybe set your expectations a little bit more."

Like what was expected for them to have.

Um so there’s questions about that. And then, what I should, let’s- so if we do, pair work.

And also pair work versus group work.

Like how to use that. I mean like I feel with this small class that I have-

(someone walks in) umm is it okay if I have students taking a test quietly? Or I can just tell them to come back tomorrow.

(whispers) If that’s okay, that would be better.

Okay. (to student) (inaudible) Thank you. Student: Well tomorrow I have (?). What was that?

Student: Tomorrow I have to go to (?). Okay, you can take it next week. Yeah, next week is fine (smiles).
(to student) Thanks!

Sorry I took your teacher away from you.

Sorry. Um

so yeah pair work versus group work.

Oh especially in the small class, I felt like

t he pairwork worked well today

Okay.

like in terms of like um

t hem not having to like

check in with someone else?

You know it was like helping with the flow

because it was only one other person.

Mhm (writing).

Um (3s)

yeah so (.)

deciding like when to use pairs or groups.

uh huh

And then what I should be doing at check-ins.

Like if I’m doing pair work like what kind of

questions should I be asking?

mhm

Um is it kind of like a check point?

Mhm (writing).

Um (.)

and then uhh-

changing seats. Like

I feel like (.)

t able one.

like Tony and Manuel are,

um

not working very well together,

uh huh

so like if,

you know, they have seats already- because I try to be

random.

uh huh

Um but I have seats like

and they are not working out, like

how long do I keep them together until I move them?

Like-

Did you notice that your class was totally gender

segregated? (.)

Is that randomness? (.)

I love randomness, that’s the weirdest thing.

Yeah.

They were all groups of girls, except for that table

which was all boys.

At least today.

There might have been some absent people.
Lynn: There are some absent people.
Lynn: At this table.

Yeah
there is a boy here.

A boy, okay.
It was so interesting.
I was like “whoa I wonder if she did that on purpose
or is that like”

No.
That’s so interesting, huh
Yeah.
Cool.
uh huh

Um,
so like
yeah changing seats
uh huh
and then
just kind of like-
because table one is the one that is like struggling with
like getting stuff done.

uh huh
They tend to be unfocused.
Yeah.
So like, how can I help them?
Uhuh uhuh.

And yeah.
Okay, cool.
So,
I am going to be so efficient.
Okay (claps once)
tons of strengths,
uh so
I really appreciated,
like towards the beginning of class,
you clearly stated norms for them?
You told them you want them-
I think it was when you were saying you were going
to do pairs instead of groups.

Mmmhmm.
I think it might have been connected with that,
mhm
although I don’t totally remember.
But you said um,
in particular I remember you saying 'we still take care
of each other.'
mhm
We are still checking in and asking questions
and I really appreciated that clear

259
articulation of what we are about here.

Mmmhmm.

Um

the video I felt like it was also really nice
to have multiple media available
for different kinds of sense making.
I think it makes more available to kids um

mhm

I heard student voices.
You know I know you have articulated in my
experience with tiny classes and first period is it’s really hard to get any momentum happening

mhm

and maybe this is related to your question about flow.
Right.
I feel like it's a first period small class always problem

(laughs).

Yeah.

Um

and I was hearing voices
and they were reading aloud to each other
and I couldn’t remember if you told them to
or if they had just taken that up as a norm.

Yeah

that is the norm
yeah.

That’s awesome.
That’s what I thought
because I didn’t hear you-
I don’t think I remember hearing you.

No I didn’t say it.
And yeah when they broke into groups I thought
about that
and I looked around and I noticed that they were
already reading to each other.

Yeah.
Almost all the pairs just naturally started by reading aloud,
which does multiple things.
It gives more access to kids.
It also breaks that silence barrier,

mhm

so it makes talking easier
yeah
because something has already been spoken right?

Um
I was really appreciating watching you intervene with groups for different kinds of reasons when you were asking what they were doing
and also when they were sort of off task.

Mmhmm.

That there was a very gentle sense
and I think
you had said something about how um those two
(points),
Manuel and Tony,

um

were

you know feeling accountable to something.
I can’t remember how you said it, but like they want
to get something done

and so you come over

Right.

and like they care.

right

But I think also, my sense was that also has to do with
the way you interact with them.
Like, if you had gone over there and been like “get on
task,” (wags finger)
you might have seen something really different?

Right.

Right?

And it would have been really easy to do that.

Yeah.

Um and I was really appreciating that your-
I think- what do you say to them? You said “What is
going on?
Can I help you?”
So your assumption when you entered into them
was like “you want to be doing the right thing.
How do I support you?”

Yeah.

Um
which holds them accountable in this way that is very
grounded in caring about them,
which I think gets you a lot of mileage.
So that’s awesome.

Um
I was just noticing in general in the class
lots of safety for students to be themselves,
which I think is probably connected to what I just
said.

Right?

That you you- there is not a sense that like,
something I’m gonna do is going to make me a bad
kid.

Mmmhmm.

You know?
Which I think is a really nice foundation. Uhh I noticed students, in some cases, voluntarily checking in with each other and sometimes across pairs, which told me that they were invested. It told me like they felt like they needed other people, which is a good thing, and they were invested in success. They cared enough to check in and like pursue support.

And which groups were those? I saw what I am remembering right now was-which was also connected to a status question for me because of the particular people who were checking in.

Right. I saw uh (looking at seating chart) Victoria? mhm and Itzel. These two (pointing to two chairs) uhuh. And they were not in the same pair. Right. They were kitty corner and I wasn’t sure what Aliyah and Teresa’s participation was in that or what messages they were getting.

Uuhuh. You know, so like these two were clearly like “I care about my success. I want to be right.” Yeah. But then they are not checking with their partner but they are checking with them.

Oh. So what does that tell their partner? Right. I wasn’t sure, but I also hadn’t been there the whole time, so they might have already checked. Right. But I couldn’t quite tell so. yeah. yeah.

Victoria sits here usually. Yeah. She never- that was the first time she sat there.
So I was wondering if that was giving us information about status that we can think about.

Yeah.

That maybe Victoria and Itzel were both feeling like “I am smart and you are smart right and therefore we can help each other.”

Yeah.

And they maybe were not assuming that Teresa and Aliyah had much to offer.

Yeah.

Right.

Maybe.

So that's just- and it's good information right?

Yeah.

It happens in all classrooms.

Um (3s, looking at notes) oh!

You were making a decision about a calculator.

The kid said “but we are not suppose to use a calculator.”

And you said “I’m okay with you using a calculator. The biggest thing that I want you to notice is.”

And you pointed them to the content.

mhm

So for me that was powerful-

You were telling them “what matters here is the learning mhm and here is the exact learning right that I want to see happening.”

Mmmhmm.

So the tools or like the rules right are less important right than the learning.

Right the answer (inaudible).

Or like the rules about what it says on the paper. Like as long as you have access to this learning, that’s what I care about,

mhm so I was really appreciating that.

Um you said something to a kid- as I was writing this-
I can’t remember. Maybe you can because I wish I could remember the details. What I wrote down was and I remember this. You said to a kid- I don’t even remember who. “You made an awesome connection here.” And you helped the kid connect something they had done to the problem. To the task the way it was printed in a way- and I don’t remember. I wish I could (inaudible).

Oh, I think it was right here (points). Okay. And what was the connection?

I think it was like um moving the decimal and looking at the exponent. So it was something- what I remember about it, at least my impression of it, was that it wasn’t a connection that you were expecting. Like you were listening to the kid

Oh right. and you heard the kid say this thing. And you recognized the math in what they said and you recognized how that math was connected Right. to the task, even though it wasn’t exactly what the task was asking for. Yeah. So you were helping them to see how what they were doing was connected like to the formal task. Oh yeah. Does that feel right?

I am just trying to remember what it was. I wish I wrote- took better notes. Err. Grr (snaps).

(laughs) Anyway, it was a moment like that I think. So what it told me was that you were listening for what the kids were actually saying.
Not for like “are they right?”

yeah

or “are they doing the thing I’m expecting”

Yeah.

But you are listening to what they are actually doing,

mhm

you were making sense of it,

and then helping the kids to see how it made sense.

Which is a super powerful like pedagogical skill.

Okay (smiles).

Um (.)
I think just the fact that you kept a positive sort of-
yeah I think we could think about flow.
I think we could think about momentum in this tiny
first period class (laughs)
because it always happens right?
Like I share-
if I were teaching it, I would share that same
challenge,
but I think that given that challenge,

um kids were smiling,

there were voices happening the whole time.

There weren’t any like “forget about it!”

Or when kids were off-task,

which they were sometimes

Yeah.

it was still connected. Like they were off-task
together.

Mmhmm.

There was no, at least what I- I didn’t see anybody
like “I am now by myself
completely deciding that I don’t care about this
space.”

Yeah.

I didn’t see it anywhere.

Abby wasn’t here today so you-.

Okay.

Yeah (laughs).

It might have happened if Abby had been here.

Okay (laughs).

Yeah.

Umm

yeah.

Okay

so (looks at the clock)

bahhh.

I know.

How is lunch so short?

I know.
Okay um
I was going to ask you about how the pair structure
was for you.
And you brought up that question.
Yeah.
I was just curious because we had-
it was new right? And (then we) brought it up.
Um and then you told me that um
yeah
you felt like it went well.
Yeah.
I think if we did it in groups, it would have been
slower.
Yeah.
Yeah.
Yeah and I think it would have been easier, too, for
more kids to just sort of
be left behind in it
mhm
because there’s not enough to say.
Right.
Right?
It’s because it wasn’t very group worthy, so it’s like
yeah
they could do it in pairs,
yeah
you know?
So what is your sense?
You raised that question of pair versus group
Right.
and when do we do which?
So I guess yeah
I mean if it is not very groupworthy then I can
have them do pair work.
Yeah.
I think there’s like questions you can ask-
yeah, I think that’s totally how I would think about it.
Like what is there to talk about?
Right.
And just like,
I mean I think one um
a nice way to get at that,
which we have done some of in the planning we did
together,
mhm
is doing the math ourselves,
mhm
together.
Mmmhmm.
If you and I could find something to talk about
right
doing the math,
then you could expect kids to find something to talk
about.

Right.

If all we can talk about is
“you move the decimal point” ahhhh (laughs)

Yeah.

There might not really be anything to talk about.

Right.

So like when there is something rich to talk about,
right
groups need each other right? They need multiple-
they need people with different skill sets.
They need kids who are good at articulating,
kids who are good at listening.
They need, you know, all that.

Mhmm.

In something like this, I think-
yeah I agree. And it is not just for flow reasons,
but I think also for learning reasons.

Yeah.

Like

yeah

um

yeah (.)

Yeah yeah.
I’m with you on that one.

Ummm (8s)

okay so there-
okay.

Hmm (.)

I’m trying to figure out what we should take up
in the time that we have.

Um,
I think these two questions (pointing to her notebook)
are connected in my brain.

The flow?

So the ones I wrote down were

the flow?

right

and related to like what we played with

yeah

in the middle of class.

Yeah.

And I don’t know how successful that was and I am
sorry if I disrupted your flow (laughs).

No (smiles).
Um
I like to be able to sort of experiment

yeah
and play
and then we can learn from it and see you know
“Err that didn’t do any good.

yeah
Okay.”

Yeah (laughs).

Um
and this question.
"What should I ask at check ins?"

Mmmhmm.

Um I feel like those are a little bit connected.

Okay.

Because I - for me um (.)
And I don’t quite know-
(5s) I think you want more opportunities-
you know what you did with that group where you
were like uhh
“you made an awesome connection.”

Mmmhmm.

Listening to the kid make sense of something?

mhm
that allowed you to connect with their math thinking.
Helped to connect their math thinking to the task,
which helps them learn.

Mmmhmm.

But you can’t do that if you are not hearing that from kids.

Right.

Right?
And you could there because you were.

Right.

So like
I wonder about
how we could think about
how to get them producing?
math,
in writing or in talk
that then is available for you to do more of that with.

Okay.

Do you know what I mean?

Like um-
s, and for me I think that maybe my little experiment
in the middle of class didn’t totally work.
I don’t really remember.
But for me, that’s connected to
what do they think you’re expecting from them?
What is it supposed to sound like? What is it suppose to look like?

Right.

So like um-
so like what for this sort of ‘off-tasky’ kind of group,
I was wanting them to have like,
oh I can say out loud
what does this mean?"
That’s useful participation’
right?

Okay.

I don’t have to be like
“oh I know the answer.”

Yeah.

Right? But useful participation
yeah
and good group work,
yeah
getting that happening can sound like
“Does anyone have an idea?”

Right.

It can sound like
um
it can sound like “well let’s just write it down and see
what happens.”

Right.

It can sound like proposing
a wrong idea.

Mmmhmm.

You know what I mean?
Um and I was wondering about ways-
and I don’t have like
a “do this” kind of answer,
but I was wondering how they could get more
examples
right.

of what it sounds like
right
and what it looks like
and what you want them to say.

Right.

And do.

Right.

That’s like concrete.
right

Do you guys use those role cards?
The orange ones?

Lynn: Mmmhmm.

Yeah are they orange?
So this wasn’t even roles today so I don’t know if that would work.

But one thing that’s on there is those sentence starters. Oh yeah.

On the cards there’s like in quotes, here’s what this can sound like.

Mmhmm. Um “does everyone understand? Does anyone have an idea?” So like that kind of like giving them practice saying things right and even being clear like “today I want to hear right the words ‘does anyone have an idea?’” You will get at first kids being totally goofy. Yeah. And being like (exaggerated) “Does anyone have an idea?!” but it doesn’t make any sense right? I know, yeah (laughs).

But, what will happen or what I see happen alot is kids do that uh huh and then all of a sudden there is a math conversation happening. Yeah. Like it started in this joky kind of way, yeah but then someone is like “yeah I have an idea.” yeah. And then there’s an idea being talked about. yeah Right? And then like “whoa we are talking about math and we didn’t even know it.”

No, that’s a good point. Um because I like the first week of school, I handed out those group cards. Yeah. And its in the um but in the eight by ten. Yeah. And um so we had it,
but then um, you know they're getting used to the roles now so I felt like they didn’t need it. yeah
But I didn’t realize that there are sentence frames on there and that could help them with conversations, so I feel like that should always be- And maybe in pair work you- like the roles is too confusing yeah
anyway so maybe it's just like some sentence frames on the board. Yeah.
Maybe it is in your launch.
Lynn: You could put sentence frames on that word wall on that Yeah.
I have another one of that (points at the wall), so I can put it somewhere else. Or even,
I don’t know if you guys have played with participation quizzes. Yeah.
You could even do these targeted- I don’t know what they are called, but there is like a targeted participation quiz too where you say like “I am looking for”
mhm yeah
Yeah. “I am looking for bodies leaning in” which this group (points) was not doing at all. Okay.
Had they been doing- Shakir had a bunch of math, yeah
but he was like this (leans back and pulls papers off the table onto her lap). yeah
And I don’t think he felt safe to share Right.
because he was getting clear messages that those two guys over there were not yeah
invested or that- he was- there was some social risk. yeah
Right? Like if he were to do that, he would be taking a real risk.
Yeah.

Um so
Lynn: I need to (inaudible) (gets up and leaves).
Thanks for-. so like I’m looking for bodies leaning in and work in the middle.
right
I am listening for
“Does anyone have an idea” or the word “because”
right
or whatever is feeling like/ it will support/ what’s happening at the moment.

Yeah. //yeah
Mmhmm.

Um and like give points for it.
Yeah.
Make a big deal out of it.
Okay.
You know like write it publicly.
Yeah.
Like put little quotes around what you are writing
Mhm
showing that you are quoting these kids because they are being awesome.
Yeah.
Right? Does that make sense?
Yeah.
I think that might support the flow and sort of the sense- and then as they get into it, they are going to produce stuff.
Right.
That you can do, you know, that amazing listening you know how to do
Right.
You will have stuff to listen to.
Right.
And then they are going to get all of these messages about how smart they are.
Yeah.
Because they produced something, right
they saw you hear it,
Yeah.
they saw you take it in and take it seriously
Yeah.
and then they are like whoa, you know
Yeah.

Cool, yeah I like that idea.
Cool.

Fun fun,
and your bell is about to ring
and you have advisory
and (bell rings) ahhhh.
We get to learn.
We don’t get to learn everything all at once,
but we get to learn right?

Mmmhmm.

And participation quiz is something you guys, as a
group, can work on together too right?

Mmmhmm.

Yeah I haven’t-. I think I did it like once or twice so
far.

Yeah.
It often can support group work.
I felt like today it could have been one of those
targeted ones

Right.
or because it was not group work. Right?

mhm
But there is like “I still want to hear
right
this this this.”

Yeah.

Thank you.

Yes, of course.
So are you going to come in-
when are you going to come in?

Are you observing?
How many times are you gonna observe us?

What ends up really happening,
I average,
or what I’m funded for is like four times
for each teacher.
What ends up happening usually,
is the teachers who really want to make use of me like
ask for me and they get me more (laughs)

right.

um and
I try to focus it toward the beginning of the year,
so like I can come in more in the fall

yeah
because that’s when it feels like-
I don’t know-
whatever.

okay
Um, so if you want, if you want more,
I can do more.

okay.

um are you hoping for more?

is that why you asked?

I’m just wondering,
like what should I expect,
another cycle of this.

I think we get to decide that together.

Yeah, and it doesn’t always have to be everybody on
the same day, like if you
if you want, just come on in and hang out with me

yeah

and not everyone else is in that place yet,
I can just come hang out with you,
it doesn’t have to be everybody.

okay

So, yeah,
so you should let me know- yeah, my favorite thing in
the world is for people to ask for me (laughs)
(to student) Hi

Kamilah Cycle 2 Planning Conversation

Kamilah  Mia

How you doin?

Good!

Good, you look great.

Thank you.

all glowy and happy

((both laugh))

((to Lynn)) Doesn’t she?

Lynn: Yes she does.

(OK, now you’re gonna) make me nervous

(laughs) That’s what I’m here for,
to make you self-conscious

(laughs)

(.) uuhh, okay!

Lynn: Did Kamilah tell you about her exciting week
last week?

Oh, yeah

Kamilah told me nothing (inaudible),
what am I missing?

I got to meet and talk to Arnie Duncan.

What the hell?

How did that happen?

I don’t even know, like,

I guess

there was this panel and so

they,
I guess Heather was invited?

to go,

and then she didn’t want to,

uh huh

so then, um/

Lynn: /(inaudible)

The principal asked me

and I was like, ‘okay!’ and then,

I didn’t know what I was getting myself into,

but it was basically just a panel-

should I sit here?

Here would be great,

or I could move that.

I think I wanna shoot away from the windows so (we

can get more faces).

Um, that’s awesome!

Yeah

Did you get to tell him how it is?

Yeah/

/You told him what’s up (claps)!

I told him!

What’d you tell him?

Um,

I mean he basically wanted to have like an honest

conversation, and be like,

“How are, how’s common core playing out this year,”

like “What are some

like, is it working,
is it exciting,
is it,

uh huh

you know, your struggles,
your challenges,”

so I was like/

/What’d you tell him! (claps)

Uh, I brought student work,

so I like showed him, like,

you know, it’s been like groupwork,

and like, having the kids to like justify and reason has

been like huge,

and like, um (Mia high-fives Kamilah), yeah!

It was a lot of like,
it was good,

I was like, it’s a lot,

but it’s like, we’re doing a lot of work at the same

time?

Like, the transition?

And how much work and prep and afterschool time

we’ve been spending on this/
/Yeah, yeah

But, I mean, it’s been, we’ve been having exciting stuff happening inside of the classroom, and kids are like having math talk and (.)

reasoning, and, yeah it was good.

Did you tell him how you’re doing any of that stuff?

Cause that’s not the Common Core.

Yeah, um

I mean, the Common Core makes space for it, right?

Yeah, I did (.)

Yeah, I talked about groupwork,

uh huh

um, I didn’t say CI though,

uh huh

but (laughs), um

Lynn: He wouldn’t know what that was (inaudible)

(inaudible)

That’s so cool,

who was, who else was there?

There were like three other teachers from the district,

and then some other like (inaudible)/

Did you know anyone

(Heather comes in) Heather: Oh, sorry!

No, I didn’t.

Heather: Are you (coming to see me after)? Sorry

Yeah, is that okay?

(Door closes)

I was just going to swing by after, at 3:30,

when school’s out, cuz she and I didn’t quite finish our conversation.

Um,

what was I saying?

I was asking you, uh,

if you knew the other teachers.

Oh no I didn’t.

Okay.

Did they say cool stuff?

Yeah.

So we were all just like, talking, and kind of like,

yeah, we totally have the same experience, like, yes,

you know, (inaudible) (in their head) and (.)

Yeah.

(Mouths to Kamilah: wow, that’s so awesome)

Where were you guys?

At [local middle school].
Uh huh.

I know.

Go you! *(claps)*

Very exciting.

Yeah, um (*.)

So we’re basically just gonna talk about tomorrow’s plan, right?

Yeah, so what I was thinking we could talk about, um, and we can do-

we can sort of go as deep as we want to,

*hm* um, or be as quick as we are able to, um

so, the the-

What I’d like us to get to in this conversation

is just get me oriented,

okay

Um,

and

figure out how to set us up for whatever we want to be able to talk about

in the debrief, like,

where do you want my eyes?

what are you hoping to be thinking about together?

okay

um (*.)

Cuz that will help me figure out how to plug in

Okay

in the class

or how to observe,

or what I’m looking at,

yeah

and sort of, taking note of

so that I’m armed to help you with what you want help with.

Yeah.

Um,

so that, that’s sort of the basics.

The fundamental,

yeah

um, to set us up to get something good

yeah

out of the interaction.

And then um, (*.)

and then, we can do as much,

sort of, thinking,

or planning,
or whatever, around the lesson as you want to or are open to, we can play with it and tweak it and make some decisions, or not, whatever you-

Okay. (3s)

So, I guess (.)

well there’s one- okay.

I guess he’s in my first period (inaudible),

but um so I don’t think-

maybe he was there,

Manuel, last time you um observed.

I remember the name,

was he there or was he absent?

He was sitting (points) ' here/

Yeah', there (nods).

And um,

so we've been trying to figure out-

((looking at Lynn)) so he’s also in AVID (.)

second period.

((looking at Lynn and Mia)) And he’s failing that class

(inaudible)

((looking at Mia)) I can check.

And he’s failing my class.

He- I think he’s failing like every single class except

(PE).

(inaudible)

(inaudible) And, um,

so we’re trying to figure out how to support him, and

(.)

um (.)

I mean, of course,

I don’t like the idea of having math support,

you know like how we have it here?

But, um (.)

so we’re just trying to figure out like how to support this kid, and like (.)

is having him in math support gonna be beneficial?

((looking at Lynn)) Because he’s failing AVID

Lynn: Mhm.

((looking at Lynn)) And I don’t feel like he’s an AVID candidate like for,

AVID students need to be kids who are motivated, to
or like, those middle kids, you know?
I think AVID targets those middle kids,
and Manuel is (.)
Lynn: (coughs) Excuse me.
Yeah.
So (.)
I don’t, I don’t (know if this is) kind of off topic or
not,
but,
um
we’re trying to figure out-
like, this is like the whole like nother (story)
(inaudible) decision.
Like should he be in math support?
Lynn: (inaudible)
Mmhmm.
Even though I’m like fully against like having there
be a math support, but then it’s like
(even if) we have that structure in place,
is it gonna help him?
It seems to me,
and I don’t feel like I can weigh in on that cause I
don’t know the kid,
yeah
I’ve seen him only like once, um,
but it seems to me that-
I would hope that that conversation
and that decision would be grounded in some thinking
around, or some conver- some shared thinking
among people who know him and work with him,
around why we think he’s failing.
Uh huh.
Around some- like, what are the barriers
yeah
he’s experiencing.
Cuz it feels like some barriers,
un, might be,
sort of supported or addressed in a math support
environment?
mhm
I sort of suspect when you have a kid who’s failing
everything?
that the barriers aren’t about mathematical knowledge
right
or background
right
or at least not solely
Right.
There are barriers that are different than that 
yeah 
maybe. 
In which case, the placement might not matter. 
yeah 
It might be much more about like, 
given, you know, wherever he is, 
right 
how do we help him in those spaces 
to get past those barriers so he can participate in meaningful ways. 
yeah 
And learn stuff, you know? 
Yeah. 
But I don’t know the kid, 
so I can’t weigh in on (inaudible) you do. 
And so (inaudible) 
Yeah. 
You know? 
I mean he’s really lost 
like he really is, 
like he comes- he comes to tardy almost every day, 
and that just messes up everything already. 
Like, coming in ten minutes late and not knowing, 
like 
catching up with what we’re doing? 
Like, you know you’re already behind, and then 
you’re shooting yourself in the foot 

mhm 
even more. Um (.) 
so (.) 
And then he never does his homework, 
like he barely just like- 
like today, he just like, 
just sits there, 
unless I like tell him 
‘get out a pencil, 
get out a piece of paper.’ You know, 
mhm 
but it’s like, you’re in eighth grade now. 
You should, 
mhm 
like, know what to do when you’re supposed to walk 
in. 
And I mean he’s NOT a behavior, like, you know, 
he’s not disrespectful whatsoever. 
mhm 
He’s just (.)
and the thing is that he says that he has anxiety?

Um, and maybe it's like anxiety over math?

But when he's in class, like, there’s another student that he talks to, like he starts-

I don’t, I don’t know if I like hundred percent believe it.

Like, I think he’s scared of math and he like, once he sees it he gets you know, afraid, but then I don’t see that motivation in him.

Well, those could be (very very linked).

Yeah.

Right.

Like, I- again I think for (.) again, I don’t know this kid.

But I have known kids who have exhibited that kind of behavior,

yeah who I, um I think (.)

mhm became so deeply convinced that they were not capable of learning, either in math class

yeah or anywhere, or producing anything good, or being smart,

and then they became so thoroughly convinced of that that it’s just too painful to continually be reminded of it, so: (.) why- like, why would you try and set yourself up

Right To be disappointed again and again, and to be shown again/

Yeah that you’re not good enough

right or that you’re stupid or whatever.

Um, which I feel like,

I mean I don’t know what clinical anxiety really is, but that is, like that kind of experience? of like sort of fear of that um

yeah
(3s) sort of, threat to your dignity
and your sort of sense of self,
um,
can very closely correlate to what looks to us like lack
of motivation.

Yeah.

Right?
Because, you know, like why the hell would I invest,
Right.
you know. And I see it (.)
I see it in young kids, you know, it’s, it’s scary.

Mhm (.)
So I guess,
I guess for tomorrow I can try to like (.)
give him some competence, you know, make him feel-
like he definitely needs some sort of like
Do you know what he’s good at yet?
Or what he’s smart at?

(sighs ) Um? (6s)
I mean honestly, like,
I mean (like, we’ve talked, like) ’don’t say ‘lo::w,’
like be more specific on what you mean by ‘low’ (air
quotes)
you know like a low student.

mhm
But like, yesterday we were doing like a patty paper,
like, um,
you know, like a figuring out what angles are
congruent,
and they were like drawing
and figuring out matching.
And like,
he wasn’t able to like understand like,
that’s congruent to that.
Like, I guess he doesn’t understand like,
oh this is matched to that,
like he was just (picking) (.)
And so I had to-
it was just difficult for him to figure out congruent,
like he wasn’t getting it.
what congruent meant?

I told-
I explained to him what congruent is, and then (sighs)
( .)
It was like I was having him like prove to me, like oh,
can you show me like how that’s congruent?
And he was doing it, but it wasn’t right, so then-
I guess (inaudible)
I don’t know (.)
It was (.).
I guess what he had on his work
was not showing me that he understood congruence?
Mhmm.

But I felt like the activity that we were doing was very
like,

hands on and having him see what (was) congruent?

and so it’s like worrying me that like,

we’re doing this and like, figuring out and he still

mhm
Lynn: (With) the parallel lines through the
transversal?

Yeah.

Lynn: Mm, kay. Maybe he doesn’t understand what
an angle is. (inaudible)

Yeah.
(nods) A lot of kids.
Because you know,

when you have- and this, for me, was new, I don’t-

What?

This, this idea

or this issue came to me through other teachers.

Yeah.

Um,

and then I’ve seen it a lot since then

and been so thankful that it was pointed out to me that

like, (.)

because I do know what an angle is?

Right

it was hard for me to see how you would not know?
(nods) Yeah.

But like, where is the angle?

That’s true yeah.

It’s nowhere.

Lynn: Right.

There is no- there’s not a thing I can point to and say

that’s the angle.

yeah

We try,

we represent it in diagrams,

but then, it’s like that non-concreteness?

mhm

I think, is weird,

which is very different than a point or a line, right?

Um, because you could say, well like okay a point is

right THERE.

Where’s the angle?

Is it here?

So it’s, is it, like something like area?
Yeah.

Lynn: Mhm.

Is it,
yeah

how much space it’s taking up?
Right, so this idea of an angle as a measure of how,
so we were talking before about how open something
is?

right

Like how open is the door, how-
like that in itself I think is a sort of abstract? Or less

(punches palm with fist) uh,
less totally obvious and concrete I think,
unless we work to make it that way.

So I guess I’m coming in assuming that my kids
already know this.
So then I- I mean now that it/ makes sense/

/research shows/ that lots of them don’t.

Right.
So /(inaudible)/

/Which/ could underly some things that otherwise
you’re like,
how are you not seeing this?

Yeah, when/ (inaudible)/

/Because right/ if he’s saying
if he understands congruence means sameness
Right

And he does understand that
right
but he doesn’t /understand/

right
what an angle is
Right

Then what is the same?
Right.

He might be looking at something that IS the same.
Right

Lynn: /(inaudible)/

/And saying congruent/.
Lynn: Like the rays, which are the same length.

Right.

Lynn: /Or something/
/Right/.

Or, just you’re lining them up,
/so/ they’re on top of each other, that’s the same.
Lynn: Right.

Yeah

Right.
But yeah, that’s so, so there could be some underlying thing like that.

Okay.

Lynn: (You know I) have done a lot um (inaudible)

No that’s a good,

I never really looked at it that way.

I didn’t either, and someone pointed it out to me and I was like,

oh yeah, that is super hard,

like how do you/ (even say)/

/Cause, yeah/

when- the only way and,

and you even notice when I was talking to you,

the only way I can talk about what an angle is is through movement.

mhm

I can’t say what an angle is without moving.

Lynn: Without (inaudible) (opens hands into an angle shape)

Right.

Yeah. Because it’s like-

right, I can do this (swings arms open into an angle shape)

and say I’m creating an angle

right

here that it’s increasing.

Or like I think about a door opening (moves hand back and forth in a pulling motion),

you know what I mean?

Or I cu, I could think about holding two straight things together ((holds two pens together)), and then,

you know, rotating them. /You know/

/yeah/

Lynn: (inaudible)

But when it’s stable,

like, what do you even say.

Right.

Lynn: Right.

Lynn: Or, it really came home to me that they didn’t understand similarity.

Lynn: That two things have, have proportional size

Lynn: and the angles are congruent,

Lynn: and they wouldn’t understand how the angles could be the same in a triangle this big (makes small triangle shape with fingers)

Lynn: and a triangle this big (moves fingers widely apart). /(inaudible)/

/They’re not the same,

I’m/ looking at them and they look /different.
Yeah, what are you talking about, they look different!/
Lynn: /(They look different). They’re the same./
Right.
Yeah.
Lynn: /(inaudible)
/So what is the same about it/
Lynn: What’s the same, what’s the same about them is that it’s longer
Uh huh.
Lynn: So thinking about the radius.
Yeah.
Uh huh.
Lynn: It’s a hard thing to (get).
Lynn: It’s some sort of like algebra
Yeah
Lynn: (Making them abstract)
And I like questions like that,
like asking,
what is the same about it?/
Lynn: Yeah.
And what isn’t the same about it.
Cause kids then can then sort of find,
like grapple with that,
like how do you describe that thing?
There is a thing that looks the same, /but/
Yeah
how can you even describe it right.
Yeah.
Uummm, okay.
So do you have experience-
do you have any-
can you call to your memory right now experience
with things yet that he
IS smart at,
or that you see in him (.)
And it’s okay to say no,
cuz that happens.
That doesn’t make you a bad teacher I /promise./ ((laughs))
/Yeah./
Umm, I’m trying to think (6s).
I mean in terms of like,
his math skills, right?
or anything
or understanding a way of making sense of things,
or does he know
like the right question to ask
that proves something,
or does he-
you know, that sort of ‘math’
but like the broad definition of math that involves (.)
finding ways to do it.

yeah
Participating (in practices).

(5s) I guess it’s still, I'm, learning more, /I mean it's
still early

/Yeah, okay.

yeah
That’s totally a good answer.
I mean it’s an honest answer,
and it’s one that I think is constructive
right
for making progress.
So if we want to figure out how to support him

Yeah then sometime-
so, what that might mean
is giving ourselves opportunities to listen
and watch closely.

mhm
And try to learn that.
Cuz you can’t assign competence (.)
if you don’t know what to assign competence to (so
that's great)

Yeah
So then we can think about- So let’s talk about the
lesson,
more broadly, and then we can think about
what are the opportunities there?
where he might do things
and we can watch him do things.

okay
Or listen or provide opportunities, or/
(you can)/ think more concretely about (inaudible)

/Okay/...Okay, cool.
So today (.)

This is eighth grade right?

This is eighth grade, yeah. (5s, flipping through
curriculum binder)

And that’s-
so Heather’s third period is also 8th grade?
Lynn: Yeah

Is that right?
Lynn: Mhmm. (7s)

Um (.)

((Shifting her laptop toward Mia)) So what the plan is

( .)
So the kids did this today. (Looking at curriculum binder). So they had, um-so they’re trying to figure out which other measures were congruent? (.)

Um.
And this is they they were able to know this because of the patty paper work that we did yesterday?

They noticed that- which angles were congruent?

So finding the measures of other angles.

Yeah, so then I also had them, like, um, name like what type of angles are in here?

They’re vertical angles, which angles are vertical, so they have to write down that stuff too?

Um, and then, tomorrow then would be (.)

doing the triangle sum conjecture?

So having them like, understand that the triangle has a hundred and eighty degrees?

And I don’t think this is gonna take long (right). (.)

I’ve never done it.

So Heather was saying that her experience was that it didn’t take long?

Okay

But I’m wondering if this gives you an opportunity then, that- coming from what we were just talking about (.)

So understanding what an angle is really central to this making any sense.

Yeah.

Lynn: Mhm.

Right?

So I’m wondering what- and given this activity is not a big time

Yeah

user? I’m wondering if it gives us room to think about a way to build in a little sense-making around what an angle is.

Mhmm.

Like before they get into this.
Before they’re trying to line ’em up and see anything about them,

mhm

so they know what they’re lining up and seeing.

Right. (.)

So maybe having a discussion, like,

about what is an angle?

(nods) Ye::ah.

“How many angles are in this triangle?

How do you know it’s an angle.”

Yeah, Like maybe even- what if there’s like a warm up?

I’m just brain storming

Uh huh?

What if the warm up,

or do now or whatever,

mhm

is like just asking them to “in your own words,

explain?”

what an angle is,

and draw a few examples.”

mhm

Um,

and then

you can have them-

you can have a little discussion where they share out some ideas

and you put their diagrams up and then,

I think it might be an opportunity to make clear, uh (.)-

so there’s an opp- anytime we figure out something that, that it’s hard for kids to do?

that we didn’t realize was hard,

it presents us with an opportunity.

mhm

To assign competence?

and make sure that they know that thing that they just figured out is not trivial,

Right.

it’s hard. Right? And so-

and, and calling things out as hard can be super constructive.

mhm

And can support kids in situations like (.)

Manuel, Miguel- Manuel.

Manuel, yeah.

Which is it? (laughs)

Um, and other kids too.

Yeah.

Yeah, um,
so like even just like saying “well, what words
COULD we use to say that,”
and like “how could you-
where are you pointing to?
How do you draw a diagram of something like that.
Where are you even pointing at?”

yeah
And you could even like
mess with like-
you could intentionally misunderstand people a little
bit to give space for other people to misunderstand?

Yeah.
You know, so if someone says the angle is right here
(drawing on paper),
“Oh, so an angle is a curved arc?”

Yeah
“No! It’s just right there!”
“Where? So the angle is this space right here?”

Right.
“So then that means that (drawing on paper)
this one is smaller?”

Uh huh?
((Mia shows Kamilah her drawing))
You know?

Right.
Could draw the same angle with
Yeah
with shorter rays? right,
so you mean this one then is smaller?
And some of them might say yes,
right?

Right
And so you can surface all that stuff and be like “See,
it’s really hard!”

Yeah.
And you can get them to do this kind of stuff
(opening and closing arms),
you know, or be like “Well, what’s the difference
between my arms being like this ((holds arms close
together)) and like that ((opens arms farther apart))?”

Yeah.
((opens arms even farther apart)) “Or like that.
What’s bigger about this.
My arms didn’t change!”
Lynn: Yeah.
“My body didn’t change.”

Yeah.
“My shoulders didn’t change.”
So something changed ((opens arms wide apart)), what is it."

Yeah.

And so,
get them to articulate it, it’s some sort of openness ((spreads hands)),
or rotation,
or-
so get- give them some opportunities to make sense of that so that then they’re taking that into here ((points to Kamilah’s lesson plan)).

Mhm.

Okay.

And you can even call back some of the stuff from congruence that come up yesterday

Yeah

and say, “So when we were looking at-
when we’re holding things on top of each other ((layers hands on top of each other)) to see if they’re the same,
or seems they’re congruent,
it really matters what we’re thinking is the same.”

Right, and it doesn’t actually matter if the rays are the same,
it doesn’t matter-
what else doesn’t matter?

Lynn: The vertex. (inaudible)

Well you’re gonna line them up to see, right.

But, but even if they weren’t lined up,
((spreads hands apart)) you know

Yeah.

What matters is the sort of opening thing.

yeah

/How/ open (.)

What’s the relationship between these two rays around the vertex,

yeah

that that’s what this is a measure of.

Okay.

Um (.)

That seems kind of cool, okay.

Okay.

So yeah, we can have that discussion.

And so this one-
so basically I (cut) out a triangle they cut it up and they break it into three parts?

and then

Lynn: ((scooting closer to Kamilah)) Cause we also did, we did this two ways.
Lynn: We did this this way one time, and then one
time we had a (colored pen).
Lynn: It involved a lot of coloring. (4s)
Lynn: I don’t think that they measure them.
(12s, Lynn and Kamilah are looking at the lesson
materials, Mia is writing in her notebook)
Lynn: (inaudible) do they know what (an acute
triangle is)?

((All looking at Kamilah’s activity))

Yeah, I don’t think I wanna (3s)
I mean, cause this is like what it is right, they break it
up, and then they make-
cause right now my kids understand that it's uh,
a line is one hundred eighty degrees.

Um, so they could break it up and just match it up
/like this
/And see the line?
And see it’s a line.
And are they doing that with triangles that are
different from each other,
so they know it’s not just about /(inaudible)
Lynn: Yeah, they’re supposed to be drawing it on
triangles.
Lynn: But this, this lesson comes from um
Discovering Geometry.
Uh huh.
Lynn: So it’s a high school lesson.
mhm

(. ) Okay, so is this an individual activity? They’re
doing this on their own?
And then comparing with their group to (. )
Lynn: They’re supposed to have in each group like
four different triangles.
Lynn: So each person does a different triangle but
(then) as a group they’re
Lynn: reaching this conjecture.
Mhm. (. )
I guess I’m trying to get my-
I’m trying to wrap my brain, brain around something
about learning objectives.
Or like what (. )
yeah what do we want them making sense of. I see that there’s an answer they’re supposed to get to.

So having them understand that a triangle is one hundred eighty degrees. The sum of it? The angles?

So is, is understanding that different from just knowing it? (.)
Do you know what I mean? Like, sorry that sounded like a really esoteric question,

((laughs))
but I’m trying to- I’m grappling with this, so like-
so being able to say like 'the three angles of a triangle add up to one hundred eighty degrees'
is like a thing you can say

Right.
Is it enough for us that kids say that? by the end?
Or is there something else-
is there something we want them- you know what I mean?
Is there something we want them-
do we want them to know why that’s true?

Well because I want them to get to this point

((flipping through binder)). (4s). Here.

mhm
Yeah. (7s). Yeah. (7s).

So if they don’t understand that it's-
I mean, I could even skip this and tell them that
triangles are a hundred eighty degrees but I feel like it’ll be more meaningful

Well I guess what I’m wondering-
yeah, I’m not suggesting that-
I like them figuring-
I like them discovering it.
I guess where my brain is try to go is like, “Okay, so can- there’s something we can ask that
would force them to actually talk about something, or like make sense of something.
Because as this is,
I don’t see anything to make sense of,
other than like “How do I follow directions?”
Lynn: mhm

Right?
Um, and the way it’s even structured is like
there’s a blank to fill in.
Right.

“My goal is to fill in that blank.”

Yeah.

“With the right answer.”

So,
I’m wondering, um-
I feel like there ARE good questions, like-
I mean even just asking why.
Why does this work for any triangle?
Can you figure out a triangle that it doesn’t work.
mhm
And why would it not be able to?
I feel like that’s a hard question?
and I don’t even know an answer to it?
mhm
But that’s fine with me,
like getting kids to talk about a hard question and be
like “well, because”-
they might even just say things like “well,
because they’re attached at the corners,
you know,
if you like make one angle smaller it opens up the
other ones.”
mhm

You know, they might like,
start to reason around relationships between angles,
or um
Lynn: It gets at the relationship between the sides, too
though. (And those are) complicated.
Does it get at the relationship between the sides?
Lynn: Well if you open up the angle,
Lynn: then the sides don’t meet?
No what I meant by opening was yeah,
so here can I have a-
yeah so, if we have a, um,
if we have like a triangle like this ((constructs a
triangle out of pens))
and we’re reasoning around it,
we can reason around like
“Okay, well let’s say”- by open I just meant like make
that angle wider.
Lynn: /(inaudible)/... Okay.
So if I increase that angle,
“Oh look! These two are getting smaller,
Lynn: /I see/
Mmm
So it’s not like getting me at one eighty, but it’s reasoning around why there would be a constant value.

mhm
You know?
why is it staying the same?
Why is that always the same-
even that question.
Like, why is it always the same.
Um, can you come up with a triangle where you’re reasonably sure it’s not the same.
And they might go to like, “What if you have them so close together here” and then they’d have to figure out “well like, that angle is so close to 90 that it’s okay that that one is like two degrees.” ((demonstrating with pen triangle)).

mhm
They’re still adding up. You know,
yeah
or something like that.
Um (.)
so anyway that’s where my brain was going.
Is there something we can give them to talk about
yeah
where there can be room for sense making
yeah
and it’s not just fill in the blank.
And the reason why is not because I think it’s wrong to end up with a fact?
But what I worry about is when you end up with a fact like this that some people walk out with the fact and some don’t.

mhm
And some have some sense of what that means, and some it’s just a number that got written down, and they walk in the next day like nothing ever happened.

Yeah.
And then they’re not set up with (what you need).

Yeah, yeah
(That’s a good point). (4s)
So: (3s)
Should we set it up in the way where we have like questions that they have to answer about it?
Like in their groups maybe? Like, you were saying what happens if one angle like (.)

is bigger than the other? or (.)

how do the other angles get- uh huh

or how are the other angles affected when one angle increases? or (.)

/what if

/I think it’s more of a question like, like- “Okay,

I’m going to ask you guys a question that’s really hard to answer.

There’s no-

I don’t even know what the exact right answer would be.

But it’s an important question to make sense of.

So in your groups, I want you to talk about

why does it make sense,

when you’re done with this”-

like you could, you could even be like,

“Step one, get here,

where it’s one eighty.

Step two,

now I want you guys to talk about why does it make sense

t hat would be true

yeah

a:1ways,

for every triangle in the whole universe.”

Yeah.

In the plane, right? ((laughs))

“Why is that true?

Ummm,

and be ready to share your ideas with the class.”

So it’s not like, answerable necessarily?

/but get them/

/(inaudible)

and- yeah,

and get them,

some of their reasoning out.

Umm

Lynn: Do you think they would need something to play with?

To manipulate, yeah.

Lynn: Spaghetti /(inaudible)

/Yeah./ Cause when I was doing that/

/(inaudible)

That made-

yeah, that /helped a lot.

Lynn: /What about spaghetti?
Spaghetti?

Lynn: (inaudible)

Yeah

Lynn: (inaudible)

I have some, at home.

I have the like, linguini ones that are thick

That’s nice.

Yeah.

And they could break 'em/

Lynn: /(inaudible)/

/which is nice too for (making their own triangle size).

Lynn: Makes a little bit of a mess, but it’s not too bad.

Yeah

Pretty easy to clean up./

/yeah/

/As long as they don’t walk on it.

Lynn: Right. /(inaudible)

That could be fun, yeah I don’t know if that feels useful to you

but I’m wondering if getting them to do-

is there a way-

yeah

I'm just looking for a way to get something to talk about

/yeah/ right

some sense making so that some /learning through grappling

/yeah/ right

is going on.

So,

when they get the triangle,

mhm

and I have them cut it up, and I’ll say “Break it into three pieces,”

mhm

do I tell them to put them together?

Like how do we get to here?

((all lean in to look at Kamilah’s activity))

Yeah, it tells them.

Lynn: ((reading)) “Arrange them so that their vertices meet at a point”

I feel like we need to talk about what vertice is too

Uh huh./

/no, (inaudible)/

/(inaudible) vertices is the plural of vertex is also not at all clear?/ right?

Lynn: /No, it’s not at all clear.
It’s not at all clear to a lot of people.
Yeah, cause why would it be?
mhm
Good ol’ english language with all its weird stuff
Lynn: It’s actually Latin.
So maybe when we’re- when they do the do now- you know how we’re gonna have that (.)
bringing in the angle and talk about what an angle is,
mhm
and how do you know,
mhm
maybe we can talk about what a vertex is
mhm
and how that
mhm
kinda helps us figure out
Mhm
Lynn: parts of the angle (aside from the vertex)
Yeah,
the vertex and two /(rays)
(and if you have them make it with their body?
like this ((opening and closing arms )) or even, you
know, like this way ((spreading arms out to the side))
yeah
then they can figure out where is the vertex?
What part of you is the vertex?
“Oh, it’s my
center, you know my chest.” Um
Okay,
(uummmm.
Cool. So we’re-
so what I’m hearing is some kind of warm up around
getting them making sense of what’s an angle and also
bringing in the vocabulary vertex and vertices.
Okay
Right?
Yeah
Um this,
maybe there’s some discussion around what an angle
is.
Then there’s this ((points to Kamilah’s activity)).
Kids do it.
It’s not that group worthy.
There’s not that much to talk about,
really.
I think.

Yeah

Other than helping each other through the directions

yeah

so you can maybe emphasize some, like,

“we’re all in this together” kind of stuff

yeah

so they can help each other

yeah

and “don’t leave people behind” or something

yeah

And then, some kind of conversation at the end-
some, some seeded conversation that you get groups
to talk about, like

“why would this make sense” and then maybe end

with them sharing out some ideas

yeah

around why it makes sense?

okay

or what did they-

did they figure anything out about why it makes sense,

or wh-,

whether there might be triangles that it doesn’t work

right

And they have the

manipulates to- in that conversation.

Is that what I’m hearing?

Yeah.

The linguini, yeah.

The pasta.

Um, the other question I had is, um,

I have a tough time with participation,

I think I mentioned that before,

mhm

my first period’s really quiet?

mhm

So,

what if,

like when we’re trying to have a discussion,

like what would be your suggestions on how to like,

get them to share their responses

mhm

and participate?

Mhm (.)

By participate do you mean say stuff out loud

yeah

in whole group format?
Or are they doing that in small groups hard, too

Um,
I guess small groups is not as bad, but
I mean,

as a do now like

it's usually like the whole groups style?
yeah

unless I wanna change it up tomorrow and make it,

have them talk in groups
and then whole group?

( ) I'm thinking about what the do now is gonna be,
it's around angles, generating-
ok kay yeah, what if they get to generate (3s)
Okay, so they're trying to explain what an angle is, right?

Mhm.

So what if they do that on their own for like,
a minute
or two or something.
And then they share with a partner,
and then what you ask them to share out loud?
is something that they saw their partner do
or something your partner said
that you thought was cool or interesting or useful in
some way.
Okay.

So it's a little less scary cuz they're not sharing their
own work,
yeah

they're sharing someone else's,
right

but you're framing it as a positive thing
right

because they're not also saying, “My partner didn’t
know anything.”
yeah

Um,

like find- your job is to find something in your
partner's explanation that you think is useful or
interesting/

/yeah/
/or different or whatever.
Okay.

Then, do you think that would ( )
Maybe:

Okay, yeah

get 'em to try it?

Yeah.

Do you feel like-
do you do like
I have sticks
/call, cold calling, do you do that/
Uh huh
/with them, and how does it feel in that class?
It’s fine,
/so you could cold calling or whatever, equity sticks/
yeah
/with partner work,
which sometimes can create more safety.
Okay.
Um,
or you could strategically
call on people depending on whose voice you want /in
the space
/right/
/and who-
maybe who-
cause that can also serve to assign competence to the
partner?
Lynn: mhm
So if you’ve seen
that there’s something cool going on that this kid did
and they could use some public/
/yeah/
/assignment of competence,
then calling in their partner might be be a constructive
inging? thing?
That’s just a brainst-
I’m not like putting that all out there as a good thing
to do.
Okay
I don’t know/
/yeah/. No, I was just like trying to/ think of (like)/
yeah, no/
Cause I want them to go deep into the angles,
I want to make sure we have like a really good /rich
/yeah/
/discussion/
/yeah/
/about it, so that would be my concern is like
hoped getting to that. Um,
Also, if you have them creating diagrams/
/yeah/
as part of their,
/yeah/
Um, do now?
Uh huh
Then you can just take the diagram,
put it under a doc cam, and then ask them something about it./
/yeah/
/and that might make it safer-
they know what to say/ right?/
/yeah/
/like, like, “What did you mean by this?”
or “I saw you doing this part here,
can you explain to us what you were thinking?”

yeah
Or something, so you get those ideas surfaced/
/okay/
/in a more- in a way that’s more structured.

Yeah.
Okay.

Umm (.)
cool,
so then the other thing I’m thinking is-
so, so I’m picturing-
I’m trying to picture kids.
And what we want kids doing,
what we want them to look and sound like throughout the lesson.
So I feel like I have a pretty good sense of this warmup,
and how we want them.
During this activity ((pointing to curriculum binder))
I’m feeling less clear about it
okay
Not because you’re not clear,
yeah
because I’m not clear
partly because I haven’t read the damn thing.
Um

No, I mean it’s my first time too, so
Look at this picture of kids working together. That’s so (not what this activity is gonna be)

(laughs)
Lynn: And there’s always one kid in a wheelchair.
I know
Lynn: One of my students asked me one time how come none of the kids in the, uh, math book had any logos on their T-Shirts.
I used to be in charge when I was working on curriculum development of the art!
We contracted with an artist,
and I was in charge of- like he would send me proofs and I would tell him what we wanted.
And there were rules, like we had to have some number of pieces of art with students with physical disabilities, we couldn’t do logos, all kinds of crazy rules. Anyway, um, for good reason maybe, mhm

Um (.)
so do you see this as like, individual work, checking in, getting help with directions? Do you see it as pairs

Well if I’m going to have four triangles

Oh, right
then I would need groups of four.

So they each- but they each get one, so if they’re doing-

so measuring the angles is individual, right?

Mhm. (5s)

Lynn: Have you shown them how to/ measure /this is not gonna ever be 180, right?
Lynn: yeah (9s)
how big are these and how do they relate to the size of the protractor?
Lynn: I don’t know, cuz this one calls for them to draw their own.
Oh.

yeah, cuz this sheet is not in the, um, thing, so I'm gonna have to create it.

No, they're drawing their own triangles. (.)
right?
Lynn: yeah

mmm

((reading )) ‘Start by dra::wing different types of triangles.
Make sure your group has at least one acute and one obtuse triangle.’
Okay so they can each draw their own.

yeah

make em big
Lynn: gotta make sure (inaudible) they are all different.
(. ) Although a lot of times,
when people think ‘triangle’, they think equilateral.
Lynn: yeah
or at least isosceles
right.

Or a right angle

Lynn: oh, right yeah

yeah

(something with the words ‘instructions’ and ‘set up’)

Um,

or I can have this already made.

you could. (.)

If they draw their own, I think there’s something

about drawing their own that could be important,

maybe,

which is,

people can think this is kind of a trick, like

you want them to get to, ‘it’s a generalized

phenomenon that works for all triangles’
	right?

((nods))

And if you hand them the triangles,

they could think it works for some triangles,

like ‘she made some special triangles that have this

special property’

yeah

whereas if they generate themselves,

it could be a little bit more clear that it’s - like well,

‘I drew it,’

yeah

right?

so,

should I have them use a protractor

or just have them draw big triangles ( ) size.

Oh, you were thinking (.)

Well they don’t use the protractor to draw it.

They just draw it with a straight edge, right?

yeah

So, this ((pointing with pen to the curriculum binder)),

the way this is stepped through,

oh I’m sorry I’m remembering what you said.

The way this has the steps

is that they measure it with a protractor,

they add them together numerically,

mhm

then they tear them off and put them in a line.

And I think what I heard you say is you were gonna

skip these two steps.

mhm

Sorry, I’m writing in the book.

no no no no, totally fine

(laughing) I’ll at least get a pencil.

Um, that you were gonna have them skip these,
and just do the ‘create triangles’

yeah

then do something, figure out the relationship of the three angles together.

yeah

tear off the corners

Lynn: mhm

figure out which parts of the corners are the angles

Lynn: right

((laughs)) and line ‘em up.

Like /(inaudible)

yeah./ I mean I’m fine with doing that too-

Lynn: I think if what you’re getting at is the hundred eighty, you don’t need this ((pointing)) /and this is (inaudible)

And they never add up to one hundred eighty anyway.

Lynn: They won’t because the protractors aren’t that accurate

/That’s a whole different lesson/>

/They’re not that accurate,/ so they’ll add up to one hundred seventy two

right

a hundred eighty five

yeah

and they won’t see those as the same

yeah

Lynn: /some of them will come up with two hundred twenty five/

/(laughing)) (inaudible)

Lynn: yeah

about estimation,

yeah

and what we mean by the same,

yeah

and all that.

yeah

So I think you’re skipping one and two, right?

Okay, yeah

Lynn: and they know from that vocabulary exercise you did that a straight angle is a hundred eighty

yeah

yeah (.)

So a really nice thing,

what I’m liking about this-

and even if some groups forget that, we’ll get to ‘it’s a straight line’ and then you can remind them

yeah

that that- but then again,
there’s that thing about the um ((drawing)),
like if you have this ((moving drawing in front of Kamilah)),
and you say ‘this is a hundred and eighty degrees,’
what’s the this? (.)
Right?
What does it mean that a line is one hundred eighty degrees?
right
Lynn: mhm
You- especially if you haven’t made sense of an
angle being an opening ((gestures with her two arms
straight and opening to create an increasing angle))
yeah
that is a non sensical statement.
right
Lynn: mhm
right, a line is a line,
what the hell are you talking about
right
there’s not a hundred and eighty of anything right there
Lynn: right.
Lynn: there’s no degrees at all.
there’s no degrees.
What the hell!
What- what’s going on?
There’s no vertex.
What?!
yeah
I’m confused!
yeah
right?
so there might be opportunities here to make sense of
like, ‘well,
where do we see a hundred and eighty degrees,
and what the hell does that mean?’
yeah
‘oh, we see it in,
if we imagine this as an opening of the door’
yeah
‘the door is all the way open,
it’s ( ) all the way there.
yeah
with this movement.
yeah
you know.
So I like that you’re cutting out this.
You’re getting them to this place where they can actually have something to make sense around?

mhm so you’re getting to it quicker, which means that this end of class conversation that we are talking about might actually happen and have some time

okay right?
yeah

So then, this is sort of like, there’s some individual parts, draw the triangle

yeah

figure out how to cut it out, tear off, line it up, but then we are getting back together and we’re saying, ‘what are we seeing??’ ‘oh there’s this same thing happening with all of these.’

right ‘how do we describe that thing (when we see that)

so have them draw out their own triangles then?

Lynn: /mhm/

/mhm/ I think so.

okay

why not? why would you/ ( ) time/ and make all those copies?

Lynn: /(inaudible)/

right, with a ruler.

yeah

(Phone rings)

As long as they are using a straight edge and it has three vertices, right? (Kamilah is on the phone and Mia and Lynn are talking)

(on the phone) talking)

(inaudible)

Lynn: and hopefully they won’t make it like so acute that it can be ( ) they’ll make it big.

(Kamilah returns)

well really acute would be okay, right?

Lynn: yeah, but if they drew it really small and it was really acute, then it would be really hard to tear that /you know what I mean/? /oh no, take up the paper/

you want them to like

I’ll give them and eight by ten

yeah, and say ‘use a lot of it’

yeah

Lynn: yeah
Cool.
I just looked at the clock and we almost have to be done.
So (.)
Okay, so you think this would take the whole period?
Cuz I was gonna get into the
the next part (flipping the page in her binder)),
which is the exterior
mhm
but
Lynn: I think if you’re gonna have them explore
yeah
Lynn: with pasta (.)
it’s gonna take a while
yeah
yeah, and I think if you ask them a good meaty question, like ‘does this work for all triangles’
yeah
or ‘why does it make sense that it would’?
yeah
I think also your do now conversation might take a little bit of time
yeah
And I think it’s a really important one.
yeah
I think it’s a big thing that’s like- supporting kids to make sense of it is totally not impossible,
yeah
but no one ever does (laughing)
yeah
because we just don’t know
yeah
Lynn: right
((laughing)) and so they go through years and years and years and they get to be seniors in high school (/)
don’t know what an angle is.
Lynn: (cause nobody said)- shocked that they don’t understand what an angle is
right.
And you can see how it happens. (.)
Um,
Yeah I think so.
That feels like a full day to me.
Does it feel full to you?
yeah?
I guess- yeah
Lynn: you might want to have the next one ready, just in case
oh, why?
Lynn: you might want to have the next one ready just in case.

mhm

Lynn: in case they all understand completely what an angle is and they solve a hundred and eighty degrees and they’re all happy.

But I feel like-
like, um,
in that ending conversation around, like, ‘why does it make sense?’ that it would work for all of them?’

there’s a lot of opportunities, if you have time, which you might not,

but there are a lot of opportunities to let kids share their thinking publicly?

and to assign competence to it, because it’s a really hard thing to explain?

mhm

right?

yeah

and make sense of, so any progress they make in making sense of it is opportunity to like surface

yeah

sense making publicly

yeah

and be like 'that’s what that looks like,' right?

yeah

um,

so I feel like you could just sort of take up whatever time you have with that

right

and it would be a really good use of time ((bell rings))

yeah maybe if I’m like-

if I really like have extra time,

I could just have them reflect,

maybe give some questions to reflect on the activity?

uh huh

and then we can discuss, their thoughts, like,
some of the stuff

((nodding))

( ) about ‘what does that mean?’
and ‘does it work for every triangle?’

or ( )

yeah

mhm ((nodding))
So I could see it playing out. How do we need to, structure the conversation, provide support, is it a roles thing, do we, do you support, like I see, beautiful awesome sentence starters up there?

Yeah, do you support by telling them what you wanna hear? Right, and like reinforcing it?

Maybe I can make a list of questions that like-pocket questions? that I could like use?

Yeah, you could but I’m less concerned about what to do if they get stuck as I was about like what participation do you need from them to make sure that everyone can benefit from those conversations. Do you know what I mean?

Mhm, like, somebody could just say, ‘well it makes sense because bla bla bla’ and they’ll just be like ‘okay’

Yeah, and nobody pushes further, and nobody evaluates, and nobody tried to find a new way to explain it, you know what I mean?

Yeah, um, so:: (.)

Or like how do you make it, um, maybe there’s a product expectation in it like, they’re grappling with this question and as a team their job is to come up with a way to explain why it makes sense OR if they think it doesn’t, why-how you can show that it doesn’t always work or something like that

Mhm
and make sure everyone in your group is ready to explain that?

And maybe, I don’t know if there’s safety for this yet?

I don’t know how it’s feeling, but like maybe you can say ‘I’m gonna randomly call on one member from each group to share your group’s ideas with the class.’

mhm

Maybe given what you told me about Manuel that might not be safe right now.

mhm. ((writing))

So being able to explain that like, um, how it works, like how (.)

/a triangle

/I think we’ll/- yeah, let’s figure out what the question is we’re asking, we haven’t quite done that.

((Moves notebook closer to Kamilah and picks up pen)) So I think the question is, what is the question? What are you ( )

Being able to explain how a triangle equals a hundred and eighty degrees.

Lynn: how the sum of the angles is a hundred and eighty degrees for any triangle.

((writing)) why:. is the sum of the angles (.) and I think for me the answer is-

the question is not so much why is it a hundred eighty degrees,

but why is it the same

Lynn: the same, right

((writing)) why is the sum of the angles of a triangle the same,

or any triangle,

always the same? ((looks up from writing))

mhm

like why does that make sense?

mhm

even when triangles are really different. Or, uh,

And then that’s where I’m gonna bring in the pastas too yeah. ((writing))

((writing)) So maybe like (4s) (inaudible)

Or I feel like maybe, you could even, so there’s also this question ((showing Kamilah her notebook)), which is similar,

but is asking for a counter example.

Can you find an example of a triangle where it doesn’t work?
I feel like this could be one that everyone can try to do?

Lynn: mhm

right?

Um (.)

if people don’t know how to approach this question, which is kind of a big crazy question.

Lynn: mhm

so I feel like you could almost present them with both of these, and say, ‘pick one, and work on it and be ready to explain what your team figures out.’

Lynn: mhm

Or something like that.

So this would probably be like have them draw more triangles and say if they could-

Well, they would do it with the spaghetti, right?

But then how would they put that in a line?

Oh,

I see what you’re saying. (.)

Good question.

Lynn: except we’re not asking them to prove that it’s one eighty, we’re asking them to prove ( ) why is it the same. ( )

Like you mean the-

You mean in this question here? ((pointing to notebook))

Lynn: yeah, I’m just trying to yeah, not really prove, I don’t know how to prove it, but I think it makes sense to around why would it work, why would that work,

um,

and for me what I would be happy with would not be a proof, but would be like, that issue of like, ‘oh cuz when you change one angle it automatically changes/

/yeah?

others in the opposite direction,’ right, or that kind of thinking

yeah

but you’re right, this one would be really hard to do.

You’re right.

they’d have to do without measuring with a protractor,
right,
which I was thinking they would ( )
Lynn: but if they made (.)
Lynn: two set of sides that were the same,
Lynn: out of the pasta, right,
Lynn: and then tried to create two different triangles
with those sides,
Lynn: they’re not gonna be able to do it. (.)
Lynn: yes they can ( ). nevermind.
what’s in your brain ( ) yet?
so should I still do the pasta thing?
Do you think that will be important still?
I think if they’re playing with this question, yeah.
okay
yeah, like what happens when you change things in
triangles could be one of those pocket questions you
have
yeah
like,
\[::\:
what happens when one angle gets bigger
Lynn: mhm
right. (4s)
I don’t know, I feel like it’s a little risky,
so I want to put out there that this whole conversation
could totally flop.
mhm
Lynn: or maybe ( ) isn’t gonna work.
Lynn: Or they’re not expecting to
yeah
Lynn: find an answer, they just want to think about
the idea.
what do you figure out when you try to work on that.
I- I feel like maybe it’s not quite worded right yet, or
it’s not quite-
I don’t quite have a clear sense yet of exactly what the
question is?
That I’m posing them, and that’s why it feels risky.
mhm
um
Lynn: what does your question say?
( ) why is the sum of the angles of any triangle always
the same?
Lynn: how about if you say, instead that ( ) the sum of
the angles in all our triangles were the same, so you
think that this is always true? (.)
wait, I’m sorry, say it again?
Lynn: the sum of the angles in all the triangles that we
made
Lynn: is the same.
Lynn: a hundred and eighty degrees.
Lynn: Is the same. Do you think this is always true?

why or why not?
That might be a much simpler question
and then with the why or why not added on the end,
that IS this question, right,
but it’s in a way that’s,
yeah, I think that’s much more-
(\textit{touching Kamilah’s arm}) Does that feel better to you?

I feel like (video ends here)

\begin{center}
\textbf{Kamilah Cycle 2 Debrief Conversation}
\end{center}

\begin{tabular}{ll}
\hline
Kamilah & Mia \\
\hline
1 & Yeah grab your notebook. \\
2 & I have my notebook. (. ) \\
3 & Woo! (inaudible) \\
4 & Teachers work hard! \\
5 & (laughs) \\
6 & Crazy \\
7 & I know, \\
8 & it’s amazing. \\
9 & It’s amazing. (. ) \\
10 & Okay so \\
11 & \\
12 & You left this thing on (points to voice recorder) and \\
them my second period was going on and I looked \\
down and it was still recording \\
13 & (laughs) \\
14 & \\
15 & And then I left Aya’s class and I left it in there \\
(\textit{laughs})-
16 & it’s too much \\
17 & but we can only do our best right? \\
18 & mhmm \\
19 & And that will have to be good enough. \\
20 & Um okay so: : , \\
21 & let me just get back in my head (3s) \\
22 & Umm (6s) \\
23 & so I’m just going to restate what I remember you \\
telling me \\
24 & that we wanted to talk about? \\
25 & and then we can sort of revisit, \\
\hline
\end{tabular}
given what we did and what happened

(to student) (no no not today)
what do we want to- what do we want to-
how do we want to structure our conversation
so that it feels maximally useful and whatever,
for whatever we’re going to do next.

mhm
Um so you wanted some help thinking about Manuel.
mhm
I think once again I don’t have much for you. (.)
I think that I was attending to other things,
because he went over there (points) right?
No he tried/ to go over there/
/He wanted to/
and then you brought him back.

yeah
Umm (.)
so, I apologize.
(shakes head no)
I feel like my intention was sort of (moves hand),
in other spaces.
mhm
So
maybe th- I can come and actually focus on him for a
day

mhm
at some point
if that’s useful or especially- yeah
yeah so we can see if that feels useful. Um (4s)
I’m trying to think if I have- have anything, maybe.
U:m (3s)
um so we did a lot of thinking together in our
planning around angles and trying to help kids make
sense of what angles are?
and how that might support their work.
So I think we could sort of reflect on that together?
like what did we try?
What did we think about?
What did we learn from what we tried?
And like what do we- what do we think the kids are
taking from it?
So we- we talked a little at the end of class

mhm
about maybe looking at their exit tickets together?
mhm mhm
um
which (they’ll seem) like it might help us.
mhm
U:m (.)
and then I had a sort of metapoint that I wanted to
make about um-
Lynn’s bringing- coming up in a minute she’s
going to bring copies (taps paper on table)-
do you remember that lesson planning template?
that we’ve worked on- on the- on the uh follow-up
day?
It was like the bare- like had all the boxes in response
to these kind of questions. (shows her a paper)

I think so, yeah.

Yeah?
I felt like the planning that you and I did together for
this lesson was so beautifully-
like I think- I think it was a really nice model?
of lesson planning in particular ways
that I was thinking that maybe relating it to that
template might help you,
continue it and also share it with your group,

mhmm
when you guys are working- planning together.

mhmm
Because I think there’s certain ki:nds of thinking that
we got to do together
that were awesome,
I think.

mhmm
Like around the warm-up,

uh huh
like well what the hell do we want them learning?
Right
And um
and what does it mean like- like what questions do we
have to ask to try to get at that?

Yeah
How do we structure it?
You- we got to think about like,
the partner structure- like
how do we get them talking?
Because that talking will be important for this
learning,
you know what I mean?

mhmm
And so like the- and- and you had to do some
adjusting to our plan for the end
which often happens, right?
(Someone walks in and says something) No worries,
hi!
so it’s not that everything that we planned like played
out exactly how we planned it,
that’s not the point,
but I feel like you had a really principled
understanding?
of what you were doing and why you were doing it
through the whole lesson,
that I feel like helped me feel really grounded in the
lesson.
And it helped me to think about-
like I was free to think about how- what kids were
doing
Umm
Right
because we knew what we wanted them to be doing
and why
Yeah
Right?
You knew what you wanted them learning,
mhm
which focused my attention as a (.)
well as an observer, but also as an instructor to the
extent that I was
playing that /role/ a little bit too right?
/Yeah/ yeah
Um (.)
so I just think that’s super powerful,
and I’m wondering if you could harness that,
because it didn’t take us a lot of time right?
mhm
One of the things that happens with that lesson
planning thing is that people are like “Mwreeh (hand
gesture)
Yeah
this is so huge, it’s too much!”
We didn’t spend that much time,
mhm
right?
Right
We had a conversation,
we talked about some other stuff and then we were
like-
really asked some pointed questions /of ourselves
/Right, where/ we wanna go
Yeah
Yeah
Yeah like what would we do and why- and remember
that like a-
we were thinking about the prompt for the end of class
and we were very grounded in like trying to figure out what’s the right thing to ask,

mhm

that’s very grounded in-

‘well what do we want them making sense of’

Right

and which thing is going to get them there

and remember we weren’t quite finding words and

Lynn found the right words

Yeah

but it was all grounded in what we want them,

mhm

getting out of it

Right

Right,

so I just think that’s super powerful and I- and I- I um- and the more that you and your team can kind of take that up

as like a habit of planning? (.)

um and recognize that it- how much leverage it gets you

I think that would be awesome.

So the- um (distracted by someone at the door) she’s got keys.

It’s not locked right?

yeah

(inaudible) walking in.

It’s not locked Lynn!

She’ll figure it out, she’ll get in here somehow. (.)

Anyway

so she’s bringing that so we can look at that a little bit.

Um (3s)

okay, so given all that,

I would like to hear from you,

given what happened in the lesson today

Yeah

like what do you want-

what do you want us to focus on in this conversation?

What do you hope to walk away with

out of this conversation? (Lynn sits down)

Oh gosh

It’s a hard question

I know

super hard

Lynn: That was a fun class

(inaudible)

Yeah

Umm (3s)
I don’t know. I think like looking at their responses would be like

(Mia points to copies; Lynn hands them to Mia)

Oh

Thank you

looking at like what they wrote for their exit ticket would be helpful.

Yeah

Could we look at that?

Totally

Okay (gets up)

Yeah (4s).

Oh and I want to be a little transparent,
can we talk a little bit about the uh- the um-
the opening discussion?

Mhm

That I- that you so beautifully let me step in with
(points to board)

(chuckles) (inaudible)

um

because uh

I want to share with you and be transparent about why

I wanted to do that

and what I was trying to do,

and I don’t think all of it necessarily was great work

but I just what to be clear about what-

why-

the why’s.

Um is that okay?

Mhm (nods).

So why uh-

So like again it was grounded in- because you were so clear about what you wanted them learning

we had that conversation where we really uncovered this thing about angles

Right

Right?

So I knew that we wanted kids making sense of what angles are not in a like (.)

U::h we wanted them like using their own words

and we had talked about (hand motion) this motion kind of around

Right

kind of idea that we felt like was important

Right

for kids to be making sense of it.

So- and then you were surfaced, their thinking,
beautifully,
but it wasn’t getting written down?
mhm
so I wanted it on the board
Mm right (points)
because I wanted it to be a resource
for- for many things.
One for assigning competence (points to finger on hand)
because when it’s up there (points to board)
Yeah
we’re able to go back to it
Yeah
and say “Oh yeah, this round idea (hand motions) is super important
and look Guadalupe had that too.
u- you know what I mean- and like pull (pulling gesture) with their names.

I love that!
I also used it on my- when I did my third period I did the same thing
Uh huh
Yeah
How did it feel?
It was good.
Cool
Yeah they- I couldn’t tell that they felt like “Oh she’s putting what I said up there,“ you know like feeling competent or whatever.
Yeah
And um (.)
even for ME
because there were things being said and I forget
Yeah
you know like I needed like a refresher on what was said before and like going back /to what they were saying/ /You can’t keep all that in your head/
yeah, no way!

Plus it does this beautiful thing, I was saying this to Lynn earlier
that I love- it gives me pleasure
where like
nobody in the room offered a complete beautiful, perfect, articulation,
because it’s hard
but together they did.
Right
Right, so we could pull the pieces
pieces, yeah

and we got this example of why we’re better together.
mhm

Right “and you said something smart and you said
something else smart and you said something else
smart” and when we put those all together we get this
more complete

Right
deeper understanding

which I feel like is a

Yeah

those nuggets are awesome

No yeah

Lynn: Especially that group where they’re not
inclined to talk to each other

yeah (laughs)

Lynn: for them to know that these pieces are all there

Yeah

Lynn: right?

Yeah

and no one including Victoria or whatever her name is
had them all.

Right,

she had a part of it,
she did have part of it

and other people had parts /right?/

/Right/

but we needed all of those together,

so that was

Lynn: (and so so Tony) went to the restroom in the

middle of that because he had a good part but he

wouldn’t say it.

Yeah?

Lynn: Yeah

no, that kid is really smart

mhm

Um

yeah.

(4s) Okay, so um

yeah like I said I was noticing when I was up there?

how much I wished I had your knowledge,

(laughs)
of the kids,

right? Because it was really uncomfortable for me
to be leading a discussion like that

and not knowing

the history of this group of kids together.
Because I didn’t- I mean it was a couple of exceptions, so I knew- cause you’ve told me that Victoria tends to like claim a lot of status.

Yeah

um and that um you know, you were concerned about Manuel. I knew that. but then there were all these other kids in the room and I didn’t know and like I wanted to know-

mhm I wanted to know and I bet in like third period you got to do more powerful work with that because you know them right?

right

So like you know Guadalupe had that around thing (.)

mhm I don’t know is she- like it could be th- cause that was a super important idea and it could be, that taking that from her and naming it as hers was like a powerful social move in the class.

Yeah

Lynn: mhm or it could’ve been like “Eh she always says smart stuff.”

Yeah I don’t know.

No she usually- yeah So but as- just as an example, so I was just reminded of how much I wished I could think with that information that you do have and you CAN think with.

Right You know, like you can really be intentional

Yeah about like not just the content you want out of those contributions

Yeah but also the- the sort of class culture dynamics
Yeah you want out of those /contributions /Yeah/ yeah yeah.

No I mean definitely they-
she had her moment there,
but I feel like
luckily I have been able to like see smartness from all
of’em

Ye::ah

you know? So it’s like
I know that Guadalupe was capable of
Yeah of course /yeah

/you know/
saying that,
like it wasn’t a shock to me?

Yeah

but at the same time for her to like um
I don’t think- I think she got picked
right it wasn’t just- like she didn’t raise her hand.

Well it started with your- the pair structure
Right
and I was her partner

Oh right
so I got /to do it
because I was with her

/oh right that’s what it was/ Uhuh

but if you had known that she had that idea from
listening to her
and some other kid was her partner,

mhm

you could’ve cold called the other kid
Right
like you don’t have to do the sticks
Right
you can cold call

Yeah
for those reasons,
especially when you have the um,
share what your partner said,

mhm
kind of thing

mhm
um and it particular if it’s framed as like 'share the
smart or interesting stuff your partner said'
so that they’re not being invited to say “My partner
didn’t know”

Right

(laughs)
Lynn: I thought that structure worked really well
Lynn: cause they were willing to talk about what their partner said
Lynn: in a much more (.)
Lynn: definitive way
mhm
Lynn: than they did about their own work.
And I think they feel a little bit more confident saying
that and then
but it feels good to have someone else say your idea right?
Yeah
feels to hear another voice
say that you did something
yeah
mathematical.
yeah
Lynn: mhm
Yeah. (.)
cool and then- and we talked about also the um-
that there’s this interesting challenge where they’re not wanting to speak (.)
in the public- like in the whole class discussions
Yeah
but they are totally willing to generate words
Right
Right? They were writing
Readily.
Yeah
I was really surprised given the fact that they were like not speaking
Right
I was surprised that when you were like ‘write an exit ticket’ they were like “Okay!”
and I saw all these “because”
and like-
kids like not being all minimal about it
Yeah
but actually like writing things
Yeah
um
Maybe because it’s the routine too we’ve been doing that.
Yeah which means you’ve supported that routine really well I think
um,
which is awesome (.)
that’s powerful
cuz that means they’re walking out of the room
with some mathematical thinking

mhm

you know?
Not walking out of the room with like-
and we just did some stuff and cleaned up

yeah

you know?
Lynn: right
Which is awesome,
I really love that.
So should we look at those?

uh huh

and figure out like what are kids-
what are we trying to think about with them.
We’re trying to think about what are kids
understanding about-
how are kids making sense of this whole, angles and
triangles sum thing together

Yeah.
This is Tony.

“Yes, because you need 180 to make a triangle”

Okay
Lynn: And you can see he crossed out this which was
actually good work
Oh that was his do now / with the- where he drew the
um
Lynn: /Yeah where he drew the arc/
He drew an arc
and was calling that the angle

Why did he scribble it?
Lynn: Because he thought it was wrong because I
asked him questions about it.
Isn’t that interesting?
Lynn: And then I told him that I thought it was really
interesting he says “You mean I was right?” and I said
“Yeah.”
Ya::h

Yeah
I wonder about letting him out of the room. (.)
I wish he’d been here
Lynn: I wish he’d been /here too

/Yeah/ I know,
but he told me it was an emergency so I wasn’t

Yeah

I mean

You definitely don’t want to get- mess /with/ that
(laughs) worse things can happen I can tell you a story but I won’t
Lynn: (laughs)
Ummm, (reading) “angle is the degree of rotation” okay.
“I think all triangles add up to 180° no reason yet this is Andy
no justification, okay.

And then Abdon
Lynn: Andy’s a bit of a puzzle to me.
So the do-now what is an angle
“an angle looks like straight line maybe with a break”
Lynn: Ohh
Something about- does it say measure?
(reading) “A measured line that is”
"Wiggly?"
What’s that say?
Usually?
usually part of a shape.” Huh,
part of a shape.
So that was another thing I realized was that we hadn’t really thought about was we were talking in the do-now about angles?
Right
in space?
Yeah
and then they were seeing them as a part of a triangle
Right
and they look a little different maybe?
Right
and I was curious like how is that mapping onto this for them
Yeah
Lynn: Somebody else /said/ part of a shape,
Lynn: I think it was Teresa
/mmm/ One thing I did in third period because I think that was hard for them to see,
was um
I had- I- with a marker
when I was like showing them the movements kind of like what I did with first period
uh huh uh huh
and putting up from the original to like uh huh uh huh
putting all angles together
I put an arc
when it was originally like-
Yeah

so they could see the three triangles and then put all
the angles together

Uh uh uh uh

Lynn: mhm

Cuz some kids were having a hard time in third
period, um,
I had to like run around too-
was that they weren’t putting the angles together
like the vertices.

That’s why I made you ro-
do you remember I asked you to put it back into a
triangle in front of them?

Because I was wondering what they were thinking,
I didn’t know,
but what they were thinking

Right

was the relationship between that thing they were
looking at

Right

and a triangle

Right

Right?

Yeah

and I don’t know that it did anything good for them
but um

Yeah

that sounds really smart

and I was also wondering-
oh,

the sentence

“A straight line IS 180 degrees”

I was worried a little bit about

because that-
how does this- I was wondering

how does this relate
to what we were talking about an angle is

Uh huh

because unless I have a sense that there’s like a point

Yeah

that there’s a vertex

and that we’ve maybe started from here and opened

Right

ten this feels like just a whole different thing

Yeah

that feels nothing like that

mhm
right?
That we talked about this with their hands?
so it made me wish that in the opening conversation
maybe
we had take in their hands and gone all the way
Right
O:::h yeah
to flat
Lynn: That’s- yeah
That would’ve been cool
That would’ve been cool yeah (inaudible)
Lynn: Cuz Joshua in the other class was saying “It’s a
half a circle,” and that got us the/ idea of it goes
around
/Yeah/
/Yeah yeah/
/Yeah I had/
Ly...n: like a rotation
/Yeah/
/Yeah/ because we did transformations before this
Yeah
so my kids do know like 180 degrees and
Yeah
and 360 and
so
Yeah
in my third period I had kids saying like
“Yeah it makes a half circle.”
You did transformations before this so they have
rotation!
Yeah
Lynn: That’s what I was /saying this morning/
/That’s awesome.
Lynn: was I was wondering about the order of that
Lynn: /doing rotations before this/
/That’s awesome./
I think that really supports what we were trying to do.
Lynn: Okay
That’s why it’s in the unit (laughing).
Remember when were like “Why is this in here?”
Lynn: "Why is this in here?” Yeah
I feel like that-
I mean I don’t know if that’s what the people were
thinking but I feel like that does support it
Lynn: I /don’t think anybody’s thinking that/
/and I feel like your kids-
(laughs)
your kids were more ready than I expected them to be
to- to- to name the
opening.
It still felt a good- it didn’t feel like a waste of time
Yeah
Lynn: Not at all
but it was um- I felt like they were more on board than
I was necessarily expecting
Yeah
with that?
and maybe it comes from having done the
transformations before this
Yeah
That’s interesting.
Huh
cool.
Um anyway,
so we were looking at this
so “I think it will be”- “it will always be true because
the angles of all triangles add up to 180.”
So “I think it’s true because it’s true”
is basically what this person said
Yeah
Lynn: Yeah (laughs)
Yeah
Cool (laughs).
We got some work to do (on what justification is
really)
Lynn: (laughs) Which person, was that Abdon?
Yeah that’s Abdon.
Uh huh (laughs)
awesome.
Okay
so two here-
Lynn: He’s one of our great mathematical thinkers/
"Like what/ kind of a stupid ass question
because it IS."
“Do you think that angles in triangles add up to 180
degrees?”
“No, because different angles have different degrees.”
This was Shakir yeah
um (.)
I’m almost happier with that
Lynn: Yeah
Yeah
Right?
Lynn: Right.
Because it tells me he’s actually thinking
Lynn: /Right/
/Right/

of
Yeah

Lynn: Right /instead of saying/

/and there is no reason/ that you would really believe it yet

Lynn: Right

Right?

Lynn: Right instead of saying it’s a fact that I learned

/so it’s a fact/

/Right right right/

so this tells me that he’s reasoning around

well tria- angles can be different

Lynn: Right

Right? Triangles can look different from each other

so they can have different angles,

so why would it always be true?

Okay

cool.

Umm

Lynn: (on a plane)

Uh who’s this, Alea?

Yeah

Yeah?

Yeah

Uh those kids with tiny handwriting

I know, I know

“I don’t know.

I guess the way you placed them could add up differently.”

hm

Okay

“Yes you can make a triangle 180 degrees but you could also make it less than 180 degrees”

Victoria

Lynn: Okay

I love it when high status kids are wrong!

Yeah

(laughs)

Right?

But she was like willing to

like make a statement right?

Yeah

Bold statement,

she did not say why.

Uh “Yes because each of the lines may make 180 degrees,” “may,”

who’s this,

do you know?

I think it’s Teresa,
yeah it’s Teresa
Mkay
She’s at table two, yeah.
Okay
cool
I feel like this group
was doing some reasoning.
Lynn: mhm
right?
Like
Lynn: ‘Maybe’
they took it up and didn’t just say yes because yes
Yeah
Right? Or no because no
Yeah
(laughs)
But she said “may” so she- they’re- she’s still unsure
Yeah
and then Emarii she came in late /to (inaudible)
Yeah
/So I’m so glad you asked this/ question because what
if we didn’t know this, right?
I know
You know what I mean?
Yeah
because the fact got stated
I know
so we could think the fact got stated and so everyone’s
on board
Yeah
but like-
Lynn: If there’s time at the end of the year
I would love to do some geometry with this group on
a sphere
Yeah?
Lynn: and find a triangle that doesn’t measure 180
degrees
O:;h
Oh god,
let’s wait a little while for that
Lynn: Oh no I said at the end of the year
(laughs)/Uh um/
Lynn: (laughs) /Blow their minds./
(ringing noise) Oh my /gosh/ we have so little time.
That’s not it?
Lynn: /Uh oh./ that’s not- no
(reading) “No because they’re different.”
Okay
But she came in late
Emarii,
remember she came in late.

But this is a different response than the people sitting with her.

Wasn’t she sitting over there?

Lynn: Mhm

Yeah

She was the one who was sitting over there and all /her group were

I don’t understand what happened between them.

/I don’t know why Tony/ was like not-

Lynn: I don’t either

Okay

So /the rest of her group/ said “Yes because yes” basically right?

right

And she said no.

so that means that she’s actually created this on her own

Lynn: /(he was trying to)

Yeah

Right?

Yeah

And who knows how random it was or not

Yeah

but

Yeah

she definitely took it up

Yeah

and didn’t just write down what someone else said

Yeah

cause it (inaudible)

she really felt that way.

Yeah

Guadalupe:: “Do you think the angles in (inaudible) why or why not?”

“No because a triangle’s angles can have a large number and when added together, be more than a hundred eighty degrees”

So she said “No (inaudible)”

Which is very intuitive right?

Mhm

like you can change 'em, you can make the angles bigger

yeah

so why would it add up to 180

yeah
so because we didn’t yet
got the time or do the thing with spaghetti
Right
they didn’t get to see that yes
yeah
but when wa- make one bigger /what/ happens to the
others
Lynn: /(inaudible)/
Yeah
Lynn: Right
which
you could choose to go back to or not.
Yeah
Or maybe you could do-
you could even do like a little
Lynn: I think
warm-up kind of discussion about it?
with- you could put spaghetti under the
Yeah
doc cam
Lynn: I think there’s also maybe an applet.
Lynn: I would have /to look. If I we do that)/ that
would-
/Oh yeah
I’m sure there is/
Lynn: and so you could project it
See how it’s
Lynn: with a triangle that
Yeah
Lynn: if you pull one point-
Lynn: it- probably with Geogebra
Oh yeah
yeah
Lynn: Right?
I mean you could even do it in word or anything
Yeah
like where you can take corners
Lynn: Right
and just pull 'em.
It doesn’t even have to measure the angles for you
Right
you can see- you can ask
well like when I pull this over here
what happened to that angle?
What happened to these two angles?
Yeah
Lynn: Right if you do it in geogebra it will give you
the sum
Lynn: and it will show you that the sum is constant. (.)
Lynn: but yeah.

Yeah I- so my third period was having the same thing too,
they were saying like “Yeah a bigger triangle would be greater than one eighty”
So what I did is- we had a- we made a big triangle
Bigger in area they were thinking?

Yeah

Bigger in area, yeah.

Ah

So then,
we’re like “Okay, why don’t we try this big triangle then?”

So angles and area are still getting conflated a little bit

Yeah

Cool.

good to know

so then um,
we broke that up

and then I was like- and then we- I shut- they didn’t-
I just did it up here

Yeah

I was like here’s a bigger one
let’s try that

and then we did and like
“Oh look here are the angles and”

Uh huh

and they’re like “Hmm,”
just kind of like (laughs) were thinking.

Did they do an exit ticket too?

Yeah they did so we can look at that too

Oh okay,
cool

and the same exit ticket

Lynn: Oh

Oh Manuel,
we don’t want to miss him.

“I think you can make another type of triangle.”
You totally could.
Lynn: Oh he’s thinking
Yeah!

And she wasn’t here today

Lynn: and /he/ did make him cut out a triangle
/Okay/

And what?

Lynn: He cut out a triangle
Yeah he did

Lynn: He did

Yeah

So should we talk about-

okay I wanted-

so we’re- we don’t have that much time left

Okay

Gosh it goes so fast!

I know

Lunch time’s so short

I know

it is.

It’s only like thirty seven minutes or something.

It’s crazy

Yeah

Okay so,

one thing we can talk about if you want to is- is

generate ideas of what you could do

given what you just learned about your kids’ thinking

yeah

umm

I mean I think the idea about

having like- maybe bringing the pasta

and then like showing them how the angles change?

mhm

can help them with that

Yeah

Cuz I think there’s still confusion on like

Yeah

yes or no.

Yeah

I think also-

uh I agree.

and

I think that um-

you know what we were talking about in relationship
to that conversation,

the discussion we did at the beginning where we

wrote their ideas on the board,

it felt really powerful that the sense making we did

was connected back to their thinking

Yeah

so if you could connect the sense making that you ask
them to do

in that demonstration

to what they said in their exit tickets

yeah

Right? Like,

so it’s not just-
and not- and I don’t think you need to frame the exit tickets like it’s a misconception?
but like “I see you guys are making sense of this, and you’re totally right!
You can make a triangle look different” Right?
“You can take
Yeah
a triangle and you can-
you can take an angle,
and you can make it bigger,
so it seems really logical that then it would add up to more
Yeah
so let’s play with that
Yeah
and let’s see what does happen.” You know what I mean?
Yeah
So you’re connecting it back to their thinking
Yeah
uh,
so they can kind of hook in
and be like “Well that’s where I am with that.”
Yeah
You know what I mean?
Yeah
(.) And I think that uh-
I just want to say because I was so impressed with it
and I want to just
say it before we run out of time, (.)
I think that the extent to which you were so clear
about what you wanted them learning
and making sense of
and what it needed to sort of sound like
was super powerful.
In the beginning?
Yeah, in the whole-
in the whole lesson.
I think you had it in the beginning
Uhuh
we knew-
we knew what we wanted that opening discussion to do
and what it should sound like
mhm
kind of right?
And then you knew-
what we- we didn’t know what it would look like,
I think we had some unsureness what this exit ticket-like how they were gonna respond

Yeah

we didn’t know that

Yeah

but we knew we wanted them thinking about what goes on in this triangle, in triangles when you change them

Yeah

and why?

Right?

So because you knew that, I think it just set you up to do-to like marshall their learning in a powerful way that then leaves you equipped to take if forward in a powerful way too.

mhm

So just- I’m just saying that so we can like keep it

Yes
do that again

Okay
do that more (laughs)

(laughs)

You know what I mean?

And sometimes it’s so easy, especially when we’re rushed

Yeah

to just like “What’s the next lesson? How do we do it? What are the parts?”

Right

without ever getting ourselves

Yeah

to “Well wait, what do we want them learning?”

Yeah

Lynn: mhm

and I think um- I was telling- I think before you came in Lynn, I was telling Kamilah that I think the thinking that we did lesson planning was so (.) we thought about ea- each part of the lesson in a really principled way and it didn’t take us that long.

Lynn: mhm

We just had to ask the right questions.

Yeah
Right?

We had to be like-
we had to an and being clear with ourselves about
“Well, what do we want them learning?”
drove all of the other decisions,
so it wasn’t like “Well, should we do this or should we do that?”

/Yeah/

Lynn: /Right/
“I don’t know. That’s my (time) dadada” You know?

Yeah
We did have this back and forth,
because we knew what we needed.
Lynn: No I think it was very /clear/
You know what I mean?
Lynn: which parts of the lesson you didn’t need to do
Lynn: to get to what you wanted,
Lynn: right?
Yeah right.
Lynn: (I feel) that is helpful
Right,
should we measure the angles or not,
we have a reason to answer

Right
a way to answer that question
Right
cause we’re like “Well, what do we want them learning”

/Yeah/
Lynn: /Right/
“and does it support that?
Nope,
okay cut it out.”
Lynn: Right

Yeah

Right?

Yeah

So I think um

Yeah because I didn’t realize
like-
I mean I thought they’d understand-
you I didn’t like hearing them
tell me what an angle is-
it was just like surprising to hear
what they were saying

Uh huh
you know cuz I’m assuming that they know
and they like,
understand it
Yeah
and how it works
Yeah
you know?
Lynn: Yeah
and it’s like
they don’t (*laughs*)
Yeah
And so it’s hard- it was just like an eye-opening for
me
because I’m coming in assuming that my kids know
Yeah
what this is
Yeah
and what it means.
Yeah,
well a lot of grown-ups don’t know what that is
Yeah
Lynn: Nope
Well they- it’s both
yhey don’t
and they had lots of good ideas
Right
right?
They couldn’t figure out how they all fit together
Right
but they all had some sense
Right
they had some sense that could be used
Right
Right?
Yeah
Um (.)
yeah.
So yeah,
I think a meta point for you guys as a planning team
is that you can do that kind of planning routinely.
It doesn’t take- I mean I think people feel like, “This
takes so long,
we don’t have time!”
Lynn: /It doesn’t/ yeah.
but it doesn’t have to.
Like if we get good at asking ourselves the right
questions
it doesn’t actually have to.
It can be pretty like
Right
like “Where are we trying to go,
what’s our goal?”
Yeah “What’s our goal?”

Yeah and like if- so if there’s a decision to be make “Well, where are we trying to go?”

mhm

Lynn: Right.
Lynn: and it also will help you,
Lynn: you know cause there’s so much in this new curriculum,
Lynn: there’s so much stuff
Yeah
Lynn: right? It will help you get rid of
Lynn: all that extra fluff,
Lynn: that you don’t need.

mhm

And that would drive you insane!
Yeah
Lynn: Trying to teach angles with a protractor is a nightmare and-
Yeah
Lynn: They don’t know don’t have to do it to get the point you’re trying to make.
Right and they could do that in a different lesson when that’s the point.
Lynn: They can do that in /high school when they have to/
/Right right/ right. Or like and Aya too
was doing a FAL,
like a Formative Assessment Lesson thing that was from the binder
but it had like all these different pieces
and she was able say well like,
“Okay too much.
what do I want them getting?”
Right

“Which parts of this get at that?”
Right

Done.

Right

Your lesson just got simplified twenty thousand times
and way more powerful
and /it took like two minutes
of thinking, right?/
Lynn: /And there was-
Lynn: and there was/ plenty of material, it wasn’t like
“Oh, I’m not going to have enough for them to do.”
Lynn: There was tons.
Oh no there was tons
and there always is.
I feel like I can run classes on one question because if those questions are good or deep enough, right because there’s always room to make sense of what’s happening and to share our sense making and learn from each other.

Yeah I wish I taught (the last class) this way too.

Yeah

Lynn: Yeah

Yeah /we didn’t have time for that/ (anything the way we ran it)

Lynn: /Yeah yeah/ we probably wouldn’t have had time for the pasta I know.

Yeah

Lynn: You know?

Yeah

So did good thing you forgot it. (laughs)

Lynn: But I think

Yeah

Lynn: I think it would be a fun follow up

Yeah

Lynn: but probably not tomorrow

Well she might do a- she was saying she might do like a warm up

/I think I’ll just/ do it- yeah

a /demonstration/ (thing)

/maybe up here/

Lynn: I have a feeling we’re going to have um light attendance tomorrow

Who? Oh light attendance

Oh

and the parade’s tomorrow too

Lynn: That’s why

Yeah,

I remember last year- no two years ago

Yeah

/from that they want/- there were- kids didn’t come to school on the parade,

/they went to the parade yeah

Lynn: /It’s supposed to rain tomorrow./ /Right that’s why I think I (inaudible) I don’t think, not cause of Halloween

Oh the Giant’s parade is not today

Lynn: Yeah no it’s /tomorrow/

/tomorrow/

Oh (inaudible)

And two years ago I remember
kids did not show up to school.

And it’s Halloween on parade day yeah

Although a lot of times I think kids especially younger ones want to / come to school on Halloween

Lynn: /They want to go to school on Halloween

Yeah

Lynn: (and the After School Center is doing a big thing in the afternoon now) but I think / (cause a lot of them won’t come)

/They want to come in costume they want to

Lynn: except it’s supposed to rain so (.)

Lynn: Gonna rain on the Giant’s parade

Okay so how are you feeling?

(inaudible) yeah

Lynn: I’ve got / to run to advisory/ / Are you feeling like you’re taking/ away something

Yeah

you want to be taking away?

No,

yeah of course,

Yeah

yeah!

Okay (bell rings)

Ah

Lynn: Thank you Friend

Thank / you! /

/Okay so/ the next time what we’re going to take up-

I feel like the thing that we didn’t totally take up,

but I’m going to write this down so I don’t forget

Yeah

Next time what I wanted to think with you about, if you want to,

is how we can capitalize on that good sense-making they’re doing

and create more talk out loud

Okay (.)

Yeah

(.) I mean I don’t think- actually

we don’t need to wait until next time.

I mean I think you have ideas,

already

Oh yeah

of things you’re going to play with

Yeah

so let’s check

Yeah

in and see how that’s going

Yeah

and see if that feels like a thing / we could (inaudible)/
/Cause/ the things that we used-
the strategies did work.
I mean like having them share out with a partner
and then picking sticks
and (.)
what else did we do?
I also think the more that that /kind of thing happen/
/Oh/ having them write down what they’re saying,
that was huge too yeah.
Yeah I was just going to say
I think /that/ same thing,
I think the more that happens,
where they see-
“I spoke out loud and I got to feel smart.”
/Yeah/ yeah
and my ideas got to be part of the lesson
Yeah
they’ll want to do that more often
Yeah
it’ll become like a (.)
a thing they want to participate in
Yeah
You know what I mean?
Yeah
I think
Yeah
maybe,
we’ll see.
Yeah
Awesome,
thank you so much!
Yes
I learned a lot
and I’m
I know /it was fun! (laugh)/
/loving to get/ to know your kids.
I had a good ti::me!
Yeah
I miss teaching!
I was just like-
yeah it was really cool.
I’m leaving this with you,
and I want to- I want to- and I- I want you guys to end
up with a stack of copies of this
in the binders you plan with.
Ahh
okay
So when you’re planning
Right
you can just like grab it and scribble in it.

Okay

If that’s useful

Yeah

cause I think you’re making sense of planning in a way that could be really powerful for your team.

Okay, cool.

Um

so, yeah

So I’ll get my stuff out of your way

so you can teach.

Well it’s advisory

Oh right.

Oh right right.

---

**Kamilah Cycle 3 Planning Conversation**

**Kamilah**

play it from there, I don’t want to like

have this ready

and then this, this is what I do next,

and then this is what I do next

and that’s what I do next, you know, like

Oh, do you mean project it like on a prepared slide?

yeah

O:::h, I see.

Yeah yeah yeah.

/Mhm

/and I want it to just like look and sound more organic

and it’s just gonna look different

gotch

the kids are gonna feel like I’m like putting a show on

and I don’t want them to feel that way,

like I want them to do what I usually do.

So a lot of time what I do,

so I also,

well I don’t know- I think people are just so different,

like my colleagues and I are different about this

yeah

you can tell from this morning.

My-

I never do a multiple abilities launch that is previously written.

mhm

---
Or, like I’ll have it in my notes, right for myself
right I’ve thought about it ahead of time, I create it.
but you write it down
I write it while I’m talking
right.
But I do-
I write it in a way that they can see it,
so that it’s like,
not just my words
yeah
that can-
so the kids can be like ‘bla bla bla bla’
right
but somehow like supporting it visually.
right
Um,
I never do it on powerpoint.
Usually I do it like-
Yeah, I used to do it old school,
on the um
yeah
overhead projector
yeah
with the transparencies is how I always did it.
yeah
And I would write a new one
for four different classes.
right
like if I’m doing the same exact multiple abilities
(laughing),
right
just cause I need to write it.
right. yes
And like I do that also with the CI group,
like I have notes from last year,
for like
if I do the course again,
I have notes
right
for the multiple abilities launch that I use for this task
right
but like-
and other facilitators
do that differently.
They take their notes from last year and they use ‘em
and they talk through 'em
and it works for them,
but for me I have to like recreate it each time
or else it feels- I don’t feel as connected to it
and I don’t feel authentic or something?
mhm
So it sounds like maybe you’re having
yeah
a similar kind of thing.
Yeah
I think so, yeah.
Yeah, for me too.
yeah
And the way that Marcel did it
here today, totally worked for him
right
wouldn’t work for me.
right.
yeah
No. (3s)
Yeah.
Or I don’t know that I always feel that way about
roles.
Like sometimes I put the roles on the task card
mhm
Um, ((eating))(.)
So you wanna talk me through your lesson again?
Cause I forget?
yeah
or what it-where you went to
after we talked?

so I just added multiple abilities
you created it already?

yeah yeah
can you read it for me?

yeah, so one is ‘think outside the box’,
like I /know it’s pretty-
what does that mean?

like,
because
for them
to get to that point five, right?
Like
uh huh
I feel like they’re so like
thinking that the table is all that there is. right?
mhm

but it’s like thinking outside of that,
like there could be more possibilities.
I mean, I don’t know how to word that but I think that’s something that just, it’s very-

mhm no I think that's totally smart,
so maybe,
is it something like, um (6s)
is there something there about creativity or about generating ideas you haven’t heard before,
or
um
finding new ways
to think about things
yeah
I mean all those things could be on there. (4s)
uh huh
cool.
yeah,
and then other ones,
use different representations to justify your thinking.
(4s)
K. Keep reading.
I might have a suggestions for that one, but I'll see

Making connections between different representations
ok
and then making sense of those connections,
like what does that mean.
ok, mhm
that’s what I have so far.
OK
so four.
Great,
but let’s take that second one
the using different representations
mhm
yeah
(.) there’s a lot of different smart things that are all inside of there.
right?
uh huh
Can we say what they are?
so that we have more smart things that have been named?
like the types of representations?
yeah, but in particular, so let’s think about this problem
or this- what we’re asking them to do.
So they’re gonna have to
understand the relationship between-
they’re gonna have to compare- like understand the
relation-
the similarities and differences maybe?
between what we can learn from a table and a graph,
right?
Or something like that.
mhm
Right? like we talked about that the table is like a
subset-
holds a subset of the solutions.
A graph shows
a representation of continuous solutions, right?
and the table shows only some of them.
right?
right? so
yeah
kids are gonna have to make sense of that.
yeah
or what we can see in a graph
that we can’t see in a table.
or something like that?
mhm
um,
they’re gonna have to- so what was way you
worded it originally?
use different representations to justify your thinking.
mhm.
so they’re gonna have to um, (.)
and what they are being asked is,
‘is there a point of intersection’ right?
right
or find it
or prove that there isn't one.
prove it, right.
uh huh.
So they’re gonna have to
understand?
or they’re going to have to
make sense of um
point of intersection
in a table, in a graph, and in a rule.
wait, I’m sorry,
can you repeat that again?
I said they’re gonna have to make sense
of what a point of intersection is
yeah
in a -
I said,
one of the ones- remember the last one was make sense of those connections, and what does that mean. That’s kind of where I was going.

So there’s different sense making going on here, right? There’s making sense of what is the intersection, where do we see it in the table, what’s an intersection on a graph? What’s an intersection in a rule, right? or in the rules.

mhm

And then there’s connections- what are the connections? Let’s talk about that. What connections do they- are they gonna

Like see that like that intersection on a graph can also be represented in a table.

So the intersection IS the connection, is what you’re saying. ok,
mhm.

like to see it in all representations /the point of intersection /So we can just do that.

so Cause that’s more specific than make connections right it’s a particular kind of connection, right? So they’re gonna have to make sense of the point of intersection in a table, in a graph, in a rule, (9s) or in a rule, in the rules or equations or whatever you guys are calling them. Um, (.) mhm (.) Read em to me again?
your other ones?

um,

making connections between different representations and make sense of point of intersection in different representations, what does that mean? (3s)
So I keep feeling- tell me -
you don’t have to agree with this
but I’m having the compulsion that I want to hear the
words table, graph, and equations,
or rules
rather /than just different representations
/should I-/ Ok
or maybe having them in parentheses or something,
like I want them itemized
ok
because they’re different,
but I don’t know, if your kids are totally know what it
right
what different representations /mean really well?
/right, yeah yeah yeah/ no, I think it would be good to
have it, yeah.

cause it will be language that they’re familiar with.
OK (5s)
cause like some kids, for example,
if you’re seeing them like separate abilities, like (.)
one kid might really make sense of it in a table,
and one kid might really make sense of it in a graph,
and those will be different.
that’s not just one thing.
right
right, those are different things
right
so somehow like articulating them as different
is kind of nice because it opens up the space for lots of
different
yeah
((aside)) thank you.
the more it can feel like different, um,
like cuz part of the purpose
of the multiple abilities launch is to convince them
that there’s so much up there
right
and some of it they’re good at.
right
right.
um, (6s)
Okay, what else do they have to do.
They have to (.)
oh, graph!
mhm
right, like
they have to be able to graph accurately
because they’re gonna need their accurate graphs, right?

(31s) there’s calculations in there with um non integer values, right?

mhm

(4s) they’re gonna have to

the fractions, yeah.

should I put that in too.

mhm

um, (4s)

compute...

you could say-

depending on what words-

so you want a balance between it sounds fancy and the kids know what you’re talking about ((laughs))

right.

yeah.

um, so

you COULD say, if it- something like ‘evaluate expressions with non integer values?’
cuz that sounds super fancy

yeah

and then if you want to use that language you could, and then say what that means.

OR you could use different language. You could say, whatever language will work for your kids around that.

Um, (3s)

compute with rational numbers, such as fractions, decimals (inaudible)

mhm ((sounds of typing))

there’s a whole bunch of stuff around explaining?

Explaining (4s)- explaining what you see in each representation, or something like that? ((15s))

What is the task card looking like at this point, or-

yeah (5s)

(inaudible) title what is a solution ((18s quiet, reading))

um (.)

so there’s something around, um, (5s)

using representations to justify,
or using representations in an explanation.

mhm
So it’s not just like building them and doing stuff with them, but being able to fold them into your explanation /

/explain it/ yeah right? that’s a smart thing.

should we add that in? to the task sure.

so

No no no, it’s already there, I’m saying. Because you said ‘demonstrate your thinking’ and then when everyone is able to present your reasoning/

/oh ex-

I was thinking about adding it to the multiple abilities list

Oh! right

oh, right right, yeah yeah

it’s an ability in there

((someone else says something)) yeah thank you thank you! And we’re still here. We’re here till 3:30. yeah, ok, thank you.

um yeah, I did put that- I did have it earlier, was ‘use different representations to justify your reasoning.’

ok, cool, sorry mhm, awesome

mm ((11s, typing)) yeah, and if it comes after this, you can just say in your language ‘these same representations’

mhm

not only are you gonna- not only are you going to explain- I mean these might be redundant, I don’t really know. You can decide what works for you. But you’re going to have to explain them and you’re going to have to help- use them to help you make an argument, right?

mhm

Cool, okay,
let’s go back to the task card.
Okay, part two says ((17s, reading under breath ))
ok, cool.

and then this one I felt like-
I don’t know, am I going for all representations?
like, cause I feel like they could kind of choose where
they’re-
like /am I requiring?/
/(you’re gonna) want all representations.

all?
yeah,
because,
because this is no solution, right?

yeah
so they’ll see what’ll happen if you make a table
is you’ll see the growth happening

right
in the same way but off put.

and you see it in a different way

right
with the numbers, right?

right
you see one is going up by two,

oh this number is never gonna catch up to this number

yea:h,

ok cool

you see it in the table in a different way

yeah yeah
right

yeah
and then you see it physically on the graph

yeah
and then you,
and then you can reason around

why these would never have the same value for the- if
x were the same,

mh

that’s a minus three and that’s a plus one,

right

of course that’s never gonna get you the same value

right,

like why is that not, yeah-

yeah, I think that’s even more here than here

yeah

I feel like

yeah, yeah,

and I think, yeah,

it’ll be easier for them to explain too like,
yeah cause it starts there, I could imagine my kids saying ‘it starts there and it keeps growing at the same rate so they’re never gonna touch’

catch up, right
yeah
and they can see that in the different-

yeah
mhm, um,
so that- I almost feel like given that, there might be a rephrasing here around

mhm
um,
use tables graphs and rules to help Jerrod figure out
(pause) ((typing sounds))

mhm
or just to help Jerrod period.
And I feel like you could cut out these two questions even before that.
Like what if it’s just ‘Jerrod wants to find the point of intersection of these.
Use tables and graphs and rules to help him.
And be ready to explain what you’re finding.’
or something like that, right?

mhm (4s)
or however-
Sorry, I don’t mean to paste my words over yours.

no no no,
yeah, no no no (.)
to explain to Jerrod or whatever. (.)
yeah (.)
So they might squawk and be like, ‘but it’s not (possible)!’

mhm
and you can be like, ‘ok why not?’
you know, help Jerrod understand what’s going on.

yeah.
I don’t even think they’re gonna get-
that’s my prediction.

ok yeah
that could by Day 2
depending on how Day 1 goes.

Yeah,
oh are you gonna assess depending on what happens Day 1,
whether you need it for day 2

yeah
or whether you just hit that somewhere else
yeah, yeah
cool!
awesome awesome,
love it!
yay!
love it!

I know, there will be a lot of things going on in this
multiple abilities,
participation quiz,
group roles, ((laughs))
throw in the kitchen sink.

I know. ((sounds of packing up))

Kamilah Cycle 3 Debrief Conversation

Kamilah       Mia
1 how did the rest of your day go?
2 um, it was OK.
3 It was kind of crazy today.
4 mmm
5 And loud but (inaudible) so
6 kids are working on ( ) seventh graders (inaudible)
7 How was it?
8 Um,
9 so like we- they worked on it
10 in class,
11 in groups,
12 mhm
13 and then they-
14 ‘is this right? is this right?’
15 and I’m like, ‘I’m not telling you.’
16 ((laughs)) go you!
17 and then at the end we um,
18 we went over it and I had them like
19 volunteer about like their strategies
20 mhm
21 on how they got it
22 mhm
23 cool
24 and they shared out. (.)
25 yeah
26 Awesome.
27 yeah, let’s talk about 8th [grade]!
28 ((laughs)) how do you feel about it?
29 I mean,
it was interesting because there was a lot of confusion, but I feel like I have to tell myself that the confusion was good.

uh huh!

Um, Heather helped me to understand a thing that I think I was seeing in your class that we could be more clear about.

Yeah

oh, you mean Heather

yeah

uh huh

so she like, she check-pointed the kids and let them go when they’d circled it on the graph, or

O:::h

or were able to name it from circling it on the graph, like name it as one point five zero

but just the graph and not the table.

/yeah

/yeah:/ so we should reword this as something like, you know, ‘show how you can see, that the- /the intersection in all/ in the equations

right!

and on the graph

OK, yeah yeah yeah

um, because they didn’t,

yeah

I’m gonna change that right now on the [Google] drive.

yeah OK (5s)

mind if I eat?
No! of course. (.)

Busy day for you, huh?

yeah, busy day (.)

Fun day.

So, um,

what did you say again?

I like how you worded that.

what did I say? I said something like,

‘show’ (5s)

um (3s)

or she had it with the word ‘prove’ I think.

That might be nice.

mhm

like prove that the point- /prove/

/prove/

the point of intersection, (.)

prove that this point is the intersection, using the graph

[((typing)) this is the

or you can- you might want to change it to solution,

given your Do Now, I don’t know-

but somehow prove that this is the point,

I don’t know quite how we want to say that,

using

the tables,

the equations,

and the graph.

((7s, eating)) cuz you know how we were seeing your kids,

like thought they were done

after

right

they circled the point

yeah

they thought that was it, you know?

We were like, ‘uh, no!’

‘prove that this is the point using tables, graphs, and equations’

yeah

ok, cool. (31s, eating sounds and turning pages )

yeah, so, what are you thinking? What did you learn from them (.)

first period?

like, the misconceptions,

but I feel like we kind of predicted that too

mhm

like going off,

like I was like ‘yeah, i feel like

they’re not gonna see,
they're gonna think that those tables are the only solutions that could work’

um, mhm

(3s) and then,

I don’t know. I just feel like there needed to be more time for them to, like-
it-

I mean 50 minutes is such a short time to get mhm

really deep into like this kind of work mhm

and like, mhm

I feel like they needed, I feel like they saw the point of intersection, and then there was like needs to have conversations about like ok, could there be other possibilities for x values.

than what’s in the table you mean? yeah mhm

um, and I don’t feel like those conversations were yet happening-

but it’s not like it wasn’t going to happen but I feel like if there was time, it could happen.

mhm um, mhm

so it’s like, I don’t know where to start tomorrow. like, finish this up? have them spend another day like showing there-

showing that point of intersection through a table, a graph, and equation? mhm

and then also substitution I feel like was you know, if you- and I also pointed that out to you that they didn’t feel-

like we haven’t done a lot of substitution? so, um

yeah, which was one of the reasons I wanted to, like grab Tony’s idea mhm

right. because he so clearly did? yeah
and I wanted to make sure,
I wanted to assign competence

Yeah yeah

for one thing

and then I wanted also to make sure

that that was making- or to sort of see

if that was making sense for kids

Yeah

and it seems like at least for some kids it was

Yeah

so that was nice,

Yeah

right?

I wasn’t expecting that.

Yeah. ((laughing while talking)) And Tony literally came in like,

that’s why I love Tony-

he comes in five minutes- or he has to do his check in with the counselors in the morning, so that’s why he comes in late

Mhm

but he comes in,

sits down,

doesn’t have anything out,

totally like gets it,

and like has something to answer,

you know

Uh huh

that is totally smart,

and I was just like, ‘Tony, you’re awesome’ like-

and then doesn’t do anything else for the rest of the day

((laughs)) I know. But you are so smart, Tony. Like-

/if you would apply yourself

/It’s like dammit, I assigned competence to you!

((they both laugh)) would you please (pay me back by doing something)

Yeah

Um (3s)

Ok, so

let’s be clear about-

so the misconceptions that we saw ()

so, did you hear that group say- I can remember what you were listening to and what you weren’t.

That group said to me

Which one,

table one?

Group one, yeah

Uh huh

I said, ‘is there a point of intersection?’
they said ‘no.’
I didn’t hear this,
no.
yeah, they said ‘no.’
And I said, ‘ok, what is a point of intersection?’
but they circled it, right?
I know.
And they labeled it ‘point of intersection.’
((they both laugh))
and then,
this is awesome, right?
So then, I said, ‘what is a point of intersection?’
‘it’s where the two graphs cross.’
‘ok, do these graphs cross?’
‘yea:h.’
((both laughing)).
I was like, ‘ok,
so ((laughing))’
yeah
I wish I could remember exactly what,
but it’ll be on video, cuz it was an awesome
conversation.
So, they had figured out,
so then someone ((flipping through pages)) Arturo?
yeah
had articulated the idea, ‘well maybe there,
the- it’s not in the table because there aren’t enough
points in the table’
mmm
but there could be more.
mhm
so he-
brilliant-
got it
yeah
right?
yeah
awesome
yeah
so we could totally build on that
yeah
and, and like give him credit for it.
yeah, I remember when he said it
yeah
I think I was there
and that’s when you came over and said, ‘let them talk
about it’ right?
mhm
yeah, and he pointed that out
so they went out this way.

yeah

so they added four, five, six,
negative four, negative five, negative six

laughing laughing

kept going

(laughing) oh, god!

I love it.

So I came back and I was like,
‘can you guys explain what you’re doing?’
so he articulated again,
‘yeah we figured out that it’s not in the table cuz
there’s not enough points,
so we’re adding points to the table.’ ((both laughing))

(laughing) (laughing)

oh god!

So it’s gonna cross somewhere else.

(laughing hard) (laughing hard)

It’s somewhere out there!

So there’s-
OK, so this was one thing that was sort of coming up
for me, (.)
a wondering I was just having that I haven’t figure out
how to put words on yet, but I was wondering (.)
It feels to me from that conversation (.)
like on some level, they’re not- which makes total
sense-
but on some level they’re not yet (.)
really seeing
that the- the rules and the table and the graph are the
same,

mhm

like it’s the same thing being described in these
different ways.

right?

and you articulated nicely in your launch of the class
that like,
the ways that we represent have different affordances,
or I mean you didn’t use those words with them,

yeah

but have different, like they’re different,
they show us different things

yeah

but it’s about the same relationship

right

they’re all describing the exact same relationship,
so if it crosses on the paper,
there has to be a way that it’s crossing here?
and I think they’re not yet totally feeling those as the same, you know what I mean?
I don’t know.
I feel like (.)
I mean, we’ve done SO much work on those four representations,
mhm
like,
I mean we’ve reiterated that over and over again
mhm
I think it’s more that
because that intersection point wasn’t on the table? (.)
but I mean I see what you’re saying.
If it’s not it’s, yeah.
I mean, I don’t know.
So I feel like and it doesn’t mean they’re not getting it sometimes.
mhm
and in some
yeah
ways,
but it means that there’s deepening to happen still.
yeah
which is,
I mean that’s what we do all through high school.
yeah
right
yeah
so it’s not an alarming thing
yeah
it’s not a problem.
I think-
because what would be evidence of like a deep understanding?
yeah
consistent, deep understanding that they’re all connected,
would be if kids were saying
‘well the graphs cross, so there has to be a point of intersection. It’s right there.
So therefore, oh look, it’s between one and two’
yeah
‘for the x right?’
yeah
on the x axis,
between one and two,
so between one and two is here [in the table]
right
and I didn’t hear that anywhere yet.
mhm
not to say they wouldn’t have gotten there given more
time
yeah
like you said,
yeah
they need more time to get to it, right?
yeah
so that’s just super interesting to me and I think, um,
it doesn’t mean anything’s wrong,
it doesn’t mean anything has happened wrong,
it means that- it just feels like an indicator of like a
place
/we're gonna see deepening.
/to have a discuss-/ yeah
right? Um
I think, also, I think these kids don’t understand that
like the who:le li:ine? is a solution, like

eyep
Like I think for them,
they think these points are the only ones.

eyep,
clearly.
yeah
oh yeah, that’s the other thing they said.
oh, yeah ((claps))
that’s where it went.
I love this conversation! (.)
‘there’s no point of intersection.’
‘ok, what is a point of intersection?’
‘it’s when they cross.’
‘do these lines cross?’ -oh,
‘what is a point of intersection?’
‘it’s the POINT where they cross.’

uh huh
‘do these lines cross?’
‘yes,
but not at a point.’

mmmm
so this was the logic,
yeah
why it was totally working for them
yeah
that there is no point
right
of intersection

mmm
because sure they cross,
right
but it’s not at a point
right
so there is no point of intersection
right
there’s an intersection,
right
but it’s not a point ((laughs))
right, yeah.
Which is awesome, right?
yeah,
so that feels like actually pretty easy
yeah
to take up, right?
right
um,
yeah
yeah, I forgot about that part,
yeah, that was really awesome
yeah. ()
but I think that’s normal in
like the way that this unit has like played out,
like we’ve never had,
I mean we’ve only been like doing points,
like we haven’t
like whole number point?
like we haven’t talked about-
yeah- we haven’t talked about, like
mhm
decimals or whatever
mhm
so, I mean, I think I told you that I had a feeling that’s
what they were gonna think.
yeah, you did
yeah
yeah, no,
I mean ALL those things,
you totally predicted.
yeah
you clearly know your students
very, very well.
((laughs))
cuz you knew.
And you were right.
yeah
OK,
awesome,
so where do we go from here?
What do you want to do with it?

((big breath))

What do they need out of this to move on?

And what do you want to make sure they learn?

um,

I think I want them to spend more time on this.

mhm

Like I think it’ll be really, um,

like I feel like, and even with my other class, in 3rd

period,

it was like they stopped in the same place,

where they were like, ‘oh, point of intersection’ and

like, ‘ok, now what?’

you know, so having that conversation,

I felt like they needed more time to think about where

that could be in your table.

I mean I had groups be like, ‘yeah it would be in

between here.’

like there were kids in my third period saying

Oh!

yeah, um, and then they were-

awesome

you actually added a point five.

And there was another kid

we actually have it on video.

It was this kid.

He start- he made-

he created a whole other table and it was halves.

mhm

And he started doing like, negative three,

and he did negative two point five,

he did negative two,

he did negative one point five

mhm

um,

so he started doing that.

Um, and then like the bell was about to ring and then I

was like,

‘oh, what are you doing?

Like can you share with your group?

Like what are you thinking there?’

uh huh

um, and then- it’s just,

we just need more time

mhm

like, and I feel like they-

once they see it in table,

and the graph,
and then the equation part I feel like they’re really struggling with, on how to substitute.

uh huh

um, I don’t know if I should worry too much about that, right now, if we’re just trying to-

I think our main goal is for them to understand that there’s many solutions and it could be anywhere on that line, right?

yeah, the only reason I get a little, like (.), the piece of me that wants to lobby for the equation, mhm it’s not because I care about the skill right so much of substituting yeah but I think it’s another, I think it’s a way of understanding what solution is that enriches all the other ones. and allows those representations to stay really glued together

yeah conceptually right, yeah so, it’s like (.) And like it’s kind of magic in some ways for kids in a cool way, that can be sort of empowering when they’re like,
alright, so for example if we, not in this task, because this is about something else, but if we wanted to look at all of these being solutions, like the fact that it’s one equation and you can do different stuff with it and it still works mhm and continues to work, and then all of the number pairs that make it work are in a pattern right that make a picture, like that’s kind of magic. yeah
right?  
so somehow like, um,  
being able to rec—  
and I think—  
yeah, like you were saying they don’t get yet that the,  
all- the whole line is  
made up of solutions.  
right.  
right? And I think that um (.) 
what- I don’t even know what I’m trying to say, I  
don’t feel very articulate about it right now,  
but there’s something rich about understanding  
solution algebraically  
as well as sitting here [the table]  
mhm  
and in the graph  
that I think can just sort of round out  
their thinking around the big idea here.  
mhm  
of what is a solution  
yeah.  
does that feel?  
yeah  
and it doesn’t mean they have to like—  
they could use a calculator,  
right,  
it doesn’t mean they have to be, like this ((snapping  
	fingers))  
right  
with the calculations, but if they get (.)  
that that, /if it’s a solution,  
/input ( )?  
those two numbers  
should be able to  
/match  
/boop, pop right in there  
yeah  
and work  
yeah  
that’s what that means.  
right  
you know what I mean?  
yeah.  
/  
you know what I mean?  
yeah,  
so you’re still—  
yeah I’m with you, because I think,  
I’m with you as far as  
spending more time on it?  
yeah,
because you want the-
cuz it’s a big, important idea,

yeah
	right,

and you want them to-
like the whole purpose is this,

what is a solution?

and they’re on their way
to getting it, like really

yeah

in a MUCH deeper way

I know

than you could just tell them.

And I don’t want to tell them, right

yeah

because I want them to play with it more

and then we can have a discussion about it

yeah,

yeah

yeah

I’m with ya,

yeah (4s)

so I’m wondering about-
yeah, so what are your thoughts about then how we

would take it up,

like what would it look like to take it up tomorrow?

((sighs )) So I think like a do now,

I mean, (4s)

well, one, my concern is substitution still.

mhm

so maybe we can have a Do Now that (4s)

like, where kids can see the table

and the equation,

kind of like what we did today, right?

where we had those table points

and we plugged it into the equation

to see if it would make it true?

I was just trying to-

I was thinking about-

this is not formed yet in my head, but what you were
telling me was-

I was thinking about what if there were (.)

I’m trying to think of (.)

OK, let’s say we have a linear graph,

and there’s like lattice points

mhm

like this, right? (3s)

And you asked the question today,

like how many points could go on this table?
And I think by the end,
your kids got
that it could be /infinite,
right, keep going/

/Yeah, yeah, yeah, they were/ all agreeing

yeah, yeah.
Um, which, awesome Do Now, by the way.
I think that’s a really important thing you got them to
recognize and talk about.
I’m wondering if you could do something similar,
where
you were like ‘how many points could go in your
table, if they could not go that way
or that way’ ((pointing to the left of zero and right of
two in the horizontal direction on the graph)) or
something like that.

This isn’t it yet,
this doesn’t work yet

right

but do you know what I mean,
where you limit the domain

right

you say like, between,
you can not choose any number smaller than zero,
or- not zero- smaller than one

mhm

or larger than three.

How many numbers can you put in your table? (.)
right

yeah

And so some kids will go,
well /one, two, and three/

/one, two, three/ that’s it.

only three

yeah

And then, really,
are there any-
can you think of any numbers

yeah

between one and three that are not one, two, or three?

yeah

Can you think of any of them?

yeah

and somebody in the group is gonna be like,
‘oh. /one and a half./

/one half/.

yeah.

especially cuz some kids have (.)
figured out / like ( ) the conversation right now./
it’s like what is this point five, like this doesn’t make sense?

yeah, right,
so some kids will go to a half
and then some kids also will have the further
misconception that there are not numbers
between one and one and a half and two

right.

right?
So like, ‘what about more’
and like push them to have-

like until you see tables with like,
yeah

you know with eight, nine, ten entries in them

yeah

‘more! we need more!’
yeah

until they really get, like ‘oh you could keep going.’
yeah

and then in between and in between and in between

and in between,
yeah

and that’s why it’s a solid line, right?

And maybe that’s where I could be like, alright,
so if we were to plot that like look,
it’s all along the line
and these are all still solutions right?
yeah, every single one of them!

And the reason this is solid
is because all those points, there are so many that they
touch each other

I know, they’re making a line!

it’s crazy!
It’s actually points,
but you can’t see them

yeah, i know

right?
so like that idea

yeah, so closing off with that.

well I feel like the do now
that gets them into that space might support you

yeah

support their reasoning.
cuz some of them like you said are right there

anyway, right?
yeah

so then let’s just think about that.
If they took that Do Now-
if they took that sense making out of the do now
into the rest of this task
then I- then you know,
they can hopefully get to like,
‘ok, so we can make more.’

Yeah.
And they can see from the graph, ‘oh, ok,
it’s between one and two
right
so let’s like let’s /zoom into this space/
/let’s expand this table/ yeah
between one and two.
And we can also give them permission,
which a lot of kids feel- don’t feel permission?
maybe the do now could do this secondary thing of
giving them permission to make tables out of order.
mhm
right?
yeah
Like if you have a table that has
one two and three,
yeah
like if you want your x to be one and a half,
you can think about what it is here [between one and
two]
yeah
that might help you visualize it
yeah
right?
um, but it’s ok to put it here [at the right side of the
table]
yeah
it’s just another point.
yeah
it’s alright
yeah
um (.)
or what if you even gave (.)
but then, how-
and then I feel like kids are gonna
get stumped about like,
ok, well how do we find the y? (.)
Well they could use the pattern too. (.)
how do we find the y
for the point of intersection?
Yeah,
so what’s halfway in between both of those
yeah
right?
So that’s halfway between there,
they can reason about it being halfway between there,
they could just read it off their graph and just decide
that’s good enough
right.
they could read it off their graph and check it
yeah
with this,
right?
that’s the cool thing about multiple representations
yeah
is that you have all those tools,
mhm
right? that are all,
they all support each other.
mhm
I was even wondering if you could do this ((writing))
or something.
Like if you were doing a do now like this
and you showed them a graph like this
and then you gave them like,
‘ok, I started this,
I found three points.
I found three points that
are on this line,
and I wrote them here.
Your job is to find
five more
yeah
without going that way’
or,
maybe that’s not the way to phra-
I don’t know,
I totally trust you to figure out how to pose it
or how to get them into it,
but I was just sort of trying to play with
mhm
whether there’s a way to just give them a jumbled
order table,
so that they have to be comfortable with it ((laughing))
mhm
cuz they have to
yeah
or maybe that doesn’t matter too much.
What I just don’t want is them to say-
I don’t want it to be a barrier
for them to think about the infinite number of points
in between

mhm

that they don’t have space on their paper.

right.

you know what I mean?

yeah

Um,

but I think,

whatever.

And I don’t want them to spend twenty minute

copying down new tables

yeah

and that’s the other thing ((laughing))

yeah,

yeah.

They gotta have that graph paper. ((laughs))

I know, huh?

That was SO smart of you.

I was, yeah

((laughing)) I didn’t realize,

like how long it was gonna take.

yeah, which is another one of those things, I was like,

‘oh yeah, we didn’t think about that.’

we were just like, ‘graph ’em’.

ok, move on.

yeah, and then when Marcel came to my third period
I was like, can you please make these copies for my
third period,
cuz I didn’t have any

oh, he told me ((laughing))

for them. ((laughing)) I was like,

‘I don’t want them to start graphs,
they’re gonna spend twenty minutes on it.

yeah

yeah

um, cool, ok,

so some kind of do now getting into the non integer

yea

coordinates,

right?

which will hopefully have them think about it in a

table form.

yeah

here when they get back to it.

yeah.

Then they get back to it, and we make sure they
understand even though we didn’t word it all that
clearly
what they are expected to do cause/
/right
did you have,
in your third period did anyone get to this checkpoint yet?
no, no no
so Heather’s, they got past it,
but then I realized that’s because,
no that’s because she misunderstood what we were looking for
in a checkpoint
Oh, so they, like the graph was the only
they just said, there’s the point of intersection.
Or they were able to name the coordinates/
/o::h
by looking at the graph and then they moved on.
So she’s gonna go back.
ok
and have them sort of re-checkpoint it
yeah
and show-
so we, you might want to do a little,
support this
yeah
so they know what this means
yeah
or what we meant by this
yeah
and you can say,
‘sorry our bad
yeah
we didn’t make this as clear as we thought it was in our heads.’
((laughs)) um
yeah,
that’ll be awesome
cool
and I think it’s gonna be an awesome conversation
cuz they're right there
((sounds of someone else in the room)) hello
Other: Oh, hi, sorry.
No, it’s OK.
((man’s voice asking K for money))
um (4s)
cool,
and then going into this will be so much richer, right?
oh, right, yeah
cuz then when they say no,
you can make them show it in all the representations, right

((laughing )) or they’re gonna be even more like, ‘wait, what is this!’
yeah,
which is great.

((laughing )) I know, they’re gonna be like, ‘Ms Kassis, really?’

but then you ge- yeah,
and you can say remember when you thought this one was no?
well, this one is really no. ((laughing ))

((laughing and clapping )) they’re gonna be like,
‘wait, what?
no this one has to have a point of intersection now.

((laugh)) (laugh)

they’ll continue out their tables for like ever.
‘it’s coming!
it’s gonna be there!’
They’re gonna start putting in halves and quarters into
their tables to find it.

((laugh)) (laugh)

no they won’t
cuz they’ll have their mutliple representations
sense making.

yeah
yeah?
And you’re gonna give them more of that crazy graph
paper.

oh, yeah.
so they don’t have to graph forever

yeah

which reminds me, I hope I have another copy. (.)
I’m sure I do ((laughing ))

there’s one more in there somewhere.

((looks through papers ))

How are you feeling about participation issues and stuff
and is there anything there you want to talk about?

um,
you mean, like as in whole group or?

whatever you want.

Are there status concerns you’re worried about or-

((sighs )) I mean I guess I’m just worried about, like,
off topic,
off task conversations.
mhm

um, (.)
(inaudible over sounds of pages turning) John and Tony and then ((laughing)) you came up to me about that ((inaudible)) I can’t even get them on task. ((laugh)) (laugh)

Remember you came up to me and you were like, they’re not even (laughing)

I tried and it didn’t work. Um ((laughing)) oh, yeah. Oh yeah, I had an idea about that. yeah or a question, an idea that wasn’t a fully fledged idea yeah so, I thought you set up roles beautifully. uh huh At the beginning of the lesson. Did you? ((flipping pages)) Am I right? (inaudible) what did you say? yeah I did. yeah ok, I have more copies, yeah so I wonder, and actually this came up in another classroom I was in too, in Aya’s class, so I wonder if you guys could just talk about it together when you’re planning. Uh (5s) you set em up awesomely. The kids totally got it. But then we didn’t use ’em. Like we didn’t go back to them to support what we needed supporting. yeah so I feel like it’s sitting right there for you right so I feel like you could do that- the roles that you’ve already done right could be your answer to managing that yeah yeah, so (we’re gonna like)-
So like huddles
right
right?
Um reinforcing like through participation quizzes or whatever or just
I tried to do a participation quiz (laughing),
I set up the poster paper,
but I just felt like I was running around so much
yeah, no worries.
I mean I was planning on it, but.
yeah, no, that’s fine.
I didn’t feel like you had to.
But I was wondering like, so that group back there
that was,
off topic every thirty seconds
yeah
like,
it’s like an accountability tool too,
right
you can be like, ‘ok so task manager’
you call a huddle.
‘task managers,
I’m seeing some awesome thinking
but then people keep getting derailed from it’
yeah
‘and we’re not getting traction’
yeah
‘and this is like important learning,
so task managers,
I want you please to go back to your groups
and make sure that in five minutes, when I come by,
everybody can tell me bla bla bla’
yeah
‘or everyone has their graph done’
yeah
or whatever the thing is
yeah
And like, ‘5 minutes, you got it.
So that’s what the clock says-
ss- you got it?’
yeah
‘go back to your group,
tell them that’s what we’re doing and then in five
minutes,
hold them to it.’
yeah
yeah?
I know, I haven’t done a huddle yet.
I need to try that strategy.
this dude?
the whole time you were doing your launch,
he was talking to her.
yeah
I know,
which means,
and you stopped a couple times and waited,
and he stopped for you and then started talking again.
yeah
which, I wasn’t that worried about as a compliance thing,
but what it meant to me was that he missed
yeah
everything you said.
Like he missed the roles launch,
he missed the multiple abilities
yeah
he missed all of that
right
so any good that could have done him
right, right
just didn’t
right right
um,
and I don’t know,
she might have missed it too
right
cuz it’s hard to hear two things at once.
right
you know
right
so,
yeah
yeah
might be a seating thing
I’ve been doing shuffle seating
uh huh, yeah
this semester
great.
I love it.
Yeah!
I change it every two weeks
awesome.
so maybe you could have him read it aloud.
you know get him in
to, yeah
get him into what YOU’RE doing,
right
so that he can’t be detracting from what you-
right
cuz it didn’t feel like
he wanted to detract.
right
it didn’t feel like he was trying to undermine anything.
yeah.
he just like,
he just walked in with stuff going on.
right.
and wanted to talk about it,
which is a totally normal thing
for someone to experience,
he just wanted to talk about his weekend
or whatever he was talking about with his friend,
and that’s normal
yeah
but if you just keep him too busy to do that
yeah
doing something else
yeah (4s)
um,
ok so yeah, roles.
Roles I thought we could think together about.
Like how we could- cuz
I wouldn’t say that (coughing)
in every classroom,
but you set them up so beautifully, and the kids totally
clearly are used to them
mhm
and they got it
mhm
in one group I said, like
‘could you remind me
which role was supposed to be doing the middle
space?’
and that allowed them to get reminded about the
middle space.
mhm
and they knew
yeah
they could totally answer that.
They totally got it, you know.
yeah.
That’s another thing too that I haven’t been doing this
year that I need to work on,
is having them use-
I mean I have-
we’ve talked about middle space in pairs?
cuz that’s been more with like task cards, I’ve been
like
having them make sure
oh
that everyone has access to it?

but in terms of like keeping our work in the middle
is something I haven’t reinforced.

So that was really new for them today.

Okay

yeah

single most powerful thing.

yeah

well, for me that’s like
money, because it’s easy?

yeah,

I know

it’s not complicated.

and it just changes ((lowers voice)) everything

yeah

because in order to work,
especially on these big tables,
I mean these big tables are hard.

yeah

but in order to put my work in the middle,

yeah

look where my body has to be.

yeah

and then when my body is like this,
I’m oriented toward my group.

yeah

then I’m gonna hear them

right right

((chuckling)) right? And I’m gonna talk to them

yeah

It just like totally transforms.

I mean today was one of those things where I was
like,

oh my god,

I should have been doing this from day 1,

cool

but it’s like just another CI strategy, you know, like
that-

I know that I can’t do everything all at once

yeah yeah yeah

and I’m still learning,

you know, like
oh yeah,
and your kids are doing amazing work.
You’re doing awesome stuff,
so

((laughs)) yeah

yeah

for sure

but that was something that I was like,

oh my god,

I should be doing this all the time,

but I don’t.

so and the one thing that I was always bad at
remembering as a teacher, and I feel like as a coach,

yeah

I’m seeing the power of it,

and I’m getting better at remembering it

because of course it’s not my classroom.

yeah

is um,

the, the the twenty seconds that it takes at the

beginning of class,

um, to get them to clear.

clear desks, yeah, like

oh my gosh,

when I’m working and there’s like this, this and that

((moving items on the table))

yeah

and someone’s notebook is behind that

yeah

like,

yeah

nobody’s seeing what I’m writing.

yeah

nobody ca- and then,

even if a kid sitting over there wanted to see it,

it’s socially very risky

yeah

to be like,

‘could you move your thingy so I could see what

you’re writing.’

yeah

you know. ((laughing))

I did have them do it

at that table.

They had a lot of like binders and cute little pencil

cases

yeah

and stuff

right ((chuckling))
and at the beginning I asked them

yeah

if we could move it onto one of the empty tables

and they were totally fine with it.

yeah

and some of them put it underneath, um,

and it did facilitate some

yeah,

I’ll keep that in mind.

it’s interesting that you say you haven’t focused on it

because

(3s) I’m trying to remember.

In group one,

did we ask them to put stuff in the middle?

I mean I feel like at some point we did.

/they like slid things forward

/well you told me about/ Michelle.

and then I came up and moved her notebook

and was like, ‘hey, can you like

put it more in the middle.’

o:::h right

and that was new for her.

Huh,

ok.

because they were reasonably using the middle space.

They were.

but I don’t think I told them

although I think,

yeah,

I did in some of the groups, I think.

Um, yeah, that’s interesting. Yeah.

I’m down for that being a big deal.

Because um,

they were doing good talking,

group one, ((shuffling pages)) names, names names-

Dulani?

uh huh

Had good ideas, as far as I could tell.

I wasn’t listening very closely actually cuz I was

trying to stay out of the video

mhm

and was totally willing to share them and he checked

in with his teammates,

but he did it all like this.

mhm

and he still was doing it,

it was still helpful,

but I feel like

he would have had more success-
I mean he did have success, it wasn’t like bad things happened.
mhm
I feel like there would have been more momentum of talk
yeah
had it been here.
right,
yeah
yeah,
just like the physical leaning in toward the middle and having things out is so powerful.
yeah
yeah,
yeah I need to keep that in mind.
cool ((sound of flipping pages))
um, ok, so you-
what were we,
ok, go back ((pages flipping)), so i know blablablabla,
did we talk about anything that we wanted to think about together
not really,
I mean I’m trying to think.
I believe you,
I just don’t remember
yeah
we planned this lesson,

I know, how day 2’s gonna play out
I mean I feel really happy
that we framed this lesson around a big question.

uh huh
and I think, um,
because it helps,
for one thing it helps us as teachers
to think about,
do we want to continue or not
mhm
like is it worth going back or not, right?
mhm
and if I- and I wasn’t sure,
and I look up to the top of the page and I see that and like oh.
yeah.
yeah
we have to go back.
I know.
right (('laughing'))
yeah
because we haven’t yet taken up that question
yah
deploy enough, right?
yeah
they’re on the way,
and it’s SO important, right?
yeah.

um,
I think I had- I could be totally-
I was in three different classrooms today,
four, I was in four classrooms today
wow
so I could be blending.
I ended up going back to Aya’s because the lesson
that we planned together kind of fell apart-
it didn’t fall apart,
yeah
but there was just something that sh- we hadn’t
anticipated
that really changed it.
And so she,
actually,
she teaches it three times in a row
all three times
and she on the fly changed it,
yeah
like she modified the do now,
yeah
a different do now,
she modified the manipulatives,
yeah
she like changed it.
So I wanted to come back
yeah yeah yeah
she told me
and see it changed
yeah
um,
she’s so amazing.
Um,
I was wondering
in some classrooms today
and maybe in here?
I was wondering what do they think is the purpose
what do you mean?
For what they are being asked to do, the students. Like, and this is always a question for me. So it’s not a question based on anything you did?

mhm

but I always wonder, like why do kids think that I’m asking them to make this graph or find a point of intersection or, whatever it is I’m asking them to do.

mhm

and sometimes I feel like it’s helpful to just be really clear about what I want you to learn. We’re doing this so we can make sense of this important idea and this idea is going to stay important all the way through all your high school classes, your, well Algebra, Advanced Algebra,

mhm

Precalculus, Calculus

mhm

all of it.

yeah

it’s gonna really need you to understand solutions. It’s a huge deal.

yeah

So that’s why we’re investing ime right

so you might even employ that kind of thing in why we’re coming back.

right

because I was so excited by the conversations you guys were having getting toward

yeah

really making sense of this. and if we can get a deep understanding of this right

out of this activity, it’s gonna be like

yeah

it’s gonna carry you far, or something. You know what I mean?

yeah yeah yeah

um, and I knew it was here, but I wasn’t sure we had-

((whispering)) I can’t remember ((laughs))

yeah
I can’t remember what was articulated either by you or by them around what are they trying to learn

mhm mhm from doing this.

Yeah. I’ll bring that up tomorrow.

Cool. (3s) woo hoo, go us!

Anything else you wanna talk about or questions you are having, or I mean, are we gonna get to see the footage, or yeah yeah yep, we’ll se it. In the past what happens is there’s some process that I’m not a part of where it goes from being on the camera to being on a, like on a computer yeah or what he’s been doing, I think in the last video we took, by a private YouTube thing Marcel shared it with us uh huh so he set up a password protected or something, youtube right right um yeah, so then I think what we should do, what I would love to do is watch it together uh huh and then we can figure out, um I and some coachy people will probably be like, ‘yes, I think we can use it, here’s the section we want to use’ uh huh you’re the final word, so right if there’s anything you don’t want to use right we’d never use it.

right um and, uh, but you and I would get to talk about it
whether we’re using it or not using it

yeah

for video club,
you and I would get to talk about it

right

and figure out what are we seeing,

right

and what’s the smart stuff your kids are doing.
I’m really excited to listen closely to that group’s
conversation,
cuz I feel like

yeah

I got a sense,
but I didn’t really hear it.

yeah,
I’m interested too, like

yeah

cuz you never get to see,
like I wish I had cameras on all my groups

((laughing)))

I know

it’s just like

but then you’d have to find time to watch all that
footage

I know, right

could you imagine your life?

yeah

You’re just sitting around all night with your
headphones and your computer watching your kids do
math.

I know,
cuz there’s so much we miss.

yeah

yeah

always.

yeah

that’s the nature of our job

I know, yeah

so it’ll be really fun to get to listen to them really
closely

and see how all that unfolded.

yeah

we’ll learn a lot about those four students

yeah

and what they understood

or didn’t understand

yeah

and also, just like

how they are or are not interacting
yeah with each other.
And I think there was a lot of interaction there.
you feel like everyone was participating equally?
I don’t know.
I don’t know.
yeah
I have to watch it.
yeah
I mean I think everyone was participating at some point
yeah
the girl in that group
I think that, um,
right
was less
fluidly participating?
yeah
but I th- at the beginning anway,
but I think her group was maybe doing an awesome job of like pulling her in.
yeah
although I want to watch and see
what they did
yeah
but it seems like,
I saw people talk,
I saw them turn to her, while they were t-cuz the other three felt like they were very easily interacting?
right!
and she was sort of not?
but I saw them
trying to ask her questions?
maybe it was asking,
maybe it was telling,
maybe it was checking in ‘do you get it?’
yeah
maybe it was asking her for ideas
yeah
I have no idea what it was.
yeah
so,
but somehow including her,
so that was very impressive.
which is so easy to not do?
yeah
um,
yeah,
and we'll just-
we'll learn a lot about them, that'll be awesome,
and we'll get to watch this group that Marcel was
videotaping

yeah, table 2
yeah, in uhhh second period
yeah
or was that second period?
third period.

third period, right.

yeah, which, at the end they were like,
'Ms Kassis, that was so intimidating!' ((laughs))
I'm sure, yeah.
They seemed really like they were,
humming along despite it.

yeah, I'm like 'no, we're trying to learn from you!'
and they're just like- it's just like-
they don't understand how we're,
I mean I should explain it to them more about the
process, and

yeah

how we're learning from them

yeah, yeah,
and it's hard for them to see /like how are you big
fancy grown ups learning from us/

'yeah it's hard for them to be like, 'wait, how is this/
how are you learning from us?'
like they don't understand ((laughing)),
how is this so interesting for you?
yeah yeah

like,
you don't even know.

so I'll find out from Marcel, um,
I don't know what the process- like how long it takes
him

yeah
to get it to us?
yeah

um,
I'll find out,
so you and I can plan another meeting where we can
sit down and watch it together,
or watch parts of it together,
and um
go from there.
cool.
yeah, so exciting!

so then, we won't meet on Thursday then?
yeah, I don't think we need to,
unless at that time, if we already have the video

Yeah,

unless we have the video

/then we might use that time

Yeah

Yeah

For, for video

Yeah

Um,

Why am I getting out my computer,

It doesn’t make any sense.

It’ll take me like 10 minutes to get online and fix my calendar,

When I can just write it down.

god, I wish I had this ready,

In the beginning.

I would have saved like ten minutes.

Live and learn

Yeah

((flipping pages)) Um,

I have an idea.

It’s really interesting

to talk with all three of you

And to go into your classrooms all in the same day,

Which is what I’ve been doing every time

Mhm

I don’t know if I’ve done that ever before

Yeah

In a school

Where I’ve gotten to do that, so

Connectedly (.)

I think (.)

Can you talk to me about your process planning,

When you guys plan together.

All three of you teach seventh and eighth?

Mhm

So, when you plan together,

What does that look like?

Um,

We have our laptops

Yeah

We have our [curriculum] binders

Yeah

We start out with like our timeline

Uh huh

I’m sure you’ve seen

Uh huh

And we talk about where we’re at

And how we’re feeling
and then we addressed it the way that we need to
and then we start looking at our units
and then planning for the next week.
like where we wanna go
uh huh
um,
we remake a lot of stuff too,
or recreate it,
like the task.
I think it would benefit you guys as a team
to make sure
that you take at least a minute.
or two or three or maybe five
for each lesson that you’re planning
together,
to talk about
what do we want students learning?
like for this. Like we were like,
‘what’s really important that we want to get them to
understand?’
yeah
cuz that frames all our decision making, right?
yeah,
I agree.
OK.
Cuz I’m seeing,
in some,
I’m sometimes seeing (3s)
In response to like,
‘well what do we want our students to be making
sense of?’
mhm
Like- so I think you and Heather planned the surface
area stuff together maybe?
the nets?
yeah
uh huh
And I talked with her only- we had only a very small
amount of time for planning,
yeah
so we didn’t get to get deep into it,
yeah
but for that conversation, we got to
what do we want- what are we wanting our kids to get out of this?
surface area.
what about surface area?
that- for me, that’s not a learning objective, ‘surface area.’
yeah
what do I want my kids understanding?
yeah
what is that gonna look like and sound like?
yeah
what is the math they need to be wrapping their heads around?
mhm
cuz I feel like if we don’t have that, we’re just-
it makes it really hard, to hold kids accountable for it. cuz we don’t even know what it is, right?
yeah
/you know what I mean?/
/I see what you’re saying/ yeah
so things can- and it’s really hard with some content like Heather and I were talking about the the content in Geometry that is really formula use kind of often?
mhm
it’s really harder to do that in some ways? Um (.)
but we::, but like we should be getting-
I want to know in a- when I’m in a classroom, like what should my kids be able to explain to me?
What should I- what would I ask them if I had a chance to talk to them
mhm
that would tell me whether this lesson is doing what I want it to do.
right,
yeah.
like clearly a right answer on paper is not doing that right
cuz that could happen in a bazillion different ways right they could be getting it from their neighbor, right
yeah
that’s not telling me anything
yeah
so what is it that would tell me something?
yeah
you know what I mean?
mhm
Um,
and then when we go into groups,
we know what we’re holding them accountable for,
when we do checkpoints
we know what we’re listening for.
We know whether it’s okay to move on.
yeah
we know whether if this is taking five times longer
than we thought,
‘oh well, they got the big idea out of it because I knew
what the big idea was.’
yeah
‘and I heard them saying it,
so, okay whatever,
they didn’t finish all the calculations.’
yeah
you know what I mean?
yeah yeah
so I feel like that would be,
that would be-
this is feedback that I gave to the district about their
curriculum, too,
is that it doesn’t yet have objectives.
mhm
for the lessons
mhm
it has objectives written for lesson series?
right
but it doesn’t have objectives
and sometimes it’s really hard to know
for lessons
yeah
like what did the authors think kids were supposed to
be learning today
right
I see some problems
right
but that doesn’t help-
right
there might be a really good learning objective in
there
yeah
but it’s hard to dig out, right
yeah
um
yeah,
I think that’s a good point.

/so I think/
/I mean I/ (.)
yeah

go ahead
cuz going into this lesson when we were planning it,
I mean that’s what I was thinking,
right?

yeah

I was like I want them to understand a solution

yeah yeah

and so that was on the back of my mind

and, you know, it wasn’t about, like

‘how do they graph the points?’

you know like no,

that was not important, right?

yeah,

we’re like let’s get to the point,

let’s have this conversation about what that point of

intersection was

yeah

so,

yeah

and how are we-

 cuz once you know what you want them to learn,

‘how am I going to get them into that?’

right

‘how am I going to get them talking about that?’

right

and so I think the- that-

what do we want them learning?

and then when you’re getting into how it’s going to

unfold,

‘how do I need them participating?’

right

so given what I want them to learn,

what should they be talking about?

yep, yeah

like what- is there some individual time?

yeah

which sometimes is fine.

yeah

do I need group conversations?

what should they sound like?

yeah

what- you know what I mean?

um, I think that would be-
that would support . . .

yeah

your collective planning together

and you guys to learn from each other really well,

cuz those are also awesome learning conversations to

have with colleagues.

yeah

right

yeah

cuz then you’re going to get into what’s important

mhm

and you’re not all going to agree,

all the time,

yeah

about what’s the important math here

right

and one person’s going to say, ‘I really need them to

do this’

right

and you’re going to say,

‘I don’t care if they do that,

I want them to do this’

right

right? and that’s gonna push you guys, to think about

right

and compare notes around

what’s really being valued.

yeah

yeah

((inhale)) cool. (3s)

Awesome,

and maybe I can come visit a planning meeting at

some point.

yeah!

I think we’re supposed to-

the other school hasn’t contacted us.

who is it do you remember?

oh god.

((laughing)) I can’t- my brain exploded trying to-

((shuffling papers)) I’m stealing one of these, but I’m

not going to steal your cover.

(shuffling papers)) trying to, um,

keep track of

those plans was kinda crazy.

What am I looking up, oh

it was Jefferson?

Was it Jefferson?

mmmmm

Was there something with Union?
Jefferson,
yeah.
y they haven’t contacted you and did I-
did I drop the ball on it?
Or did I put you guys in touch with each other?
you emailed us and gave us their, um,
contact. Jenna?
uh huh,
Jenna and Chris, uhuh
and I replied
OK, I sent it to them,
on February second and I haven't gotten a response
to me or to them?
let me check what we sent. here.
Oh was it all?
that was before I sent the last one, I think, right?
oh, yeah. U::::::m, (1s)
yes
okay,
so you told them when you were meeting
mhm
uh, and they, haven’t answered yet.
okay. (.)
okay.
Well,
we hope something will happen.
yeah
and everybody’s doing a ton.
yeah
do you want a piece of gum?
sure,
thank you.
Alright cool, so I have tomorrow (.)
yeah.
I’m excited.
I wish I could be here to listen to them.
((laughs )) I know (make more) sense of that.
I’ll try to send Marcel back.
hm?
I can’t be here but maybe I can try to send Marcel
back.
mhm
I can talk to him and see if he wants to come back
I can tell him you guys are continuing this same
lesson and pushing these conversations further
and see if he has time.
So Heather’s gonna go back into this too?
yeah.
she’s gonna go back and have them re-checkpoint this part
around looking at the point of intersection in the graph and- I mean
table
in the table and the equations,
yeah.
Cuz she just didn’t realize that’s what we were going for there. (.)
so she had some groups working on this,
but I don’t think anyone finished that.
yeah

Kamilah Cycle 4 Planning Conversation

Kamilah

I wanted to use the bathroom, but I can wait until after.

You sure?

I’m using this right now.

and we are working on this as a whole group

and that was like taking the whole period basically,

And how to kinda make it more-

less me up there and talking

on how to do it

and more them trying to figure out how to do it.

does that make sense?

OK, cool.

(looks through notes) And you’re gonna eat right?

yeah

oh good. I ate at home, so I’m fine.

leaves the room

(writing in her notebook)

(Kamilah comes back)

so, um,
can you tell me a little about what they know so far
what they know before this lesson about tiles
and solving

yeah so zero pairs,

okay

ey they do have like taking stuff away

(.) Um

from an equation or an expression

(.) expression.

ok

this is the first time we are doing equations

mokay

I mean the reason why I didn’t do that cuz I didn’t

want to get that too extreme yet,

but they know how to distribute

expressions.

(.) um
do they know how to build that *(pointing at paper)*

with tiles?

yeah
they do.

mhm

ok. *(writing)*

cool,

So and how did it go before and what do you-

how are you feeling about it.

Like when you did it 4th period you said- I heard you

say you want my help thinking about

how to make it less you up there

showing

how to do stuff

and more of them figuring out how to do stuff.

Is that right?

yeah
can you tell me a little more about what happened?

um

like

you know they know how to like set this up as tiles,

and they know this is left,

this is right,

they are using these equations *(inaudible)* they are

using that part

ok

but the part where they’re like

ok, what do I do now?

mhm

Right like do I add four?

do I add six?

do I add six and then- flipping over,

like we talked about that on Tuesday,

this is just the second day.
and how did that get talked about on Tuesday?

Just basically like, this is how you make a zero pair.
so it wasn’t,
I mean
ok
I don’t think it’s as deep as- I don’t’ know how-

OK,
so it’s been started, right?
So I’m hearing you say that there’s more to go as far
as them internalizing sense making around that.

uh huh uh huh
but it’s been begun

yeah
right? ok,
cool.
So that’s a great place to be.
Yeah.
Ok, um
and then the way this lesson went was you were up
there
with this paper under the doc cam

we did this one (pointing at the paper) together.
So I had them do it in pairs

yeah

so, um
as we were doing it, like,
one person is doing the drawing and the other person
is setting it up on the equation mat

and do they take turns?

yeah and then,
um and then they do the algebra
and they take turns and then they do the explanation.
So they write it.

But we did it together as a whole class and then
their task today was to do this one with their partners.

(getting up) OK, can I grab tiles because

yeah
I want to get clear on what happened
so I can make sense of it.
so (sitting down with tiles),
so you are up there at the front,
and do you build it?

no, they built it
they built it themselves

yeah
and then how did you get it up there?

I just had this (pointing to the worksheet) projected.

oh, you didn’t have tiles up there at all.
no

You had this projected before they built it or after?
Like when you say we- sorry I’m just trying to get a picture for this.

mhm

When you say we did this together,

mhm

what does that mean?
Like how did this unfold
So
from the blank paper that had no writing on it.
right, didn’t it start with just equation?
Just that typed stuff, right?
yeah just (going through papers, finding one and putting it in front of Mia)

It started looking like a (blank) worksheet, right?

it looked like this.

right right right.
Ok then, so how did it go from looking like that to looking like that.

Um,
so we built it with tiles.

Like they did it with their partners

Mhm,
and then we talked about, OK what should we do.

okay

We could add six,
so then we flipped it together and brought-
to the other side.
When I flipped it,
I showed them how that looks algebraically (pointing to paper).

OK, so they, so you said,

um, build this

yeah
with your partner.

uh huh
And this was written on here too,

yeah
the distribution was written on here too.

yeah, the distribution was given to them, yeah

ok,

um,
build it,

so then you stood there and watched while they built it

uh huh
and then, when you said “WE talked about-
I just walked around and I checked to make sure everyone had it (correctly) yeah.

I see I see I see. OK and then they-
and then you said, as a whole-
in a whole class discussion kind of format, now what do we do?

yeah

ok, uh huh

and there was a lot of blank stares

yeah, yeah

yeah

yeah, cool.

OK, cool,

I don’t know if they know that-
or the biggest thing I don’t know if they know that it doesn’t really matter where you start

yeah

right?

you said they don’t know that

I don’t think they really understand

yeah yeah yeah, ok. (writes)

Yeah,

that’s awesome.

That’s awesome to identify because I think it’s very common?

that something that um freezes kids up?

with solving?

is they think there is A thing they are supposed to do next and they’re not sure what it is,

so they don’t do anything.

yeah

and so there’s something to be gained by trying to give them a sense of play?

mhm
like as long as what you’re doing makes sense, it’s not wrong.
Like you can do-
like so what
yeah
if someone solves it in four steps and you solve it in twelve,
mhm
you know what I mean?
yeah
Like there isn’t a way.
You can just pick.
right
pick a thing to do
yeah
and as long as um,
as long as it doesn’t violate the equation
mhm
right, it doesn’t violate the relationship between the
two expressions being
mhm
that they are equivalent, right
yeah
um (.)
so I’m also hearing that, um uh,
maybe something we could think about is how
to integrate into their sense making?
a focus on why.
Like why can we do one thing and not an-
not so much- there’s two different kinds of why’s.
there’s a why do we want to do this thing next,
like why would I subtract or add six to both sides?
And then there’s the why CAN I,
like why is it legal,
why does it not violate this expression,
mhm
why is it mathematically permissible.
That’s the one I think we’re focusing on,
okay
for today.
The other one is like,
because I want to.
right
I could also add ten to both sides.
right
That would be totally fine.
yeah
There isn’t a
yeah,
like I don’t think there’s a good understanding with them about like, what this means, yeah
they’re both equal. Like I don’t think they really mhmm
have a good grasp of understanding like- yeah
yeah yeah cool!
so let’s work on it.
okay cool, yeah Um ok, so what I’m hearing is (counting on fingers) we want them to be making sense of why,
we want them to get a sense- like freed up a little bit that there’s not like one right thing to do
yeah at any given point,
yeah right.
We want them-
we want it to be less you focused
yeah more them focused,
uh huh right?
um, cool.
I think this structure is really nice.
It supports a lot.
ok so one idea,
can I just throw some ideas at you?
mhmm I feel like we’re a little bit rushed for time
because lunch time is short.
yeah um
so one idea would be
to still allow for some whole class sense-making
because it’s helpful,
right I think,
but have it kid led.
So the first thing that we ask them to do
is to build it
mhmm and we have a kid come up and build it
mhmm under the doc cam.

ok and then we have- and so we set up this routine that I think could maintain through many solving with tiles kinds of lessons where a kid is up there doing stuff, the rest of the class is doing the same stuff and then they have to- um it’s up to the class, not you, to agree or disagree with what the kid did /and to say why

/but as they are doing it, are the kids doing it too?

yeah ok, the same move, even if they don’t-

yeah but if they disagree, then they can have a talk about-

yeah, so then they build it up there (pointing to the front), they build it here (gesturing toward student tables), and then there’s a moment of like, so what do we think?

right. So that- thing that would be projected is just not this sheet (worksheet) but this (equation mat), the equation mat

mhmm OK and then maybe something like this (pointing to worksheet) could be set up on the white board if we want a way for kids- because I think we still want this (pointing to the worksheet)

right I just want kids writing on it,

right not you

right and saying why they’re doing stuff and therefore, what’s gonna happen is not such a clean solution like yours, which might help us support that sense of play

yeah like they might add ten. and as long as they can justify why it’s mathematically viable, like they are doing it to both sides so it maintains the equality
then sure, let’s add ten.
So this might end up having more steps

yeah
right?
yeah.
yeah.
the thing with that.
it’s just-
as a teacher it’s so like hard, to like
let them play. I know it’s so important,
but it’s like when you have such pacing,
and the SBAC’s coming up and everything,
and feeling like you have to cover so much material,
it’s just like-
the only thing that’s on my mind right now is like,
Okay do we-
I know this problem is going to take the whole period
when I do it with you

yeah
and it’s like
then we’re gonna spend another day,
you know just like
instead of moving- I mean I know
how it’s going to pay off in the end?
but-
and not just for you in this class in the end,
it’s gonna pay off in eighth grade, it’s gonna pay off
in 9th grade,
it’s gonna pay off in eleventh grade,

yeah, yeah.
I have to keep reminding myself that.

it’s huge

yeah
yeah, the foundation around sense making around
solving
is like a barrier for a lot of kids and it’s big.

yeah
it’s the thing that kids can, like often are really scared
of
and this, this little moment

can support them to totally get over that
and have fun with it

yeah
which is like

yeah
really big.
but I get it.

yeah
I get the-
sometimes it’s just hard to-
yeah
SBAC doesn’t count for anything this year.
I know.
do you know that?
(laughing) yeah
like it doesn’t matter
yeah
at all.
yeah
doesn’t matter.
I know.
ok,
so then there’s this routine that I picture,
where a kid is up there for every step, and it’s a
different kid every time.
mhm.
for every step
mhm
ok, so not the same kid.
OK
yeah,
so one kid goes up and builds it.
We all- do we agree with it or not.
OK, so next another kid is gonna come up and
propose something we can do with these tiles.
Um,
and we-
and so the routine is kid up there
and every single time the kid has to say why
or try to say why
or ask for help saying why if they need to,
but out- students vocalize why you can do this
ok
right?
why is it ok
when they do that,
should we also do it on the board too algebraically?
that’s what I was thinking was have some version of
this *(pointing to worksheet)* on your board
ok
and have another kid maybe?
up at the board figuring out- like so one kid is with the
tiles
and proposes a step
and then another kid is like how do we write down
what that kid just did algebraically
and then,
maybe the how do we say it with words could just
(gesture of hand from mouth)-
I don’t know
say it, yeah
we could have another kid,
or we could just like do it,
or I don’t know.
But I think everything-

and we give it- we make it the kids’ responsibility, the
class’s responsibility to say if they are not convinced
or if they are convinced,
right?
ok
we did this with Aya
on Tuesday,

uh huh
and what was super interesting
was when we had kids up there and not her-
like she has great rapport,

right
the kids love her,
they totally pay attention to her,
and still

when it was students up there,
everybody in the room was like (sits on the edge of
her chair and leans forward).

oh wow
like they are just attending to it because there’s
something kinda

mhm
on the line, right?
mhm
in a way that they’re not attending to it
right
when it’s her
right

so it felt like it makes that whole class thing-
it does all kinds of good stuff
yeah
including just, they focus on it more

yeah
you know, and think about it more
and participate more.

yeah
and then we- and then our job would be,
or your job,
or however we want to do it, would be
to just like
heap love on them.
Like make sure every time a kid goes up there
it’s safe,
it’s happy,
we’re thankful,
we tell them how awesome it is,
mistake or no mistake.
mhm
If they make a mistake we thank them for it
because we point out that like,
that ten other people would have done that same thing
yeah
but just kept doing it for the next week if you hadn’t
just done that.
yeah
so thank you,
that’s super imp- you know what I mean?
yeah
like we just (circle gesture with hands)
okay
yeah?
yeah,
sounds good.
and it’s super fun.
And then um,
and then uh,
yeah, we just see how far we get. And yeah,
I would say to go through one
up there
with someone modeling at the front
and then you could give the next one to just pairs,
without any,
without any kind of whole class,
if there’s time
yeah
this might take most of the class
mhm
right?
um but you’re modeling
what does it mean to draw it,
what does it mean to write it
algebraically,
what does it mean to write it with words.
mhm
which is gonna support them moving forward
yeah
right?
I have one recommendation I would make for an adjustment to this (tapping worksheet), which is I think that one of the things that can happen that is um, challenging for kids, is they’re looking at the tiles, they’re trying to understand how this like bunch of plastic is the same as this algebraic expression. And that process they have to repeat a whole bunch of times. Like every time there’s a new set, they have to be like attending to how are these symbols and letters and numbers the same as this- right?

yeah and that coordination is both really important and really hard And I think the more we can make the tiles look exactly like the expression and not different, the better. So my recommendation is that we don’t do this (pointing to part of the worksheet), that we actually white that out or cover it up and that we ask them to build this exact expression, cause they know how to build that, right?

yeah, oh. They’re not doing the thing. They’re just building it here and drawing it. That’s the only step (inaudible). Not doing- is that what you meant? Like they’re only doing, for the tiles part they are only drawing and building it.

yeah yeah, so what I’m saying is this. So this is what I want them building (placing Algebra Tiles on the table) because I think it will support some kids. You said they know the distributive property.

yeah I’m pretty sure some kids are struggling with it. ok yeah just cause some kids always do.

yeah so, which is negative, red?
Are they doing it as rectangles or are they doing it as groups, like three groups of $x$.

How would they build that?

so I have them when they are building just that expression

build $x$ minus two three times.

yep.

they would do it like that.

mhm OK.

So then I would say take this out.

(I’m gonna put) this closer (moving the Algebra Tiles)

would they do it like it’s actually a rectangle?

yeah, mhm

ok, cool. Awesome. (they adjust the tiles together)

So I would have them actually do that and not distribute for them.

So then they build-

so the first person’s job is gonna be-

because we’re actually gonna solve it with tiles not just build it with tiles, right?

mhm

so then the next person would do four $x$ minus one. (building with tiles) We’re gonna run out of ones here.

(inaudible)

We have $x$ minus one, right?

yeah okay

times four.

So then we would actually take a minute

yeah

to make sense of why is this, that we have there (gesturing to tiles)

the same as that expression (covering the distributed expression and leaving the original one).

And make sure numerous kids can say why.

Then the first algebraic thing we might do is rewrite that, because the fun thing about tiles and distributive property is actually doing the distributive property is not doing anything

right,

mhm

because it’s already sitting right there.

yeah

so all we’re doing is writing it differently,

mhm
which is we are recognizing
we are grouping it differently,

mhm
so we are recognizing that this is three x minus six.
Um,
does that make sense?
yeah
as a shift?
yeah
So then we have someone write,
algebraically, now that we’ve built it,
what’s the first algebraic thing we can do is-
oh, we can just write that in a different way that
makes it a little easier to work with.

mhm
we can write that as three x minus six and if they want
to,
they can do that (moves algebra tiles away from each
other so they no longer form a rectangle).
It’s the same, or they can-
you know what I mean?

(nodding) yeah
um, then the next person who came up
for the tiles,
we would say, ok what’s something we can do
to this (gestures to tiles) without messing up the
relationship between these two sides.

uh huh
what’s something we can do to make this
different,
maybe simpler,
maybe easier to look at.
And so somebody might add six,
they might add four,
right they might

(they’re gonna) do this (moves tiles from one side of
the equation to the other).

they’re gonna move those over there?

Mhm
cool. so every time anyone does anything we’re gonna
say why?
how does that keep them the same?

So,
I don’t know, I think that for me, I need a better
understanding of that too (moving tiles)

yeah

so the reason why we flip it is because (flips some red
unit tiles from the right side of the mat to their yellow
side on the left side of the mat)
have they already seen flipping it?

mhm, they have.

So normally I would say don’t even talk about
flipping it for a long time,

mhm

um, ok but, so we’re gonna wanna do-
so the reason-
so anything we do
we have to be able to justify why it’s maintaining the
relationship between

right

the two sides.

right

So what I’ve seen kids do to get to flipping it,
but usually it’s after a few days

mhm

of doing other things like
they might say we can take away four from both sides
(removing four from both sides of the mat) because

oh, right

four is the same as four

yeah

so it’s still gonna be equal.

right

they might say we could add six

positives to both sides

right

cause that’s gonna keep it equal

right

and that’s gonna make these nice zero pairs we can
get rid of

over here.

They might say that.

Um-

but then how is adding six justifying that it makes it
equal

because what you do to o-

like you’re taking the six away from the other side
too,

when you’re adding six

so you would say, so adding-

if I wanted to add six to both sides, I would say ok,

well why is that OK

mhm

and the kid would have to say,

well because six, these six that I’m putting over here

(reaches for bag of tiles) and we would need to make

sure we have enough of them.

These six I’m putting over here-
(toward door) not today and these six I’m putting over here are the same, so I’m adding the same thing to the both sides, so I’m changing this (taps left side of mat) by the same as I’m changing that (taps right side of mat) so if they were equal before, they are still gonna be equal.

right

Thats-

yeah

because yeah (points to tiles briefly)
because you’re adding yeah (nodding)
does that make sense?
and that’s not the same as why I want to add six.
right?
that’s the why I CAN add six

can, right

which is the /one that we need to make sure

right

that they’re

/right, yeah, that they understand/
understanding too

and why we want to add six at this point we don’t care.

or, cause we want to make zero pairs
right

and get down to-

yeah, but like if they wanted to add ten,
right

sure,

right

we don’t,

like I think going to strategy for how to do it efficiently

yeah,

yeah

will come with time.

ok

um,

and then um,

yeah, so then we just make sure it’s really fun to go up there.

We try to work on quick transitions-

how do you call on kids?

Do you do equity sticks kind of stuff?

I haven’t been good at it this year but I have ‘em.
You have a random way though.

yeah

and so you can just say at the beginning,

I’m gonna randomly call on kids.

What your job is when you come up here

is to help us make progress,

and progress can look like
telling us something you think and explaining why
or progress can look like asking a really good question
that the rest of us can respond to.

so then, so I don’t choose a student to come up here.

Randomly?

yeah,
you do.

ok

yeah.
you choose a student to come up and build.

You choose another student to write the algebra,
you choose-
when everyone agrees and that student is done, we’re
like “yay” (clapping),
and then you choose another one to come up and do
the next tiles manipulation up there (pointing to front),
yeah.

ok

Um

and I think the- that one-
yeah,
that’s how I see it.

And we just say why every time
and we give them, like-
like you’re so good at that right?
Giving, like, helping them feel really smart for what
they do that’s smart,
Like we don’t just let it go by,

mhm

we don’t let them sit down without making it clear
how useful what they just did was,

mhm

whatever it was, right?

mhm

and then the more we do that,
the more kids are gonna want to come up

ok

and it won’t be like, (in kid voice) “ahhhh, that’s scary.”

uh huh

And we acknowledge at the beginning,
the first people it’s gonna feel scary.

Yeah

We totally know that

and we love you for it

and we’re gonna support you

and you know

Yah

and like that.

(.) ok

What do you think?

Yeah

Worth playing with?

Yah,

I mean, they’re great group, so-

Yeah

They’ll be up for it.

Um, cool. So, what-

What would you like my participation or support or anything with?

Um

/Should I just watch so we can debrief?/

/Um, just the why part/

Because that’s new for me

Yeah

So if I’m just- if they’re not like,

Making sure that they’re justifying clearly.

Ok

Like if they need support in that,

Or like how can I support a kid-

Cuz I know like some kids I feel like are gonna have a

Blank stare and not know how to say it,

So like helping me help them to come up with an idea.

(nods) Yeah.

Well, I think if a kid is struggling with an idea, what

We do is turn it to the class.

Cause we want to set up this dynamic where when

You go up there,

The rest of our job is to support you/

Uh huh

In what you’re doing

And not to like judge you for what you’re doing

Mhm

So when you’re struggling,

What I want you to do is ask for help from the class

And then volunteers from the class can offer support

Ok

Like ways to say stuff

Ok

Um,
and one thing I feel like you’re- yeah, you’re super good at
is when kids- and I just want you to keep it for today
because it’ll be helpful,
is when kids,
when kids say partial things or things that are not yet
totally right,
you’re really good at listening for the thing that’s useful in there
and pulling it out.

uh huh
and I think that will help support this today.
And yeah, I’ll join in with you to help you do that too
ok, cool
So I think maybe at the beginning, if you just introduce me
and let them know that I’ll be participating so it’s not weird

yeah
when all of a sudden I’m talking to them
and they’re like, who the hell is that

yeah then maybe we can just sort of play it by ear and
yeah
You’ll do it and then
yeah
I will just jump in /if (inaudible) something to say or/
/yeah, we’ve done that before, so/
I’ll assign competence if I see an opportunity, or

ok
whatever
cool

Um
what about my do now (looking toward white board),
is it ok?
It's just
Well, I was wondering.
The one thing I was wondering about with the do now is-
I hadn’t even processed that (gesturing toward the board), but um,

mhmm
the one thing- you said earlier that you don’t know that they really necessarily know why you can do things,

right, which is super natural,

yeah
but the foundation I think we want for them that we’re going to base everything else in
is that-
is the significance of this (pointing to the equals sign on the equation mat).
Like what equals means.
Like what it means that these two expressions are equal to each other.
yeah

so I wonder if we can make a quick do now that would get them in touch with that and give you a chance to frame the lesson around, um, around something getting their brains into this means these two things are equal, so we have to keep them equal (bell rings) so solving it means finding the value that keeps them equal

you know what I mean?

(some talk about video permission)

Um, yeah, so what would a do now be? Like, um, (4s) can we give them something with a couple different values of x? like give- put an equation? and say, um, which of these-like almost multiple choice. Like which of these values of x makes this a true statement? or something like that that helps them focus on it being true for some values

or something like that

and that seems useful?
oh, for just like a two step equation or like- or yeah, where they can just plug in pretty easily.
Nothing that’s about solving really,

but just that they can be thinking about, it can even be like,
you know (writing) like x plus equals three x. Would that work?
No, that’s weird. That would be one, which is kind of a weird one. Um, let’s see. What if x were two.

(looks for 8s) that’s hard! (laughs)
wait, what is that?

It's two.

It's x is two, right?

I thought the other one was easier.

I know but ones are weird because they’re the identity,

so they make things, uh, (writing)

uh, ok, so how about we just do this. (Shows notebook)

(nods)

there’s just one x

yeah, ok

---

Kamilah Cycle 4 Debrief Conversation

<table>
<thead>
<tr>
<th>Kamilah</th>
<th>Mia</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yay!</td>
<td>we just built so many awesome norms.</td>
</tr>
<tr>
<td>yeah</td>
<td>I don’t know if you notice all of them</td>
</tr>
<tr>
<td>yeah</td>
<td>But I think very successfully</td>
</tr>
<tr>
<td>yeah</td>
<td>they made mistakes in the front of the room</td>
</tr>
<tr>
<td>yeah</td>
<td>and were fine</td>
</tr>
<tr>
<td>yeah</td>
<td>right?</td>
</tr>
<tr>
<td>Yeah</td>
<td>They went up there randomly and knew they would be fine.</td>
</tr>
<tr>
<td>yeah</td>
<td>like people were scared</td>
</tr>
<tr>
<td>yeah</td>
<td>and then totally taken care of</td>
</tr>
<tr>
<td>yeah</td>
<td>they got fully supported by each other</td>
</tr>
<tr>
<td>yeah</td>
<td>We had ruvelin,</td>
</tr>
<tr>
<td>Yeah</td>
<td>went up there and said I need help from my class</td>
</tr>
<tr>
<td>yeah</td>
<td>was willing to say that</td>
</tr>
<tr>
<td>yeah</td>
<td>and got help from her class</td>
</tr>
<tr>
<td>yeah</td>
<td>which is amazing</td>
</tr>
<tr>
<td>yeah</td>
<td>right?</td>
</tr>
<tr>
<td>Yeah</td>
<td>‘you have to say why’</td>
</tr>
</tbody>
</table>
yeah
and the why has to, like everyone has to agree.
it’s not me,
it’s not you who’s gonna agree,
its everybody who has to agree
uhuh, yeah
and so like you have to attend to it.
they caught a mistake.
I really didn’t catch that mistake.
yeah
like I didn’t know we were wrong
oh really?
((laughing)) oh, I did so I was like, oh god,
she’s playing along ((laughing))
I didn’t at all but it was awesome.
I really thought you were playing along with it.
I thought it was awesome.
I’m glad I didn’t know.
Cause I- cause you said-right after that you said,
“if anyone disagrees,
then you know, please say something.”
That’s why I thought you said that comment
was because
I knew it was wrong?
yeah
((shaking head no)) I didn’t know it was wrong.
I just wanted them to be making sense of it
and I wanted-
and I think a lot of sense making happened
even though-
like we didn’t progress through
to a solution
to the end,
which will be require more sense making,
right?
yeah
but um,
I think they were getting the relationship
between the tiles and the algebra.
yeah
which is a big deal
and is gonna support
a lot of stuff
yeah
and I think we went from like two people getting it
to like a lot of people getting it.
yeah
that’s my sense
yeah
I mean we’ll have to more watching
to really be clear about that but
it shifted.
And I heard a lot of those like,
“o:::h!” even in the Do Now,
a lot of those, like,
when a kid is explaining it,
it’s so much more powerful
/yeah
when kids do it, right?
even though it’s imperfect and quiet
yeah,
yeah,
because it helps them see that, like,
you don’t have to be perfect,
you know, like.
yeah,
that’s good
((nodding))
I’m gonna do that with my other two periods
tomorrow.
it’s fun
((smiling)) yeah
and then once,
I think once they get this rhythm,
there’s like a rhythm to that, right,
like
random call,
kid comes up,
we ask questions,
yeah
we make sure we agree or disagree,
then when we are all in agreement,
they sit down and the next person comes up.
You know like when that rhythm is in place,
/it’ll be like ((circular gesture with hand)),
we got this
it progresses more quickly,
kids don’t take five minutes to walk to the front of the
room any more
yeah
you can be like ((snapping fingers))
“come on! Next one!”
yeah
you know
yeah
and it won’t be quite so slow.
I think.
yeah
yeah.
And you don’t have to do that with every one.
with every equation.
yeah
Like going back and forth between that kind of sense making to pairs
yeah
and hopefully what you will see is,
you know,
when you go next to pairs,
some of the kids won’t do it right.
yeah
they just won’t.
that’s just the way it goes,
right?
yeah
they’ll be trying to make sense of it and they’ll get really stuck
yeah
but like each time you do that whole class thing led by students
yeah
they’re gonna,
like more of them will be like,
“Oh, that’s the thing that I wasn’t thinking about.”
uh huh
You know what I mean?((K yawns))

um,
awesome,
and I also feel like.
I don’t know,
so tell me.
Uh,
how much have kids been in front of the room so far this year?((shaking her head)) not a lot
this is one of the reasons I love algebra tiles.
Cause it’s such a way to get them up there
where they don’t have to be all-
It like opens up that space ((pointing to the front of the room))
as a kid space
Yeah
because they don’t have to be all polished and clear
yeah it’s like coming up there is just being one of the sense makers.

yeah you’re just guiding the class in their sense making

yeah which is what we all do

yeah right, you don't have to

yeah it’s not like I have to be up there with my perfect, ready to show off presentation

yeah you know what I mean?

um, so depending on what else you’re doing this year, that might be something you can build on

yeah, yeah and like use that momentum when kids are now used to it, it’s a lot easier to get them- like what if kids lead the do now

right um debrief. sometimes.

or like whatever whole class debrief, if there is one at the end

yeah or like getting kids up there to clarify like, “wait what did we learn today?”

yeah or, what was this about, you know?

yeah ((yawns)) sorry, I’m just / tired

/no no ((Laughing))/ it’s totally ok.

So tell me what you’re thinking and what you-

um, no I like it. I mean it just kind of reminded me of like how important it is to make sense of it, you know.

mhm um,

I want to do the same thing with my other two classes and then continue this with my 6th [period].
and then I feel like we just need to-
like when we come back from break, like
doing it all over again.
like, especially with solving
just like practice
and practice,
so,
it’s gonna take time but
mhm
I think it’ll be worth it in the end.
mhm
so
yeah, I totally think it’ll pay off
yeah
and not just this year, like I said.
It’s so foundational
yeah
right?
they need it for the next
it’s so foundational and it’s something that’s so-
it’s almost like,
you know how they say algebra is a gate keeper?
yeah
I feel like symbolic manipulation
yeah
is also a gate keeper,
or like a little gate keeper in there
yeah
it’s like the thing that often has separated kids
((gestures with her two hands splitting apart))
yeah
into like, ((left hand moving to left)) I feel really
stupid in algebra
yeah
((right hand moving to right)) I feel really great
yeah
you know.
my question is like
you know,
it’s hard for me to make,
or like explain how it makes sense.
Like you know how when we get down to equations
where it’s like,
negative x
oh yeah
is equal to eight.
((getting up and walking across the room)) let’s do it.
yeah I saw on your explanation paper you had divide by negative one.
yeah, like how can I-
do you need an equation mat?

yeah

I’m looking for a mat (inaudible)
((pointing)) they’re over there. ((gets up))
in here?
((walks to her))

how do you get cleaned up so fast (laughing)?

It’s like one of the first things,

like do you notice?

Right when the bell rings,

I’m like cleaning up.
((they both walk back to the table))
yeah, it’s amazing!

I feel like my experience as a teacher is when the bell rings I’m like ((freezes with a blank look on her face))

((laughs))

And then at like five o’clock and I’m like/ oh crap

It's when I sit down, like right now I’m sitting down

like and my body is shutting down.

((getting Algebra Tiles from bag)) yeah, yeah.

ok, so we have

negative x ((places a tile on the mat)),

right?

yeah

((places more tiles)) equals whatever, two.

((Puts bag of tiles aside)).

Yeah,

so what are the legal things you can do.

with that.

you don’t want a negative x there,

you want a positive x.

mhm

((does something with tiles))

if you make this positive,

then you have to make this negative.

but why?

yeah.

can you do it with zeros? (7s)

Like

what if we just got rid of that?

uh huh

((Mia places some tiles and Kamilah reaches over
and removes some.))
yeah
Kamilah flips a tile, looking at Mia:

Don’t flip em cause you can’t say why.
Put em back.

Kamilah puts them back, smiling. She adds tiles to each side of the equation quietly.

Uh huh!
That’s why you can flip ‘em!

OK
right?

you can make a zero there ((gesturing to one side of the equation mat))
and see what happens there. (nods)
And then eventually people like-
I feel like with enough repetition
then people get really comfortable with,
"Oh that's the same thing as flipping both sides."

right
But then we're like well why-
as long as you can explain why it’s the same thing,

yeah
then you don’t have to do those steps every time.

yeah
But like the flipping over to the other side
is one I would insist that they

(interruption from Patty Eldridge coming in and some talk among all three about Kamilah’s recent engagement and her new ring.))

patty: I enjoyed watching you [Mia] the other day.

Oh, thanks.

Patty: It was great.
It was fun to see you there.

((Patty leaves))

Yeah he officially proposed to me this morning.

a::w, (inaudible) you, but you were already planning a wedding.

yeah, cause we got this ring custom made. I mean I like it, but it wasn’t exactly what I wanted, like I wanted these stones to be smaller ((they are looking at the ring together))

uh huh
around, they’re huge

(inaudible) that’s a lot of diamond on that
I know, so it’s too much- like it’s a little too bling for me. Like I wanted these to be smaller. But the thing that I think happened- I’m sorry, I’m going off topic.
No, do it. ((they both laugh))

lt matters too.

((laughs)) Um, the thing that - cause we- his grand- it was his grand aunt’s ring, who passed away. So she sent it to me, so we redesigned it, so we used the stones from that, so I think that’s why it got big.

You can’t make the stones smaller. You’re not gonna like

yeah

cut her diamonds down

I think it’s beautiful.

I don’t think it’s blingy.

I’m kind of anti bling sometimes too

Yeah

but it’s classic enough to me.

I don’t think it’s super blingy.

I’m getting used to it.

At first I was like ‘whoa, that’s not what I was expecting’ like ((laughs))

/oh that’s awesome

/Now that’s it’s like on my finger I’m just like

so now it’s public,

now you’re telling people.

Were you not before today?

Well,

OK,

well we’re actually getting married this Sunday.

((laughs))

It’s a whole (inaudible).

So my dad’s super strict, right?

Yeah

Especially because he’s white,

and uh,

he wants me to marry in my culture.

And so I told him like a month ago

about him.

He kind of knew about him, but he thought we were friends.

And then, um,

I told him I wanted to marry him,

and then he,

so he had to convert

He had to convert to:::
Islam

OK

so he’s Muslim ((air quotes)).

I mean but we’re both not religious. It’s really just for

my dad.

yeah

and like making him feel OK about the whole thing.

And so he converted

and then they met each other two weeks later

and he was just like,

‘he’s a good person, but, of course I think you should

marry in your culture,

but if this is what you want to do,

then that’s fine.’

yeah

And then,

so we’re getting our religious marriage done-

so spring break is next week,

so we’re going down to LA on Sunday for our

religious marriage,

/but the guy who’s marrying us

/Is your dad gonna be part of it.

yeah.

So the guy who’s marrying us

says he only does it if you do your state marriage,

or like your legal marriage or whatever.

So we’re doing that at the same time.

yeah

And then in July is like the big one

a wedding

yeah

with your friends

Yeah, so that one is kind of like for us and publicly

people we’re telling married,

but for now we’re just saying engaged.

uh huh, uh huh, yeah. awesome.

My parents got married three times

yeah?

three times and divorced twice.

oh really

and they ended up divorced. how does that work out.

wait, divorced, so they remarried.

they got married, then they got married again and then

they got divorced and then they got married again, and

then they got divorced.

oh wow. and now they are?

divorced

((nodding)) ok
yeah, they got married in college, my mom’s parents insisted that they graduate
((Mia explains about this.))
but you won’t do that.
You’re just gonna do two marriages and end it there.
((both laugh))
yeah

yeah, it’s like today I was like, ‘oh my god’ I don’t know what the kids are gonna do
so I was like freaking out this morning’
cause he like- so he works here.

he proposed to me at the same place that we first met.

downstairs outside the office. ((laughing)).
it was like 7 in the morning.
So we woke up this morning and he was like, we have to go early to work this morning,
and I was like oh my god, why,
and he was like I have a meeting and bla bla bla,
and he was like making up this whole story

and he told me that the ring wasn’t gonna be made
until after spring break
cause he’s like ‘yeah, the designer said that he couldn’t get it in on time’
so he was like telling me this.
so I was getting upset, cause I was like, ‘I want it-’
I was hoping for it to be this week.

so I had this like-
I thought I wasn’t even gonna get it.

so it was like a total shocker
and he was there and one of our co-workers was video taping,
so we have it videotaped ((laughing))
yay! so (cute)
yeah it was so funny. and I was freaking out this morning cause I was like oh the kids are gonna say-
like what do I do?
what do I say?
cause they’ve known that there’s something between us
but we’ve never said,
yes, we’re dating or no, we’re not.

so I’m like I don’t know how to like
I mean I just have to tell them now ((laughs))
yeah, we’re engaged.
we’re getting married.
It’s happening.
but yeah,
no one has asked me yet,
so I’m not gonna say anything until someone does.
what does he teach?
science
what grade?
seventh
so you share students
yeah
whoa
I know and a lot of his stuff is like,
there’s a lot of math in it too,
so I was like thinking maybe next year,
we need to make sure,
like maybe we could plan out our units to make sure
they are aligned too
oh
I mean in terms of if we’re doing like graphing and
they’re doing graphing in science too.
mhm
so
cool. awesome. yay! ((reaching for her notebook)) it’s
gonna be so fun! Awesome.
Alright um,
where were we?
((looking at her notes)) you were saying you wanted
to do this with your other classes.
right
starting tomorrow.
mhm
Um,
you were wondering
about something, but I think we did it,
right?
oh right,
yeah.
yeah, cause I was just gonna say
um I think just what we just did
is what you want to do with kids.
yeah
just make sure they can say why
yeah
and so eventually,
they’ll get to being able to do more complicated things
right
and being able to say why
right
but they probably won’t now
right
Like today,
somebody suggested the flip over
yeah
Oh I did have one question came up for me today.
So first of all,
I wanted to say,
like,
was that weird,
I just kind of took over a bunch of /(inaudible) today.
No dude.
Was that weird for you?
I love it! No, please.
OK.
No.
I mean-
it sort of felt to me like that’s
no
kind of what we agreed
Yeah,
no
but then I was like doing a lot
no no dude, like no ‘cause *(laughs)* yeah
Ok, ok.

*(laughs) *yeah
I just like-
that particular flow
is a flow I’ve done before,
yeah
so I wanted to help you to make sense of what it was,
yeah
because we also didn’t have that long to plan,
yeah yeah
so thank you.
no it was great, becuase
I wasn’t feeling that comfortable with it. I was like,
‘how is this gonna go?’

ok, ok, cool.
Um,
sO one question came up for me
about,
I think it was when,
that name,
Rivulen
It’s so beautiful and I just can’t remember it. Where’s it from, do you know?

I don’t know. /Ruvelin/

/I’ve never heard it either.

Like Evelyn Ruvelin

Um, so uh, when Ruvelin was up there and she said, ‘I need help’ she called on the very first person whose hand went up really really fast, and then when I kind of asked her to wait a minute, I was like, ‘let’s see, let’s just give some more people time’ you remember that?

and three or four hands went up and she called on David?

mhm do you remember that?

mhm Is David a pretty high status student?

mhm He seemed really comfortable yeah to share out loud, so I had one little worry, which was just like when kids are up there picking kids that, yeah picking other kids, is there- are we reinforcing status /right /stuff because they’re gonna pick the kids they think are the smart ones. right right? And also, one other little statusy thing happened that I tried to address there, which was that very dark kid who /sounded like he might have just moved here recently /ye:::ah, I noticed that, / I noticed that- what you were doing. You were correcting what she did, cause you were like, ‘wait, but you said something and that was right.’
you were trying to reiterate. Yeah, and the assumption /was that because
"originally what you/ said was fine

/Right, so he was searching, he was searching for words
right
She assumed he didn’t know anything
right
because that’s what we assume about English
language learners
right
always, right.
So she saved him
yeah
Which is just something that we have to get kids to
not save each other
yeah
right.
Um,

But at the same time (.)
do it too.
wait, wait
yeah
Like support-
maybe there’s room to talk about what does support
look like?
right!
Give people time to think.
right
we all want to hear your thoughts
right,
yeah
right and then if they ask for help
then
step in and help
right
right?
Um, so were was that little moment,
um, and then,
right,
and then I was wondering when Ruvelin was up there
((Says the name a few times and they both laugh))
Oh, my god.
Um,
I wondered a little bit about what we could do
to sort of mitigate the potential status issues that
happen when they’re calling on other kids.
yeah
Maybe at first, you call on them? (.)
I wanted to give her the power. Like I wanted to do that thing where like 'you’re in charge'

yeah

‘you don’t need me, you got it.’

yeah

Like I could just go sit down and put my feet up

yeah

and this would be totally fine.

right

which is what you’re working towards, right?

right

um (.)

but of course,

kids are not going to attend to status.

right

nor should they

yeah

Like,

that’s not their

yeah

What do you think?

I mean yeah, I could do that. I think it would be good, especially in the beginning because this is a whole new process for them and like way of doing it, so

I think there should be some intervening on my part.

And you’re gonna give, yeah like you’ll attend to giving students /opportunities to talk who we haven’t heard from yet. /students, yeah

Maybe even more wait time,

right
to give more students a chance to get their hands up

right
maybe even if you think a kid has an idea but they’re not raising their hand

right
you can be like ((gestures with pointing to an imaginary student))

right, yeah

you know mhm (5s)

Or also like,
maybe if we wanna
try to get voice from other students,
like we could have them call on someone
but then also like ask,
other people like,
‘oh what were you gonna say
or what were you gonna say’
you know.
((writing)) mhm, mhm.
Ooh, I wonder if there’s a structure that can help us
with that?
( .) yeah ( .)
What if,
sometimes,
and this wouldn’t happen every time because we
would never solve a single equation.
yeah
But I’m wondering if um,
what if sometimes
we set up this little routine
were someone has a question,
we give groups like 30 minutes to talk,
like 30 minutes to like figure out if anyone in your
group has any ideas,
like just check in about the question, bla bla bla bla
bla.
Resource managers
mmm
or whoever, raise your hand from the group
right.
um
and report
and report.
yea
what your group came up with or talked about.
yeah
and again,
we wouldn’t do it every time,
right?
yeah
but I wonder if that could help us,
cause there goes-
there it goes
yeah
The status stuff is just gone,
yeah
right there,
it’s just randomized
right
745 and roles,
746 AND that everyone gets to consider those questions.
747 mhm you know, like everyone gets a chance to hear it restated
748 yeah if they were spacing out
749 or whatever
750 yeah right?
751 yeah ((writes in notebook))That’ll be fun to play with. (9s)
752 Cool.
753 Do you have any other questions about it?
754 or concerns or-
755 Yeah, I mean the biggest thing was this ((tapping the equation mat with tiles on it)).
756 I never learned solving this way, you know?
757 yeah.
758 yeah yeah yea
759 It’s so new.
760 yeah.
761 um,
762 so yeah,
763 that’s really cool (see)
764 cause I was always like,
765 ‘Oh (there’s one left) ((picking up and putting down a tile )) and it’s a negative ((laughs))
766 but I didn’t know why.
767 I know,
768 yeah yeah yea ((laughs))
769 yeah, um (9s)
770 I guess that’s it.
771 it seems like a structure that will work-
772 I mean because we did something so, like
773 guided today,
774 yeah we didn’t get to just watch what happens when they’re solving in pairs
775 right
776 because we didn’t get to that
777 right
778 Um,
779 so I didn’t get to think with you about like,
780 yeah
781 how shared is that?
782 Are they making sense together?
783 Yeah
Um. But that’s something that you can keep your eyes on and just see mhm

What you might need to do is institute- and you maybe already did yesterday or something and then we forgot- and then we just didn’t have a chance to reinforce it today, but you may have to institute like, when you’re solving in pairs, um, you know, Person A does one step, Person B does the next step mhm you’re both writing it down, but you’re taking turns with your hands on there. right Otherwise what will often happen I think is /Individual/ yeah /one person’s hand will do it every single time yeah and the other person maybe will be following yeah maybe will just like not even yeah get it yeah ((big breath)) Awesome. Fun solving stuff. yeah your kids were so nice to me. ((laughs )) yeah. I told you they’re a good group. Um, I also like the do now a lot because it was like, they were so lost ((laughs )) ((laughs )) they were so lost. You were so right, yeah I was wandering around and /I was like/ /I was like/ ((laughing ))

Oh Kamilah totally knows her kids, because not- I did not see a single person who actually answered that on their paper

((laughing )) yeah
Some people meticulously wrote down every single word that you had up there, yeah. Some people wrote down like an abbreviated version of what you had up there yeah. Some people wrote nothing yeah. ((laughing)) yeah. No-- I saw nobody ((laughing)) ((laughing)) yeah. ((laughing)) yeah. (laughing) (laughing)

So it was so cool to see how like within five minutes they had nothing like no idea to like, 'oh, I get it!' like, yeah. Oh, (inaudible) I was trying to do, so what is it- what's Jamar and his status? High High (nodding), OK. yeah. So then we didn’t really use that to reshift any status, but I was trying to assign competence you know, um

But dude, David, that was super cool what he was saying with the do now. ((laughing))

I never thought of it that way. ((Nods with a look of astonishment)) That’s what we kids to be doing, right?

I know, yeah. That’s what kids almost never do. That’s what we want them to be doing.

yeah. just like really making sense of the meaning of that and reasoning yeah. That kind of stuff is written into the common core and I’m always like, 'yeah, right.' ((laughing))

How often is that really gonna happen. yeah. ‘Students reason that bla bla bla bla bla.’ And with that explanation that he had, if he really thought really deeply- cause he was the one who said flipping, right?
and if he thought more deeply
and using what he did in his do now,
he could have reasoned
why we flip.

Tell me more about that.
How (inaudible)

((leaning forward and looking at Mia's notebook))

Like,

because he was saying,
where was the problem?

((turning her notebook pages )) Do we even have it?
The do now problem?
yeah

it was
this one,
oh no it was four x ((turns her notebook around to
face Kamilah ))

So he was breaking this ((pointing to page ))
apart, right?
yeah.

So three x plus x
yeah, he was doing,
in my mind I think what he was doing was, ((turns the
notebook back to herself and writes))
if he had three x,
what someone might write down was,
he would say three x plus two equals 3x plus x
yeah
right?
And so these are the same
right
and so the two has to be equal to x
yeah.

and when you’re flipping it over,
right
uh huh

you’re doing, the way that you’re doing it
is ((4s while manipulating tiles ))
you’re like
taking it away too, right?
making zero pairs. (3s)

Well let’s see
let me write down algebraically
cause that’s a good question,
so if we had like,
ok,
so go back to the beginning
cause I wasn't keeping up with you. ((moves some tiles)) you had negative x equals four, right?

mhm

((turning notebook back to Kamilah)) that's what you had.

mhm

So then what did you do? You added four and four

But it's that you wanna switch, right?

oh, right.
sorry

the x

no, it's ok.

so you're adding x to both sides, which I would do like that ((writing in notebook)), right?

mhm

And so we are at the zero, oops, I have them-

will you just flip those over so we match? ((moving tiles and laughing)) Is that ok?

yeah

so we have zero equals x plus 4

mhm

ok, keep going

and then ((adds four red unit tiles to each side))

so,

and would your kids write that as adding a negative four or subtracting four?

they would add a negative four, right?

u::m, well,

I don’t know.

I haven’t really been explicit about that because I showed them flipping, so flipping for them was negative, or minus four.

so for this move, I would suggest that they do it as adding negative four, adding negative four

because that’s what it looks like

yeah

you’re putting things in and they are negative things
yeah
right
no, yeah
So that it’s matching,
which they might later reason is the same thing as just
removing four
yeah
right?
Um,
cool, so then we have \((\text{writing })\)
negative four equals \(x\)
mhm
right
cause that makes zero
mhm
yeah, ok,
cool, so I was just needing to make sure
yeah
we knew how the algebra was gonna look on that. (.)
OK, so is that the same-
you were seeing this as the same as this? (6s)
(I mean the fact that he’s taking this away, right?
(showing taking away with her hands on the
notebook)) like taking these away?
these three?
yeah,
and I don’t know if in his mind he was actually
removing them,
or if he was just recognizing they’re the same,
so we don’t have to even
:)
worry about them
Oh, OK
That why I was imagining he was thinking,
because this three \(x\) is the same as that three \(x\)
right
it doesn’t count /for anything/ when you try to figure
out \(x\)
/right right/
right?
yeah
so that’s /what’s gonna be/ different.
/yeah,
you have a good point/
which,
in practicality
would be the same as subtracting,
but I think it might have felt different in his brain
You would get the same thing if you subtract it.
mhm

Um (3s)

Awesome.

Yeah, so then maybe,

if we-

so we might have room to think more another day

or whatever

about um

how to get more,

well you’re doing the sticks,

how to get more voices in

mhm

except for David and Jamar

and people who are- like even on the helping

mhm

yeah, so that we’re not reinforcing status

yeah

by the smart kids are the ones

yeah

who are doing the explaining

or like jumping in to help

yeah

right?

um,

or that

kids up there are not like

going to them because they are assuming they are the

only ones who have something to help

yeah ((yawns))

Um, cool.

Anything else you wanna talk about or want help

thinking about?

mmmm,

I think that’s it.

I’m just gonna work on that tomorrow

and when we get back from break too,

oh yeah, tomorrow’s only one more day.

Holy mackerel.

Do you have a lot of kids out always the day before

break?

no, I was just out dude ((laughs))

this is,

I only taught-

like I was out Monday

and then I was out yesterday

so my kids only saw me one day this week.

and Monday you weren’t even prepared for, right?

so there was like some random stuff that happened.

yeah,
I had emergency plans in my closet, so which means it’s not at all in sequence with what they are doing
no, it’s like,
it was integer work actually, so,
it’s just like reasonable.
yeah yeah.
cool.
What happened with your flight?

So I fly standby.
So my mom is retired from the airline,
so I get flying privileges so does that mean you can fly standby for free?
yeah uh huh
and so then, if there’s a seat open, right? so then I have to like wait until the very end and if there’s a seat open, then I get to get a seat, but if not, then I don’t. So, I like was on my- so there was like three different airports in LA, so I was at the one in orange county and I didn’t get that one and the last flight was leaving at 6 pm. ((tells a story about her trying to get a flight back and answers the phone.))

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**Heather Cycle 1 Planning Conversation**

**Heather**

So um
it looks like- could I film here, can I do that?
um it looks like
I was just looking at a couple of issues.
How are your lunch times?
(laughs)

No, I don’t have kids at that time

I am just like stuffing food down my mouth quickly

**Mia**

OK, because there is another challenge with my schedule for tomorrow,
which is I just had a talk with Kamilah at lunch today and like for her, it was really challenging for us to get 20 minutes to talk.

it is hard at lunch

Because she had kids like all over her and like needing tests and needing all sorts of stuff

oh yeah cuz we just gave the tests
I actually might have kids coming in tomorrow too

so, okay.

because one thing, I could maybe-

I mean these are two sort of separate questions,

so I do have 4th period free tomorrow,

so I could come to your 4th instead of 3rd if you prefer.

Um

I was thinking that maybe what would be nice would be to do 4th with you

and then just debrief right after

at lunch, together if you could-

yeah

if that space is protectable

And then I could debrief with Kamilah during 7th.

The only issue is

I am doing retakes

and I promised the kids I would have it ready for tomorrow

and I know they are going to want to stay at lunch.

uh huh

I have like a whole table

that’s like ready to do a retake.

Uh huh

So would it be

a problem if we’re talking and they are doing a test?

That’s totally up to you.

I think that if we uh-

if they are doing a test, they’re going to be really quiet

which means they could hear everything we say.

(laughs)

So it does sometimes sort of impinge on our ability

um

to really talk about status and stuff

yeah

and talk about particular kids

Because we are going to want to talk about particular kids

right.

Lynn: Is it a group test?

What?

Lynn: Is it a group test or an individual test?

No, it’s an individual

but I wonder if-

I wonder if you can put them with Kamilah-

I was just thinking that-

that I could put them in another room or-
because if she-
I mean, it could be kind of a trade off she does
because the reason would be to free up.
So she and I can have a real conversation-

right
So if she facilitates you doing that at lunch,
by taking your kids,
right.
then also her trade off is that she gets a more focused
debrief conversation
right
Because I could see her in 7th

Or I can just tell kids not to do the retake tomorrow
too (laughing)
Lynn: and do it on Friday.
and do it on Friday.
We could do that-
they’re going to kill me
because I had told them for the last two days but
I think Kamilah will be fine with it.
I mean she was in there the whole time with her kids
today-.

yeah
she didn’t walk out once
yeah
and she had many kids and she had space.

I can ask Aya too because Aya’s got kinda quiet in
there too.
Kamilah has crazy town in there so-
Lynn: it is
I can’t do that at lunch.
I cannot do that.
I need 20 minutes
to like shovel food in my mouth,
get my room together
yeah
and like have a deep breath.
And like a little bit of silence. (laughs)
OK, so let me just.

(laughing) A little bit of serenity (laughing)
Okay, so I am going to propose
uh, that we go ahead and do at least a debrief shift
gestures with two fingers switching places).
So I will be with you at lunch (points at Heather)

Okay.
And with her 7th period.
And then I can do 3rd or 4th-
I was just going to have the other period sitting
downstairs recharging my stuff
okay
myself anyways.

Lynn: you can use my office

Oh thank you,

I was in the copy room today

and I started off “oh this is going to be a perfect

place”

and then like

No, it’s-

A bunch of people came in and there was a lot of like-

I just couldn’t handle it (laughs)

it’s a staff lounge too, so yeah- no,

I never go in there except to make copies

But I am really used to also like sitting in a corner and

putting on headphones,

which I can totally do, that would be fine but

Her office is so nice.

Lynn: You can use my office or a conference room

Is there a way to get in there when you are not there?

classroom

Lynn: Um

Lynn: yeah you ask somebody for a key.

Okay

Lynn: Um

maybe you can introduce me later to the office people

Lynn: yeah

and let them know that they should let me in if they

see me.

the conference room is really nice-

like Kamilah and I have co-planned in there.

Is that open?

Lynn: Generally, I used it for CELT today, but

Oh okay,

is the door usually locked?

Lynn: not really because people use it as a

passageway to get to the counseling office

and where is it?

Lynn: it’s right in my office yeah

Okay cool so I will head down there

Lynn: I will introduce you to Ms. Bowtie

okay

and I will send out an email about this change

Lynn: She is always letting people into my office

because I am always finding stuff

Is your [district] email the best email to use for you or

should I use a different one?

no it’s fine,

okay
I’m sorry it took me so long to get back to you
Okay no,
it’s been crazy, it’s fine
(laughing) it’s just been so crazy.
I know
No worries.
I’m so,
I was just telling
As long as I am allowed to assume that it’s all okay-
yeah (laughs)
that’s what I was just like I haven’t heard from
Heather
but I’m just going to show up and assume it is fine
and she would have told me if it wasn’t
I know and I emailed you like this morning or
something
that’s okay, that’s fine.
As long as I am allowed to make those assumptions
yeah
okay (starts laughing)
and I am totally fine with you video tapping my class
but
I will say
Me too
I’m really bad about like
making copies or having all that done.
Like If you have like stuff to hand me that’s cool
but I’m so beyond overwhelmed right now
yeah
uh yeah
I’m going to give you stuff right now
I feel a little maxed out
yeah I’m with ya.
Okay
uh so what I would like to do if it is okay with you-
and this is what I am doing with Aya too cuz she
didn’t get this either.
okay
Is um
just ask the kids at the beginning
okay
and if they say yes,
then they sign their own individual one
Okay
Um and then I videotape
okay
and we send home a parent thing
and I say I won’t use it
if the parents say no.
Or I won’t use any section that their kid is in or-
okay
if that is okay with you. If you are comfortable with
that
yeah
Um
I’m wondering if we should do third or fourth?
I mean they’re both-
have their issues (laughs).
They are both equally rich in that way (laughs)
Yeah
I think, okay,
so what I heard was that you have one particularly
challenging student in 4th
Well, I’ve got a few
and they are all kinda-
I think two of them
are into each other and that’s causing a big ten-
there is a lot going on in 4th.
3rd I have like,
one particular kid that’s a ton of work
and that one I’m working with.
mhm
(to Lynn) You know which one
Lynn: No I don’t
JPS?
Lynn: oh yeah
So my um-
But I’m doing a lot of work with him (and we’re)
growing
cool.
Today was kind of crazy but-
So my question is-
so sometimes when there is like kid drama that is
really intense-
sometimes it can kinda get in the way of our ability to
learn together about what you really want to be
learning about,
yeah
which isn’t about that-
you know, cuz you’re- you have more tools than I do
to deal with particular kid drama
because you know the kids
and you know the community
and you know the resources
yeah yeah
I don’t know any of that-
I know, that’s why I was wondering if that class
would be like (shrugs)
If we’re going to be distracted from being able to think about like kids’ learning

yeah
and thinking about status around the room
and thinking about assigning competence and all of that together,
then maybe I should just stick with 3rd for now

yeah.
let’s do that.

yeah?
should we do that?

I’ll just deal with the circus in 4th.
We have to like go over the rules and stuff

I made 35. Is that enough for your 3rd?

uhh yeah
I think we are like 32

okay

Yeah. So this is the student one

okay
They don’t even have to read it.
If I am there
we can just
you can introduce me and I can just take 2 minutes to explain

okay
what we are doing in more kid friendly language.

Okay
There’s like official language that I have to use

mhm
that is a little bit not totally kid friendly.
And then they can do um-
they can fill this out right then
if you are okay with that and then you can be done with it

oh!
okay.

cool.

I think that would be easiest
cuz they lose stuff so (laughs)

yeah
And then this has to go-
when they are done with that part,
this I do need eventually from their parents.

okay
Or really what-

yeah I need it
because parents need an opportunity to say no
“you can’t use the video of my child”
okay

so it is okay for us to videotape
but then we have to get like the permission to like use
it

yeah yeah
okay.
Um

So that they have to take home and bring back?

yeah
and it’s okay because I will be working with you for a while

oh yeah
so we get to follow up with your kids every time,
everyday-
It’s not the end of the world

okay
I can handle that too.
We’ll work it out

yeah

um sometimes a couple of kids say no
um and I have had different situations with kids
um- sometimes they are fine if
um like
they’ll let me set the camera up behind where they sit

oh, okay
and you can only see the back of them

mhm
and sometimes kids are more comfortable with that

okay
if they are pretty sure that mostly their face isn’t going to be on camera.

Or if you like turned it at a certain angle so they are not in the shot

yeah, if it was- um,
the problem with that is if one kid here,
one kid there and one kid there say no that’s hard

(laughs) that’s a problem. “only person on one table”

My back up is if it’s just too crazy,
I really would like the video for this time for what I am doing
but if it ends up just too crazy then I think what I would do is just audio record.

okay
which most kids won’t
have a problem

yeah

it would be a lot less useful for my purposes.
it’s really hard to know what is going on in the lesson when you can’t see it but (laughs)

I know

but it would be something and it /definitely needs to /not/ disrupt what you are doing.

/so much more valuable/

okay

Okay so let’s stick with 3rd.

Okay

(whispers to Lynn) she is going to have to meet JPS

I like JPS’s initials

already-

I like this kid.

We are having some breakthroughs

Break downs or breakthroughs?

Breakthroughs, actually-

oh, cool!

well today he was all hopped up on sugar

but other than that,

he’s- we’ve had some breakthroughs.

He said math was his favorite class yesterday

to Ms. Polis and I was like oh my god

Melting my little heart

I know

and he came in and did community service

and we kinda bonded so

it’s good.

good

yeah

it takes time

oh god!

to navigate these little human beings huh

Lynn: This one takes a long time

(laughs) yeah this one is like 10.

it’s like we are looking at exponentials here

with this one-

in math terms (laughs)

anyways

so

I would love to hear-

first of all tell me, so I can be respectful of your time,

how much time right now you have for this conversation

oh well the-

because it could be-

the period ends at 3:30 and then I actually have to be at an IEP

and I’m not even sure where it is but I do need to do that-
which I just remembered,
b ut I-

I can’t go past 3:30. Your IEP is after 3:30?
yeah, it is at 3:30 oh wait can I?
Is that right? No actually have some flexibility today.
it’s tomorrow that I have to leave right at 3:30.
So maybe we will say like 3:25,
cuz I have to get the paperwork and get down there
and figure out where it is (laughs)
cool
Lynn: I have to be at [district office] at 4
Okay
Lynn: because I have a meeting
cool
okay so um,
so the- um
what I would like to know from you is what
what you’re thinking you’d like my help with?
How things are going? I think I know a little bit about the lesson-
or I know a little about
the curriculum,
mhm
but I don’t know what you are planning to do with it
or what your structure-
mmm
or what your lesson structure is. Or which problems
you are doing or anything like that
so we can uh talk about that. But I’d love to hear first sort of-
what you’re wanting some help thinking about
which can then tell me
where to direct my focus when I’m here

“what do I need help on?”
I think-(6s)

well,
okay a couple things that are coming up.

one is,
well this is moving very slow,

which I assumed was gonna to happen,
mhm

but we get to a point where I’m like,
d o we move on with this lesson? Like,
for example,
I mean I can pull one of the lessons that we have been
working on and like-
when I go to do check-
tell me if I am talking too fast too-
no, I gotcha
When we go to do checkpoints like-
this actually came up more in 4th period than 3rd.
3rd went quite smoothly today but
I had one kid after class that told me
he felt like he wasn’t being challenged enough
mhm

and I think part of it,
especially with that class,
is that there is so much going on
that there’s so many behavioral things
that some of the groups that ARE good are like
wanting to move on
while I’m like dealing with behavioral things,
I’m trying to do checkpoints
mhm

and it’s kind of getting crazy town in here.
mhm

and I think it’s like
taking away a little bit from some of the like,
getting them challenged and moving on
mhm

so I guess what my question is-
is like when is it a checkpoint worthy
mhm mhm
to like do a checkpoint or
do I have them do a bunch of work?
like I don’t know how far to trust
cuz some-
this group over here (points at a table)
barely got through the first problem
and then his group was like almost all the way almost
through the page,

uh huh
you know?
mhm
So I’m like (.)
yeah I’m just-
I’m just struggling a bit with that.

okay, that seems,
that feels very clear to me,
I get that
and then we kind of like leave off and it’s like
class has to end.
I’ve got like 5 minutes,
we are into cleanup
but like not everybody’s done with the page.
Like do I go on to the next lesson?

mhmm

Do we revisit that? Like,

mhmm

and I can show you on the lesson for example. (gets
up and walks away from the table)
Cuz the way CPM you know, is set up it’s like-
(sitting back down) some of them are really worthy
questions.
mhm

Umm
so we started here today (pointing at a page)
and I had some groups that barely even check-pointed
this.
Like one group in particular that was goofing around
so much.
mhm

Um,
but we had hearty discussions about it,
so I mean it was all really good stuff.
mhm

Um, [part] A was really great
because they were looking at patterns of exponents
mhmm

and they had to like discover that
with this table that they did.
mhm

Lynn: that’s the same handout that you had in 1st and
2nd.

uh this
I’m a day behind so
we’ll start this tomorrow with first

Lynn: okay okay

and they’re-
we did the entry task today.

it was like-
we got some struggles going on with exponents,
but that is a whole another ball game.

okay

I have so many ball games going on.

(laughs) Such an athlete!

right.

Um

I felt like overall though,
like the idea here was to try to get
the fact that like
when we have like bases,
we are adding exponents,
is pretty much a lot of what was happening here,
which I think most groups pretty much got on that
page.
and to get that we do that
and we do that because it makes sense
because of what the exponents mean
right
which I was bringing them back,
what does that 5 even mean
yeah yeah
and making them explain that
mhm mhm
beyond why these two aren’t equal.
uh huh
I got a lot of really good explanations
awesome.

um
when we got here,
it got a little bit confusing
yeah
because a lot of them
said that the x’s were x to the fifth
because they were using that square on the y,
so we had some good talks.

uh huh
But again,
and maybe this is another question.

uh huh
Like I didn’t get to every group on that

uh huh
and I know that that was probably an issue for most of
them

uh huh, uh huh

so:: like
do I do a group discussion?
Do we go over the table?
like tomorrow?

mhm (writing)
okay
and then maybe like that could be like our start
tomorrow,
I don’t know.

Lynn: I was thinking that.
Yeah?

Yeah.

because the back
is also pretty group worthy and good stuff-
I am not as concerned, we decided, about this stuff.
It is more like commutative property,
which is
important but I don’t think it was like
necessary
necessary
mhm
for this unit, but the
scientific notation is really big
mhm
in this unit
and that is like the start of it
so I think this is really important to touch
So umm
so you did this already today (moves hand over the paper)
yeah
and you got to here-ish (pointing to paper)
ish.
Most teachers maybe got through [part] b.
okay,
so to go back to your question about moving on or not
moving on-
I think what I heard you articulate was
that the big idea of this lesson,
or this part,
was that they understand,
they could make sense of these um-
multiplying these exponential expressions.
They know what they mean
so that they understand that you are adding exponents
and the bases are the same
because it just means you are counting how many of
them you have
and you have that many more,
mhm
right? And then you pretty much think that happened
yeah
mostly
except when we get to some of these hard ones
yeah.
well here what you described to me was not a
breakdown in math.
It was a breakdown in understanding notation.
right,
right?
so maybe we-.

which is different so like that-

so that still,

they could very well have that like big idea very firmly and have this one wrong

right

right, just because they don’t understand what that 2 is applying to

right

So it’s like in order of operations and notation issue, and not the-

conceptual

the idea of exponents and what they are doing here, right?

mhm

So that doesn’t worry me too much. it’s like a thing that they will need to understand at some point

I could do that as a do-now problem too. one like that, I can do that tomorrow

Okay, uh huh or yeah you could do a thing where you show it two different ways and ask them to make sense of

mhm

you know, which one is it? it could be, “Some students think it is this,” you know,

mhm

you can make up some names. Student A thinks it is this. Student B thinks it is this. Clearly it matters because they are not the same,

mhm

so they will need to figure out what that is. okay

because that’s just notation, that’s all it is. it’s not like an understanding thing

okay

um,

or how would you write it- you know, like if you wanted student B’s solution to be the right one,

if that is what you meant, how would you have to write this expression right
to get them to see that
“oh if there were parentheses there,
okay
then that two would be applying
mhm
to both of those numbers, but it is not
hmm
so” right?
yeah maybe I could put two of those
up on the board (and like) contrast and compare
okay,
so before we talk about this stuff (gesturing with hand
to the paper)
so that’s where you were,
mhm
this is where you are going.
Um I want to hear more about what is going on in the
classes,
because I think that your issues are questions about
your class,
especially your 3rd period class
will inform our thinking about choices we might make
about-
mmm,
like where they’re at?
or like the dynamics.
Like how is group work happening?
And how are kids talking and thinking together about
math and-
Um, I feel like 3rd period are pretty strong,
like they’re well behaved
so like we can get through a lot more.
Umm,
I think they have pretty good communication too.
Let me double check on my (gets up and walks away
from the table)
I wanna check my seating charts right now
yeah
Umm (sits down)
for that group,
let’s see. (looking through papers)
3rd period
umm--
I wouldn’t say they are like my smartest
skilled class.

uh huh
Like we just took a test and their scores were like
lower than
my 4th period
okay

but I think they work a little bit better as teams.

This (points to her seating chart and laughs)

this group gets crazy, the one with Omari,

uh huh

but they have amazing conver-

They fight over problems

like tooth-and-nail, but they get really loud,

mhm

but it is great conversation.

mhm, do you have numbers?

yes, this is table 8 and that is this table (points to the

so you go 1,2,3?

table)

mhm 1,2,3 (pointing),

and the table numbers are right here on the-

oh okay

4, 5, 6, 7, 8, 9

So this one goes that way, and this one goes this way?

yeah it is like a snake,

right?

it’s not like a snake?

I don’t think so

So 1,2,3-

if that is 9, then yes.

yeah

Yeah you just said it the other way, yeah.

yeah okay sorry.

cool

um

hey! Um

yeah-

and let’s see.

This table,

table 9,

I’ve struggled with them communicating.

mhm

They are kind of a quiet table

Lynn: These two are EL (points at a paper)

But you know what?

I had a big talk with them

because Jaime is really strong

and these two are EL and they’re slower.

Umm

Chelsea is medium but like

Jaime was just like all sitting there doing their work,

so I had a talk about how she was team captain

and they had to pull together and then like
they communicated and they all like had this like
really great moment where they all got the work
nice
Yeah and then they did checkpoints,
so that was really cool
and do you think they um
but that has been a problem throughout,
of like
Do you think they understood that that moment was
cool.
Like did they get that they learned more because they
came together do you think?
I think so.
It seemed like they did
because they were all totally lost,
all 3 of them,
extcept for Jaime who had the whole thing written on
her paper.
mhm
And I’m like
“how is that helping the group.
mhm
Like, I’m seeing you writing like this
and you have got three totally lost people in your table
and you’re team captain.”
mhm mhm
“like how is that building your team up,”
mhm
you know, and so like we talked about that and like-
uh huh
but it was cool because I think-
then I had Martin explain the problem
and he’s-
(to Lynn) is he EL you said?
Lynn: mmm
and he really explained it in such a cool way,
and I was like “wo::w,”
so that was really cool
cool
Aiken is like a computer,
he’s like (in a robot voice) “Hello Mr. (unclear).
Erererer.”
But he is with Omari who is like loud and obnoxious,
so they are really interesting.
This group is cool.
you’ll like that group
uh huh
They drive me crazy because they are loud,
but they are really good.
Umm
this (points at the seating chart) is, this student is the
times 10.
JPS, uh huh
that’s JPS.
Um and
this girl-
I moved her on this table
okay
because he’s been gone.
She just waltzed into my classroom for the Day 1 two
days ago,
so just FYI
Lynn: She was here for 6th and 7th grade and then
Lynn: didn’t come back and just showed up this week
okay, okay
So she’s still kind of learning
how group dynamics go and she is on a tough group,
yeah
but she is really good.
mhm
Like she’s smart.
cool
um these two have to be together.
okay
He will not work without this one.
okay
so I made a deal that if they behave well
that he can always be in a group together,
uh huh
but the minute I see not that- them not behaving well
How does that kid feel about it?
cool, they’re like really good friends
okay
and I thought that he was a total screwball
uh huh
when I met him
uh huh
because he seemed to be screwing around a lot
and then I- when we did the test,
I was like “Oh my god,
he made so many connections”
uh huh
and I talked to this one about him
and he was like “yeah I don’t know why you felt that
way.”
Because I said that I felt like they shouldn’t be together because I thought that it was getting him off task, but I think that wasn’t the case okay cool so um yeah, this group u::m (5s) They’re okay. Derrick’s quiet, they are kind of a quiet group but they are getting better. I had Derrick explain and that was good. Umm

You don’t have extra copies of this sitting around, do you?

No, but I can make one. That would be awesome.

Actually, you can just have my seating chart. (gets up) They know their seats. I can grab it when I come in tomorrow too and just use it for ( )

yeah OK, cool.

(sits down) u::m, this group is an interesting one. Okay, here-

so Alex has fought me tooth-and-nail about working independently, like I’ve caught him on the side tables trying to work by himself and I have had to like push him back in the group.

uh huh and he has had a lot of, uhh he tells me “I want to work independently! I want to work independently! I want to work independently!” And he like fights me on it every day and I finally got to the point where I said “Alex, I’m not going to have this conversation anymore, uh huh like you said your piece, like you know how this is going to work.” So I have had to like really push him to work with his group uh huh and he has a really sweet group actually and they’re-
is he doing it?
but he gets very frustrated when I call on,
because I do random card picks-
and then, I thought-, they are not totally like-
you know it takes them a while to explain
cuz he’s really smart.
Yeah
He’s like- today he was like “ahhhh” (screams)
you know, and he was just like going crazy
like trying to, you know,
because they were struggling with explaining
and he wanted to tell me
“I want to tell,
I want to tell.”
You know, and then it’s like, he-
mhm
I had to like
calm him down
uh huh, okay
so, yeah
okay
but he’s getting better.
He’s getting better.
I think today was a better day-
so yeah.
And Sarah,
so we kind of have this odd ball because
they don’t all fit in groups of 4.

uh huh
So poor Sarah
has sort of had to like
jump around to different groups,
which has not been the coolest thing ever

uh huh
Sarah worked in this group today and
yesterday she worked with that group
and I kind of feel horrible
because I feel she is not able to cohesively be with a
group

mhm, okay
So there’s another issue
that comes up with this class
okay
because I don’t have full tables of 4.
yeah. uh huh

She is great
and super willing to like accommodate
but I don’t think it’s fair. (.)

Cool.
so here is what I hear
as something we could think about together.
Um
I hear that there are multiple groups that could benefit from
assigning competence to particular students

mhmm
in different kinds of ways.
So I’m hearing
uh, that this group
there are students that might be perceived as less competent

mhmm
who we could figure out ways to
counter that perception
and that might support this group,

mhmm
right?
Umm I hear u:h
that here (pointing to seating chart)-
uhh-
if we could find ways
to make it really clear to all of them
that this is not the only smart student in the group

mhmm
right?
Um I think that that could support all directions.

mhmm
It could support kids to be more willing to speak up,
it could also support him to be more willing to be patient
if he like gets opportunities to see other kids doing things he didn’t do
like or

mhmm
offering things that he didn’t think of yet

(inaudible)
Lynn: /Quiet.

/Um they are kind of quiet.
They are good though
Yeah, so we could just watch and listen.

yeah
I think that maybe um
that might be a thing that we could do together
would be to listen,
depending on the lesson
and now I’m a little worried about the lesson for this
reason.
But depending on the affordances of the lesson,
we could listen for kids,
listen and watch for kids to do smart stuff together.
that’s one role I could play would be to do that with
you
and then just sort of poke you
when I see something and let you

mmhm
Pick it up and address it with the group
or the class, depending on
what’s appropriate at the moment.
Um
that said,
I don’t know how much you are going to have doing
that (points to task paper and laughs)

I know
So I think that-

I don’t even want to teach scientific notation.
I’m not a huge fan of it myself so it’s-

yeah
but it’s like a big part of this unit.
Big how?
like if you look at the Milestone task,
they need to know scientific notation.

uh huh
it’s like about like bacteria or e coli-

it’s about e coli
Lynn: oh yeah

and they are like multiplying
and it’s like a really crazy problem.
Like, I didn’t even understand it when I first looked at
it, so-

Lynn: We’ll blame Mike.
(starts laughing) Blame Mike!
What did you say?
I said we’ll blame Mike. Downey.
Lynn: I think he wrote this unit or part of it

umm
I mean here’s the other thing.
The other thing that is addressed in this unit
are all the other um
ways to look at exponents and different properties of
them,

uh huh
which is also a key part of this.
Um, I don’t know if like-
I don’t know if having to do scientific notation exactly tomorrow would have to be-

yeah,

I think it’s okay.

So uh Kamilah is also doing scientific notation tomorrow,

mhm

mhm

I think she might be on her next lesson,

mmhmm

like maybe her kids didn’t quite get to here and she is picking up scientific notation on the next lesson or something.

I think-

I don’t remember the numbers- but anyway,

so we u::h,

in our conversation

reached the decision that this isn’t group worthy

(Starts laughing)

And therefore it might be nice to not pretend it is and to like not try to like-

if there is nothing to talk about, if there’s no-

so sometimes when things are um,

well what am I trying to say.

I guess what I want to say is there are ways that we are still a community who learns by talking

mhm

and listening to other people,

who takes care of each other.

Who is like, “it’s not all about me”

right when, even when there is not rich deep things to think about,

so in her class I think what they-

at least what we talked about,

and I don’t know if she will stay with it

is that they were going to work in pairs.

And that she was going to establish at the beginning this is a new way, a new structure for working that we will do sometimes and that during pair work um the expec-, she was going to take some time to establish the expectations,

so we are not using roles because there are only two,

mhm
right? But um
we expect that you stay on the same problem at the
same time,
both
uhh both members of your pair should be um
like understanding the reasons behind what is getting
written down.
mhm
What I am holding you accountable is to-
like I should be able to walk around and at any
moment,
come and talk to you two
and both people here should be able to say-
I could randomly pick one person
and you should be able to tell me,
not necessarily an answer, if you haven’t gotten there
yet,
mmm
but you should be able to tell me what you are
thinking about
or what you are stuck on
or what your process is
or where you are
mmhmm
right? That that is two people working together,
but there’s not a ton to talk about here umm

Is she at this place too?
yeah she is in the-
Lynn: yeah she is eight forty one to eight forty four is
what I looked at
so is that part not group worthy either? (gets up and
walks out of the frame)

Lynn: no
no it’s still scientific notation
uhhh really?
so you might,
this might be the non-core problems
and you might just skip to that, Heather.
I don’t know if you need these ones and those ones

(sits back down) oh good golly.

yeah,
so she’s doing-
what did she decide?

yeah
Oh my god,

why are you coming in this day? (laughs)
I’m just like randomly choosing groups, I’m randomly
choosing days.
So this is what’s happening
I’m just kidding

No it’s good to think about it together right?

There are some particular challenges like (.)

yeah

in a community where we learn together

and where we value everyone being smart,

there’s different kinds of math content we need to be

able to take up and do together

mhm

and some of it is like

the cool apprentice task where there really is a lot of

stuff to think about.

There are multiple ways to represent things,

there are different ways to explain it,

different solution strategies

and sometimes this is just-

I mean and sometimes you have to be clear with kids

like

it’s just a freaking convention

yeah

it’s kind of useful because

you are going to see it,

you are going to need to be able to deal with it and

you want to-

this one is kind of nice, here,

because it shows why it’s useful because

like

when you write that down one time,

you are going to say

“I don’t ever want to write that again.” (laughs)

(laughs)

And this convention allows you to not have to write

that again, right?

mhm

And that’s why it was invented

but that’s all it is

and you know-

there is some connections to our base-10 number

system-

it works because, in this way,

because it is a base-10 number system, you know?

Alright that is not particularly deep.

mhm

Um

but it’s good to get some practice,

so today is not about big deep ideas,

you might just have to say that, right?
Today is about like learning this convention that is gonna be useful.
It is going to make other things more accessible.
You are going to see it in science classes.
Lynn: right, you see it in science.
And we are going to make sense of it together,
so the goal today is that
you understand this convention.
You can read and understand numbers when they are written that way
so you know what people- you know, numbers are suppose to mean something, right?

mhm
So you know kind of what they mean and have a sense for,
when I look at this number, is it huge?
Is it tiny?
Is it somewhere in the middle?

mhm
You know?
And um
and then you would be able to use this strategy for writing really big numbers
so you don’t have to sit there and write twenty eight zeroes, right?

mhm
um
that’s all it is.
So we don’t have to pretend it’s something big.
And that way it is also like if there is like-
because one of the challenges with non-groupworthy stuff
is that you can exacerbate status.
Because the same kids who are used to being seen as being smart
are the ones who are most likely
to figure that out first
because they are use to this kind of thing.

mhm
They are used to parsing text.
they are use to symbolic notation.

mhm
They are use to being able to read those directions and follow them really clearly.
So it is their skills that get kind of highlighted again which is sort of challenging,

mmm
so one way
to sort of make that less of a problem maybe,
is to make it clear it’s not a big fuckin deal.

I am not that impressed that you can use scientific notation (laughs)

I didn’t mean to say it like that, but like it is useful-

cool figure it out you know-

Lynn: so yeah if your calculator spits out 3.2 and -6, you know what that means, right?

mhm

Lynn: because that is where it always comes up is kids say, “i don’t know what this means”

right right right

and this part says no calculators but this doesn’t,

so I’m thinking

that they are going to be able to use calculators on this?

Which might be kind of a cool tool for them to have

Lynn: I think it is for scientific notation because that’s when you see it most often, when you put something in your calculator and it is too big

right.

So maybe if we started here

no calculators and then once groups got to here, then I would allow calculators.

(9s, looking at paper) Do you think you have students who already know scientific notation?

I’m sure they have been exposed to it.

They were supposed to be exposed to it in seventh grade.

I specifically talked to Kamilah and she was like

“I didn’t teach that last year” (laughs)

so my seventh graders

so I know any of her kids didn’t get it

Cuz you know it was like a timing thing or whatever last year

yeah yeah yeah yeah.

I used to think they all (inaudible)

right, it gets-

Lyee: I always had that video. I always showed that video

yeah, the old expanding-

Lyee: yeah that one

the guy laying down on the
(multiple people talking)

I think she is showing it

oh is she going to show that tomorrow?

uh huh
I think that would be cool, showing the video. Yeah
I almost kind of want to push to see if we could make this group worthy (laughs)
Well what would there be to talk about?
I feel like even the high kids that can figure this out, they need to be able to explain to the other kids what the heck is happening.
Yeah.

I do think that’s a really tough concept to explain and maybe-
Right so I think that-
groupworthy and hard are not the same thing.

Because like, in my way of making sense of this anyway

Um
If something is hard, but there is really just one way to do it
Yeah

So that’s why I think because there is something really to explain
That’s why I would say, maybe,
pairs make sense
And what the pairs can be held accountable to is,
you both should leave this,
being able to explain

Scientific notation
Whatever the end of that sentence is, but I don’t know what I need to explain in scientific notation,
but maybe you need to be able to explain why-why a number is written in a particular way and what it means or-
i don’t know.

Something like that
Okay And then they could do that as a end of class, uhh-
I don’t think this is ‘check-pointy’ really, right?

Ehh
But they could like write it as an exit ticket or um
you could do some spot sort of checking

mmhmm

you know,

around the room. umm-

ummm

I was just wondering about-

I was just thinking about this uhh.

I worry about this being like fake (laughs) a little bit

(reading) (use) (inaudible)

like fake there’s something to talk about

So here, they are just supposed to do this,

which I feel like maybe could be a good do now kind of problem, right?

mmhmm

So they would have to be like

“oh that’s 100,

so what is 9.23 times 100”

mmm

and then they might just start to see some patterns.

This is trying to get them to

see the patterns and then extrapolate them.

So what would happen if it was 57, right?

But I feel like it sort of-

it’s sort of like pretending

there’s something to talk about,

but really what’s going to happen

is one kid is going to be like

“see, it is like this. do-do-do-do.

You count this this many times.

yeah

There is a 7 there, you count 7 times and done.”

Lynn: yeah

and the other kid didn’t make any more sense out of it

than they had before,

Lynn: mhm

you know what I mean?

Lynn: right because there are a bunch of zeroes.

mhm

yeah.

but there might be

some idea from here that you can pull out

for that exit ticket or something.

mhm

Once they get all through this stuff,

they should be able to explain,

you know, by the end of class-

and you can like.
You know maybe this is a closure thing too that will help you-

a::h-

what if they had to like-

10 minutes before the end of class,

they all have to stop where they are and try to like write down or show a picture or somehow,

maybe explain orally-

or however you want to do it.

Like now is when you, we’re seeing that this is making sense to you.

can you explain- try to explain why this number is written like this.

I don’t know.

Maybe why-

like they have to write on paper?

Maybe, I was just wondering about that.

Um but this might be an opportunity for you to do that so then you could be sort of assessing how many of them seem to be really

mmm getting this thing right now because it gives you an opportunity to see that.

mhm It might give you an opportunity to publicly assign competence because kids are going to be individually producing something so you can watch particular kids.

You can watch like are these three kids (pointing to the seating chart) producing anything? uh huh

are the kids who don’t ever talk out loud producing anything?

That you can then in a closure-like whole class closure moment say okay, so this wasn’t really a big deep thing, but let’s just see if we are getting it.

I heard a couple of really useful ways to explain this. you know, I heard, Martin-

or Martin, I don’t know who that is. Umm.

(laughs) I heard him say it,

if it is oral, I heard- you would just be listening for it.
I heard him say this phrase, which was super useful, I didn’t hear that anywhere else, And that seemed like a really nice way of explaining it.

Or I saw- or I heard- or I saw somebody write down this particular thing, “do you mind if I share this with the class?” See this thing that she- you know what I mean? So this gives you a chance to give some attention to the status issues that I’m hearing are present. Right?

Um, and also check in on the content and leave knowing- so you know sort of how many kids in the room are getting this not very deep, rich thing that we want them to get (laughs)

I’m- my biggest worry about that is I feel like it’s still gonna be the really high kids that are going to be able to explain this, if I do 10 minutes of that. I mean I think this is a really tough concept.

so you do 5 minutes of that, I listen with you

okay We try to prove you wrong okay because we have two sets of ears, right? right So we listen really closely and we listen in particular for the kids we want to listen for

Okay So we’ve decided ahead of time who we are listening to okay We try really hard and if nothing happens for any of those kids, which it might not okay then you don’t- you don’t do it that way. So you don’t assign competence to high status students okay
I mean at this point, probably, not that you never do but for now I think,
No, I agree.
you wouldn’t want to like
share this kid’s (pointing to seating chart) thinking out loud,
mhm
right?
Because that is just going to exacerbate
mhm
that.
So then um,
so then you do something more general.
If you really don’t hear anything that you can attach to kids and be authentic about,
then you say like
“I heard lots of great things.
I’ve heard these different ideas”
and you just don’t attach names to it.
Or “I saw some different ways to explain it.
This idea about figuring out how to explain what we’re thinking is something we really need to be working on,
blah blah blah.”
You just find a way to like
salvage the mathematical closure and not let it be a problem for the-
okay
Does that make any sense?
Yeah,
I do think we’re stretching a little bit though to explain scientific notation.
okay okay
I just feel I don’t know,
this concept is uh (mumbles)
Yeah so maybe we don’t have to explain it.
Okay, I totally hear that
and don’t stretch if it feels like a stretch.
So then maybe do something like,
I mean, I don’t know
make up-.
Like how would you explain scientific notation?
Like I feel like it’s so
So that’s why I needed a prompt that wasn’t “explain scientific notation,”
okay
but it was “explain why these two numbers are the same”
okay.
Okay,

so not like “explain scientific notation” but like

Explain why this number- written like that (points at
the paper) is the same as
one million whatever number that is

Okay

explain why-

or explain how we tell these are the same or-

okay

we’d have to figure out exactly how to word that.
Or maybe instead of doing an explain,
maybe it’s like everyone has to make up their own
number,
that’s easier to write in scientific notation,
and explain something that helps us understand how
big that number is.

Lynn: or how small
or how small. Right?
So then maybe it is more that you are trying to get
them to wrap their head around
the meaning of that exponent and how much it
matters,

mhmm

so maybe they would be saying-
they’d put an exponent of 150 and they would say
“this is like going to be all the way to the moon” or,
you know what I mean? Just-
I don’t know exactly what it is.
so it has to be authentic to you, right?

right.

Whatever you ask them to do.

yeah

has to be something worth doing-

umm
But maybe it’s just around-

it’s just a check like,
we’re doing this for a reason.

right

So I think it might just be like,
what is our actual reason,
other than that it is in the book.
Like what is it you want them to know about scientific
notation?
and what do I have to ask them

right

to see if they know it

and that’s what frames what that question is

(bell rings)
sorry
Oh shoot.
Okay

sorry (rubs Heather’s back)
it’s alright
i didn’t do a good job of watching the clock.

I’m so tired (puts head on desk)

um so what I’m gonna to do is,
I am going to show up.
I am going to keep my ears out for those kids.
Feel free to email me or tell me something different
when I walk in,
if you are thinking about lesson changes or you want
me to do something different.

okay
And then I will like poke you and tell you what I see-
we can whisper to each other about those kids during
class,
if you have the opportunity

okay
And then when we debrief,
we get to talk about
what happened with those kids and
whether maybe whatever I observed
helps us learn something about those kids that we
didn’t know
that might have a bearing on where you go next or

okay
yeah?

Alright.
I am going to have to really look at this
to figure that out tonight.

yeah maybe

I am just not super jazzed about this lesson.
yeah I totally feel you.
I have been there so many times.

Lynn: It is just notation.
Lynn: You can tell them that.
It gives us an opportunity.
It gives us an opportunity to not be like-
we are already breaking down that
“the day Mia comes is supposed to be really fancy
group task day”,
right?

right
we are already breaking that down.
So that’s good (because we have to usually get
through that) (laughing)

I know, right?
Lynn: It is also- it is kind of a good opportunity for you to look at status when you don't have to worry too much about a huge concept that you need everybody (inaudible) right

Lynn: because it is just notation.

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Heather Cycle 1 Debrief Conversation

Heather | Mia
---|---
1 | can I grab a piece of gum real quick?
2 | Yeah
3 | I wish I could offer you one, but I just ran out.
4 | I have some
5 | It’s OK.
6 | okay awesome
7 | I always have gum *(laughs)*
8 | Do you have an extra?
9 | yeah, you want one?
10 | Yeah, *(inaudible)*
11 | OK, so something like this *(.)*
12 | Oh, there’s a big cloud in the middle.
13 | *(6s, laughs)*
14 | *(inaudible) typo right here *(laughs) (inaudible)*
15 | Right? *(.)*
16 | I think there’s like a um *(8s)*
17 | I think there’s some layers.
18 | There’s like don’t know.
19 | There’s like things that I know *(inaudible)*
20 | I’ve gotta find it.
21 | There’s like some line somewhere.
22 | Someone created it in our early, like *(inaudible)*
23 | teacher created this cool graphic that they people took up and like laminated and put on their wall.
24 | It just makes very clear that
25 | if that’s not happening, you’re not actually learning.
26 | You’re just doing something you already know how to do.
27 | Mmmm
28 | That’s not actually learning.
29 | That’s just doing shit.
30 | Right? *(laughing)*
31 | Right.
32 | This is what we’re trying to get to.
33 | And it’s gonna be really
34 | Maybe uncomfortable and maybe you’ll start to enjoy this.
Yeah.
And this is not a window.
Like we have to /actually go

/(inaudible, laughing)
yeah (laughs)
We have to get through it,
Like a door.
Yeah.

My daughter um-
I have a little (room in the back with her)- seven
But her um-
She’s doing amazing in school
and her teacher, we ran into her teacher, you know
whatever, afterschool
and her teacher was still there at six o’clock.

(laughs)

and um
and she said to me- I just said “hi” and she was like
oh, Aria’s doing really great in math.
and I said, OK. cool.
and she said I was just looking at a bunch of her work
and I was really impressed and um
I said something about that to Aria later and she was
like
“yeah I kinda don’t believe her.” (.)
And I said “why”?  
And she said (.)
well I don’t know what she said but
what I-
what was going on was,
she didn’t belive her

Mmm
because she has that confusion feeling

ahhh
because it is hard.

yeah
because what she’s been trying to do is hard.
and I was like “no no no no.
It is supposed to feel like that.

yeah (chuckles)
Like doing well means feeling like that.

(laughs)
That is doing well.
totally
Like if you never felt like that, I would be so unimpressed.”

mhhmm
You are just doing a bunch of stuff, but like
so just even trying to support her, you know, to like-
I know it's hard to like explain that feeling

Yeah

and then there was like a homework assignment last night

and then we got like part way through it and she crying

aww

and was like “I don’t want to do this right now. It is too hard.”

I know.

And then you have to figure out like, okay

I know and there is always that like point like
do I push them at this point, or do I kind of let that go and let em sit with that for a minute and then

Yeah

So that’s kind of what happened here. I don’t want this girl or boy to be defeated.

Yeah

We don’t want Sol to feel defeated.

Yeah

Um

so yeah I think maybe I will try to come with a poster and have a little conversation about that tomorrow and maybe that could be like our exit ticket like

O::h, cool

“why do you think we did this?” problem.

Yeah.

Because I wanted to make you insane?

O::t

(laughs) right right right

(laughs) anyways but it was so cool to see all the thinking like that went into this like it was very impressive.

Look at this like color coding.

We had color coding but going backwards or going forwards.

like this is like the second times forwards.

that’s so cool so they were like differentiating, like you start out going forward

Uuhh

then you go back, so we switch colors.

Then we go back again so we switch colors to a new color.

That’s so cool

I know.
Neat, huh?
All the layers.
Uh huh
i could show that too actually.
When they like laid out like what they were doing in steps
Oh number lines with segments?
mhm
look at that.
this one they did a really nice paragraph,
I love that.
This one showed like..
look at that 10 times 1.2 feet
It’s 12 feet.
I know right
(inaudible)
that’s cool huh
fancy people
I know right?
and this one.
they just went like crazy town on there.
(.) Showing all the calculations
mhm
and what happens on each step.
They did the 1.2- look! They did the 1.2 (7s).
What are they doing?
(laughs)
oh they got 1.2 times 10 is 12,
but they did it by adding.
They got this.
So they added up a bunch of one /point twos
oh they just, o::h
to figure out that you could get to 12.
And that was this- that’s the calculation for that arrow.
Yeah because I told them that-
first they showed me this whole process
right
and then i said well you need to explain what 12 is here
because that is not one of our moves
yeah yeah
So i told them that they had to show that on their poster
uh huh
so that’s what they are doing there
cool
so you have-
you have here
multiplication as repeated addition foundation because 
like 
look, they figured out that if you-
if you add 1.2 together

mhm
10 times you get 12.
It took a lot of work,

yeah
Right (laughs).
Awesome.

And they-
this group was just getting to that place too
because they kept trying to /add things

Hi Lynn
and they were like unsure (Lynn walks in)..
Hi.
Lynn: Sorry I..

oh that’s okay.
Anyway (.)
(to Lynn) sorry I was having a little melt down
(laughs).

But they got that repeated addition thing too, which
was really cool

cool.
Either way, it was really neat
and we did the silent gallery walk,

uh huh
per Aya’s idea,
which I thought was awesome.
They couldn’t talk.

And they just had to like answer questions on their
notebook

cool!
Like how was their group solution different,
like from what they saw and
how did they represent their ideas.

So they got to see lots of different representations

yeah
Awesome.
I had to like really rush it in the end though,
with the posters,

yeah
and I felt bad but
It happens.
Cool,

Anyway
awesome work

A lot of good work happened today.

Yay
I know that this isn’t what we were going to talk about
(laughs).

Whatever.
we are talking about what we are talking about.
We are talking about teaching,
we are talking about math. It counts.

(to Lynn) I had a melt down first.

Lynn: sorry.
it’s okay

Lynn: Everything alright?
yeah.
Lynn: I just had an incredible moment.
Lynn: One of my former students came in and (she’s
at City, taking Algebra). And another one of my
former students, who’s now a para

Lynn: came in
Lynn: and the two of them sat there and apologized to
me.

For being little shits in your class? (laughs)

Wo::w

oh my god.
There’s a moment

Lynn: It was
wow (laughs)
Okay.
You were like-

Yay
let me calculate your fee for pain and suffering
Lynn: Can I just-

(laughs) With interest.

Lynn: a 10 second thing.
Lynn: Why are they teaching long division and
decimals without a calculator
Lynn: at city college.
Lynn: Why are they making students do long division
and decimals in city college?

yeah,
that seems kind of ridiculous in city college.
At first it sounded like you were talking about our
school

Lynn: no i am talking about students who are taking
(inaudible)

I know
it’s pretty ridiculous.
It’s like really, we are not worried about that at this
point if you are in algebra.

We are worried about your algebraic process (laughs).

Anyway
Do you have a notebook?
Do you have your (inaudible)?
yeah (gets up to get it)
cool.
So what I am going to recommend to us for a starting place
or second starting place
is umm..
that we take some time.
it’s quiet thinking writing time.
okay
I like to organize it in this little
t-chart kind of way
but it’s not necessary, but um
I want us to think about uh
your strengths
okay
um that we saw play out in class today
mkay
and I’d like you to think about your questions.
Okay, so one side is my strengths and one is my questions?
yeah,
what are you feeling curious about or sort of...
Oh you’re really trying to push into the feelings aren’t you?
(laughs) I wasn’t intending to.
We could go there
(in an exaggerated voice) I’ve already been so emotional today
(laughs)
(sighs) Okay, here we go.
Here we go.
Lets see
(3 minutes of silence while they all write)
how many questions should we (put)?
whatever you want.
Probably won’t have time to take em all up, but we could air them and we could decide together
(inaudible) from there
okay. I can’t think of how to spell the word patient, for some reason.
Lynn: P A T I E NT
P A T mmm
i won’t take off points for spelling (laughs)
Lynn: (inaudible)
oh really?
Lynn: (talking)
mmm
Lynn: (inaudible)

interesting.

Did I spell it right?

It doesn’t look-
you know when you look at a word and it..

Lynn: (talks)

It doesn’t right?

It looks weird.

Okay I think I am ready whenever you are.

(5s, Mia keeps writing and looking at her notes.)

(to Lynn) Did you see what happened to Dejon?

I’m just sad about that.

it’s really (mumbling)

(lots of mumbling)

and Soul..

you know Soul?

On her posters today

she..

that’s when I kind of like had a breakdown because

she

got..

she did all of this really hard work

and she just like couldn’t get the answer

and she got in that like “i want to give up” phase.

And she was like about to cry

and I was like trying to encourage her and just tak to

her about it.

It just like all of a sudden made me really emotional,

so I realized like

that is the struggle I have been in all week.

Like..

that I totally wanted to give up

today

and then like i (inaudible).

Right?

it’s just like all of this emotion just flooded through

me. (5s)

Like I was totally having one of those mornings today

Like I wanted to quit.

It’s so weird because I never feel that way but I just

like

I feel like I’ve been pushed to the brink this week. (3s)

Lynn: It’s been a (inaudible)

Can I say that to Malaysia?

I had a huge break through too today.

She,

you know the struggles with her

Lynn: mhm
And today they chose,
using notation..
I usually have them two minutes in the warm up
because that is like a long time for them
and they were like “we want to do an hour.”
I was like “really?”
And then they were like “yeah”
and I was like “okay” I was like
“I’m going to challenge us to 5 minutes today.”
and we had the most amazing
5 minutes of quiet time.
It was unreal,
I’ve never had that.
They were so good.
and I look over.
And we were starting (inaudible) it slowly where I
was like “let’s just slowly start working”
and Malyasia was just crying.
And I think..
because I know
like sometimes when I sit and I am quiet with myself
like it brings up all this emotion.
She couldn’t explain what was happening
but like,
I think having that quiet time for herself
like (inaudible) that emotion for her.
Was she okay with that or was she like..

I think- (Sigh)
well she came around,
yeah.
Then she.. she.. I-
I gave her some space with that.
She said she wanted to sit outside for a little while.
I was like “okay.”
I was like you know, “gather yourself.”
and then she came back in and like totally got into her

Yeah it was cool

Lynn: (mumbles)

yeah she said “can I call my dad?”

Did he talk to you?
Lynn: Yeah.
Lynn: She told me she didn’t feel well and wanted to
go home (mumbles) working on my own problem,

so I can’t deal with her and (mumbles)
nice.

Good. (smiling).

(to Mia) Well her brother just died

(inaudible)
and I don’t.. she doesn’t really processed anything around that so I

Yeah

I think that maybe like something like that her brother came up, but I don’t know She couldn’t identify

What a sweet opportunity, I mean it sounds like you were you let her- you gave her space to feel her feelings. You didn’t call her bad for them.

Yeah You still invited her back into a learning environment but on her own time.

yeah i feel like sometimes as a teacher, I forget that other things matter too. You know (laughs) that they’re not just- I’m like (in an exaggerated voice) “GOTTA LEARN MATH NOW. GET OUT YOUR BOOKS”

“GOT DAMN IT GET OUT YOUR BOOKS” (laughs)

“You are going to learn!” (laughs)

(laughs) no i totally get that way too believe me.

Today happened to not be one of those days, which was a great perfect timing for all that to happen..

(laughs) thank god (laughs)

(laughs)

It wasn’t one of my like “you are going to learn” days, you know (laughs) Okay, you go. Tell me. (pointing to Heather’s paper) Oh my god, look at that paltry little list. (laughs)

Girlfriend you need some help. Okay we are going to help you. (laughs) uhh I’m only good at four things.

I didn't know- (laughs) it’s hard to write your strengths
I know that’s what we are here for (in a high pitch voice).

uhh (reading from notes) positive encouragement, patience,

which I have had a lot of today.

uh huh

Structure,

which you can’t always see in my classroom but today.

Looked like I had amazing structure but
doesn’t always look that way

What do you mean by structure?

like,

the kids know what to do when they come in.

uh huh

like they would know what to do to get quiet.

uh huh

like they know how to like get organized.

uh huh

They know that they have to ask a team question or-

uh huh

They know to use the words checkpoint and

mhmm

not interrupt each other.

mhmm

like the CI structures coming together.

mhmm got it.

okay

I wish you could have seen more of that today with

the roles

because we had the

yeah yeah yeah

but i love..

Well, I’ll be back more.

It is not the last time I come.

umm and not giving up on my students. (3s)

(laughs) Cuz it can be very easy at times.

alright. (shuffles papers)

So I think that there are umm..

I don’t know- Some of the things I am talking about

and I think some of the things that you meant by-

that you are using kind of big buckets.

I can’t quite know how they are attached to the lesson.

So I am going to attach them.

okay

umm so I saw a very clear launch

um well first,

before the launch,
they came in,
they clearly knew what was expected.
They got started right away.
They were quiet,
they were like..
(snapping) this is like-
every minute of class we’re in class.
There is not a bunch of like “blah blah blah.”
That might have been part of what you meant by
structure.
But..

mhm

But umm
I saw also after that, when you were launching the..
after the do-now or whatever, and you were launching
into the group work?
Or the pair work.
Um,
just amazing clarity.
Like
quick and clear.
Like this is how
we are going to work-
this structure we’re using today.
This is what I am expecting of from you.
You had language that was like (consulting notes)

umm
I want you to have your notebooks out.
Um i want you to do each problem with your partner.
Be prepared to share because I am going to check in.
I am not doing checkpoints,
I’m doing a check in.
This is what it is,
“Blahh.”
Just very like
clear, quick,
communicated high expectations.
Made it clear how it should sound.
You know how it should look.
You are in partners.
This is together work.
Awesome.

umm
I thought,
oh you’re expecting a lot from them.
You aimed for 5 problems.
And given, like what has been expressed about it
being kind of hard.

(Looks at door, someone says something) It’s okay.
that like things are slow.
I am hearing that some of your team in general.
mhm
I was like “whoa cool,
5 problems.”
And some of them like made it through a lot of that right?
yeah
so because you were aiming high,
there was a lot-
There was not-
here was a sense that there was stuff to do right?
(nods head)
Umm (.)
I think that one of the things that I noticed was that
ummm
the ways in which you interacted with groups
wa::s different in different moments
and always effective.
They did what you asked them to do.
You redirected-
you know like every time you walked away from a
group of kids,
they were different than when you had arrived.
mhm
which means-
and I don’t think that that is always just connected to
exactly what you said to them.
For me, what that means is
you spent the last 4 weeks building relationships with
them.
One of the things that I have been reminded about
today,
is that-
how powerful relationships are
mhm
because I have had a couple of interactions with kids
today
(laughs)
where the kids are like super nice to me-
they’ve all been really nice
and really welcoming
mmm
But like I have a little-
I haven’t been interacting a lot with kids, but a little bit
and I’ll have like a little interaction and I will make
some kind of suggestion and they will be like “yeah”.
You know, they will be so nice and like
totally hear me and don’t do it.

(laughs)

like, without fail.

Every single group I have talked to, I have been
totally ineffective with.

And I am like “oh right

because they don’t know me” from adam”

hmm

right?

right.

So those 4 weeks

of building have built you to where you are.

where you are effective,

they believe you,

they buy it.

they’re like doing it.

Umm (.)

I think that you’re also-

and this is probably related
to that, is that the ways you are interact- you’re

intervening with teams,

are um

you’re pushing them further than they were.

So you’re like listening to where they are,
you’re asking- like i quoted one thing, which was

“I’d love to see two ways.”

So you said the way they did it,
you validated it

and you said “I’d love to see two ways.

Like, “Do a better one.

Go further.”

You asked other kids to justify,
you were pushing for justification:

“how do you know that?”

And also your energy was like never punitive.
If you were trying to get kids back on task who were

off task,

you weren’t like “you are doing the wrong thing.”

mhmm

Your energy with them was like to direct them into:

like,

you didn’t ever-

I don’t-

I mean i wouldn’t imagine-

I don’t know how the kids feel,

but I wouldn’t imagine that any kid ever felt bad as a
result of anything you said to them,
even when they were being kinda like “wahh” right?

(nods and chuckles)
so i think all of that goes into that 4 weeks of relationship building work that gets you to where they are responsive and where, you know, gets you where you are.

Um kids were staying engaged when you were busy elsewhere, when your back was to them. When you were clearly not about to turn around, totally engrossed in one place.

Kids all around the room were working, continuing on as if you were standing and watching them, which also attests to the work you’ve done for the past month.

I wasn’t sure if you directed them to or not- the kids were reading aloud.

Well Did you tell them to?

Well, we are use to facilitators are always the readers yeah so I think they were like falling into those roles.

that’s perfect, that’s great

yeah it was cool so this means they are taking up that norm, right? Because without you explicitly saying “make sure one partner reads aloud,” they know yeah and that reading aloud is like breaking open that space that makes talking possible.

Right? it like gets things moving, it gets- yeah okay.

I saw you in one case, and I quoted one case, and I think that there were maybe more.

You ask- so you went to a pair and you wanted to push them a little bit. They were saying they were done or something.

I don’t remember what they said to you, but you wanted to push them a little bit. And you asked them permission. You said,
you looked at both papers, and you said
“can I ask you about this?”
And it was clear like-
it wasn’t like-
It wasn’t wishy washy weird like you could imagine
that being.
It didn’t feel that way at all to me,
it felt super respectful.
You were saying like,
“are you ready?”
I mean it felt to me like it meant “are you ready?”
And if they had said no, then you would have said
okay well I am going to come back and push on you
in a minute
yeah
so get ready. You are allowing them space to like
determine for themselves
whether they were up for that, ready for it at the
moment
and holding them accountable at the same time,
which i thought was masterful.
(laughs)
Um,
I think that your students um
just walking around and looking at them
were producing good work,
they were like doing good math for like 40 48?
How long are your periods? I don’t know
51 minutes
51 point five and 12 seconds, minutes (laughs)
I was amaged.. amaged.. amazedd
how engaged they were today on that material
because it was not the most engaging stuff.
so why do you think they were?
I don’t know...
it was clearly not because it was fascinating
mathematics.
(laughs:)
You can be pretty sure that is not why.
(laughs) I don’t know but they were-
I don’t know if it was the video camera
or like what..
no
but they were like,
they impressed me today.
yeah..
no I think because you structured it smartly.
mhm
Because you knew-
like I think it would have looked really differently if you had them talk in a group of 4.

yeah there a lot of reading and

and there was like just not a lot to talk about

Yeah (laughs) not trying to (pull) when there is

nothing really to (pull)

yeah

ahh and uhh

this one actually Lynn shared with me when we were

talking later,

so Lynn maybe you can speak to this, um

I wrote down the kids who we were talking about, so we could understand it.

But Lynn was saying that she heard kids being willing

to say that they didn’t know

and to try things that they weren’t sure about.

So you talked about Charmaine and Mylean?

Lynn: Sharmain and Mylean

Oh over here? (points at a part of the room)

And Ostry or Astry?

How do you say their name? Ostry?

Astri

Astri and Abigail.

That was in the quiet table.

Lynn: Also those pairs of girls were..

Lynn: one was at the problem of the error recognition

Lynn: or that is not in scientific notation can you (inaudible) 10 to the fourth?

mhm

Lynn: The other one was in the problem where they had to write the pairs of (inaudible).

(laughs)

Lynn: and in both cases, the pair wasn’t sure that either of those pairs were (inaudible) I know.

mmm

Lynn: And they were willing to let me push them a little bit
Lynn: and then they were able to do it.

Lynn: They didn’t say “oh we don’t know.”

yeah

Lynn: they were willing to take the risk in trying to figure it out and risk being wrong in (inaudible) a thing.

mhm

Lynn: You know, I mean clearly there was an apprehension,

Lynn: even if they don’t know me, that they didn’t want to be wrong,

right

Lynn: but they were willing to try.

mmhmm

Lynn: and that’s umm a huge culture shift for kids.

yayyy

And that’s the thing that we’ve been talking about across classrooms.

is how do we support-

I think that is a conversation you guys can have together too

because I think all of you are thinking about that.

yeah

How do we support kids to be tentative,

to take risks,

say they don’t know,

share before they are finished.

You know that kind of stuff.

I think we had another big break through with Jonathan over here (points)

in our class when i was there?

Lynn: Sitting next to Terriany.

sitting next to Terriany.

okay yeah uuhh. (.)

Oh yeah yeah

yeah!

He wow,

I was so impressed with him.

He-

did you see the smile just

yeah

come on his face when he got it?

and you gave him the opportunity to be the speaker

and explain it

even though it would have been really easy to let Terriany do it

Right,

because she wanted to show it.

She wanted to show it
But you talked to me right in that moment
and you kind of took me aside for a second,
so I was like okay, I am going to like try to get him-
I think you said to me (.)
Have them like a team question or whatever, mhm
and have the person who is maybe of lower status
explain it.

Or the person who is not calling you over.
or
what I see I, I- that’s funny because I think you did
something awsome that I totally didn’t
support you on.
Because what I said was,
(to Lynn) she had- Terriany had called Heather over
and wanted to explain-
had a question and
you- Heather- and Terriany asked you the question.
right
So what I said to Heather was,
a little bit aside,
what if when you came over you asked her partner
what the question was
(inaudible)
because you asked her sort of-
yeah
you asked-
she finished explaining it and then you asked did you
talk to your partner or something?
right
and he doesn’t get-
she told you something he doesn’t get.
right
like he doesn’t get da da da da.
yeah
and you very smartly redirected her back to like,
“Well talk to your partner.
Make sure that you’re both understanding.”
So my input had been what if next time,
it was him who had to explain the question,
which then would force them to engage with each
other
and maybe he would surprise her
and he would have some ideas
that she thinks-
like she is saying
“You don’t have any ideas so I’m gonna ask the
teacher because I know you don’t get this.” Right?

mmm
But maybe

if it were his questions asked-

So my suggestion was more of like a next time thing

but then you found a way,

after that moment,

mmm

that I totally wouldn’t have thought of

to give it to him. To give him the floor right?

yeah

and i don’t know how you did that,

how did you do that?

i don’t know, it just kinda-

I told him that I was going to recheck,

well I do it a lot like okay, if

I want to see what your thinking is here,

yeah yeah

but if they don’t seem ready,

I’ll say “okay I am going to come back, but I’d like

Jonathan to explain.”

yeah

And I think I asked him, i was like, is that okay?

yeah yeah

Are you willing to do that? Or something

and he said “okay.”

yeah

And then when I came back,

he totally explained- a smile on his face.

It was like a huge moment for him

yeah

yeah that was really cool

And I am sure for her too.

Right?

yeah

Because she had thought he couldn’t,

which is why she had asked you

right

So you created the opportunity for him,

not only to get to shine,

yeah. right.

but to teach her,

“ohh sometimes people can offer me something when

I don’t even know to ask.”

yeah

And she is really cool too

yeah they seem like really cool kids.

yeah yeah yeah

Super sweet kids

Good class

Well yeah
those two up here too, Omari and Elias

were cracking me up.

They were-

They were on a role today.

Like really pushing to like
do the two differently.

uhuh uhuh uhuh

Lynn: (mumbles)

Anyway,

yeah it was good.

For some like pretty like dry stuff,
it was like pretty good.

i know!

Who would have thought, right?

Who woulda thunk it?

I expected crazy town in here today, with that material

(i laughs)
i did

yeah!

because it’s like pretty-
it was wordy and

Lynn: dry

Dry.

Dry is a good word
dry and sort of narrow. Right?

yeah

There is not a lot of room for like creative thinking

going on here right?

Okay what are your questions my dear?

uh

thank you

for all that,

by the way.

yeah.

God, after the week I’ve had,

that was really nice to hear. (laughs)

Like it reminds me of why I am doing this.

Um,

I guess I put like how could I have made my lesson

better?

Like there were times where I felt like,

um,

like are we getting to the outcome that I wanted them
to get to.

Like are they getting it

and like where do I go from here,

kind of thing.
Which kind of happens a lot with these tasks I feel like.. yeah
like I-
sometimes I’m like, do we need like a closure?
Do we need to like.. uh huh
i don’t know. You know? uhh. uhh.
uh
So can I restate yeah
and tell me if this is kind of what you mean.
So I hear in that a question that, maybe
I am connecting (laughs),
so tell me if I am.

it’s alright um like,
how can I know,
before they all leave the room,
yeah
what happened?
for them.
Or like yeah
What they’re thinking,
what they learned,
what their questions are.
Is it that kind of a thing?
yeah
Like how can you get grounded in what is going on
since it’s all over the place
right. okay
yeah that is definitely a chunk of it.
okay. (3s, writing)
Okay

how can I make partner work more efficient?
And that-
it kind of applies more to my like 4th period.
okay
umm
I felt like all the partnerships in 3rd period were actually pretty good today,
uh huh
yeah

the one over here,
yeah

that they weren’t working with Martin.
yeah (3s)

U:m (_,)
yeah because the partner work is a little bit new this
year.
yeah

did the first time I was doing it, so..
yeah yeah

And then how can I get groups that seem disjointed to
work together.

Or do I just like change their grouping all together?

Like,

did kind of happened in 4th period.

I wish you could have seen it.

But it was Imani and Alvaro

Lynn: and Alvaro?
They’re both two tiny ones
Lynn: Oh uh huh, so Imani is the kid from last year
who was selling candy
okay

Yeah he was like our huge candy dealer

Lynn: he made 60 bucks a day.
i can’t help it but love it when kids do that.
You go and

he was awesome. He had people working below him

He had a whole like (gesture) shin dig

Lynn: yeah. It was a whole

Lynn: and then he wanted to send his kid to get an
MBA right?

he had like a king pin of like candy

and he had people like working for him

Lynn: 60 bucks a day

yeah the reason he got busted

is cuz all of the people

that were working under him

were saying that they weren’t getting their cut

of the profit,

that he wasn’t paying out

it’s a good business lesson,
you got to treat your workers right?
Or they are going to like

He got busted.
because someone told on him or something?
yeah (laughs)
because they weren’t getting paid.

(all laugh)
And a whole drawer of candy that they like confiscated from him.

Anyways, he’s really smart. That was the thing was like-

Alvaro was not a kid that could even-

uh huh

he can’t multiply.

He said, the minute i went up to the group,

uh huh

I said “what is going on?”

Alvaro was like “i don’t know,

I hate math.

Like, pshh you know whatever

blah blah blah blah and I hate math,

I don’t like math.”

And I was like oh, I was like “did i ask you if you liked math?

I don’t remember me asking you that.”

(laughs)

he was like “no but I hate math.”

And I was like “oh well can we just attempt what is happening here,

and just look at it” and then like (.)

So we started looking at it and then i realized, like

he can’t multiply.

Like no wonder he was just sitting there

and Imani had all the work done

and was like irritated at him.

so was like “come on dude, dummy.

Why don’t you have it figured out?”

So:: in that point, I was like, they were so disjointed and I was thinking do I break up a group like that.

What I ended up doing was I sat with Alvaro and I pulled out a calculator

uh huh

And we started figuring it out

and then he started seeing the pattern of the decimals

right right right

when that barrier was removed.

right

but Imani
that’s what a teacher should do,
you removed barriers.
right,
but then Imani was like
“oh we can use calculators in here?
Blah blah blah blah.” You know,
and then he got all mad
“then i want to use a calculator” uh huh
and I was like
and then I was just like getting irritate,
I didn’t know what to do.
So then I was like,
“Alright Imani,
you can use a calculator.
I was hoping
you’d see the patterns, but I’m like
fine if you want to use a calculator.”
He’s like “no,
then fine. Take the calculator.”
(both laugh)
Anyway, I just-
i didn’t know4
like with that group, like
do you break them up cuz it’s being unproductuve?
Like what do you do? (.)
Because I mean like I can encourage them forever
but it’s like..
well what’s unproductuve about it? (3s)
like Imani was doing all the work and Alvaro wasn’t
going anywhere.
so if you broke them up,
what would happen?
In a different grouping.
Nothing
I think that Alvaro
needed some barriers removed
yeah
right?
And I think that there’s a way
to work towards group work that does that for him,
right?
But his group wasn’t there yet.
It doesn’t mean any other group would have been
either.
right?
If he sat with kids with all the same barriers that he had,
he also wouldn’t have had those barriers removed,
right?
So you intervened and removed some barriers for him so he was able to learn something, right? So that’s- that’s good teaching (small laugh)

Um Alvaro.. I mean, who’s the other one?

Imani

Imani, so it sounds like Imani could use u:uh a little bit of um compassion

yeah maybe? (laughs) And then maybe like- maybe there’s room- and I don’t know how the rest of your class is feeling, but maybe there’s room to think a little bit as a class about what does it mean to take care of each other.

mmmm And what does it mean for everybody’s learning to matter, um, which I think again is something that, like Kamilah talked today in her class explicitly about taking care of each other, but I don’t totally know that her kids got that that means that I’m suppose to care about other people’s learning

mhmhm So there’s- there’s an element that’s about being kind and being compassionate, giving people space, letting them be who they are. That kind of stuff. There’s also an element of caring about other peoples learning, so it is not just your own. Um and that when we do that, when we create a community in which we care about each others learning, it pays off for you too. Right? So like if today, someone else- you really need to attend to someone else and support them, like you are going to get supported too,
when you need to be supported, right?

yeah

Because it is part of the community.

mhm

um (...)

yeah

yeah

and I think yeah and then there is..

It’s a delicate one, too.

yeah

you know.

And it makes me wonder like,

what if -

it makes me mad again at this content

because this content does not give you opportunities,

that you might hope for,

(laugh)

in that situation

when you were-

ike I want to figure out, how is Alvaro smart?

right

and since we all know kids are smart, we know he is.

yeah

We just want to know how

and this content clearly

Is full of all his barriers,

mhm

so it wasn’t the place, right?

right

but there will be

a place

where we get to see,

you know when we switch to do different kinds of

things

that, maybe he has like

really awsome-

like maybe he could create awesome representations

that other people haven’t thought of.

maybe he is really

good at like,

understanding what is working and what isn’t

and picking that thing out and asking a question about

it. Or

I mean, who knows.

I don’t know

yeah, I struggle with him.

yeah

I think he’s really

I think his self esteem is like really really low
yeah and then the vicious cycle is
then he doesn’t show you anything
and you can’t learn how smart he is
because he is too scared to open his mouth.

yeah
He thinks he’s not smart, right?
So it’s sort of like this slow,
you’ve got to tease it out,
yeah
you’ve got to create some safety
you’ve got to like watch for it, watch for it and then
be like
“Ahh! There it is” (laughs).
(both laugh)
Like you know, pounce on it
like grab it
I feel like and maybe um (.)
something that
a strategy that i have employed,
sometimes
as a teacher,
um, that’s helped me a little bit
s to allow myself the freedom..
we care about all our kids right?
mhm
But
to allow myself the freedom to just pick a few,
that like I really need to watch
really closely.
Doesn’t mean I’m hanging out at their group all the
time because that would be weird,
right?
They need some autonomy too right?
But then I am just extra hard listening for-
I’m just like attending to a little bit more
mhm
because I feel like,
if I can just get that-
you know what I mean?
yeah
then, I just need to like get them
a foothold in
to like being
a member of this intellectual community.
And if i can like get that,
then I can relax a little bit and let them
just like like learn.
It might be that this kid
is a kid that just goes on your, sort of,
short list.

yeah

of like-
I mean you can’t have more than a couple
or 3 or something in one class,
but that you just really-
and then I try to remember, as I’m planning lessons
for those,
to bring those kids into my head when I’m planning
like
do I think that there might be an opportunity for this
kid
to do something today
and what,
and is there a way that I can ask this differently that
might make that kid,
mhm
that might provide them
a way in.
right
Or that might let them shine or
if I start to know something-
if I know how the kid is smart, can I put it in my
lesson
so that they have a chance to do it?
If I don’t yet know,
what have I not tried yet?
(both laugh)
right?
yeah (laughs)
There has to be something that I haven’t done yet
because I haven’t seen it yet,
mhm
so what is that new thing and lets just throw it in here
and lets see
what he does with it, you know?
Or sort of-
anyway,
so that might be
yeah,
some food for thought, for sure.
I got to like find that little way in
Lynn: (mumbles)
I don’t think so
but I wonder why he doesn’t
Lynn: No, i just figured that he (mumbles)
yeah
i don’t think he does.
I don’t think he has an IEP.
I can double check
but I’m pretty sure he’s not.

But I think he just (.)
struggles from low self esteem,
you know.
I mean he said it right there,
like it was so weird when I came over.
I mean he was just so blatant about it.
So angry,
I was like “Oh my god.”

Yeah,
yeah, he gave you all that information (right there)

Yeah, he like
really belted it out. 8yeah
I mean it was pretty loud and clear

yeah yeah. (.)
Yeahh and I think
yeah kids with that too
can offer you really exciting opportunities.
I mean sometimes for-
like these are the kids I remember
yeah
for years.

Yeah
And that I can like find a way in.
and sometimes I remember some of them and I’m
like,
i never figured it out.

yeah
And it feels a little sad

aww
but some of them like,
some of them I remember how extreme it was
and I’m like “look what I did
yayy” and I know it made a difference
and I know my kids life is better

(both laughs)
So he might be one of your,

yeah
you might make his life better

yeah
Um
I’m thinking and we’re going to be out of time soon.
But I’m thinking that the question you just-
the question of like,
do you need closure
or what are you walking out the door with,
what are they walking out the door with?
Feels like a really useful question to me
to take up
and obviously we can’t take it up and answer it now,
but um,
yeah I think it’s a good,
like if we,
what would it mean to look at your lesson,
whatever’s tomorrow.
I don’t know what it is.
We haven’t talked about it.

Me neither
okay
I haven’t looked at it (laughs).
okay
I mean it is like continuation,
yeah
It’s more scientific notation.
So maybe we could ask that question of your lesson
tomorrow,
like how am I going to know?
mhm
Or like what could I try
that might give me a better sense, when they walk out
tomorrow
so I feel more grounded in like what did or didn’t
happen
yeah
for kids.
Um
and I think that there is like (.)
yeah,
I mean
I saw exit tickets happening
in sort of different kinds of ways
mhm
that CAN do that
sometimes they cannot do that,
mhm
depending on how you use it and what you ask.
It depends a lot on sort of like-
what are your um (.)
again like
the more clear you are for yourself about what you
want them to learn tomorrow,
mhm
the easier it is to frame that question.
right.
How am I going to know if they learned it?
So like we’re really clear that like,
I want them-
what is tomorrow?
  Tomorrow is.
  Friday
  I know but what’s the lesson?
  Oh (both laugh, 5s)
  “Friday”
  Lets see, we are in..

(they are away from the camera and hard to hear until)
Oh, this is the um
the uh
apprentice task.
it’s just these two problems.
oh wait, not it’s not.
sorry.
I could look at what we planned
(bell rings and Heather comes back to the table)
We have eight point two point two
eight fifty nine
yeah
to eight sixty five and there is another half sheet
(inaudible).
Oh so we are looking at a uhh
power up to a power.
tomorrow.
oh
(inaudible and far from camera until)
oh... (inaudible) maybe, Alvaro shining (inaudible)
(inaudible)
so is eight fifty nine (inaudible)?
oh, ok.
to, sorry, sixty five is the whole thing?
sixty three? oh no, we’re really (inaudible)
(looks at her notebook)I have eight sixty five, but I
don’t
It does.
did we- I think we talked about splitting that into
another day
cuz that’s getting into like
yeah
division of fractions
(inaudible)
Lynn: yeah
and it’s a friday
Lynn: yeah
so I’m giving-
Lynn: (inaudible)
(inaudible)get from this to that
(inaudible) earlier,
okay so if they can do the beginning and get up to this
that’d be good
at least
Lynn: (inaudible)

I like these because (inaudible) pattern

yeah
(inaudible)

yeah
and then maybe your
maybe you could do some kind of a
(inaudible) before they
like maybe-
(inaudible)what is the question

Maybe it could be this.

Like what is the (striped) number in this table like
(inaudible)

I mean that’s really the heart of what we want them to
get out of this,
right?
Is to like see (inaudible)
Or at least know how to (inaudible)

So what’s the pattern, like how (inaudible)

Well, they could say that they’re multiplying here
uh huh, uh huh

to be able to (inaudible)
or they could say we count all the bases and that’s
giving us
uh huh
the number of (the exponent)
for the table.
What if you ask them to describe the pattern
uh huh
And explain why it makes sense.

describe the pattern and explain why ti makes sense.
yeah

I think that could where we get through to tomorrow
(I don’t know what the question’s going to be)
(inaudible) multiplied the exponents, I don't hink you
would have information about how like did they make
sense of it?
(inaudible)

Cuz honestly
I don’t even care if they don’t understand the different
(inaudible)

But I do understand that they know how to write this
down

and they know there’s four sets of this (inaudible)
But if they see that they (multiply them) one, oh.
(inaudible conversation)
right, yeah
(inaudible)
me too. (inaudible)
(inaudible) experiment. (. ) Cool
(they come back to the table)
(to lynn) really?
yay!
and then we’re on the apprentice task after that.
the apprentice task is cool.
it’s basically only two problems and they’re just
looking at all these like
like
what is wrong with this problem
like try to find the mistakes.
math hospital?
yeah, like math hospital.
Cool.
you know what I forgot about with CI that I totally
need to incorporate?
what?
the huddle!
that was such a cool thing
oh, yeah
I’ve got to do a huddle
I have not done a huddle yet this year
But that’s like a selective thing.
You do it when you need it.
So put it in your toolbox,
but it’s not like a daily thing anyway.

Yeah yeah yeah I keep forgetting-
I just thought that was such a cool thing
when we did that in CI
especially when kids
Like they’re off task or like the kid that’s feeling left-
like Alvaro
the huddle! do the huddle!
(they are packing their things to leave)

Heather Cycle 2 Planning Conversation

Heather

Mia

well let’s see
it’s Wednesday at lunch time,
so you’re about halfway through it.

(sharp sigh)

the next two days will like fly like lighting.

oh, they’re gonna get worse!

yeah,

but they’ll be fast.

Yishka, yishka

yishka

Anyway,

we did that whole triangle construction thing in the

last period.

I wish-

I wish you coulda seen it.

Oh, me too.

Oh, I didn’t bring my fork.

It was actually pretty good.

There were a lot of pieces everywhere

but it was pretty cool.

Oh cool (adjusts camera)

of course, I don’t have my stupid fork today

oh wait, fork?

yes!

Always keep a backup plan

(chuckles)

Alright,

oh god,

and I can’t even believe we’re meeting today

and I’m not even ready for advisory. (puts both hands

on her head.)

Do you need to- for us to something different?

What?

Do you need us to do something different?

I’m pretty flexible.

Do you wanna, um,

we can talk after school? If that’s better?

I know, I just forgot that-

you know what,

there’s just so much going on this week.

You always come

on like the most insane weeks.

(laughs)

I don’t know why

but it’s like-

Maybe it’s meant to be

insane week.

And you show up.

Um (.)

It’s fine,

I guess I’ll just wing it.
I don’t have my advisory curriculum plan ready, so
(sitting down)
Do you— We can talk after school?
It’s all right,
we’re super busy after school,
I’m look-
We have to do the planning,
I have to look at a car,
I’m like
Are you buying a car?
I’m trying,
if I can never frickin’
have time
get a life outside/this place/
/Oh my gosh/, I’m so jealous of that bracelet right now.
Mmm/
/It’s lovely/
World Market,
super cheap.
Oh really?
Mhm.
I really like it.
I like that it’s like a cuff-
a cuff kind of look,
but it has the softness of being soft-
er, you know what I mean, flexible.
I like it.
Thank you.
Okay, so let’s figure out then-
and maybe we can keep this a short conversation,
if you want.
Um, if that’s what you need, that’s totally okay.
Um
That would be awesome
Okay, so let’s do that.
we can do that.
It’s fine
I’m just gonna wing advisory.
it’s insane today.
(Lynn enters)
Hi darling.
LYNN: Hi, how are you?
Good.
LYNN: (inaudible)
laughs
Are you here for our meeting?
LYNN: Yeah, I’m here to just whatev-
Hang out
LYNN: I need to get away from trying to help teachers give CLAs on iPads.

Okay

Oh God, this week?

Oh, those poor teachers.

(whispers) yeah!

The kids are like insane. (3s)

(whispers) yeah!

the evils of sugar.

Wow

This is when I feel really good about being THAT parent.

Who’s like “No, you can’t have candy- EVER”

Right?

Once a year!

One piece. (laughs)

I am that parent

That’s awesome.

LYNN: I used to have to put my Halloween candy in one of those metal cans

Uh huh

LYNN: And I had one piece a day.

Uh huh

LYNN: For however long it lasted.

I just read an article?

LYNN: it could be until April and that was okay.

I won’t give my kid-

I won’t even give my kid a piece a day.

I’ll give my kid a piece a day on the weekends, maybe.

But in the middle of the week, no::pe.

But I just read an article from some dentist recommending um,

that you let your kid-

I would never do this,

I hate this idea-

but that you let your kids have as much candy as they want

Mmm, mhm

For two full days or something like that

LYNN: Mhm

Or three days,

total sugar rush

and then it’s gone.

Whatever’s left gets tossed.

LYNN: It’s like giving your teen two packs of cigarettes and saying (inaudible)

Yeah, I can’t,
I can’t deal. I can’t do that to my child, even if there’s some long-term lesson about it, I just can’t, I can’t handle it.

LYNN: Mhm

It just means we’d have like the worst weekend EVER.

Yeah (giggles) Right?

Put your earmuffs on Yeah, exactly (laughs). /Lock the room/

That’s why (inaudible) I’m just, like I’m just putting on my earmuffs today (it’s like so)

Okay, so Heather is-

No you won’t. (laughing)

No you won’t. So Heather and I just decided we’re gonna try to keep this brief.

Because it’s a crazy time. So in the- in the pre-observation kind of conversation we could sort of get into planning and thinking together about the lesson or we could totally not mhm and you could just sort of catch me up and help me think about what you are hoping to get out of the visit and what you want to be able to talk about in the debrief mmm and then we- and that can help sort of structure what I’m doing during class, what I’m attending to and how I set myself up to be able to be useful to you mmmm what period are you coming, third?

I am coming third period.

I have five different lesson plans today too, by the way. (laughs)

which all my kids are off Cuz of the lock down.
first and second, third, fourth, and sixth, and advisory
they’re all different.

Like oh my god
I’m gonna lose my mind.
So I think tomorrow for third

mhmm
We’re doing (.) the uh
angle conjecture of uh

mhmm (gets up and walks away from the table)
(5s, comes back with papers, which she hands to Mia)

ooh, pretty.
mhm

mhmm
what, my camera?
what do you need it for?
mhm
So a couple things about the camera,
just to let you know if you’re actually considering
something like this
it’s um,
it’s awesome because it’s small and it’s so easy?
um, the batter life is not very long.

so you have to be able to charge it between.
I have an extra battery attached to it right now

but it’s still not that long.
it’s like a few hours.
mhm
and um, the sound is not that good.
so it works for a conversation like this

mmmm
but it’s actually-
that’s even borderline a tiny bit too far away
like if we get too quiet
I won’t be able to hear it
so I do a backup audio-
so for whole class video it would be pretty hard.

okay
It has um, it has really nice wide angle
which makes it really good for whole class,
mhm
but it also distorts pictures a little bit.
Like in this conversation when I look at the video
If I’m looking you in the eye,
it will look like I’m looking over there (pointing
toward the front of the room)

It’s really like,
but it twi- you know

anyway.
But it’s also not that expensive and
like easy to use.
It’s nice that I can just set it there and forget about it.

I know.

Ok triangle conjecture angle bla.
(picks up paper and looks at it) Ok, we’re calculating
missing angles.
(.) cool.
What are you hoping they’re learning?

(3s) mmmm (chewing) well,
sorry (gestures to mouth and finishes chewing)

(laughs) Let me ask you as soon as you put something
in your mouth.

I’m trying to shove my lunch down my throat.
Um, you know we’re trying to get them to discover
that

the exterior angle is the same as the two (.)
uh huh
opposite interior.
But (.)
hmm

I’m also wondering how long this will take.
Like today they discovered-

What are they doing with it?
Like are they measuring? Are they-

mhmm

do they already know that this is a hundred and eighty
/and they subtract from a hundred and eighty?/

(gets up)/let me get the actual-

(off screen shuffling papers) I could find the actual
lesson for it.

Um (.)

Well, here’s the issue.
So because my periods were all off,
my fourth period I did today
the discovering that a triangle is a hundred and eighty
degrees.
okay
by construction,
it was like proof by construction.
okay
yhey tore all the corners off
and measured em all with a compass
okay
but i didn’t do that with third period
okay, okay
cuz we’re kinda like behind and trying to like get up
uh huh
to par in line with the CLA
yea yeah, okay
and we’re probably just gonna have to tell the kids
that triangles are a hundred and eighty.
okay
I don’t- I don’t know.
Well, no, not according to this (gestures to binder).
According to this, you would do the lesson that I did
with my fourth period?
mhm
today, first.
which is discovering that-
but that would come before this (gesturing to the
worksheet for today)
right.
uh huh, got it.
But I’m-
so then you would use that for this.
the thought is,
yeah
that we use that conjecture,
the triangle sum conjecture
and use that.
/would it totally screw it up to do-/ 
both?
/are these to scale? (pointing to the worksheet)
(4s) I dunno.
I just had a crazy idea if it would-
(looking at Lynn) they’re not
okay

mhm

If it would totally screw it up-
cuz I was wondering if you could have them measure these

(Lynn gets up and walks away)

(to Lynn) I just put them away in the cabinet

If they could do something with like multiple conjectures?
mhm

so if they do it by measuring
then they might get to the one eighty?
mhm

or some groups get to the one eighty
and some groups get to the
whatever the exterior sum thing.

they should- (pointing for Lynn)

okay

mhm

mhm

the angles?

and then move ‘em?

well they’re gonna add up to one eighty.
i know that cuz it’s a triangle.
what i want to know is-
is-

are these accurate

this is supposed to be what
one twenty four or whatever

mhm

does that actually measure one twenty four?
like if they did it with a protractor.
would they get something like

right.
cuz you’re thinking of just,
we could just-

I was just wondering whether
that conjecture-
that could come out of this as a conjecture
I mean this was pretty cool today too.

I did it with fourth period.

but not the period you’re observing.

so the one I’m observing is two days behind?

two lessons behind?

You did this?

I did it with fourth period.

oh cool.

but not the period you’re observing.

so the one I’m observing is two days behind?

two lessons behind?

mhm

okay.

cuz of that.

and you don’t feel like there’s time to do that one tomorrow (pointing)
you’re trying to get ‘em caught up.

well

I mean I’m kinda going insane

with five lesson plans

right yeah

that’s a good reason to get ‘em caught up

they need a not insane teacher (laughs).

but, I mean

I don’t want to take away from their learning either

I hate telling kids like,

‘oh all triangles are one eighty

just believe me.’

Oh, that’s another idea

would be to slow somebody down.

mmm

yeah

I could.

hmmm

You’re not worried about time are you?

You’re in uh-

What unit are you in?

Unit 2?

(laughs)

yeah it seems like you shouldn’t be too worried about time, right? (looks at phone)

well, the CLA is-

we’re trying to like-

the CLA is (.)
really rapidly approaching.
okay, and what are you supposed to-
you’re supposed to have these three units done?
uh huh
for eighth grade?
Oh.
(4s) was that just recently that email?
mmm, okay.
So we can change all that
yeah, (we’re kinda like)
So you have a lesson already built around that
(pointing) right?
cuz you taught it already.
So you could just import that in
if you wanted to,
if you choose to,
mhm
or you could-
(pointing to binder) this lesson you would need to
modify to some extent,
right, because they don’t have that (pointing to the
board)? (.)
(looks at Mia)
I’m sorry am I-
okay (laughs)
That (points to board) is this (points to binder)
That’s the triangle sum?
yeah
Oh, sorry sorry
I was thinking that was this
I apologize
That’s okay.
oh, so they’re one day ahead.
I see.
yeah, Sorry, no
I think you said two and I agreed to that and I wasn’t
paying attention
Oh, I apologize, no no no
I should have made that more (inaudible)
they’re one day.
So one day ahead,
Oh, ok
So then the option is
you could either teach this lesson (points to board) to third period
tomorrow instead of this (pointing to binder)

mhm

um,
which means you have the lesson already built,
you don’t need to plan it.
you could just like go from what you’ve already done

mhm

or modify if you want to.
slow down (.)
fourth period by a day
give ’em something else,
which, i don’t know how easy or useful that feels,
right
and that gets them all doing this (pointing to paper) on Friday?
(3s) or, is that right?

mhm
wait, tomorrow’s Thursday, yeah

yeah.

Friday’s a wash.
We’re doing like sponge bob /skill problems/
/yeah yeah yeah/ so this would be Monday.
when the kids come back, right?

mhm

hmmm

That might be giving yourself a little bit of a break too
which might be nice.
If you feel like you have space to do that.
Because you have that lesson already-

mhm
in- some experience with it, right?

here’s my issue.
yeah.
we did that yeah
in a short day.
uh huh
I kinda-
I mean it’s cool.
yeah
but it didn’t take like the whole period.
right, but you’re telling me your kids are crazy right now.

and they’re crazy.
and it’s tons of materials so (laughs)
/(I mean it’s cool, it’s cool)/
I’m wondering if having a short lesson would be nice. Cuz that gives you some room, if they’re not as on it or if it’s taking them longer right? It gives you some leeway and it also gives you an opportunity if you want to be like, ‘let’s take a break for the last fifteen minutes, you guys are so awesome, you finished early.’ you know. Okay. Give yourselves a break. I know we all could use one,’ or something, you know. I mean I can create a worksheet with like- this type of stuff (pointing to binder) like follow up practice, mhm to practice during the rest of class period. Uh huh. Yeah, they’re definitely like, I think they’re gonna need something else. Yeah. Okay. I mean, and I don’t want to get started on that Cuz I think it might be too much on this (pointing) In one day. Yeah right. Stuffing it in to the same day, yeah. Uh huh. Entering a whole new idea. So it seems like maybe if you do that, then you have room- you have time, to make sure that like, kids are clearly articulating what got figured out, they can practice with it so it’s really- mhm they have it for this (pointing) before you step into this. Mhm. Cuz that seems like-/ Third period are a little bit slower learning than fourth. Fourth they’re like really, They’re (snaps fingers repeatedly) flying through this.
I’m just trying to figure out what to do with fourth period though, cuz they’re, they’re high. and they need to be challenged.

yeah

and now I’m holding them back a day too?

mhm

So I don’t-

I’m a little-

mmm

And it’s right before lunch, and they’re crazy town.

Do they need anything like a make up day? or an opportunity to redo anything? Or would that be a logistical nightmare?

u:::m

(4s) Do study teams like for, for like content like they could self-select into content-based groups to work on practicing stuff in advance of CLAs or whatever assessments you’re doing, like, ‘if you feel like you need more work on bla bla bla go to that side of the room.’ you know that kind of thing?

mhm

if you think they can handle that um, they can’t really, but (laughs)

they can’t?

they’re so crazy (forehead in hand) (whispers) yeah, they’re a little crazy.

yeah

they’re, I mean they’re just they’re a rowdy bunch?

they’re high level, but they’re a rowdy bunch. they get off task /really easy/

yeah yeah yeah

um, i mean it’s fi-

maybe, i mean-

(head in hand again) u:::m (.)
I know,
in this unit we’re kinda like-
we’re sort of skipping around too
like we skipped dilations to come back to it
mhmm
because of the CLA,
we’re trying to make the window,
and all of the-
mmmm
it’s just kinda (hand gesture)
we’re at that point right now.

I know,
and I’ve used up the pumpkin,
a cat and (I’m trying to think of what I’m gonna do.)

You could have them design ‘em.

It’s like graphing practice stuff, right?
you could have them design-

I could have them work on their creative design,
(4s) I could do that. (sigh)
they’ve probably lost it all by now. (.)
Um,
hm
alright, I’ll
yeah, I’m kinda torn.
I dunno

yeah.
(looking at binder) hmmm (.)

I know.

the hundred and eighty degrees, okay.
Patty’s group knew it of course,
but they were actually quite-

I’m wiping my hands on my bag, I know.
No judgment, it’s cool. (laughs)
better than your shirt.
that’s probably what I would’ve done.

(laughs)
(laughs)

Um,
yeah,
We’re doing the angle measure stuff so it’s kinda like-
(4s) I don’t know what else to do with it right now. (.)

Hmmm

Ok so then maybe what you’re saying (gestures to
Lynn) would lead-
would lend credence to going ahead into this

/and find a warm up-/ maybe there’s a warm up way t
to surface that (pointing to the board) from kids.
to see if there are kids who know that

mhm

like maybe pull it out of them
I don’t know quite what that would look like, but
um
and just get it out there in a way that feels a little less
icky than,

‘I’m just gonna tell you this.’
you can say,
‘I’m gonna let your classmates tell you this.’ (laughs)

(laughs)
or we could do like a-
maybe we could do like a-
measuring angles lesson.

mmm

Like with compasses

oooh

(inaudible) see that.

Cuz a lot of them don’t know how to use compasses.

or protractors I mean

And I think there’s lots of, at least-
and I don’t know how this is with your kids
but I’ve heard, um (.)
this idea that kids often at this age are
don’t know what angle means

Oh!

that they don’t know-
it’s like- they think it’s the two lines.
or they think it’s the point at the end-
you know what I mean
yhey don’t know what angle actually-

mmm

that it’s an opening,

mhm
that it’s a- that idea
is less concrete.

than looking at like a side or something.

hmmm (nodding)

yeah yeah

But- and what is it you’re naming I think.

Like what is the ‘it’

Where is it?
Cause you can’t really point to where the angle is, right?

Hmmm (inaudible)

You’re right!

okay, all right (laughing)

You had an epiphany.

I like it.

Now I’m going back to your original thought but
If these are accurate (pointing to the binder)
Instead of holding back fourth period
maybe we could just like-

measure it

and then I can like
add a question on there like,
What, you know (.)

Just put another column here that’s like,

Yeah like what’s the total of the triangle.

Or,

If we don’t do that
I can make up some cool pictures

yeah no, I think it’s a really good thing.

it’s a horrible protractor
Of course I have a whole-

(using the protractor) oh, wrong angle (laughing)
I was like, something’s wrong
what am I doing?

(leaning forward and watching Mia use the protractor)
OK, so that’s supposed to be 36 degrees,
It looks like it is...

mhm

yeah, that’s okay

thirty three.

(5s) wait, did I do that math right?

(moving paper toward Heather) Is that supposed to be thirty six?

help me.

(chewing and looking)

so that’s one eighty, right?

mhm

(to Lynn) which is what we are trying to discover

(laughs)

right, so-

So I measured it and I got-

(laughs) That was so (cute).

And we just all like came full circle (circle gesture with fingers).

So I measured it and I got thirty three instead of thirty six.

so that’s not super far off,

but it definitely-

(measuring again) so this one looks like,

this one’s supposed to be thirty three

and it is

thirty six!

dammit!

whaaa!

Bastards!

I could change the numbers on there.

Yeah!

You could make it what they really are.

Except I printed them all already.

I know.

Oh.

You could have them do it at the beginning.

you could say there’s mistakes on this worksheet.

It takes like-

Instead of a warm up,

have them take two minutes to cross out and /recopy/

/correct/ mistakes.

yeah.

yeah.

they’d like that.

(they love to find) my mistakes
That’s a brilliant idea.
I love it.

Ms. Benito, what the heck were you thinking!
(laughing) these aren’t correct!
(laughing) Today we had lines straight through the paper.
Fifty six (inaudible)
They’re not that far off.
Um, yeah
Actually I love your idea of just fixing ‘em yeah?
Just take a minute and measure ‘em
and then give them at the beginning.
then they’re discovering two things.
yeah /and you (combine) two lessons with the/
And then if kids already know the one eighty
it’s not in a way their whole lesson right?
that’s only a piece of this
mhm
there’s still this other thing available to them.
so it’s not like,
we just spent a day learning something we already knew.
mhm
you know what I mean?
and then for fourth period,
they already know the triangle.
Yeah, I’m gonna give ‘em compasses
and I’m not gonna say anything.
yeah
I’m just gonna say,’ok-
cuz they have vocabulary worksheets as well.
okay
(bell rings and H throws up her hands, sighs, shakes her head and gathers her things)
(smiling) so much for our best intentions.
story of my life.
and these kids are eager, too.
what?
I think that’d be good.
Maybe I’ll drop in (inaudible)
Or maybe I’ll swing by
Can I swing by for like a three minute check in at three thirty
(nodding) yeah, yeah!
I just- I just want to hear from you what you want me thinking about so that I can make my time useful for you yeah.

and so we know what we’re debriefing around I’m sorry we didn’t get there.

no no no it’s not your fault at all I should’ve been (looks at watch) I even bought myself a watch that works. (laughs loudly)

and I didn’t use it. It’s totally my fault.

(laughs)

(Heather and Mia resume their conversation later in the day.)

(This is the second planning conversation, when Mia came by after school, because they hadn’t had time to finish during their lunch time meeting.)

right, like I’d have to go with somebody and have them technically drive it back, right?

to be legal I guess probably yeah I mean I could illegally drive it back, but my parents /would freak0 I’m way too irreverent to be the person who you ask that question to. (laughs)

What does irreverent mean? Like too by the book? No, the other way. Like I’m just too- I /just miss the, /I’m like whatever /you’d just take it./ I’m gonna do what I want. and I’m gonna be careful.

right. well that’s what I would do too, yeah but I have kind of bad car karma in the past so I wonder if it could be- I wonder if- cuz like if you, so if you don’t have insurance but you borrow my car my insurance covers you. right,
so he probably has insurance that would cover me if I
drove it.

right.

So if you, um

If you like, uh

yeah, if anything happened you could claim, right

that you're borrowing it,

right

you're borrowing his car

and the official sale is, like happens

right

after you get it home or you get your insurance or

something like that.

I wonder if you could do something like that too,

where you postdate the sale

on the pink slip.

yeah, I'm sure there's gotta be a way to /do

something/

to give yourself/ time to get insurance

yeah I gotta get it registered and all that stuff.

yeah.

there might be a grace period.

I mean you could call whoever's gonna be your

insurance company and just ask 'em.

okay /inaudible/)

/because there might be/-

I'm sure there's like-

there's like ways people generally handle these things.

i know.

cuz people buy cars.

Right?

They do.

There's gotta be a way.

Last time I bought a car

(5s) aah, I dunno. I don't know.

(laughs) Can I just tell you, I had this noise going off

and it was like (makes chime noise)

and I'm like-

you know when you hear a noise and you're going
crazy?

yeah.

I'm like, OK.

(laughing) I know there's a noise,

I know I'm not going totally insane.

I finally, I had a student come in

and I'm like can you,
like Maggie, can you find where this noise is coming from?

uh huh

It’s my frickin’ phone cuz I put an alarm on it.

(laughs)

Oh, (laughs)

to call my guy and I couldn’t remember I did that,

(inaudible) save my day and I forgot that I put an alarm to remind myself

and then you heard the alarm and were like,

‘there’s a crazy noise, it’s stressing me out.’ (laughs)

what’s that weird noise?

oh, it’s my reminder alarm.

yeah, anyway.

I can so relate, my darlin’.

OK, so.

I’m curious what happened talkign to Kamilah,
because Kamilah and I I believe are supposed to be doing the same thing.

Cuz you told her about this?

She’s a day behind, maybe-

oh she is
cuz the lesson she’s doing is the triangle sum.
tomorrow.

So she’s gonna do that tomorrow.

yeah.

She’s doing triangle sum tomorrow.

I need to talk to her,
because it’s not gonna take the whole period.

No, no, we built a lesson.
We have a whole period.

/she’s gonna do-/ /Well, maybe that’s what/ I should just do.
For third period.

OK, do you want me to tell you what we talked about?

Yeah, do you mind?

Not at all.

Cuz I mean we’re gonna meet anyway and I’m curious what you guys /(did)/

/Yeah yeah/ no not at all.
So we were talking about the idea that came up-
She came at it a different way, um
she was interested in a0
she was talking about a particular kid
and what he was not understanding.
Um, in a previous lesson.
Lynn called back this idea that I think we talked about, about how kids often don’t know what an angle is.

Right! And that maybe this kid-it wasn’t that he didn’t understand congruence, uh huh

He did. He just didn’t know what, is congruent. (chuckles) Like, are the angles congruent?

In order to say yes, even if you understand congruence means the same

mhm Cuz Kamilah was like, what is he not getting?

hmmm And we were like setting him up to get- and he wasn’t getting it and I was confused. So Lynn was saying maybe he didn’t know what the angle was, /what an angle is/

/Like angle measure?/

Well like, no like um Cuz we did a whole activity with patty paper where-

They don’t know what they’re looking at, though. O:;h.

I think, so what I- This came to me from some other teachers and it like blew my brain open I had no idea this could even happen but I’ve seen it since then,

Like, yeah (.) (drawing?) Where’s the angle?

(5s) So an angle is a curve?

Is an arc?

Mmmm Right?

I see it’s like the space. It’s like not there!

Oh, the space There’s nothing to point at.

yeah. But it’s not area. Right.

Like the other measure of space that kids have is area. Right.

So like, doing some sense making around, What the fuck is an angle?

mhm
I think- cuz what researchers have found is kids get to like High school Geometry and they don’t know what an angle is.

Right, okay. Because we forget that that’s a hard idea cuz we’re so used to it.

mhm Right?

So what she is gonna do- She is gonna do a Do Now that was asking kids to explain what an angle is.

mmmm and draw it.

mkay and then lead a discussion, where we get to assign a lot of competence for that because we’re actually calling that out as hard

uh huh ok yeah ? it is yeah, it’s hard!

and like even maybe she was gonna do some stuff like maybe intentionally misunderstanding a little bit

mhm because like- so that- okay so it’s an arc?

no no it’s not the arc it’s this space.

ok so then (.) (drawing?) this one is smaller than this one?

Right. Cuz it has less space.

No, it’s not area.

So what the fuck is it?

And it’s sort of hard-

Sorry my language.

No, oh my god. Learn to clean out my mouth.

Please swear.

ok The minute that door closes I have a mouth

(inaudible) OK, good (laughing)

The way I like /(inaudible) I’m really comfortable doing that

but then I realize sometimes that like
not all people in my professional life are necessarily
gonna /really (appreciate) (laughs)

/Oh, god./ I’m the worst
okay
like potty mouth ever.
My mom’s like, “you won’t (inaudible) ever!”
And I’m like, if you had the day that I do every day,
you’d be swearing all day after school too.

(laughs)
So then getting-
So for me, in order to make sense of what an angle is I
have to move
or see something moving.

okay
like because when it’s static, there’s nothing to point
at.
mhm
so we were talking ab-
I don’t quite know how she’s gonna take it up, but like
you could make /sense of it like-/ (go through the line)
It’s a measure of
So when I do this
and when I do this
what’s bigger?
mhm
My arms are not bigger.
mhm
My body did not change,
but something is bigger.
and get them to make sense of what is that thing that
is getting bigger?
that’s the angle,
it’s like an openness of rotation or-
when you open a door,
kids can often
Oh, that’s a good idea
have a visceral experience with doors or-
if you even take, you know
two, anythings.
and like, something’s getting bigger.
when I do this.
mhm
what is the thing that’s getting bigger right?
mhm
and it’s- it’s
it’s easy to conflate with area because the area is
getting bigger if you imagine a triangle.
right.
here.
it is getting bigger.
but that’s not what we’re talking about?
mhm
getting that distinction out there?
So she’s gonna do a warm up that’s around that.

I like that.

okay.
She’s actually cutting out step one and step two from
the triangle sum thing,
which is the measuring with protractors.
okay.
Because the way it’s set up is you measure with
protractors,
you add up the numbers (.)
then you do the line it up- you know like tear it off

oh, I did something different.
I should give it to her.
I found something better in this workbook.
Oh, show me.

that I used instead.
And I for- see this is why I need to meet with her cuz
(laughing)-
we always meet over this stuff and I- (.)
(inaudible) right now.

oh really?
or something-
I might be using the wrong acronym.
She’s in some meeting about a kid.

(sound of turning pages)
shit, where did I put that?
(5s, flipping pages) ooooh, I’m going crazy.
OK, it’s in my, anyway-
I have a- I made a copy of it.
But I-
the one that,
in the lesson plan
yeah
that’s in the unit thing?

I didn’t like as much as this one that I found.
I liked this one better.
(3s) So they like,
I just literally handed them the stuff
/and they figured it out/

/that’s basically what whe was gonna do/ by cutting
out steps one and step two
this stuff up here.
mhmm

(4s) OK yeah.
So she, she’s basically doing that
and it might support her to have it in this version.

yeah, cuz I just like handed them that

Yeah

and with tools,

and I was like, go at it

yeah

like I didn’t really tell them anything.

So then what she was gonna do

ok

cuz we figured out that um

really the goal of that activity is an answer.

(laughs) right.

so we were thinking about, like

well, what do we want kids learning?

like do we want them to have an answer
to a question?

uh huh

Or is there something else?
And we were trying to make sense of that a little bit,
so we came to,
after they get the answer,

uh huh

um,
she was gonna pose a question, oh-

so the question I think we-

we had some trouble figuring out what exactly the

question was.

But I think we came to something like,

the question she’s gonna pose to groups,

for group conversation,

is

So this works by-

‘this’ meaning all the four triangles that you tried,

that they made themselves,

all when they tore off the angles they line up

they get a straight angle and they get a hundred and eighty degrees

um,

will this work for every triangle?

/why or why not?/

/That’s the/ only thing I think that would have made

my lesson a little bit longer,

yeah

Is I gave them one triangle

oh
Where I probably should have given them like, three triangles
and it probably would have made it a little lengthier and a little bit heartier.

uh huh.
They’re gonna draw four different triangles.

On graph paper?
On I think plain white paper.
To do that with.
We don’t want graph paper.
They’re gonna use straight edges.

ok
So they end up with different triangles.
So:::-
Cuz she was thinking about do I want to give them triangles
or they make ‘em?
and we were talking about how-
kids can sort of think when you give them triangles
that you gave them special ones.

uh huh
that have this special property.

uh huh

even if you tell ‘em you didn’t you know.
whereas if they draw it themselves,

right
ey they know like
they didn’t design it in some special way,
it’s just a triangle with three straight lines that meet.

but if they designed it themselves,
is it gonna for sure get a hundred and eighty degrees,
depending on how their drawing skills are?
that’s what I’m worried about.

If they use a straight edge,
if the-

uh huh

if their are three sides that are straight that meet at vertices, yes.

okay
it will always be a hundred eighty degrees.

cuz I was gonna give ‘em graph paper for that-
my first initial thing was I was gonna give them graph paper

uh huh

and have them draw like

uh huh

three different sized triangles

uh huh uh huh
on there.

Like they pick.

uh huh

and then I gave them this cut out thing

uh huh

that I already had

uh huh

so it was like

yeah yeah

But I think that would be better,

if it totally works.

I just got nervous that they were gonna be like-

If they’re straight.

shitty triangles.

that’s what the triangle sum theorem tells us

is that it always works,

right.

if it’s really a triangle.

and all it needs to be to be a triangle

is that the sides are straight,

and that they meet,

okay

right?

then I think if we do it that way,

yeah

it should take longer,

okay, uh huh

and, cuz we’d have more triangles.

uh huh

and they got measured all out,

uh huh

and it’s gonna be a little bit more

uh huh

so maybe I will do that then.

ok

and I can just do this,

with the fourth period.

okay

it’s fine.

it’s already printed,

ok

they fuckin- (sigh)

ok

yeah, cuz I kinda don’t wanna like

change this whole lesson

yeah yeah

anyway

no

I’m like so exhausted.
Yeah yeah yeah totally.
I’m all-
I’m down for that.
okay.
So then um,
so then she was gonna ask them,
would this work for all triangles and give them
spaggetti.
(5s)(laughs) wow
to play with so they can play with different triangles,
and would it work for all triangles,
why or why not.
to get them /making sense of why does that work/
/it’s gonna be a lot(.)/ of stuff,
on the tables.
I’m just saying,
yeah
like it’s a ton of materials already
yeah
and they’re- she want to bring out spaggetti?
Only for that end conversation.
only when they’re done,
so when they’ve figured out that there0
that all their four are a hundred and eighty?
next step is this next question.
and that’s what that manipulative is for.
okay.
I’m just sayin’.
after doing it today?
she’s a brave gal.
Holy pieces
uh huh
of lots
uh huh
of everything.
she also has- at least where I’ll be in with her is a very
small class.
O:::h, she’s talking about the first period
first period 8th
okay
yeah
so, it feels a little less hard in that way.
Usually there’s three groups I think.
Or four.
I mean, I’d be down with the whole spag-
wait, what exactly are they doing with the spaghetti,
they’re just gonna make new triangles?
they get to play with,
yeah, they get to play with so,
what we wanted them making sense of, is why would it make sense that in a triangle when you change the angles,

uh huh

the sum of the angles stays the same.

uh huh

why?

so- and every time we were thinking about that, we kept like grabbing pencils and like,

(inaudible) (laughing)

right.

so, you know like, you can look at

which you can actually do.

you could look at like,

oh, when I made this angle by my left hand,

uh huh

bigger,

as I make it bigger, these other two angles are getting smaller, right?

ok, so you want them to kinda think deeper about that question.

yeah

ooh, I like that.

okay.

to try to give them something to reason around, so we’re not just walking out with an answer to a question that we could have handed them.

right

right?

OH MY GOD!

Hi Juan Ramirez!

Hi Juan Rameriz.

How are you?

Student: good

It’s good to see you,

hang on I’ve gotta say hi.

yeah!

favorite student!

yay!

it’s good to see you.

I see Karla all the time.

Are you guys friends again or what?

STUDENT: That’s my cousin.

Karla?

STUDENT: Carlo or who?

Karla?

STUDENT: oh, I just (walk around) sometimes.

STUDENT: I thought you mean Carlo.

No KarlA.
STUDENT: oh no, I haven’t talked to her in a while. Are you guys not speaking still?
STUDENT: I don’t know, I just stopped talking to her.
Okay.
STUDENT: I’m actually asking for some help.
STUDENT: I got a math test back, and I couldn’t finish it, maybe you can help me.
STUDENT: It’s hard, too.
STUDENT: I got a D in that class cuz of this one test
o::h,

Aw

oh, it’s on angles.

Interesting.

Interesting we were just talking about angles.

Okay, hang on one second, Juan. I just need to finish this conversation and then I can,

So the last question, the one thing I wanted to know before I come in, tomorrow

okay

Is what do you want us, you and I, to be able to talk about?

okay

In the debrief?

And therefore, like what am I attending to in class?

what do you want my help thinking about, learning about,

making sense of, are there CI structures that you’re trying or that you think you’re gonna try that you want my help thinking about?

Is there status or participation stuff you want my eyes on?

We brought up participation quiz in the last meeting, In talking about that yeah

and it’s something that I’ve been really lacking, this time

I’m doing one with Aya tomorrow.

Are you?

Yeah, we’re gonna do one together to support her.(

she had-
a conversation she wants kids to have so we thought about, like well what do we need that conversation to look and sound like?

mhm

okay, so then let’s articulate that.

okay

she’s gonna launch the activity with that set of-

We’re doing a participation quiz looking for those things,

and then she and I are gonna-

cuz she has so many groups,

so we get to practice together.

We’re gonna do it on posters around the room.

okay.

You’re going to do a participation quiz on posters?

(.) She has the wall space, and

the nature of the activity,

like there’s not a bunch of complicating things going on.

O::H, okay

and so-

I was gonna say,

I mean I don’t know if this would be the right activity

yeah

to do (.)

The only place I could see a participation quiz in this that we just talked through,

is in the ending discussion?

If there’s time for it.

mhm

there could be time for like a little mini one

where we could reinforce, like,

what good,

mhm

group work looks like in discussions,

like we could-

we could even just do a quick like,

you know, ‘I’m asking-

‘I really want to hear people’

Saying, giving reasons.

So I’m gonna be listening for because and for people asking why.

mhm

Um, and sorta point that out,

publicly,

as sort of like a mini-

mhm
participation quiz?
I feel like that could work, but I don’t know if that
even makes sense.

Um,
We could do one of those on the board,
okay
just for that part.
okay
That’s just like a ten or fifteen minute conversation,
we could just be listening for stuff and
like when we hear it go write it on the board.
public-
yeah
participation quiz at the end.
I mean, we could.
I’m not suggesting that we should.
so,
I’m pretty open,
It’s a thing we could play with,
I mean honestly,
I’m so:::
exhausted this week,
it’s hard for me to even think right now.
And there’s just a lot going on, so I- (
I just got (stack of my)-
IEP students?
uh huh
It’s like a book.
yeah.
I mean this is like my life this year.
yeah.
I just-
I don’t even know what to look for right now.
Cuz I’m so overwhelmed and it’s kind of-
So here’s an idea then,
I can volunteer, and tell me if this sounds like it would
be useful or just annoying,
(laughs)
and either answer is totally okay with me,
okay.
Uh, we could-
I could do that part at the end of class,
if you want,
I mean if you introduce me in such a way that kids
recognize that I’m-
have reason to be there (laughs)
mhm
and that you want me to be there,
then they’ll probably let me
Um, so I could do a quick launch of that ending conversation,

and just tell them,
what we’re looking and listening for in order for that conversation to be useful,

so I could do that little launch.

you and I together could,
just sort of write participation quiz notes
and then we could,
Like I could even debrief it if we have time,
or we could talk together after

about how you might take it up the next day,

to process it with them or whatever.
just as a sort of way-
if you’re wanting to learn about- think about participation quizzes,

It could just get us into that space together,

so we have something to learn about together.

that’d be cool.

Does that feel useful?

yeah.

okay.
I’ll do that.
that’ll be fun.

I’m gonna be in a (inaudible)
I could use a little uh,

You’re gonna be what did you say?

An observer (laughs)

Cool,

and not by way of modeling,

like I don’t want us to think that I’m modeling how it’s done,

but just like let’s get one into our space,

yeah

and I’m happy to try it

yeah

It might totally flop, right?

uh huh

but let’s just get one into our shared,

space so we can learn about it together.

okay

and then that sort of cracks it open,

so that then you have somewhere to build from,

next time you try one.

right.

you know what I mean?
okay

you can- I mean,

yeah, I don’t want to put it out there like

I’m gonna show you how it’s done, but-

okay

I can show you one way that I sometimes do it,

(laughing) and we can see what happens

and what effect it had on the kids,

or didn’t.

you can be watching your kids and see how they’re (.)

how does the discussion that you see them having,

with that differ from what you-

your sense of what’s normal?

and that can give-

and only you can know that.

I can’t possibly know that, right?

We could even put some posters on a couple of the

walls,

and like write things as we walk around.

If there’s enough free board space,

I think it might just be simplest for everyone,

especially since it’s a short one,

okay

I don’t want you to have to go through like

all the logistical,

like get posters,

deal with all of that

okay

for a short thing,

I think we could just do a quick-

like if I had that much board space I could just write

the team numbers

If I know the numbers,

the numbers are on the table,

Oh, cool

I can rewrite them.

They continually,

ok, cool.

get rubbed off, but I-

Cool, so then I can just write the numbers

and then take notes by the numbers.

okay.

So I’ll just launch it a little to tell the kids what I’m

writing up there and why.

so they know what the heck is going on.

(chuckles) okay.

Um,

and then (.)
Yeah, and then we’ll at least have something cool to talk about.
I think that’ll be fun.
That’ll be fun.
Okay.
Sounds awesome!
Awesome, awesome.
I’m super excited.
Me too, good.
Round two of that lesson so we’ll do even better.
Hi Juan,
Okay, I can go over this really quick with you, but I actually have to meet with my planning group, so,
Um, you wanna take a look at this?
STUDENT: yeah, I need like help
STUDENT: (inaudible) my test
Okay
(sounds of mia packing up and recording ends)

Heather Cycle 2 Debrief Conversation

Heather                  Mia
1  Hi
2  Hi
3  (eating) How are you?
4  I am (.)
5  Good,
6  thankful to be here, I’m good (setting up)
7  I’m trying to enjoy Halloween and not get (stressed out by it)
8  I know, right?
9  My kid is the cutest (inaudible)
10  Aw, is she all dressed up?
11  Yes.
12  She is Medusa.
13  Cute.
14  Yeah, she’s Medusa and um, you know, I’m just not, like okay, so I won’t do the store bought costume thing.
15  And I’m also not the like-super crafty, have lots of time, make something right
16  So I’m always sort of needing her to sort of go with it, and like let it be, not, perfect, you know?
17  uh huh
And she’s super good about it, so she’s in a toga.
We learned last night from a YouTube video how to tie a toga.
We did that together.

See? Educational.
YouTube, so she’s in a toga and her hair is uh (.)
Have you met her yet?

mm mm
No.
so she, she’s biracial and she has really beautiful curly big hair,

mmm
which we’ve been twisting lately?

So this is her trying to look mad and mean as Medusa.

Cool!
So we twisted green ribbons into her hair.
and then we like twisted the green ribbons around the ends to make a little head
and put this shiny read stuff for a tongue.

mmm
So she has little snakes on her head.
Total homemade- that’s her toga

She looks very cute.
(laughing) it’s homemade, like they’re snakes if you blur your eyes (laughing)
and kind of go with it.

All good.
I’ve done so many makeshift costumes when I was a kid.
yeah, which for me is like the fun,

right
but then just because I’m always so busy at this time of year that it turns into fun but-

right
like fun that we can throw together in one evening without much preparation
(laughing) you know.

right.
So, but she’s going with it and I’m thankful for that.

When in doubt you can always go as a ghost with a sheet.
yeah, we’ve done it.
She was a witch for like three years in a row because we-
I found this amazing witch hat that’s like the awesomest thing ever.
But this year she was like, ‘no I really just don’t want to be a witch again.’
(laughing) and I was like, okay.
We’ll work on something else.

moving on.
(laughing and flipping through notebook) yeah.
And also, I just get so, you know-the hypersexualization of girls on Halloween,
just like curdles my blood.
mhm
and it’s so seductive to little girls,
so,
it’s always this sort of like play with-
so I feel thankful every year she’s willing to be something that’s actually scary or bad
right?
and not sexy, I’m thankful.
mhm
(laughing)
That’s why I’m a banana.
Yes, I love it!
You’re not like a little kitty cat.
(Lynn comes in.)
yeah
Which I’ve seen a bunch of already.
yeah.
Hey Lynn.

Well I have the other part and I just put this piece on
cuz I didn’t want to walk to school as a banana.
you didn’t?
I want the hat on.
Can we have a conversation with your banana hat on please.
Yep. (puts it on)
you wanna experience the full thing.
Oh my god, you’re the cutest person ever.
Where did you get it?
(inaudible) the full monty here.
Where did you get it?
Um, I was with my friend at the like-Halloween store at [local intersection]
mhm
It’s like in the old,
um, uh,
Blockbuster building.
yeah they did it as a Halloween store.
That’s so awesome.
I actually paid for it.
This is like the first costume I’ve ever paid as like-
probably ever.

See, for store bought costumes I’m down with that.
What I’m not down with is the store bought costume
that’s like, Elsa.

mhm
you know or like the commercialized Disney
characters

and the- yeah
that, I won’t do.

/A giant banana,/ I’m down with that.

Well I mean I felt like it was an investment,

yeah
cuz I can re-wear it.

Yeah totally.
you can be a banana for years.

every three years.

No every year, the kids can handle it.

If I get three costumes and I’m dressed once a year in
a costume, I can just rotate ‘em.

Awww

oh my god

yeah

Do you really want to do this with the banana costume

on?

(laughing)(We can do whatever you want.)

(takes banana hat off)

(clapping) oh yay!

Cool.

(takes the paper, laughing) CI every day.

That’s the-

CI every day.

That’s the- it goes with this. (Holding up white paper.)

mmm

That’s like the-

(reading) mmm
What I was thinking for you guys and I talked to Kamilah and Aya about it, is you can have a pile of these like tucked in your binder.

mhm And one copy of that

mhm in your binder or whatever.

to grab these and use 'em as you’re planning.

That’s great.

(to Lynn) I love /inaudible) too/

/Thank you Lynn./

I love it, you laminated it.

You really are.

(laughs) right?

(laughing) leave it for about two days.

is there a lamination machine?

/It’s like the slowest thing ever/

/right and hope you don’t burn down the building/

Oh that thing, and it will stink up the area

okay

if it-

/Well you (clearly) had/ lamination success.

congratulations.

she’s got it down.

awesome

I’ve only used it twice.

and I think it broke when I (laughing)

mhmm

And she’ll hunt you down.

I like that it’s not white too, so it’ll be easy to-

‘where’s that yellow thing?’ you know grab it.

mhmm

cool
Love it.

/\mkay./ So,
I’m gonna get us on task, because we’re gonna have a short-
lunch is short, I learned when I was talking to
Kamilah yesterday.

Well yeah, it is very short.

mmm, there’s gonna be kids all over the place.

Um, so what time are we done,
I can’t remember lunch is (inaudible)
1:15
Oh my gosh, okay.
I know.
(writing) okay, so.

which is why I throw my food down quick.
Here’s what I would like to do.
mhm

(laughing) do I really?
How did that get there?

(laughing) it’s the foam, sorry.

It’s okay.
Um,
So I wanna ask you first, if you have,
or what your ideas are at this point about what you
hope to get out of this conversation.
What do you want to walk away with?
It’s a little bit of a hard question,
so if you don’t have a clear answer,
mmm
what do I want to walk away with?
Uh, maybe like how I could have done that lesson
better.
How about that?
(laughs) since it was like,
But you’re not gonna do that lesson again,
what
right? but you’re not gonna do that lesson again.
I will next year.
Oh, okay. (nodding)
okay

yeah
okay.
Or there’s always reteaching.
Cuz let me tell ya’,
I did the lesson after that with the other class,
yesterday,
Nightmare.
oh
like just worst day ever.
oh, oh
Like it- they were totally lost,
yeah
They didn’t know
like everything you were talking about with like
angles and
uh huh
their, you know what you and Kamilah had talked
about
mhm
their,
mhm
misinterpretations of what an angle is,
what it even looks like,
where it’s found,
mhm
like,
and then if it’s not inside a shape,
they’re just like, ‘what?’
mhm mhm
Like they’re totally like-
mhm mhm
Like they could understand inside the triangle
when we did the one eighty
mhm
But the minute we had the thing /with the exterior/
/that’s not in a polygon/ mhm mhm
oh my god.
they were like ‘what’?
yeah
they couldn’t even see that as an angle.
yeah.
So.
mkay, so
so then, on that note,
let’s think about what,
let’s think about what we think might’ve been,
(.) barriers.
So I don’t think the barriers in that lesson,
were pedagogical, like
I don’t think it was because you didn’t teach right
(nodding)
or do anything at the front right. I think that maybe there were some, like stuff like that, mmm like kids just knew less mhmm than we thought that would have let that lesson work the way we planned mhmm you know what I mean? (nods) so like um, I think there was that, and I think, although- yeah maybe there was that. But what I saw evidence of was, they didn’t know how to use protractors. and they didn’t know how to use protractors. and I wasn’t totally sure why they needed to use protractors. right. I mean the directions said they needed to, so they needed to, but I wasn’t sure the relationship between, that task that they were trying to grapple with how to do, and what we were trying to get them to learn. right right? Um, So I think (.) yeah, so I think there’s no- so I don’t think there’s like, it was a bad lesson. I think we just had some missteps with what they were walking in ready to be doing. right. you know what I mean? My goals weren’t great on that lesson. As well as, Can you say more about what you mean by that, your goals weren’t great. Well like it just wasn’t execut- I think it wasn’t executed great, because I don’t think I- had, exactly what you said, like I didn’t have the right goal in mind of what I wanted them to accomplish. So like they did some good stuff. I don’t know if it like
mhm
got to a,
specific learning point.
and that is where I think it fell apart.

Awesome.
So that,
is super super useful.
I think that little nugget right there,
super useful.
So I think that,
and I can so relate to it,
I think-

It’s like, ‘oh they’re doing great stuff,’ but
right they’re doing stuff and there’s also I get a sense
and I don’t know if you have this but they walk out
the door and I’m like,
‘what just happened?’

(laughs) right.
Like I don’t know what just happened.
I didn’t have closure on it.
yeah
I didn’t feel like there was like a good set goal
yeah
for me, like in my mind
yeah
Like when I taught it,
I didn’t feel like there was a good set goal.
yeah.
and I think when you do have that,
tell me if this is your experience,
but my sense is when you do have that,

mhm
you feel much calmer in the lesson right?
right!
and you know,
how to watch them in the lesson.
Cuz you know what you’re listening for,

mhm
and looking for,
and even if there are imperfections in the lesson set up,
or you’re like, ‘ooh, I wish I asked that differently’ or whatever,
it’s all based around a sense of like,
there’s this baseline that we can look at everything around

(nodding)
and without that baseline,
I just feel sort of scattered and like aahhh
mhm
I don’t even know how to think about what’s happening.
other than like are they on task or not,
which is not really, right?
Um, which your kids are good at doing.
right? they’re good at that part.
That class actually was amazing
yeah
(laughing) considering how poorly executed I had.
I mean I didn’t tell them anything.

mhm
I literally just handed them,
all that stuff.
mhm
and I just kinda like-

yeah.
Like maybe a video
or some sort of like,

yeah like an applet?

I feel like even just the warm up we did with Kamilah.
I feel like that was powerful.
mhm
we had like a ten minute conversation,
mhm, /I’m gonna do that/
/where we just/ ask ‘em
and it was not heavily planned,
it wasn’t fancy,
mhm
it was just we asked,
what is an angle?
I had her take out.
the way she had it written on her board was ‘what is the definition of an angle.’
and I had her take out the word definition because,
that’s too scary.
right.
so just what is an angle.
how can we articulate
yeah
even for grown ups
how do you find the words?
what IS it?
and then we had them do like um,
they did some writing about- like drew a picture and wrote,
and then shared with a partner,
and then we had them share whole group,
and in her class she’s having a hard time getting them to speak,
mhm their ideas out loud
uh huh and so we did a structure where they were sharing their partner’s idea,
not their own mm So that they get to show off
hmmm ’well, she said’
and then when she did her sticks,
she was asking, you know she would pull Heather, but Heather’s job was to share Lynn’s idea. right. So then we just got a bunch of stuff up on the board, that was all useful and partial.
hmh someone had the word ‘around’, which is so useful

mmm right?
a lot of people said ‘it has degrees’
mhm uh some people said stuff about a point or a vertex

mhm some people said stuff about two lines that meet, right? and none of those are full.
right But they all- we can piece it together from there, right?
(laughs) yeah And so then we had this conversation of like,
they were actually more ready than I thought they would be, and we were reflecting that maybe it was because you-
pun time!
that because you guys did um, uh transformation?
mhm before this?
mhm
they were actually more ready than I thought,

mmm
to get the sense that it’s about this opening (gestures
with two hands opening away from each other)

(to Lynn) uh huh

and movement
and they for example they,
they were not thrown off by the question of this,
(draws two anles, one with sort rays, but a larger
measure, one with long rays, but a smaller measure)
which angle is bigger.

mmm, okay
They were totally down with that being bigger,

okay
by the time we go there,
which surprised me a little bit.

mhm

um, but we got to clarify and we had them do this
(opening hands to form angle)

yeah
you know like pin you-
here are the lines, make a small one, make a big one
we wished later, which we didn’t
we wished we had gone all the way to one eighty

uh huh
because then that wouldn’t helped,
(picks up pen and draws) I feel like sometimes it’s
hard for kids to see a straight line as an angle.

mhm
like once they get this (pointing to line)
right.
then what- how- how is that an angle?

mhm
right?
Anyway.
So I think even just giving them a chance to make
some sense of it,
and like piling in some ideas,
and pointing out that it’s a hard notion.

yeah
because you can’t really point at it

yeah
and to give them permission to struggle with it,
I feel like is powerful too.

yeah.
So I don’t think-
and I do think there is cool stuff (pointing to Lynn and her computer) you can do to support it, but I don’t know that you necessarily have to start there.

Well I’m already- wanna start with a Do Now next week, okay

of just ‘what is an angle?’

Like that’s my first step.

Is just like, let’s do that conversation cuz I haven’t had it.

And I think that will really help, some of the miscommunications.

mhm

and I think they need to see, like you said, different types of angles.

What they look like.

Where they could be located.

mhm

you know, because like the minute my 4th period saw-

(picks up pen and Mia pushes her notebook to Heather) a triangle.

(draws a triangle) They were pretty good at seeing like, ‘okay these all have like angles inside.’

uh huh

but if it was out here (drawing an angle exterior to the triangle), like was not an angle to them

mhm

that was-

mhm

yeah.

/totally, weird./

/For two reasons, I think./

I think there might be two reasons that’s not an angle for them.

One because it’s obtuse.

mhm

and that’s not the archetypical angle in our brain.

(nodding) right.

and the other because it’s not inside of a polygon.

Right so maybe even on Monday,

mhm

not only could we do like the what’s the angle talk,

mhm

and have that as a Do Now,
I think it would be really good to have a homework,
that’s just like, ’point out all the different angles,
in these pictures.’
Like have some /different pictures/
/how many can you find/ and look, here. (drawing two intersecting lines)
How many angles are there?
Right! exactly!
Can you (make) some more.
Yeah!
you know, like (nodding)
Cuz they might see, okay there’s four here, but there’s way more than that too,
like what about like this angle?
what about this one, you know there’s this one, there’s that one yeah that could be some really good do now conversation as well
(laughs) You’re way ahead of me, lady.
See she’s got- so
(laughs) I know, she said she forgot her spaghetti.
/we didn’t have time for it anyway./
/and I don’t own spaghettis/ so was like oh, I can go buy spaghetti this weekend, so we could do that next week.
(laughs) cooked spaghetti.
Oh, yeah.
/Um/
/Um/ yeah that could definitely be, next week.
sense making opportunities, around angles,
mhm if that would support you.
Yeah because this next lesson, the one that I did with fourth period, not third
oh my god it was so bad,
It was like (.)
I handed them the sheets
and expected groupwork,
and they’re normally a pretty,
I mean they’re not the fastest starting group,
but they will get work done.
and only like the Judy’s kind of group,
and then it became all this behavioral stuff,
yeah

So I got fed up,
and just sat down on the chair.
And Trevor was like,
Ms Benito, I don’t want to be offensive,
but do you want me to teach the class.
(laughs)
and he like,
taught them,
what he learned with it,
yeah, up on the board.
It was kind of amazing actually.

That’s so awesome.
They were so into it,
they were all quiet.

yeah.
He was a great teacher.
What did /he teach them?/
/I was like hm, we have/ a future teacher.
He was teaching them what, why,
what this degree was
of this exterior angle.
and he was showing how he found it.
And I was like, wow.
okay,
that’s awesome.
(laughing) awesome.
This is like a beautiful example of um,
the thing I always try to show my kid when we have opportunities,
where the thing you didn’t think you wanted to have happen,

yeah

or a misstep or a mistake

like leads you,

yeah

to awesome stuff that wouldn’t have happened right.

(laughing)

yeah

But even with that-

with him doing that,

I mean they were still very (lost)

yeah

I can tell there’s just,

(laughing) Trevor gets it, so that means we’re good.

Trevor and Judy have it down.

But I feel like,

Yeah we need to do some serious-

and I think that’s where like,

I’ve fallen short on my teaching,

is like they’re just really,

I mean even in the way our, our structure of the

lessons were,

there wasn’t like a real specific,

section I felt,

that really like taught what an angle is,

yeah

even in our curriculum.

I think this is a, this is a like-

endemic problem,

yeah

to Geometry curriculum in middle and high schools

yeah

because um it’s already assumed kids already know.

mhm

Curriculum writers just always assume that and

they’re always wrong.

(laughing) So it just like never gets

yeah

dealt with, or it gets like,

in elementary school it comes up,

it’s like (drawing) that’s an angle.

mhm

yeah which part of it is the angle?

right

you know there’s like

and it’s always acute
a lot of people just don’t recognize how much,
how much sort of complexity is there to deal with.
they think it’s a simple thing and they just say that,
you know?
mhm
There’s also a lot of notation that goes with this as
well.
yeah
and that was screwing them up too,
like,
yeah
you could say Angle A,
or you could say Angle A, C, B, or whate-
you know, if you’re saying-
and they uh,
even when I was here, (writing) that
kids didn’t know what that meant.
right.
right.
So I think we /need to do-/ (laughs)
they think- Oh,
I saw /kids who knew what/
/or M L A (laughing)/
who just didn’t know what the m was
but they knew that was angle A, but they didn’t know
what the m meant.
mhm,
the measure, right.

They weren’t sure what they were supposed to do
with it.
Okay, so that’s cool.
So you’re gonna do some sense making around
angles,
and /I think/

Maybe that’s what I’ll do all day Monday.
Cuz I think /they’re both gonna need it./
/It feels really worth it./
mhm
I think.

I haven’t even tried that other lesson with 3rd period.

I think it would be good to just get this out of the way.
and see if they do any better.

Or maybe you could do a combined,
lesson on,
like this kind of sense making and also how to use the
tool teh protractor.
mhm

Cuz I was helping some kids in your class

mhm

figure out how to use it,

(laughs)

and I had one girl said um,

I haven’t even seen this since 3rd grade.

mmm! mhm

And so like it’s not that they’re-

and kids who I helped use it like,

it didn’t feel like it was a conceptual problem,

right

It’s just they didn’t know, right?

right.

Um,

yeah

mhm

yeah.

yeah.

yeah

so that might be-

and I feel like you could do that in like,

a small amount of time

mhm

you don’t need a little bit of dedicated time.

It’ll be like angle day is Monday.

yeah.

Monday is angle day.

I know, they were like ripping off these tiny pieces of

paper and I was like

oh my god what am I asking them to do.

They could practice measuring angles with a

protractor,

and they could also practice drawing angles with a

protractor.

where you start with one ray and a vertex.

(.) I don’t.

Is it the same design of a protractor /as the ones the

kids use?/
but it’s like a half circle. 

but it has that shape. 

yeah, but it’s yay big. 

Cuz I feel like there’s other concepts that (inaudible) cool.

okay.

That would be awesome.

and they would- I think they-

Cuz when I’ve taught seventh grade previous years,

I always did some lessons

on how to use a protractor.

and angles,

but you never know when kids are coming in, what

they’re

like getting,

or you know if the teacher even taught it.

I mean I kinda find it beneficial,

I’m kinda old school that way, like I-

yeah.

I can actually you know (coughs)

I don’t even have to have a big one,

cuz I could just throw it under the Elmo.

I can do a little demonstration.

I think that’s what they need,

a little demonstration,

and just like really looking at like,

what it- like you’re saying,

what an angle can look like.

What are the different ways it could look like?

Like you said, it could be (opening hands) like this.

It could be like this (holding palms together).

It could be acute (showing with hands),

It could be huge (showing with hands),

(coughs) excuse me.

Yeah, so

/They/

/okay so/

yeah

(writing) I was just playing with,

and some notation stuff.

Like what does the ‘m’ mean,
I was just taking a lesson from what you said earlier when you said that you felt like you hadn’t been clear about what you wanted them to learn, so I was just practicing. So what would it look like to be clear on this angle day. Right. Like what do we want them to learn? mhm And I was just generating some practice language for myself around, so do we want them- cuz I feel like, um, yeah, (coughing) sorry Do we want them to- Do we want them to make sense of or be able to explain, what an angle is? and how we measure it? Is that part of it too? Yes. Okay, so then, (touching pinky finger) Make sense of what an angle is, (touching ring finger) how to measure it, mhm (touching middle finger) and I would say notation. What kind of notation, and be able to read, is being used with that. (writing) and interpret, okay mhm (writing) Okay, so then I was like thinking about- then I realized as I was writing these aren’t really learning goals, these are like maybe thing that we, things I might think are important to give them opportunities to make sense of/ /this is like the practice/ I feel like yeah well I was thinking too I wanted to be careful, so if we’re really dedicating time to making sense of what an angle is, I would want them to be able to generate their own, like sense making to build from hm
you know like they have prior understanding, even if
they don’t totally get it yet,
like they have some pieces,
so how could that happen,
and then also I wanted to,
if we have time,
how do we deal with the fact that this is still the
archetypical angle,
right like we want them to,
recognize that they can be obtuse,
that they can even be larger than a hundred and eighty
degrees,

mhm

what does that mean?
or that like you know when you draw this (drawing an
acute angle),
there are two angles implied here,
a smaller one and a larger one

mhm

right?

mhm mhm

Um,
so I was thinking that if they could use the measuring
tool, the protractor,
we want them to have practice using that,
could they use it to generate,

mhm
lots of different kinds of angles that could then help,
sort of that sense,

mhm

you know a more flexible ability to see angle.

Oh, that was my clockwise,

mhm

right.

mhm

Yeah, maybe bring out the purple triangle
to show that.

(laughs)
cuz they all have the purple triangles.
yeah.

Cool.

(to Lynn) That’s a good idea.

(to Lynn) That’s a really good idea.

that’d be fun, I’m trying to think-

(to Lynn) maybe I can,

(to Lynn) make like a creative picture with lots of
angles in it.

(to Lynn) That they could measure.

(to Lynn) Like a picture with angles in it?

(to Lynn) that would be kind of fun.

(to Lynn) Like some sort of design that has like lots of
angle measures that they would have to measure up
(to Lynn) and they could use their protractor and find
what those measures are on their paper.

Actually, you know what?

There is a (pauses and sighs)

I’m pretty sure I used to do this with my seventh
graders.

There’s a lesson in the,

um, oh god, I’m forgetting the name of the website,

It’s the NCTM

Illuminations website and they have a thing with
pictures on it,

and they’re measuring angles in a big picture.

It’s called Archimedes’ puzzle,

that’s right.

Wow.

And it’s kind of intense.

I love all this knowledge you have of all these
resources.

Can I come ask you every time I need a lesson?

Well when I came here I had like nothing,

So I just like figured-

Yeah, powerful.

And I didn’t work with any-

Like there was no collaboration when I got here.

right.

Like that was all created by us.

Yeah.

So like I just started making things and finding things

mhm

But I- this-

I love the NCTM website.
(to Lynn) Yeah, what the heck? (laughs)
Okay, so we have five minutes.
Sorry
No, that’s fine.
(to Lynn) Look up Archimedes puzzle. (turns back to Mia)
So I think,
I feel like these questions (gesturing at notebook, where she has written: ‘What do we want them to learn? How do they need to participate in order to learn it?’) are standing out for me,
as questions that um,
that can help,
like ground the decisions that you’re making
mhm
about your lessons
okay
and about like sort of what to do about-
like I feel like um (.)
There can be especially when you’re in a new curriculum,
like this new binder
that like maybe has good logic behind it,
(laughs)
maybe sometimes does sometimes doesn’t
right
like you never quite know until you try it right?
(laughs)
that there’s a lot of decision making about what do we want to do,
and there’s lots of tension around it,
yeah
like it goes by fast,
and you don’t know where it’s all going
I know
right?
And I think that can feel really time consuming, but I um,
Kamilah and Aya and I all talked about this yesterday,
that I think um,
actually what I was seeing was
when lesson planning is happening,
when we can get first to a spot of like,
well what do we want them to learn,
like Monday you want them making sense of angles,
then it actually it makes the process of the rest
of what you have to do to get ready for Monday,
(nodding) /easier/
/easier/,
mhm faster,
more grounded, and more effective.
/right./
/right/ like less crazy feeling
mhm because you just have um,
yeah, cuz you have like well,
should we do that part or that part or that part,
is it too much?
I don’t know
I kinda like that but I kinda like that,
but then as soon as you’re like ,
well, what do we want them to learn?
which parts of it are gonna support that?
Okay bam, there’s the decision right there.

And I think the tough thing with the book
with some of the lessons it’s great.
uh huh
but, this particular one,
mhm
We like got it out of like that random book,
and I don’t think it got-
It just, it needs to be fine tuned.
yeah.
and it wasn’t like-
like a lot of the CPM ones,
are great cuz we can read the like pre-notes from it
and be like, ‘oh this is what this is-”

There are a lot of lesson yeah
where it’s not clear what the objective were for the
people who wrote the lesson.
Right

that’s true, we hope. (laughing)

Right.

Yeah.
(L turns the laptop so all can see the screen)
So they like measure these different pieces.
I remember doing this with the seventh graders.
This is how I had ‘em use protractors.
Um, I don’t think I did this part, But I did- I had them measure /these angles./ /that’s nice and big./ which is good for the protractor.
mokay

Yeah, so I made it into like a-
I don’t even know if that’s what the lesson was,
But I like, (laughing) (inaudible) but I like that picture.
/I could do something good with that./

oh that’s what-

yeah

So they’re seeing it like you know this angle and this
angle make
ninety

Yeah we could actually have them put all the angles
and cut em out and move ‘em around and see that.
that’d be kinda cool.
you’re like whatever (laughing)

(laughs)

(laughs) I know.

so cute.

Cool.
I feel happy about this.
yay!

there’s actually also,
I was looking at (.)

What was I just looking at and they had a thing on
measuring angles?

Oh, in one of these common core workbooks that I
bought,

uh huh

there was an actual whole lesson on how to use the
protractor,

oh cool

and like actually create /an angle from it./
yeah

cool

Oh cool!

Thank you so much Lynn.

Thank you.

I love it.

Lynn’s the best. (bell rings)

(laughs)

Cool.

(to Lynn) Thank you!

and maybe next time I come-
cuz I was excited to play with a participation quiz
with you and we didn’t get to it,

(laughing) I know,

I’m sorry.

No no it’s totally fine,

I knew that might happen.

Maybe we can plan,

like when we do our planning together,

we can figure out,

mhmm

if one- if the lesson would be supported by that we
could try it next time

yeah

or try something else together,

or whatever.

we could (play).

I think that’d be great.

Awesome.

Okay, so.

Let me clean up all this stuff before your kids come
in.

Awesome, thank you Heather.

Thank you.

(video ends)

Heather Cycle 3 Planning Conversation

Heather          Mia

...surface area

ok

and what they did is

first I just kind of direct instructed introduced what

surface area means

ok

and we talked about what net is

and we opened up a shape
ok

do you need-

and what grade are we?
do you need me to wait until you're-

no, it's recording

it's good

you're awesome.

okay, let me just grab my food.

we're seventh grade?

this is seventh, yeah

ok

(getting food)

okay
don't burn yourself

I know.

I don't like microwaving plastic either.

oh my gosh, that looks so good

(some talk about ramen vs Indian food with a kid)

okay,

so

we did

uh huh

this

rectangular prism

uh huh

and what they did is they measured

with the rulers

all the sides

okay

and then found the areas of each part

okay

and then check point with their group was when they

found the

total surface area

okay

um

so

they've probably forgotten some things over the

weekend

and they cut it

and folded it

and made it into a prism

and they cut it out

so they saw it.

(something from a student to Heather.

She answers and they talk for a bit about how to do a

make up test)

I'm sorry, Mia.

No worries.
No, I'm fine.
Don't worry about me.
(more with the student)
can I have one of these, heather?
Can I take it.
sorry.
No.
This is what I expect planning at lunch.
I'm totally good with it, it's fine.
(laughing) okay.
um, alright so.
That was like Friday.
Uh huh
How'd it go?
good.
good, okay.
good.
(.) There's definitely- and Kassis and I have talked
about this
that like
there's a hu- big discrepancy that's starting of like
kids that like really get it
and then kids that are like
really struggling
With Geometry stuff in particular?
mhm
With this kind of 3D 2D stuff.
mhm
uh huh
There's kids that are like "boom boom boom boom
checkpoint!" you know.
yeah yeah right
And then other ones that are like
struggling a lot more
mhm
so
that's sorte happening.
Um
I have
three other
shapes
uh huh
this one is from CPM, the shell box.
mhm okay
This one already has all the measurements done
though
okay
but it's more difficult shapes cuz they have trapezoids
in there
but what I thought I'd wanna work on today
and I kinda thought this may take
a lot of the period

is the trapezoidal one.
Cuz this is the one that's on the test

and it's the hardest
because they'd have to-
oh, no they can measure this.

So they're gonna have to measure all the lengths.
And they're gonna have to measure a height on these
too,
which is gonna be harder

So what are you wanting them to learn?

uh, surface area of a trapezoidal prism at this point.

STUDENT: Ms Benito!
what about it?
what do you want them to learn about it?

You know what, the window might be closed, Aiken.
STUDENT: so it's too late to finish taking it?
yeah, I think so.
Let me talk to Ms. Anders, but I don't want you to
miss out on your lunch.
don't worry Aiken.
I think there was only a teeny bit you didn't do.
STUDENT: two questions
yeah, you'll be okay
STUDENT: there's just 8 questions, I'm gonna get a
really bad grade if I only answered two, if I only
answered six, and all of them could've been wrong.

okay.
you know what?
Let me talk to Ms Anders and see what I can do.
STUDENT: okay. How do I exit out of this.
just close all these out.
Log out.
You're all good.
Okay, aiken?
STUDENT: ok.
Go on and eat your lunch.
Okay.
So, um-
STUDENT: thanks, Ms Benito

mhm
STUDENT: bye
oh, thank you.
bye.
(4s) I mean honestly the goal is to get them to figure out how to do a trapezoidal prism. That's the goal.

oh, how to find the surface area.
how to find it.
So do you want them-
So do you want them to find it successfully?
Or do you want them to generalize a process?
Or do you want them-

mmm
like what's the-
what's the thing we want them walking out with?

(4s) I'd like them to be able to- like completely calculate it.
I mean generalizing is great too.

mmm
So I definitely want them to be able to generalize too.

And what would they be generalizing?
So would they be generalizing ideas about surface area versus
or like what surface area is or something?
Do you want them
Cuz it seems to me like one- for- uh
I haven't seen this development of what's happening with it um
but one of the reasons for spending time cutting these out and folding 'em up
and measuring area?

mhm
is to get this really visceral sense of the difference between
volume and solidness

mhm
and
surface area as an idea, right?

right
um, the surface area
when we're doing surface area we're caring about this flat thing that's not flat
cuz we're folding it up,

right
but it's just the flat parts we care about right.
Um
Do you feel like that is super clear for them already
or they're still-
I mean we literally just introduced this Friday.

Yeah.

So do you feel like in this activity they grappled with that at all or you can't tell or-

Uhh.

They didn't do vol-

Like they didn't figure out the volume of this.

So what are they- okay, um

and I totally see what you're getting at uh huh

and I think it is a huge concept yeah yeah

what is the difference.

I don't know if my kids are there yet.

Yeah, so it doesn't need to necessarily be difference yet.

So I'm wondering about what it is we want them to understand they're doing when they're doing all these calculations?

Like what is surface area about.

Do you know what I mean?

Mhm

U:mm (.)

Cuz there's this flat not flat issue with it that's so hard for kids.

It's like they're used to seeing area as flat which it is

Mhm except that when it folds up it's not flat any more, but you still have this flat measure of a not flat thing.

Right you know what I mean?

So-

I'm just wondering whether there are opportunities here for them to be like saying or yeah

like what is the thing we're mea-

what is surface area? what is the as we take all these calculations and we find all these areas you know that idea of, oh if we were to build it's the actual amount of paper that it takes to create this shape.
Yeah and we talked about that on Friday.

(whispers) minus the flaps but whatever

uh huh

that like,

we talked about,

Like I had a full shape,

uh huh

and then we talked about like,

like gift wrapping the shape

uh huh uh huh

and what that would take to gift wrap it.

uh huh

I mean I don't know,

like, do I think that they

like have all that take away?

No, but.

And are we-

so I guess my question is not

'do we feel like they already have that'- sorry

kicking you

it's okay

but is that a thing that we're listening for,

or that they're going to have opportunities to be

articulating or thinking about today,

or, something else.

mmm

you know what I mean?

(3S) I would love to have that.

I don't feel like I have that set up, though.

Yet, uh huh

okay

uh huh

(student comes in)

you only have one period of seventh grade?

yeah

that's right, that's your only period?

like what,

do you have any suggestions on like,

making this-

(to student) Hi.

Meatier, in that way?

(4s) Like I'm not really sure what,

I totally,

yeah yeah

I don't either know.

This is not meaty,

as far as like vocabulary wise

mhm

or getting at like,
really giant concepts.
mhm mhm
(4s) well, is the question like,
if we frame the whole lesson around the question-
this is experimenting, I don't know if this works at all
but
yeah yeah yeah
about what IS surface area?
so you can-
Is there a way to frame it like,
'today you're gonna be calculating the surface area.
it's gonna take a while,
but I want you to stay in touch with this question,
what IS surface area?
what is this thing you're figuring out.
mhm
and by the end of class,
I wanna make sure that everyone in your team
can (.)
explain what surface area means.
as well as how you calculate it or something.'
okay
and I don't know that that's
I don't know that the task is giving them a ton of
opportunities /to get/ in touch with that
/I know/
except that they're making it,
so they should have access to,
'oh it's the amount of paper.'
right?
mhm
they do have some access to it by doing it.
mhm
But it might just be a good-
rather than um,
like an assessment for them,
cuz we don't know if we can expect it,
mhm
give this.
It might be good information for us,
if you're asking that in the lesson,
for us to understand,
is there access for that in this or not?
you know, maybe they're tot-
maybe this-
maybe given the question?
this activity totally WILL support them,
to make good sense of that because it has this visceral
paper thing,
you'r like/

/maybe/

it's the amount of paper in our shape.

mhm

that's what we figured out.

and maybe not.

but that might be good for,

for you, to inform you going forward,

to know what you have to deal with.

mhm

to get at the big ideas, you know what I mean?

I know and I also like to add in like,

what the volume is as well.

I just, like with this particular shape,

yeah this one maybe.

this one at this point

yeah

is like ( )

I'm just feeling like,

and we didn't really get to volume on Friday,

and we already buildt this one,

yeah

and measured it

so now I'm feeling like (.)

But I think maybe that cereal box problem

mhm

I think is really gonna tie the two together

uh huh uh huh

because it's a little bit easier shape.

yeah.

done.

I mean they technically need to know surface area and
volume of this.

/by the end of this unit./

/What do they need to know/ about it?

Like what are they expected to do on the milestone?

with it?

How to find it on a shape like this.

But if they knew (.)

so if they totally got, by then

mhm

that surface area is the sum of the areas?

mhm

of all the sides

mhm

could they just do it?

Some kids.
So what they would really need is they have to be able
to find the area of a trapezoid.
Right?
The rest of them are easy

yeah

and then they have to know that they need all these
areas /to make surface area./

/I don't know if they're easy/ for everybody in my
class.
The rectangles.

uh huh.
yeah.

They're struggling.

Yeah. yeah.

You'll see the real difference.
mhm

I have a lot of IEP kids in that class so like,
and also Ms. Perez isn't here either today,
which is a bummer cuz she's awesome,
and she works with them, so,

Um.

So maybe the generalization we want to support
instead
I'm wondering if the big idea here,

is around,
like if surface area is like all the paper it takes,
which you've already said,
It doesn't mean they are all really,
getting that yet? but if you did the gift wrap thing,
then there's been some exposure to that

mhm

for some of the kids, right?

So if that's what surface area is,
then what's a strategy for finding surface area that
would work for any 3D (.)

right

Object.

What do you call a 3D object made up of faces?
Are they all prisms?

No, yeah?

Or this is a prism anyway.

Is it?

Yeah

yeah

Okay.

Um,

So what's a strategy that could work for any prism?

So while they're doing it here,
they stay in touch with,
'oh we have to find the area of this,
find the area of this,
find the area of this,
find the area of each of these,
and then add 'em all together.

Cuz that's the generalized strategy, right?

and if they have that, then they can,
theoretically take it to any prism as long as they can
deal with the shapes of the sides,
of the faces

(whispers) I can't get the vocabulary right.

It's okay, I know. (laughs)

(laughs) I don't remember.

Okay
Yeah, so that might feel a little more authentically
connected to this task,
cuz this task-
might be something like,
(writing) How can we find, um
the surface area
of any prism.
So if at the end of class they get to take this up for just
five minutes or something
okay
then we can see-
are they getting,
oh you just find all the areas and put 'em together.
okay.
Or is that feeling still really far away.

I think that's a good question.
(. ) cuz this is sorta nice, right?
that they don't have to like
learn the big idea separately for every prism, right?

They're all the same in some ways,
they just have different-
the faces are different shapes, right?
right
but there's a thing that-
it's just one idea.
surface area is one idea, right?

(4s) I know it almost makes me want to do the cereal
box thing,
cuz then we could tie in surface area and volume, but
I think I'm gonna do that-

/ I'm feeling torn/ cuz-

Aya just did it.
mhm

and we-
she and I planned the lesson together this weekend,
and it totally-
we learned big lessons about our lesson planning.
It went very different than she expected.
mhm

Well, I don't know if she is,
the blocks, the lego blocks

Yeah

But every time I've done the cereal box lesson

Yeah yeah

I use the blocks?
yeah

And then they're able to count.
Yeah, so she wanted to and then what ended up
happening was it was just taking them so much time
to build it?
that like,

Cuz they were playing around a lot?
No, it was just they were using those little tiny cubes,
and there are sixty four of them in this shape.
Yeah, so we just didn't think it through/ cuz when we
planned it/

/ what shape did you use/? It's the CPM thing
It is. It's 8 times 4 times 2.

I just took-
there's like a big thing and I just dumped a ton
I'm like really?
yeah

It didn't take my kids that long (inaudible)
Yeah so I think that um
so then she did some shifting
to the next time she taught it she shifted the lesson a
little bit.
okay
um, because it ended up there just wasn't gonna be
any time to talk about the real math

yeah
cuz they were just sitting there building forever.
also, they were using those little ones that are really hard to build with.

Oh, I use the big ones, that are like this big. yeah, she didn't have enough of 'em.

there should be tons of 'em which is why she wasn't using those.

She has a big bin, but she said she didn't think it was enough for sixty four for each of her groups. Anway, so

okay yeah it had some challenges

regardless so we'll learn from it.

Um (.)

Cuz I've done that lesson. yeah yeah

I thought it was a really great lesson. yeah.

But I- yeah. I think there's some really good-

and you can help her with um, I think it's a really good way of introducing volume

versus surface area. Yeah

Cuz they can just count yeah

the pieces. yeah

rather than looking at /flat surfaces/

/( ) formulas/

or yeah

yeah

But and it's a rectangular prism, which is a little bit ea-

Here's where I'm torn. Not really.

Do I really want to teach them this? mhm

I don't. mhm

But, this is on like our unit test. I don't.

and it's on the CLA. mhm

How are they with finding area of a trapezoid? yeah

Some are amazing. yeah

and a lot of them are totally lost. It's-

There's like a huge divide right now.
yeah yeah

You'll see it.

I mean they're super eager kids. Cuz I feel like if we arm them with a really clear understanding of surface area and what it is, that's gonna be better, than having constructed one one time?
yeah and calculated it once. you know what I mean?
right

Um and then figuring out maybe we put trapezoids a lot on homework, to try to bolster yeah those kids who really need more,

I did put them /on homeworks last week/ /chance to think (on) trapezoids/ uh huh but um. yeah

They're hard. (.) What is this- help me understand the relationship between this and the cereal box problem in the unit. Cuz I haven't read this unit, I don't know it.

The cereal box problem /looks at/ /Like this comes/ before it?

No. This isn't really part of the unit. Oh okay. ok.

Kamilah- This is. Okay

But Kamilah pulled these out. and had them measure it. cuz she thought it was really- and I kind of liked that. yeah!

and we started it on Friday. yeah yeah

This one gives you the measurements, but this is really hard- this one you have to find the volume and surface area. It's like cereal box but way harder. yeah

Cuz it ends up being like a home. yeah and this comes after cereal box in the sequence? In the unit?
I think so. uh huh uh huh

But I think it's okay for surface area,
but we felt it seemed really hard for volume.
yeah yeah yeah.

It's pretty tricky. Yeah.

I think my advanced kids could do it.
yeah

and I'd love to push them to do the volume of it.
uh huh

So I guess kinda what I thought about doing is,
the advanced kids,
if they're pushing through this fast,
like they went through this-
actually pretty quickly.
Like faster than I thought they would.
mhm

then I thought I could-
after they do checkpoint on surface area
we could have them do volume.

I could have them try it on this too.
mhm

which is hard.
mokay

Like this is definitely a really challenging problem.
mhm

I think it's gonna be for them.
I mean they don't have to measure. ()

I think,
surface area will be easier,
but the volume of this will be really hard.
yeah.

So you're thinking about doing that today?

If my advanced kids are ahead of the game,
if they get through this.

And if they can convince you they know what surface area means?
yeah.

Yeah.

(4s) then I'd love to push them onto volume of this
and try this one.
It's kinda where I was at with it.

but I-
there are gonna be some kids that are probably gonna
not even get through surface area of this today.
Well it's a lot of calculations, right?

Yeah

It takes a lot.

It's like six different shapes,

and each shape you have to do calculations,

and measurements,

and measurements take a while,

I know

and you have to round off,

and you have to- right?

(yawning) uh huh.

Um, yeah so that could take a while.

Okay.

So we wanna know,

is this what we wanna know?

We're listening for this?

That, yeah.

So can we pose it to them in some way toward the end
of class
so we can sort of gauge,
or listen? (.)
Like maybe that's what their group-
maybe 10 minutes before the end or something,
we stop wherever they are,

and
we pose this and ask their group to come up with
some kind of a summary statement,
or answer to this that everyone feels like they can
explain
and then we can just hear it?
hear those conversations,
so then we can at least know,
are they making sense?
and who is making sense?
and how are they making sense of-

Here's what I'm worried about though /with that/

yeah

One thing I noticed with this class there's like
(3s) If I call on students in front of the class,
it's gonna be like,

the super high kids that answer it,

and then it's like-

oh no, let's not do that.

Let's give it to them in a group.

Say their group is responsible for coming up with-

oh, okay.

I thought you mean like /as a-/ 

/and then/ we'll do like a shuffly kind of thing, 

like 'we're gonna come around,
we should be able to ask anyone in your group to explain to us/

/okay, I love that./
/how you guys are thinking/ about this.
yeah?

okay
yeah
that I love.
Cuz otherwise, yeah I don't-
I don't want to do a group discussion,
cuz there's just,
they're too divided.
yeah
with their skill levels.
yeah yeah
so I just feel like,
too many of the high kids will volunteer.
yeah yeah ( ) that.

and it'll be-

Cool, so we'll just kee-
we'll keep that in groups, we'll go around together.
So then at least we'll be able to debrief around this question,
like how are they,
what do we think,
about where they are with this question.

So maybe,
okay so then if that's the case,
uh huh
then what I would say is,
they have to find surface area of this,

which I still need to do it myself so I have the answer
(laughing).
and then um,
I would put them on this one.

(3s) If they finish this

/If they finish this/
(with more than/ ten minutes to spare
yeah
before we've shifted to this question.
yeah.
But,

okay

if they get through both of these,
then I might push some of the high kids on finding
volume
or thinking about /volume/
but I would still pose this question. /okay/

Can we pose this at the beginning of class? Like as a framing question for the whole lesson, this is what you're gonna come back to at the end, so /keep this/ in mind

that'll be their task today

cool.
So their task is to as a team generate some yep ideas about this.

(3s) (from farther away) So I don't forget. Yeah.
(21s) Cool
So I don't forget.

Awesome.
No no I love it.
Cool, so I like that we have a big question to frame it around.
so they can feel like it's not just a bunch of calculations, it's connected to a big idea.
yeah. and then we can, we can-

It was feeling a little weak.
But I-

but I don't think it's been invaluable,
like I think it's been good for them to see that,
I just-
yeah.
Okay so 2:25 is ten minutes before the end of class?
mokay

should we plan to just keep that in our minds as like we'll check in and see if we can stop them then and shift focus to this question.
mhm.

And then um, they'll talk about it in teams, we'll go around together and listen to them talk about it, and um maybe do some shuffly kind-
are they used to those?

Oh yeah.
Do they do shuffles?

Every day.
Oh cool, cool.
So then we can do a shuffle and get someone to explain to us

I have them in my backpack.

Awesome.

I just put- and if you want a set, you can have a set and then we can both do shuffles.

They're really good about, like, checkpoints. They /get/ really excited. /they love 'em/. That's awesome.

So they'll do checkpoints with you. yay, awesome.

I'll just introduce you and Or I might- we might just stick together so we can process together what-

oh okay, then I will just hang onto the cards. okay.

the only thing that's a little bit of a problem is that (.) Prez isn't here today so, it's gonna be-

they're gonna get a little excited, some of the high kids, like get a little amped. they're like

(chuckles) jumping up and down for checkpoints so-

okay just gotta like-

so( ) it's not even on the boards until this last section, right?

right so they won't get excited through the whole class.

So they're not doing checkpoint- checkpoint is only on finding surface area. But this is just a go around of the group.

oh I was thinking this would be a shuffle. So they would randomly be called on to explain their group's thinking about this.

okay so does that sound good?

I usually do random calling for everything so I'm wondering do I want to random call and do checkpoints of finding the actual surface area though as well?

What do they say to you in a checkpoint for that? for /finding the surface area./
Um, /like I have them explain/ how they found it.

so,

they'll tell me how they found the areas of each of

these shapes

and I might ask 'em specific questions.

Like,

if they say like,

'oh, we just do this.' I'm like

'well what do you mean,

we just do this.'

mhmm

like, 'oh,

we're finding area here?'

/and how did you find the area/

/oh cool,

so that's a chance for you/ to help them-

make sure they're connecting their calculations to the

meaning of them.

right.

That's what I just heard,

cuz you said you're finding the area,

so if someone says,

'we multiply this times this.'

right.

then that's your chance to make sure they know why

right

they multiply that times that.

that's awesome.

I love that.

okay.

So do that however you want.

whatever's comfortable for you,

I don't think it really matters.

But in the last ten minutes, that's good.

okay cool

okay

yeah yeah yeah yeah yeah

cool.

awesome.

okay I have to solve these two

so (laughing) I know what the answers are.

what happens if you don't know what the answers are?

U:::m,

nothing,

but then if they like,

are all excited to know if they got it right,

then I-
cuz they're pretty complicated and the measurements are kinda crazy, so I wanna make sure that like, if they seem like, ridiculously off, then I can see that when I come around.

uh huh uh huh I just-

I don't like to be unprepared. It gives you an ability to like, gauge what's going on.

Yeah cuz if they're like calculation is like a hundred centimeters off right

like I know there's a big problem right.

oh there's a-

there's something else now right, not sixth period

there's and advisory kinda thing?

there's an advisory right now. can I just hang out in the back of your room or whatever

yeah!

(Recording ends)

Heather Cycle 3 Debrief Conversation

Heather Mia

Umm, just like some of the misconceptions that have come up.

Yeah

What did you see?

Yeah

Um

Will you close my door

Yeah, yeah (.)

(Heather speaking in background, not transcribed)

Okay.

What did I notice?

Ummmmm

Well, and this was actually one of the ones that I thought was gonna come up?

Mmhm?

But um

Yeah, what is the height of the /trapezoid/ /trapezoid/

Is a big one

Like a lot of them are seeing the angular sides?
Yeah

As the height.

Although, there was only one group that I saw not
figure that out
Everyone else, like I heard it come up in other
groups?
But other groups landed somehow, and I didn’t
always see how they did it.
But landed on the height as the height.

Table One

Uh huh

Joa Lin’s group

Uh huh

They had it only because she’s on that table

Uh huh

And I know she knows that stuff

Uh huh, huh huh
So she told them. I think in a lot of groups it might
have been one person knew and just told them.

Yeah

Yeah

Umm/

/which is fine,
yeah

but it’s, you know

Yeah

Okay, so misconceptions we’re seeing, sooo, um
You were saying the/

/what is the height of a trapezoid

mhm

mhm

Um, the other-

which might be a generalizable question to what is the
height of anything?

Mhm

Right, because height in geometry is always
perpendicular to base

Mhm

In anything, like in a triangle, in /a trapezoid/

/right/

/in a prism, in a
If we’re talking 2D or 3D, or anything, right?

Yeah

So that might be worth taking up in a general way,
right?

Yeah

Mhm.

Okay, cool.

Um, what else

Um,
how do we find surface area?

Well one other one I saw was the one that came up when we were in this group from uh, Skipper?

That, um

Multiply everything? (laughs)

Well, that area is base times height.

Right.

So there’s only like one kind of area for everything

Area is base times height, and this is a lot of, I mean I think we see this all, all through all levels of math, where things get taught in a way that allows students to overgeneralize?

Yeah

Or like they come from, you know, like “You can’t divide sixteen by five” for example

Right

Cause they learn that at some point you can’t And then someone tries to tell them you can and they’re like, “What?”

Yeah

Right, so it’s another one of those, like area is base times height...

Sometimes?

(both laugh)

Right, yeah, that’s a big one

Kay, cool

What was another big misconception?

Well there was I’m curious a little bit, this group behind me, the um, the, the, the

Jovan?

Jovan, and who are her group mates’ names?

Angel, and Marlin

Jovan

And so two Angels right next to each other, that’s why I was confused/

/Yeah, there’s an Angel/

/Jovan and Angel and Marlin, okay so origi- at one point, Angel had um, written on her paper all of the measurements and she had added them all together

A:h

And that was her calculation for surface area

Uh huh

At one point

Like perimeter...
Kind of, yeahhhhh

She was like taking the perimeter of like every shape
and just adding it together

Maybe
Or maybe it was a case of,
“When I don’t know what to do with numbers,
I just add em all up”

Mmm
It might have been that?
Like I don’t know what her thinking was behind it,
cause we didn’t ask her
Um, but that was before Jovan explained the- her
rectangle strategy?
And wh- so I think Jovan explaining that strategy
shifted how they were thinking,

Mmm
Or maybe how Angel was thinking about surface area.

Mhmm
But I didn’t yet get where they walked out with
Like, what did they walk out thinking surface area
was?

Right.
Um
Some groups I got a sense of it,
and some groups I didn’t quite yet get a sense of it

Angel at this table
Yeah

Wasn’t there on Friday,
so I know he was totally clueless

Yeah, yeah, yeah.
And the person sitting across from him, uh

Diane
Diane didn’t even, like get
that they were supposed to take up this question
Like, when you guys were cleaning up I saw blank
papers, and I was like,
“(gasp) Did you guys get a chance to talk about
that?”
and she was like, “whaaa, talk about whaaaa?”

They-we, just ta- I- they told me when I walked over
there,
but they didn’t write it down apparently

Well maybe they, she just didn’t know what I was
asking then, okay

Ummm
Interesting,
okay
Um
What else are you thinking?

(.) Hmm, yeah (.)
There’s an interesting question coming up for me
of what does it mean to do group work
With work that is not group-
Like, measuring and calculating just
isn’t something you can share, right it’s

mhm
I mean, you can get it, and tell someone what you got,
and check in

mhm
right
Um
So I wonder about setting up, or wh,
what they have yet figured out
is their relationship to each other,
or responsibility to each other

hm
Cause definitely some, for sure,
like they were willing to talk to each other about it,
there was no resistance, to push this in the middle,
when you ask them to compare... right?

Mhm
No resistance at all,
so clearly you’ve done a good job setting up norms
that like
we’re not just worried about ourselves here.

mhm
Right, so they’re getting that.
But groupwork is always harder to think about with
this kind of (5s)
with, like, when, when it’s not clear to me, well what
would I do in a group around that?
Or like, what would, what is there, what’s available to
be talked about

Mhmm
And some math is just like that!
And we do math like that!
Like, we have to, /right?/

/Right/
It’s tricky with this stuff because it’s like
Small, /and/

/yeah/
(sighs) I can’t put it in a task card, cause they’re
building, like

Oh yeah, no no, and I think that there’s like
I mean I think that there’s a really nice opportunities
in content like this for-
and I think that we see evidence of it for kids to come
together
we got a great opportunity in that group

Yeah

right, they thought they needed you

Oh
to see if their measurements were correct

Yeah

And I was like, “Did you not just check with everyone
in you-

(laughs)
did you guys all get the same thing,
okay so why do you need her?” (laughs)
You know what I mean?

Yeah, like they so want to be right

So that’s a role they can play for each other, right,

mhm

which in content like this is available, cause it’s just
like a checking role

Mhmm

It’s like, “oh yeah, 10.2, 10.2, 10.2, 10.2”

Mhmm

We got it, we know, you know.
We don’t need anything beyond that.

Um

Cool

I also-and I, I don’t know,

I’ve talked to Kamilah a lot about this, but I definitely-
there comes a point in a lot of these lessons
where like there’s just this huge divide/

/yeah/

/of like, the kids that totally understand it
and the kids that are like completely lost

Yeah

You know what I mean?

Yeah

And it becomes tricky because (4s)

Like, I would love to incorporate volume too,

but I don’t know like

Yeah

I don’t know

What is it that- okay, so let’s get,
let’s see if we can get some traction on that question a
little bit by getting, um
by thinking about this lesson in a specific way, so we
can
get into the questions.

okay
So what is it that some kids understand that others don’t?
Like if you think about, what is here name, the one over there?

Joalin
Joalin.
What is it that she understands?
Do you think

Well, she’s just so advanced.
Yeah
I mean, she’s- her, like, understanding of mathematics
is just like,
beyond a seventh grade level
so any group that she’s in,
she tends to dominate
Yeah
And,
um,
it’s hard,
like it’s hard for her to pull back?
Yeah
And I think too it’s hard for me to always challenge
her because
she has such great knowledge already.
So what (if) in this task,
what does she understand, do you think?

Oh, I think she completely understands surface area
I mean she knows how to calculate it
Mhm, that was clear, yeah.
She knows how to calculate it
/she can independently do all this work,
and she was trying to
Yeah
You know?
Yeah (.)

She totally understood the height of the trapezoid
uh huh, uh huh
Like she’d already drawn it in
uh huh
and like, um

How is she with generalizing?
Like, could she answer that question?
Yeah
Okay

I didn’t get to go over there,
but I don’t like to ask her all the time, because
Yeah
it’s like
then nobody else/
Yeah/
/at the table really
yeah
And I’ve put her with this girl Mandy that sits right
here,
cause Mandy’s also really
Ooh, that worried me, yeah
When I saw Mandy over there talking to her for a
minute and I was like (gasp)
I’ve put them on the same table/
Yeah/
/before, because both of them/
Yeah/
/are the same caliber of like
yeah
what they’re understanding of math is
Yeah
they’re both really really strong.
So it’s hard.
Like, when we did
Circumference of a circle, they like
When we did the discovery of it, they completely
knew how to find the circumference without-
and like, they didn’t want to DO the discovery
Yeah, yeah, yeah
Because they were like, “Oh, we already know.”
So here’s a question- and I don’t know your students
at all, so I need you to uh, uh
With some students, with a lot of,
like who are like very advanced,
like they’ve learned a lot of content
mhm
prior to the course somehow?
mhm
Um (4s)
I guess, what am I thinking-
I’m thinking about the difference between skill and
understanding.
Yeah
And sometimes, for some students,
they have a lot of like procedural knowledge, like they
can
mhm
they know what the height is,
they know how to measure it, t
hey know how to calculate,
they could do it all day long, t
hey want to do it all day long,
they wanna do like/
/yeah/
/fifty iterations of it, cause they feel really good at it, you know what I mean, they want to do it really fast.

Mhm

And sometimes
There’s room for those kinds of skills to grow in terms of
their connectedness, like
how much they see connections between what they’re doing and big ideas?

Right.

And sometimes- and not always- and it’s sort of hard to generate these situations,
but sometimes other students at their tables who are less good so far haven’t yet built the calculation skill?

Can articulate reasons and connections.

Yeah.

But I don’t think that’s the case with those two.
I mean they have a really good connection too.

Uh huh.

I don’t know. But I mean/
/uh huh/

/I’m sure there’s something we can stump them on

Well and also different content will feel different for-
you know, like
maybe/

right, I kinda feel like this task, even that big question
yeah
is like,

it’s still procedural yeah.

Like, I don’t know if there’s like a huge big picture here,
yeah
other than can you find surface area.

Can you understand that it’s made up of all these areas

areas

that you’re adding up

It’s a bunch of areas. Yeah.

So I don’t know like how, like, deep, it is?

Totally

But/
/which is gonna- so,

content like that is gonna carry certain challenges?

Yeah
Right?
That we sort of just either-
you know, that we then try to address with like
Norms, with, you know-
when the content isn’t asking for more equitable
participation
Mhm
It’s a lot harder to get it.
mhm
And then we have to like,
go to all our other strategies, you know, that aren’t-
that don’t- that don’t come with the content. Right?
So that’s a challenging thing about- I’ve always
I’ve never taught geometry- is that true?
I taught middle school, so I must have
(laughs)
But I don’t remember teaching geometry stuff.
You probably taught components of it within the
curriculum, just/
/I’m sure I did, I just-
it was a long time ago, and I’m old.
It falls out the other side of my head.
But um
if you taught middle school math, you’ve definitely
probably taught like,
pythagorean theorem, and like
I’m sure I did, yeah
But my- so I’m not having-
I’m not having memory resources
(laughs)
for thinking about how, how we um, (3s)
stuff that is so often related to formulas
/I know/
/and like remembering and using formulas,
like how do we create sense-making opportunities for
kids,
and I find that question really hard.
Um
yeah
and important, and hard,
um, around geometry.
And then I think- and some days we do, and some
days we don’t,
or some things are just like
do it, practice, calculate it,
and maybe we need kids to have that kind of practice
Yeah
Yeah, um-
cause they’re so cute, they were so nice to me too,
They were so like willing to include me

They’re like my best class of the day,
they’re so sweet

They

and they were actually kinda rambunctious today

yeah

they’re normally like

Yeah.

And normally like they’re very, very well behaved.

They were definitely a bit- but they were like good

natured.

Yeah, I wasn’t interpreting the energy as poorly-behaved at all,

yeah

just like having a good time, you know

I’m glad you said to Christian, “slow down”

cause Christian’s also

him, Joalin, and Mandy

yeah

are like,

they’ll just (makes whirring sound)

Yeah

Fly through

yeah

like they’ll have a whole understanding of things, like

yeah

especially Christian,

and he’ll go so fast

yeah

but he can’t explain it to anybody.

yeah

Which is like, that’s where I, I’m glad you told him to

slow down

Yeah.

Cause he tends to dominate,

and he’ll talk really fast

yeah

but doesn’t really know what he’s talking about.

Yeah

He knows in his head, but that’s about it.

So, what did you think of the interactions that we had

with groups-

so I took some licenses, I hope you’re okay with that

(laughs)

Some what?

Hanging out with you

Um, in our interactions with groups?

Uh huh
Um, and I wonder um,
Like with this group?
Like with that group and then with this group
Yeah
Yeah,
I wonder what your thoughts are about what we did there, and
Um, I thought it was really good,
I think Mandy can dominate
yeah
And I know Juliana
yeah
the girl over here’s really quiet
yeah
as well as Vannessa and Marita
Yeah
Um, and yet they have a lot to contribute
yeah
but they get overshadowed at times
My sense with this girl over here- what was her name?
/Juliana/
My sense with her is that- and I don’t
Juiliana’s IEP as well.
My sense was that she has a lot to contribute,
she doesn’t think she does?
Yeah
And I think she was surprised that I thought she did.
Right?
yeah
And I thought she did by like
She knew I thought she did because I wanted to hear from her,
and then we left, instead of like letting someone else talk instead,
“Oh that’s fine if you need time, there’s no time pressure, but like”
“And then when I came back,
she had kept looking to Mandy?
She kept looking at her and not saying anything, and I wasn’t letting anyone else talk
And then she-
she had an answer
to the question I asked them to talk about,
she could articulate herself
and then- and I asked her a question about
some kind of a “why” question or something a little
bit beyond just something that someone could have
just told her

yeah, which meant/
and she was able to take it up,
she totally was.

Nice!
It was totally fine, but like
She-
it was clear that she really thought if she sat there long
enough,
someone was gonna save her,

yeah
and that, and that
nobody reall th- like, really me?
Like really I’m the one who’s gonna talk in this
group?

yeah
So, so I just/

/like the low-status
Yeah.
So I think that- and she totally did! It was great,
it was fine.
But I could tell there was a little bit of like-
what? and like Mandy was like “Excuse me? I don’t
get to- what?”
She wasn’t rude about it at all,
and I feel like in a lot of classes
with less strong culture,

mhm
with a teacher having built less trust than you’ve built
with them,

mhm
they would’ve- she would’ve been like
(Smacks table)
“Get the hell out- what?
How are you gonna tell me not to talk?” You know?
But she totally wasn’t.
She was like graceful about it.
But she was clearly surprised,
and like a little bit shocked.
Which I found really interesting
um, and similarly over here

Yeah, I’m really glad you incorporated Vanessa in
to the conversation over there

Yeah

Cause I think she has a lot to offer.
Imarita is also a very quiet one/

/yeah/
/who’s really smart

Yeah

But she doesn’t always voice/

/does she think she is?

Um...

I don’t know.

I don’t think/

/yeah/

/I don’t think so.

Yeah. That was my impression. But I mean, it’s my

first meeting of these kids, so/

/yeah/

/I don’t wanna read too much, but my sense was

she didn’t yet know that she had much/

/I don’t think she feels super confident

Yeah

and I know she gets into high anxiety.

She’s also- Imarita’s also IEP

Uh huh

Vanessa isn’t, but Vanessa’s ve:::ry painfully shy

Uh huh

Like really really shy

Uh huh

So,

it’s so great that you had her talk.

Oh, cool.

And her group- it seemed like a really nice group for

it,

like um

Yeah

The girl who wanted to talk, what was her name?

Neeka.

Neeka was like not at all resistant, like she wanted to
do all the talking

yeah

she expected to, but she was kind about the

rearrangement

yeah

she was very sweet about it. Um, which was really

nice.

I’m really glad that all the IEP kids are in this class,

yeah

because they’re very

like especially with Alexis,

yeah

Alexis the boy over here?

yeah

He’s like super IEP

yeah
and they like really help him out, a lot.

uh huh

Like they never like judge Alexis

Aww

uh huh

you take so- you can’t measure that?’

uh huh

you know they’re not like that this group.

uh huh

They’re very like understanding

uh huh

of other needs but

uh huh

but it’s good for me to see,

the voices that need to be heard.

Cuz I know that that0

and normally I pick from a card too.

uh huh

and this task wasn’t super like

no

card worthy even.

yeah no.

Which is tough, cuz that’s what they’re really used to,

so like,

Well that might mean they need it more.

Because there’s- because the task itself isn’t

supporting conversation,

yeah

so if you want them to be accountable to each other,

yeah

if you want it to not be okay

for Mandy to just know she’s got it,

and not attend do whether anyone else has it,

then it might mean that all those structures you’ve

invested time in,

are gonna be MORE necessary, right?

yeah.

Um, yeah I forgot about the cards.

We could have done that.

I forgot about it too because normally I have

checkpoints set up,

But I- but this task wasn’t very checkpointy.

You know what we could play with!

that makes me think that even not at a checkpoint-

So there’s like the version of the checkpoint called a

shuffle quiz,

it doesn’t matter what it’s called but,
the only difference is
that a checkpoint is expected,
and you’re like supposed to be able to explain a
certain kind of thing and then call me over.

uh huh

the shuffle is just,
you don’t have to call it a quiz, whatever you want to
call it,
but a shuffle quiz is just,
any time I want, I can shuffle.
anyone I pick should be able to explain to me where
the group is,
and what questions you’re grappling with.
You don’t have to be done,

mhm
you don’t have to have conclusions,

but you have to be able to explain the group’s process,

thinking

yeah

and where you’re at.

So I wonder for this class whether
every single time we go over,
even if it’s a team question,
especially if it’s a team question cuz resource
managers might think they just get to ask, right?

mhm
every time I come over,
the speaking is gonna happen by whoever I pull the
card out,
right like whether it’s a question getting asked,
or /I wanna come/ check in,

/that’s a good idea./ mhm
so that they really (.)
like /see an on-going

/get a voice/
yeah an ongoing responsibility to each other.
it’s not that I’m gonna finish and then teach you,

right.
But like ongoing,
we are doing this at the same time,
everyone stays together on the same thing, right?

mhm
because I think, um,
Jao Lin was totally fine with sharing with the group

mhm
She was totally okay with that.
But she was also totally okay with finishing the entire
thing,
and then teaching it.

right.

right?

So that might be, that might be a fun, um (.)
and it sounds like you’re already doing it in a lot of places,
so it won’t be a stretch for the kids,
like they already know it.

mhm

But if it’s like,
if the expectation that they get is any time.
not just when you’ve gotten to the end.

mhm

any time,
what we’re execting is that you-
that the group’s process is a process that everyone knows.

I like that and I want to use that even with my 8th graders,

mhm

because I find like, (.)
sometimes the kids are on different places,
and then one’s like waiting for the other ones to catch up or whatever and like,
that’s a good time to just like get everybody on board with what’s going on and like,

mhm

hold people accountable. (yawn)
(yawning) I think that’s awesome.
I wanna start doing that.

Cuz also I think for one this challenge I was seeing with Jao Lin,
which I was totally feeling your pain
is it’s really hard to tell a kid who wants to do math not to do math.

(laughing) I know.
Right, it’s really hard to say stop and wait.
I know

But if,
If her process had been,
‘I’m putting this in the middle, let’s measure.
I got ten point two, did you guys get ten point two?
I got three point, did you guys get three point four?’
If that had been how that went,
then her entire group would have gotten that part of it done,
like they would have been there with her,

mhm

(.) so they would have been,
more would have happened,
like they would have gotten into more math,
and she wouldn’t have had to wait.

mhm

She would have gone slower,
cuz it’s slower to do that,
but she wouldn’t have had to like do something and
then stop and wait,
for other people.

mhm
do you know what I mean?
So it can support the, the um (.)
and even when you- even when you have the dynamic
of somebody teaching other people what they don’t
yet know,
which sometimes happens, especially in content like
this,

um,
at least it’s an ongoing,
process we are doing together,
which is less status problematic than I am totally
finished and I have it all figured out and beautiful.

right

you have nothing /and I’m gonna show you../

/Right cuz another really low/ status student
is Roxanna, the girl in front of her.
She’s also IEP.

mhm

and she really struggles,
mhm

and I’ve seen a few moments where people are like
frustrated with waiting for her.
yeah.

(.) Right and so if we were like,
‘okay you guys, let’s measure this one first.’
you know if that was just a thing that happened out
loud,

mhm

then they would all sort of get carried along together,
mhm
doing it (.)
yeah.

cool.

which is why I in general like task cards and not
things on everybody’s table.

yeah
cuz then it like,
it takes away the whole groupworthy-

yeah
This task was definitely tricky, so (.)

in that it did have- like they each had their own, yeah

it like made them almost want to individually measure it all.
yeah yeah yeah so.

yeah, but they were, I mean given that, I was very impressed with how willing they were, and often without any prompting, to check measurements with each other,
yeah adjust, argue about ‘em,
you know I think it is a task that by nature you just wanna do,
mhm if you know how to do it, and if you don’t you kinda u::: (.) not sure what to say, right? um, but I think that your kids are really orienting to each other really easily, which means you’ve invested some serious work in that, clearly, cuz they don’t walk in the door like that.
yeah. I know that. They don’t walk in the door like that.

They’re awesome (.) yeah

I love this class (.) So is there anything-

maybe- Yeah, go ahead,

I’m thinking maybe, what would be better going forward, is like, and I’ve actually done this before, but it was before they really kinda knew what was going on with surface area,

what if I did a task card of a rectangular prism, for tomorrow,
in the middle of the des,
on, you know, paper
uh huh
and not a net.
uh huh
and told them they have to find surface area.
uh huh
and like work with their team,
uh huh.
So it would be a diagram?
yeah
of a right rectangular prism.
yeah
and their job would be to find the surface area,
of the prism, but it’s not gonna be like,
so they’re going to have to visualize each of the faces
yeah
diagram, so they would need diagrams right?
on their own paper we would want diagrams,
but they could use,
and calculations

this (.)
you know they could use this as a guide to help them
like,
visualize
mmm
what they’re gonna need for this.
uh huh
I don’t know, it’s just thoughts.
yeah yeah yeah
that came into my head.
because I think the hard thing that comes out of this is
like,
them having to see a 2 D picture of this,
and calculate surface area.
yeah
When it looks like this.
yeah.
on paper.
I don’t know.
So we could, we could start the lesson by taking up
the big question that we ended with today, right?
Like that could be the opening cuz they’ve had-
mhm
most teams have talked about it,
some of them have notes about it.
Some of them had really good conversations that they
didn’t take any notes about.
So they may or may not be able to like,
mhm
reach into their brains and0
(laughs)
recollect them.
Um,
mhm
Because if people realize that okay surface area is the
sum of all the areas of each flat part,
mhm
whatever they call the flat parts,
um,
then, when they look at a 2 D diagram,
they know they need to orient to what are the flat
parts.

Yeah, so maybe what I could do is I could say,
one of your checkpoints is to have every piece drawn
on your paper,
with the dimensions on it.
Or what if it’s,
what if one of the things they have to do is figure out
a way to draw a diagram that sup- that helps them
calculate surface area.
mmmm
And so they have to figure that out.
and that could be one of the checkpoints.
yeah.
and then there’s different ways,
like I could imagine kids doing that by drawing six
separate faces,
yeah
I could also imagine some kids drawing a net.
a net
right, but like figure out how you can make a diagram
on your paper that helps you figure out how to-
that helps you calculate that surface area.
mhm
and then there’s something to talk about.
Right, then we’ve gone from just calculation,
a just calculation task to something we actually have
to talk about.
mhm (.)
yeah, because I’m curious,
Joiban for example,
who noticed that this is just one big rectangle,

uh huh
I’m wondering if she would actually see that this way.
o:h
uh huh. ()
That’d be cool. (3s)
That’d be cool, yeah.

Cuz I never thought of it that way.

Yeah

Like I never thought about surface area of this shape, is technically the length of these three multiplied.

I mean I wouldn’t think that looking at a 2D picture.

But I’m curious if now that /she’s seen that/

/and it/ it opens up all these flexible ways that might be fun.

Like you could do this as, this is one rectangle that goes all the way around and covers all four of these faces, cuz they all have the same- right?

right.

So there’s actually only two calculations you need. you need the rectangle,

right

the big long rectangle,

and the trapezoid, which then gets multiplied by two.

Right, cuz this is the same as this.

This and this, yeah.

These aren’t the same though. Yeah they are.

They’re not the same length.

No no, but they’re the same, they’re the same width, right?

oh, yeah yeah yeah

so you could think of this as one rectangle of 10 point 3

plus 4 point 8 plus ( ) right

O:::H, I see what you’re saying.

all multiplied by 3 point 4, so this is all one long,

wow, yeah

strip that goes all the way around, right? (3s)

right and so when kids draw that-

I’m so glad you said that,

so if kids are drawing,

trying to figure out a way to draw a 2 dimensional diagram to help them calculate surface area of a right rectangular prism

they might draw six faces,

mhm

but they might do something else.

Ooh, what if you had two on there.

What if you had a right rectangular prism and a trapezoidal prism,

because, (. )

I feel like that thing that Joavan did,
Joavan, is that her name?

mhm

the thing that she did that then led us to see,
that there’s all these different ways that you could
break it up and /have shapes./

/this made me think about/ too cuz they could have
like
cut these pieces up and made this into a parallelogram
too.

hm (.)

They, so, but what she did is maybe more of available,
because it’s not a right rectangular prism.

mhm

I wonder.
I wonder if the fact that it’s a trapezoid makes this
shape,
feel special and different than the other ones, right

mhm

which is why she could see a rectangle here,
whereas if these had all been rectangles,
she might have just seen 1 2 3 4 5 6 rectangles,

mhm

you know what I mean?
So I wonder if having 2,
one of which is a right rectangular prism,
and one of which is maybe a triangle prism, or a,
something where two of the faces are not rectangles.
Um, (4s)
might get you diagrams that are different enough from
each other,

mhm

where people are really seeing these flexibly.

mhm

That would be super cool cuz then you’d have like,
actual real smart stuff to share and for sure,
you would have something that Joa Lin had not
thought of.

mhm

Right, cuz she’s gonna,
what most kids will do, it’s natural,
is think of it how you think of it and go from there.

mhm

and it’s really hard to see someone else’s,
so if she thinks of it as six pieces,
and someone else sees it as three pieces,
because they see it as (.)
one- or four pieces, one two three four,
then that’s gonna be a thing that she can actually think about, like why would that be, the same or different, or more efficient maybe. Could you think of it as a different number of pieces? Then there’s something there to be investigated or thought about.

which is another thought, we could make the task be find more than one way to solve this.

Find more than one way-
Yeah!
So find- and what would that mean?
So find more than one way,
to find surface area.
Like other than just,
adding all the areas together
all the six areas
see if you can figure something else out.
Like what would- so,
so would it be a different way,
to add all six would be one way
and then another way would be to add these three and then this one?

yeah maybe.

uh huh
or maybe combining them into other shapes,
like you were saying making these two together

uh huh

into one rectangle
uh huh uh huh
and these two into a parallelogram
uh huh uh huh
or-
uh huh

um
O:h
I don’t know.
They’re just thoughts.

No that’s super cool.
and I’m wondering if you can- does Jovan, does Jovan need some status in this class? or no.

she’s super high.
No she’s actually really smart.

Oh, okay.
And everyone sees her that way?
Yeah, okay.
I mean not that like she doesn’t love,

like sometimes I think she holds herself back too in

the same way as Joa Lin cuz she’s (.)

but she’s a little bit more willing to explain things,

I think.

Than Jao Lin.

Mhm mhm

But she’s super smart.

Cuz if she were to explain,

or you were to explain her way,

of um envisioning this as one rectangle instead of three?

mhm

that might open up the space so people know what you mean

mhm

by multiple ways.

mm

So then you can be like- okay so how many ways can you

turn this surface area into,

it’s basically you’re combining areas, right?

so how many ways can you combine areas.

mhm

to calculate surface area

yeah

and is there a most efficient way

yeah

or is there a favorite way or, you know.

that’d be cool.

the only think I’m worried about- ok here’s what I get worried about,

yeah

I totally love that idea.

This is what I worry about. (4s)

They’re not really seeing nets that often.

Like after this?

What do you mean?

Like whenever like I see tasks or anything like that of

finding surface area,

it’s always in the three D

uh huh uh huh uh huh

view

yeah.

and then I’m like worried am I not getting at what they’re gonna really need.

Well but you’re gonna give it to them in a 3D view, right?
So their job is gonna be to create diagrams from, like /to interpret that 3D yeah?/

/that’s right that’s right/

We’re gonna do the 3D view in a task card

and they’re gonna draw the diagrams.

yeah.
They’re not making more nets.

okay

yeah, they’re drawing diagrams on their paper that can help them calculate surface area

which means they might draw nets,

yield.

and they might draw separate shapes,

okay

but they’re gonna be considering the 2 dimensional implications of that three dimensional thing

okay and checkpoint can be come up with two different ways that you can find the surface area.

yeah.

mkay

I think so.
I don’t know yet how I would interpret- just with those words I don’t know how I would interpret what that means,

like what would another way be?

you know what I mean?

mhm

Um (.)

Or they have to at least be able to prove to me how to find surface area using diagrams,

what about two different kinds of diagrams?

that’s what I was, Okay yeah,

/that’s what ( )/

/that might be more clear/ what you mean

two different kinds of diagrams,

uh huh

that will show us,

how to find surface area.

yeah.

and use them to do it right?

so they’re using their diagrams to calculate surface area

and they’re doing that with two different kinds of diagrams,

so they’re being pushed to think about, how can we draw this in more than one way?

so,

some teams will go first to the six faces.
mhm
right?
and then what do you mean, a different kind of
diagram,
they’d have to think about that.
Some teams might do-

Could I give them a hint of,
like,
hint if you’re struggling could be like,
I don’t know,
Can you combine shapes to make something?
Is that too much of a hint? (.)

U:....m (8s)
I think maybe what we-
so, so,
I’m going back to why we’re asking them to do it.

(laughs)
right?
So if we’re asking them-
we don’t really care if they can find two ways just to
calculate two ways.

yeah
That’s not what we care about.
So the reason we’re asking for two ways I think (.)
Why are we asking for two ways?

Well actually I think it might be good for them to see
that no matter which way you slice it,
you’re still getting the same area.

uh huh uh huh uh huh
which might be big for some kids.

uh huh uh huh uh huh
thinking about it.

okay
But I think the biggest reason why we did it was
around status
and trying to incorporate other kids’ creative ideas
other than just the really high kids that are like,

yeah
di di di di
di di di di
di di di di
And give them something to talk about, right?

yeah
So for that reason I’m feeling like we don’t want to
hint it.

mkay
Cuz that- cuz then if we give a hint,
and they do it,
they no longer get to feel smart about it,

mhm
cuz it’s a thing that they got told, right?
mhm

I’m wondering if,

um I was just thinking about what if they interpret this

as another kind of a diagram,

so what if they do one diagram that’s a bunch of

rectangles

mhm

each of the faces, and then what if they use this as a

diagram,

That’d be fine, right?

mhm

As long as they’re talking about it.

then they could say well cuz this helps us see all six

faces,

mhm

so it’s still a helpful diagram.

Yeah, cuz some of them,

(laughs) they’re like really obsessed with the word

rhombus.

I don’t know why,

(laughs)

have you noticed?

I think some of them might see,

oh

and I think they’ve asked me this,

like is this really a rectangle, like

o::h

like you know,

oh that’s interesting

cuz it kinda looks like a rhombus /or a parallelogram/

/it does look like a rhombus, it is a rhombus/ if you’re

thinking of it as a 2D shape right,

yeah

I mean if you’re thinking of this whole diagram as a

2D picture. (3s)

Oh that’s interesting, cool.

Could I put actual three 3 objects on the table

Ye:::::s, so cool, that’d be so cool

Like a cube or something, like here in case for

reference for this one,

like here’s a little shape

Tha:::t is awesome,

Yes, thank you

like how can we draw that net.

Brilliant.

how could we figure out (/ ( )/)

/or create/ any kind of diagram

or create any kind of

yeah (. )
That’d be awesome.
I think that’s super /smart/

/sort of/ the next step getting them from like, just being given a net, to like, okay, we need to be able to visualize this.
yeah.
And you’re gonna give it to them without these supporting line, right?
So you give it to them like this?

Yeah.

Like we have all these shapes. (4s)
yeah.

We have all these little shapes in a box,
I could put them on the tables.
yeah.
awesome.
or even just like,
I feel like with these,
just putting anything like,
a shoe box, the box the calculators come in, the- /you know like this thing/

/yeah, that’s true/ I mean anything that approximates a right rectangular prism can support them.

And you know, this is a trapezoidal prism.
yeah.
cuz this is like-
yeah, exactly. (5s)
If they have something to pick up and turn around and like point to,
yeah
you know I think it really does support it.
yeah

yeah
or if you have like little boxes at home, like even little-
Aya used some little box that she had, um
a small calendar had come in,
or a box that playing cards come in, or-
you know,
mhm
just like something that like people can like,
touch all the faces
and point to when they’re talking
so there’s a way to say “this one”
(laughing) you know,
Yeah, I think that’d be awesome.

Okay.
That sound good.
Fun
yay
cool.
Anything else you want my help thinking about?
Or stuff you’re worried about with this class, or
mmm (4s)
No,
I mean,
(quietly) worried about this class
Or any cla- Anything.
I didn’t mean to frame it lika a- in that particular way.
Any,
No, I think I’m okay.
Cool
yeah.
I like working with this class.
They’re very workable.
mhm
They’re like the most open class I have with being
able to like,
push them,
or work with them, like they don’t get
intimidated with challenge.
uh huh
this class.
uh huh
and I like that.
Awesome, yeah.
Like /they don’t take it/ as a like
/it’s very special/
threat,
uh huh
huh!
Which I like.
Yeah.
Gosh it just make me think like,
What have people done to these children before they
came to us,
that they’re so like-
I know they’re a really /magical class/
/scared to be/ wrong.
yeah
yeah.
My 8th graders are not this way.
I don’t know.
And I thought maybe it’s because they are 7th grade,
but like,
I’ve talked to Aya and Kamilah and
(laughing) they do not have the same experience in all
their classes

yeah

so like,

I only have one seventh grade to go by this year,

yeah

And they just happen to be a really great class,

yeah

That’s super cohesive, but like

I dunno.

They just really bought in to CI.

mhm mhm

Like they really dig it.

Yeah, they seem like they really-

having fun with each other,

yeah

they’re enjoying the environment,

they’re happy to be here,

you know

mhm

They’re very much themselves.

mhm

it’s very sweet

We also have a whole lotta like gender things going

on,

yeah

which could have been a disaster and like,

they’re really like,

welcoming about all their-

Like Soul, the -

yeah

girl over here,

yeah

Is I think transitioning to being a boy.

okay

Like I think she wants to be a boy.

uh huh

um, which is, cuz that’s not her real name.

Her real name is Angelina.

Okay I was looking at the seating chart and I was like,

Is this a new student?

yeah

Okay I see.

And she was actually going to [another local middle

school] and getting picked on,

I think Lynn might have told me about her

Like really bad
She used to walk here every day and just show up at Adams, cuz she just liked our school. Awww, so sweet. and would like run away from there, and now she’s like one of our students and like that’s so sweet so sweet, like everybody loves here. and angel- and she’s clearly very comfortable, right? yeah like she’s clearly- she’s not in math, she’s like struggl- like she’s got a- she came in here with massive fears about math, oh my god.

So you’ve done a lot Like she’s been in tears the first couple weeks, Cuz she was like so ready to share work at the board, I know, /she’s grown a lot./ /to like let me come over-/ she would let me come over and talk to her, yeah so you’ve done, you’ve done really nice work, clearly. That’s awesome. And Angel, yeah is a boy yeah but like super flamboyant and like, uh huh you know, shows up with makeup a lot yeah and like, I don’t know what all’s going on there, but not that it matters, yeah but like they’re very welcoming yeah of like how Angel is, and his flamboyant self, and like- yeah they don’t like diss him for that or anything. that’s so sweet. yeah. it’s good. Do you feel like that’s school wide too?
Or just really they have that in this group?

I think it’s more this group a little bit. uh huh

But um, yeah I think the culture of the school’s pretty good. for the most part. Awesome.

But that gr- this group in particular I think is very-
But I’ve had other gender things going on and like,
they’re pretty good usually. yeah

is that my phone? a::::h

what?

I must’ve left my ringer on. That’s so horrible. Well it didn’t ring.

It’s probably been on all day. so, it’s not that horrible. could have been maybe. (laughs)

Anyway, awesome

Yeah, I guess that’s about it. Well, it’s fun to meet them, they’re so sweet.

I know, they’re great. I like when you question them (laughs).

Sol, the minute you came in here, ‘Ms Benito, who’s that woman?’

(laughs) Who’s that stranger?

They’re so nice to me though, I really like it. That does not always happen to me when I’m visiting classes.

I know No, it does not always happen to me.

Some of my other classes- and when I intervene with groups or like,
it’s not that rare that people are like (.) I get the cold stare.

(laughs) from the students, they’re like ‘you’re not my teacher’ ‘I did not give you permission to talk to me.’

(laughs) And they’re really good with like Ms Perez, Cuz Ms Perez is way into the CI too, so like

uh huh

she carries a set of the cards too. uh huh uh huh

and we both do checkpoints equally. uh huh, awesome.
So it’s not even like she only works with her IEP kids, yeah
like she’s really a huge part of this class, and they really like
like she’s equal to me in this class, and that’s great. awesome, yeah

Cuz you don’t always get that sometimes with the like,
IEP teachers and like, yeah yeah
They really like buy into that. yeah.
yeah yeah
So.

How’s your second period going?
Better! Actually

It’s finally getting better.

Um, I’m getting more of a schedule with ‘em on like what we do each day,
we started doing a study hall,
which they were like totally against in the beginning,
and I’m like, okay

They’re like-

It’s like the cutest school thing ever, like (laugh)

Yeah they were like, ‘why would we do study hall?
what is that?’

(laughs) and I’m like,

that’s so cute,

it’s like a place where you can do your homework.
and they were like,
‘well why would we need to do that?’

I’m like, ‘how many of you are doing your homework?’

and they’re like, ‘oh, none of us.’

(laughs)

No but it’s great and they’re actually like starting I think to feel a sense of um,
like excitement.

Cuz they’ll like get a homework assignment done.
Like some of ‘em are actually doing- some of them are not,
but some of them are actually doing work and being accountable, and they’re like you know, excited cuz they’re getting a good grade.

and it’s the beginning of the semester, and they’re used to like having Fs yeah

or not having anything done and just like owning that yeah and just being whatever. yeah

I mean I’m being kinda hard on them, I’m being super hard on them, but (.)

It’s cuz if I let go even like a second with those kids yeah

they’ll just like take full advantage. yeah

like I called every single one of their parents last week one day.

cuz a kid like yelled out super bad swear words across the room, mhm

so I- in front of the whole class, mhm

and so- and they all just started laughing, like super loud mhm

and I was like, that’s- all of you are in trouble, that’s no okay. mhm

for the person that yelled it, or for you to all react that way.

It’s like they’re kinda sick of me being hard on them, but they’re finally getting better, I think. mhm

Like I had- one of the kids even came up to me and was like ‘you gotta be harder on them Ms Benito cuz they’re not listening’

and I’m like, ‘okay’

And that’s when I like- and I did all the phone calls right here in the room, mhm

and had ‘em all come over, and was like, ‘okay.’

‘if this is what we have to do every day, that’s what we’ll do.’
mhm

But they’re, they were good today.

mhm

there were moments (laughs).

Kamilah was saying that you guys were hoping to, do all heterogeneous classes next year, and not do a support class,

yeah!

and try to figure out how to get the principal on board with that.

we talked about that some, and we um-

Diane James was there with us, um, just happened to be in the room, so I pulled her over and had her, talk a little bit with Kamilah about-

I was trying to see if she could be a resource for us too, for interacting with-

Cuz I know that you principal- or-

I don’t know her but I hear and believe that your principals’s totally caring a lot about the kids and like coming from a really good place.

and maybe just doesn’t yet know that, groupwork in heterogeneous classes can actually support, students to learn who are struggling.

Yeah, I feel like my sixth period uh huh

this class that you just saw uh huh

is a perfect example, uh huh

like we have a huge amount of IEP kids, yeah

like they’re pretty much all in here. yeah.

and this is a great example of like, even though we have all different levels, yeah

like they’re all, getting access yeah

you know in some way yeah

it’s not like, yeah yeah

but I mean, I feel like that’s gonna happen in any class,
yeah
and, and is it preventing people from learning,
or, I’m sure sometimes it’s a barrier to learning
and sometimes not, right?
I mean that’s true in any group, any group of people.
the grown ups I do math with (laughs)
(yawning) So I don’t think it’s that they can’t learn
if they’re not in a support class.
No, it’s definitely not like,
forget it, they’re out of the loop and just sitting there,
right?
The only thing I see the support clas being good for at
this point,

uh huh

is like, them getting their homework done.

uh huh

Cuz it’s like, okay,
they’re getting a chance to like,
do work they will never do if we’re not here like
showing them how to do it,
yeah

but I don’t know, like how worthy that is or not.

uh huh

Cuz then they’re gonna go to high school and they’re
not gonna have that support anyway, so

yeah

I mean, I don’t know. (.)

yeah

It’s gonna be a rude awakening for some of ’em.

yeah

Cuz they’re not gonna have that.

yeah

(.)yeah

But in, you know, yeah.

you guys with your like (.)
kids are gonna get opportunities to figure out for
themselves,

and to show other kids that they are smart.
even kids who:: have failed or are failing,
even kids who have IEPs.
even kids, you know,

fill in that sentence

right

with anything, right?
that’s the joy of heterogeneous grouping, right?
is that kids can surprise each other and themselves,

and then figure out like, ‘oh,’
‘I’m the one who walks in knowing how to do all
these calculations, and yet
somebody who I thought couldn’t do anything just showed me a new way to visualize this that I never thought of before.’

Like, “oh,” ‘hm, there might be more to this story’ (laughing) right than this binary sense of who’s good and who’s not good, you know.

That’s exciting.

go you guys.

eyay!

Awesome.

Cool
yeah so likewise,
also in first period
I’ve totally seen huge growth,
and the kids that were in my old first [regular] and second [support] uh huh
to now being in just my first period, uh huh
Like some of them are doing SO much better,
in a heterogeneous class. uh huh.
just for the sheer fact of like,
they don’t have all their buddies,
it’s like, they have more (competition) now,
before it was like,
you know they could, it was like-
they were all at the same level yeah
so they just kinda fed off each other. yeah
and now it’s like,
okay there are all kinds of smartnesses going on here,
and they had to step it up “I better keep up” right (laughs)

Yeah a lot of them were just getting super lax yeah
super lax yeah
cuz I had no classroom management in that class (laughs)

Well, it’s really hard, right?

I know, it’s so crazy.

and like classroom management through content in heterogeneous groupings is so powerful, right?
like I’m gonna keep you busy doing math with your group
I don’t have to worry about how I’m dealing with your behavior issues,
cuz you’ll be too busy doing math (laughs)
I know
right?
So great.
yeah
(laughs)
I know. I’m with ya’
How did the 8th grade lesson go?
Did you observe that today?
Which one was that?
The um, with Kamilah this one.
Yeah, um it was good.
It was- it was really good, um I taught it with my kids today.
Okay.
Her- the one that I saw in her class,
I was there only first period,
and they,
what was really cool about it was the task got them to really clearly articulate some misconceptions.
mhm
that now she can take up.
And they were the same ones she was predicting.
Like one group (laughs)
it was so awesome,
They had the- they had the lines crossing,
mhm
they had the point of intersection circled,
mhm
and then they said there is no point of intersection.
MMM
these lines don’t intersect.
they told me they don’t intersect.
wo::w
and I was like okay well how do you know they don’t intersect?
because there’s no point that’s the same. (.)
and the::n,
somebody thought well it’s just because the table doesn’t have everything in it yet.
mmmmm
and so they extended the table out this way looking for a point of intersection instead of looking in between,
right, so there was just like-
mhm
she totally knew that was gonna happen,
like she knew that they don’t see ‘em as points.
Somebody in the class was then able to tell me,
the lines cross,
but there’s no point of intersection cuz it’s not a point.

So what they think a point is,

yeah, cuz it wasn’t like on like a crossing right

is only something that’s on a cross.

Which she kind of was anticipating that,
so it was really cool cuz they were able to clearly
articulate that.

and now, we’re about to go debrief now,
we’re gonna talk about,
okay, so now we know that.

How can we take that and move forward you know
those ideas

right right
It was pretty cool,
So like /the discussion gave them the opportunity to
articulate it./

/yeah, I had stuff like that coming up/ as well too.

like a lot of ‘em okay they did the graph,
they got it really good and then it was like,
I don’t (.)
Like I really had to identify with them,
like cuz a lot of them didn’t even know how to say
that point either.

yeah

like I had to identify then okay like,
a point,
is an x and a y.
Like this is what I’m looking for.

yeah

Like when you say you’re ready for checkpoint,
it has to have these two components in it.

yeah

but a lot of them were like saying,
like the point was one and a half comma zero,
and a lot of them were saying zero comma one and a
half

uh huh uh huh

like they didn’t know how to read it even.
They kinda whipped through this though,
I still have some groups on this problem

mmm, we did not get here.
A lot of students, at least in that first period class of hers,
sort of didn’t get-
they were like yeah we have a table and the rules and the graph,
we’re done.

It’s like, well now you have-
Okay good, you got the graph now (laughing)
now is when you do the work, right?
now is when the meaty part-
and they sort of weren’t locking it yet to what they were-
yeah one of the things I said to them was I was like,
cuz facilitators read the task,
and like facilitators have to read all the way through your task,
cuz a lot of ‘em were just doing this,
and they weren’t reading what the actually task was,
I went around and I checkpointed, I’m like hey,
what is the task we’re doing.

Cuz a lot of ‘em didn’t know.

So I point- so I said, “oh, you need to”
smart
reread your task,
right
before you even start.

yeah yeah.
yeah, so I was-
they were, so I was directing them to coming back here after they had the graph.

Um, she figured out that,
well the graph also was taking a super long time,
which is very predictable.
and they were doing beautiful graphs that were taking forever.

oh yeah
so, super elaborate
she ended up figuring out partway through first period,
oh, she could give them the paper she has
where there are axes already set up,
mhm
where it goes by ones,
she already has some graph paper like that copied,
mhm
she’s like, ‘oh,
you know they spent all this time like,
drawing and writing in all their little numbers,
But I do think there’s a skill to doing all that too,
which was good for them to have to do.
uh huh
cuz I still have kids that are struggling with graphing points.

Yeah.
Her kids in that class, they weren’t.
they were just taking forever to do it.
but it wasn’t a struggle,
it was just like they were being so precise,
like their graphs were all perfect.
yeah.
They were all perfect graphs.

So um,
so the she, I think in the next period she ended up
giving them that paper so that it wouldn’t take so long
to get to the meat of the,
mhm
of the task, so.
Well I’m torn cuz,
most of them all got to this point.
uh huh
but not everybody got here but a lot of them did.
some of them finished
So did they figure out here
that the point is in between here and here,
it would be here in the table?
Um, here’s,
see and this is where like I wasn’t there on Saturday,
so I don’t know

yeah
like she literally handed me this today,
yeah
So I didn’t know what you guys had talked about,
uh huh
what you were looking for.
uh huh

but when I read this,
and even the kids did,
they were like,
checkpointing after they found the point of
intersection because,
when it says using all representations like,
this is already done.

Right,
so that’s what they weren’t getting either.
So we can think about how we would modify the task
card,
what we were intending by this “demonstrate your
thinking” was
the thinking about the point of intersection.
so you should be able to tell me,
where is the point of intersection

oh, see /that would have been
/in the graph, in the table/ and in the rule.
That’s what we were going for.

That should have been more explicit.
yeah, yeah.

Cuz I was like,
even reading it and I was like, ‘wow this is really
redundant’ like
demonstrate it with the table, the graph and the
equation.
the equation’s here.

So we shouldn’t have said /demonstrate your thinking/
/the graph’s here/
we should have said,
show how you can find the point of intersec-
or show how the point of intersection,
can be seen in the table, the graph, and the equations.
That was the meat of it.

So maybe what I will do tomorrow,
yeah
for the kids that finished this.
yeah yeah
I’m gonna bring them back,
yeah
and I’m gonna say, okay,
I’m gonna re-give you these and you’re gonna have to
re-checkpoint,
of being able to prove to me,
in the table,
and the equation,
not you showed me with the graph,
1835 yeah
1836 where it is in the graph,
1837 in those two points before you move on.
1838 that’d be great.
1839 that’s what we were trying to get them to do.
1840 O::h okay,
1841 cuz that /makes tons of sense/
1842 /sorry/
1843 I felt like is there more depth that’s supposed to be
1844 here?
1845 yes.

Heather Cycle 4 Planning Conversation

Heather yeah
Mia

1 as good as it can be at this point in the year.
2 (laughs) just trying to /barrel through./
3 /tired, yeah/
4 the last week before spring break
5 yeah
6 counting /every minute/
7 /yeah, it feels like a little bit of a/ marathon, yeah
8 well,
9 it’s more-
10 for me it’s more about survival right now,
11 but I, /than a marathon/ but
12 /yeah/
13 I wish it was a marathon,
14 I’m just trying to survive right now.
15 yeah
16 yeah
17 OK,
18 so then what I want to know is, um (.)
19 how can I support your survival at the happiest level it
20 could be?
21 u:::m (.)
22 I don’t know (laughs)
23 yeah
24 u::h (8s)
25 I mean, I’ll be like super frank with you
26 do it
27 I’m just checked out as well
28 and trying to get through this
29 so, you know (deep breath)
30 I don’t know (small laugh) (.)
31 and I feel like um-
32 yeah,
33 whatever,
I don’t know.

So:::

No I do want to know what you feel like
if you want to tell me.

U::m,

(inhale) I guess I just like,
I didn’t know that doing CI meant I had to do all this.
like it just feels like a lot all the time,
and a lot of times I feel like I’m not really even asked.
like it’s sort of like,

uh huh

just expected
that like we have to do all this stuff and perform and

like,
I don’t know,
it’s frustrating

can you say more about all this?

well,
I don’t know, when I signed up for CI,

mhmm

like I didn’t know that I was gonna have to be
coached (^),
that I was gonna be observed(^
all the time,

mhmm

that I was gonna have to have meetings(^),
that we were gonna have to do t-facs(^),
and all these other (^) things,
and I (inhale)
it’s just-

mhmm

yeah.
it’s a little frustrating at times.

mhmm

I feel like I’m in BTSA again,
mmmm

kinda all over.
mmm

and you know,

I was really happy to walk away from BTSA

mmm

like (laughs)
I don’t know.

So I don’t know. (.)
yeah,
it’s just,
sometimes I just want to teach (laughs)

mhmm

I don’t know.

that’s just kind of where I’m at right now.
so::, yeah,
well especially at this point in the year,
you don’t have to be coached.
that is not a have to.

yeah

um
(4s) my sense is, um,
yeah, if it’s feeling like that right now
and there’s not,
for whatever million reasons,
million very valid reasons I could think of,
it’s not feeling like, um,
this is what you want (^)
in order to support you (^)

mhm
then let’s not do it.

(laughs) I mean, is that a requirement
of being, doing CI.
I mean I love CI,
but I don’t want to get to this point where like I hate
CI.

yeah

Does that make sense?

yeah

um
no, it’s not a requirement.
I mean I think that,
I think that what the intention is,
and if the intention isn’t playing out in the way
that it is intended, circular,

um,
then something is not quite aligned correctly
or not working well for you,
so the intention I think,
doing complex instruction is really fuckin hard.

yeah it is.

and it’s more that just like doing participation quizzes

yeah

or like doing multiple abilities launches, right?
it’s like, it’s deeper than that
and it’s really hard

and so,

and

I think,
and maybe other people who are planning this
professional development effort,
think that it’s also really powerful
um and can really support

teachers and kids in awesome ways.
Um, but that it’s really hard, so the-
like all of the layers are-
the intention is to make them supportive, of you,
you plural,
not you Heather,
but you anyone,

mhmm

who’s choosing to take on that work,

um,
to make it (.),
to to make it work for you,

mhmm

or to support you in whatever it takes to figure out like,

what’s the Heather version of this,

right

mhmm

um (.)

uh and to bring it from like abstract ideas sitting in a classroom with a bunch of adults (^), into like the reality of

right

work, right,

and so the purpose of coaching is to support that.

If it’s not right now feeling like that’s what you need or want, um,

there’s absolutely no requirement for that.


well, I’ll just,

like I’ll just be honest.

yeah

like, for example,

like the last time you were here, you were like

yeah, I wanna come see all your classrooms,

so I’m gonna come like bla bla bla.’

but it wasn’t like,

hey I know you guys are really busy,

uh huh

would it be ok if I come visit your classrooms and

help you?

uh huh

like do you know,

like do you see the difference?

u huh (^)

it’s like

sometimes I just feel like things are being put upon us

uh huh
instead of like (.)
you know, being asked.

like I don’t feel like I’ve really been asked
to do a lot of the things that have happened

this year.

and

it’s been a tough year

and I think

I’m just feeling very stretched right now

and like really needing some appreciation for like

all the work that we are doing (‘)

yeah

and also some like

acknowledgement of like,

that this is taking out of our time to do this.

uh huh

and that everybody’s aware of that.

uh huh

because I don’t really feel like it’s totally been

addressed.

Like I feel like we are just like doing this,

but I don’t know-

And I don’t think everybody feels the same way as

me,

but I I just need to say it for the record,

that like

yeah

I would really appreciate to be asked.

mhm

um

does that make sense?

mhm (‘)

And I don’t ever think that you have an intention of

trying to make me feel like I’m being put upon.

I don’t ever think that’s like

I know, yeah.

how you feel.

yeah

but, I think, you know,

it’s just something I’m just nee-

I’m really grappling with a lot

and I don’t think that teachers get a lot of support in

general

mhm

and a lot of stuff feels like we’re being put upon

and it’s like well, you gotta do this
and you gotta do this
you gotta jump through this hoop,
you gotta do this. /

If you want to do this,
then you gotta do this.

mm

uh huh

and, um, (4s)
yeah,

I just,

I don’t know.

that’s all I’m gonna say (small laugh)

about that.

mhm

but it’s just kinda,
i’m sort of feeling it all around.

so.

yep

(sigh) um,.

I don’t know

yeah, (.)

thank you.

laughs

no I appreciate it.

I appreciate the (.)

working with what’s real for you,
is helpful.

u

(4s) it’s an interesting-

it’s an interesting question that I think I’ll

(3s) it’s a complicated question,

yeah

like what does it mean-

cause I don’t think that what what-

I have thought-

that what

I was bringing

was another thing that I was putting on you.

right

although I can totally, totally get (^) how-
what you are saying,

it makes a lot of sense to me. um.

/like I said, I don’t think everybody feels that way/

/like you said, teachers don’t/ get a lot of support,

mhm

and so the way it’s been showing up in my brain

is like that’s what I’m doing.

right
Like I’m showing up to offer a thing that doesn’t get offered very often, which is like support that’s real and based in your classroom and in who you are as a person, sort of trying to be tailored to you, right um and not dropped on top of you, you know? um, but I totally understand how it can feel like another thing that needs attending to, that you’re— you know, you have to STOP the other things you are doing, which you don’t have time to STOP in order to do THIS, right? um, yeah, so thank you. that’s useful and interesting to think about. um (.) mhm what that might imply for different ways to— show up for people, you know.

and like I said, I don’t necessarily think everybody feels the same way as me. that’s ok but I just cuz I’m finding myself being really resentful lately, yeah and I just, don’t— I don’t want to be resentful, I want to appreciate this too mhm but um, (5s) I don’t know, I guess I just needed to say it. yeah cause I guess I’ve just been (.) not saying anything and like going along, mhm which is, I think a lot of (5s) what a lot of us do, mhm like and just. yeah, I don’t know.
it’s been a hard year though.
yeah
so, I, you know (.)
I just think there was a lot
on our plates this year to take on-

There was, a ton,
especially with new curriculum(^),
and a lot of change.
yeah.
totally.

So
I don’t know,
I don’t know, like (small laugh)
it kind of like feels like I’m throwing a bomb out there
but I

no, you’re throwing reality out there, which is what I
want,
I mean that’s (.)
that’s where everything begins, right?
from what’s real. so I appreciate that.
(inhale) um (.)
OK,
so

(4s) I- I-

there’s absolutely no reason

(laughs)

I have to come to our classroom
and watch you teach
tomorrow,
there’s absolutely no reason.
if you were to ask me to
because you wanted me to
because you felt like there was something I could do
with you

mhmm

here(^) that might support something you are trying to do
right now,
then I could come.
OR
if, or, if you were to ask me at some point in the
future,
because something in the future shows up for you that
you think you could use
some support thinking about
or trying out
or whatever
then I could come,
but there’s absolutely no reason I need to be here.
357 at all.
358 (3s) it’s not that I don’t mind you being here-
359 I know,
360 I’m not hearing that you mind it.
361 yeah (.)
362 I just don’t want to have to like
363 create more work (laughs)
364 yeah
365 I dunno.
366 I’m feeling lazy, and like I don’t know- just 
367 everything-
368 you’re not being lazy, 
369 shut up (laughs) 
370 you work so hard,  
371 you’re not allowed to call yourself lazy.
372 and like I, I mean, I don’t know 
(3s) OK, I feel like I got what I needed to say
373 and I’m fine with you coming in here
374 I just needed to say that for the record.
375 (3s) well I, ok so then I-
376 lemme be honest in return.
377 OK
378 Um,
379 I have-
380 so what I’ve been experiencing is matching and 
381 making a lot of sense 
382 with what you are saying 
383 because what I’ve been experiencing is 
384 I don’t know why I’m here,
385 mhm
386 I don’t know what Heather wants to learn with me or 
387 from me, 
388 mhm 
389 I don’t know what Heather wants, 
390 and I know like, 
391 you’re always kind, 
392 (laughs) 
393 you’re always welcoming, 
394 we have a good time, 
395 we usually laugh, 
396 you know, like I don’t- 
397 there’s nothing unpleasant(^) about what we’ve been 
398 doing, 
399 but I don’t know why we are doing it yet.
400 mhm 
401 I don’t know what it is. 
402 Um, 
403 which is fine, 
404 and sometimes we- that’s-
there are different ways to forge a useful path
together.
there isn’t only one way,
and so it hasn’t really been bothering me,
or I’ve definitely never felt like I’ve wasted time here,
but I haven’t felt very clear,

um, about how you’re hoping I plug in
or what it means to support you.

mhm
like what I should show up with to support you.
Um that hasn’t yet been clear to me.
so, um (.)
so then I haven’t felt honestly totally sure how much
what we’ve been doing has been supporting you,
in any way.
I mean I feel like maybe in small pieces or I don’t
know.

mhm
um,
and again, that’s-
it doesn’t particularly bother me, that’s just-
the way that this work unfolds
is different with different human beings,
different personalities,
different classrooms,
different, you know.
it unfolds different.

yeah
um,
so maybe what’s happening is that
there isn’t yet a way (laugh)
that you feel like you want,

(laugh)
that you want my help,
and that’s why I’m not sure what it is (laugh)
cause there isn’t one (laugh),
which is totally fine.
and then we can from there, if that’s real,
and that’s what it is,
then we can from there decide,
do we want to try to create one?
is there a way you would like me to plug in and
support you,
we could create one,
or we could just not(^).
we could come back to it next year
and create one next year,
if we want to.

or not, if we don’t.

you know, um,

(.) I definitey do not

feel like it’s constructive

for either you or for me to, um,

forge ahead if it is feeling like another thing that has

to be dealt with,

mhm

um because then (.)

yeah cause then there’s room for that resentment,

there’s not a lot of space for learning in there for (.)

or for like (.)

it feels like a very limited space within which to

work(^),

you know, together,

to create something, so um (.)

and if that’s how it’s showing up at this point, then

let’s-

let’s hold off(^) and like either generate something

new or different for next time,

next time being next year,

or next month,

or- um

I think it looks like I’m going to have the opportunity

to work with Adams more next year I was telling

Lynn,

which I’m really excited-

that was not clear to me until recently,

so I’m excited about that,

that there will be hopefully some continuity

and I can come back.

Um (.)

yeah

well, um, I mean do you normally do this with every

school that takes CI on?

I guess I’ve just been really unclear about like

what you ARE doing here,

like nobody’s ever told me why you’re here.

hm

Like no one.

Like all of a sudden you showed up

and were coaching us

and I didn’t have an idea of why you were here.

oh, yeah.

and maybe it was sent to me in an email and I didn’t

read it, or you know

mhm

maybe it was told to me and I forgot,
but like,
you know I don’t really-
I do feel like it hasn’t really been clear to me, like-
yeah,
so the reason that I’m here is very very general.
and it’s that um,
in our designing of the professional development that
we are calling CI in San Francisco,
supporting teachers here,
um, we’ve sort of build different pieces of support
that we think help teachers learn to do CI(^),
or learn to integrate CI into their practice,
and to make the most of it.
and so one portion of that is official professional
development,
like our summer week and the follow up days,
right
like that stuff, right?
and then one portion of that is coaching,
mhm
which is just trying to connect those ideas with
classrooms.
so that is the very broad-
that is my very broad mission.
And then within that, um,
I sort of forge that with different teachers.
mhm

So,

um,
yeah, sometimes there’s some team teaching(^),
sometimes I do some teaching(^)
and sometimes I just watch(^)
and sometimes we do-
with some teachers we focus a lot more on
planning(^),
we spend a lot of time planning (^) together and less
in class time,
there’s a lot of flexibility
around how we want to make it work
mhm
depending on what supports teachers.
there is no one I report to about how I spend my time
in a way that I have to do it any particular way.
mhm

Um
so yeah the mission is broad,
the mission is in what ways can I bring
my time,
and my brain and my expertise
or my experiences and my questions
or my eyes or my different perspective
to add them in to what you-
and so well I guess there’s one other piece.
there’s one, which is just helping people to integrate
complex instruction into their classrooms,

mhm
but also help
to create departments,
or- not to create, they’re already there, t
do help support /department / cohesion
/right
and learning around CI because
it’s hard, right?

yeah
and doing it together is the most powerful thing so then,
I try to figure out what does it mean to lend myself to
the effort of
your guys coming together and learning from each
other

mhm
so sometimes I support peer reciprocal observation,
like I mean,

one way I might support you is come teach your class,
so you can go (.)
or come have Lynn teach your class so you and I can
go together t
do watch someone else teach
and then we can sit in the back and kibitz about what
we’re seeing
and it might or might not apply to you

mhm
and give you that learning experience.
or I might go the other way,
bring someone in to your class so that-
you know what I mean?

mhm
just sort of facilitate learning
in whatever ways we can
generate it.

um, and honestly,
my honest opinion about the Adams department
is that you guys have a ton of resources here already
and the most powerful learning you guys are gonna do
is from each other.

right
not from me.
and so,
I mean I feel like I’ve had a good time here and I think I have-
(small laugh)
it’s not that I think what I’ve done here is for nothing,
right
i’ve had really rich experiences here that have been awesome,
um.
AND I just see all this awesome stuff going on, like in different rooms and I just want to create cross-
/right () right
I want to create more of that to bleed across, because there’s powerful stuff going on all around us, right,
and I want it to-
that’s going to be more powerful than anything I could do with any one person.
um ()
/yeah

so what I’m hearing from you is,
you’re-
and you were honest about this at the very beginning of the conversation,
that you’re kind of in survival mode,
mhm
right?
um,
which means maybe you’re not in the space right now where you want to be,
um ()
you know- cause one thing we could do is think together for a little bit about like well, what DO you care about?
and what do you want to have going on in your classrooms
the same or different than is going on right now?
mhm
and
what would it mean to plug in
and for me to be a part of that thing that you care about.
right?
right.
we could do that,
or we could do that next year, you know, if /yeah that’s not what you’re- where you are right now.

I think the hardest thing right now is like, like for example with 3rd period, the period you are gonna come and observe, like- I might come and observe (laugh) or were going to or whatever it is (laugh) it’s on the schedule. it’s not that I don’t want you in here/ I definitely don’t want it to sound that way /I know, honey, I’m not hearing it that way / I promise, I am not hearing it that way.

I just like, I guess it’s hard for me to even (. there’s like mulitple prongs of things going on, /uhuh but like, poor Lynn, she’s all sick what- I think one of the rough things right now is we are a week before spring break(^), like everybody’s checked out(^) like (.) the 8th graders are like insane right now. mhmm like Lynn’s been coming in in 3rd period. Llike it’s- it’s- how do you describe it Lynn? I don’t know (laugh) it’s so much work every day for me to just keep my cool with those kids, uh huh cause there are so many needs uh huh that like looking at like going deep with CI right now uh huh has just been like, kinda uh huh tough. yeah. I got it. and then, like, I’m just trying to maintain yeah like them, like even staying in their seats right now
(exhale sound), so I’m just, yeah
I don’t know,
I’m struggling yeah
like I’m really struggling, yeah
I have a really tough crop of kids this year yeah, yeah
and I just...

it’s kind of like been really hard and disheartening.

and then, top it off with like (.)
I dunno, Pythagorean Theorem,
it’s like you said in your email yeah
it’s not been super group worthy, yeah
they’re checked out,
it’s kind of tricky and complicated,
I mean feel like we are kinda getting some headway to like-
I’ve been on, like, these three problems for like three days laugh
like I feel like I’m totally like going crazy (laugh), like I just, uh huh
I mean we’re finally getting to the end, but I’m just kind of like,
I don’t know. yeah,
it’s not felt-

I know.
and to be totally frank,
I would say this next section, yeah
I would completely redo

without all these words and junk, yeah
but like
I don’t even have the energy to do it.
yeah
Like I’m tired of having to create our entire
curriculum.
yeah
every lesson,
like that’s not what was supposed to happen (laugh)
yeah
so, I don’t know.
I want you to be here
and I-
but honestly what I need is like more bodies in here,
mhm
like baby sitting children.
That’s kind of how- where I’m at right now,
which is horrible
mhm
like I hate even saying that.
But that’s,
like you’re asking me what I need right now,
mhm
that’s kind of how I’m feeling (laugh) like
mhm
I need somebody to stand over Joaquin
and like keep him in his seat
for this whole period or
yeah,
and it’s just rough,
I don’t know. (.)

So this is where we are supposed to go next (gesturing
to a page of problems from CPM in front of her).
I’m still not completely finished /
yeah
with this with all the kids.
Yeah
This actually came up in our last meeting,
we’re like planning on, like doing revisions of the
units
yeah
apparently a lot of teachers /
/yeah
are like way stuck back on some units
yeah
because like I think there’s been,
with CI I do find what’s tricky is like
where’s the start, where’s the end, and like when is it OK to move on? when have we just like flogged(^) this horse(^) into the ground(^). (to Lynn) sorry to use horses because that’s a horrible thing, but you know what I mean? yeah we’ve just like beaten this into the ground and it’s like when do we move on, I don’t know, like I yeah yeah yeah, /no I totally get it. /so maybe that’s our focus, maybe that’s where I need... ok I don’t know, I think things are gonna unfold (.) yeah yeah, ok. (laughs) yeah, well I think one of the reasons that that’s a really hard question this year(^) with the new curriculum(^), is that there are no lesson objectives provided, (laughs) so it’s really hard to know, like well what are we supposed to be getting out of this? if I knew what we were supposed to be getting out of this I could decide if we’ve gotten it and therefore we can go on. mhm You know. So hopefully next year that will be better supported uum (.) yeah, so one thing that could happen, Lynn and I were talking about this earlier. Um, so many things could happen. One thing is we could say HI you’re great, goodbye, let’s talk in a month. (laughs) We could do that, like right now if you wanted to, um (.) We could- and I really really promise you, I know this might be hard to believe,
but I promise you I do not take it the tiniest bit personally.

(laughs)

I do not have hurt feelings and it is not your job to make any decisions based around, like, what you think I need. I’m fine. whatever we do, I’m fine.

Um (.)

another thing is I could just teach your 3rd period class and you could take a break.

(both laugh)

you could sit in the back and watch, (laughs) and see what happens.

Um...

(sharp intake of breath)

Do you really want to do that? there’s a lesson that there’s a lesson that Lydia and I just did uh huh today, a lesson around (gestures to her papers) that isn’t this.

no.

but it would require kind of skipping this or rearranging.

(laughs)

but if your kids can do this yay!!!

no just kidding

it requires the pythagorean theorem

but it would be- (loud motorcycle sound)

oh my god, that scared me. I hate motorcycles and loud cars.

um,

you would probably need to give them calculators and not do the estimating side lengths piece, or at least not yet, but it was, um

(3s) were you there on that Saturday? did you do this lesson with us?

You were not there.
yeah, I wasn’t there.

it was this (hands her the task card).

it was around that and we ran a participation quiz, um

mmmm

in which the kids,

like we told the kids we were not gonna talk to them

for the whole class

mmmm

so there was like no-

um, and they just did math together

and we watched.

and they did.

the whole class.

the whole period.

and they- and we did-

we ran a participation quiz,

so we were watching very closely but we were not
talking to them,

so anything we wanted to say to them went in a

comment on the participation quiz, basically,

you know

cool!

um,

and, uh,

what we did in that class was,

I launched it

mhm

we did basically no do now

or the do now was just like,

write down everything you know about the

Pythagorean Theorem,

like get it in your head

and we didn’t debrief or process it at all.

Um, and I launched it

and then she and I ran the participation quiz where

I had four groups and she had three groups,

we did them on posters on the wall, /

/wow

so we had space,

mhm

and then, um,

we stopped the class like halfway through

um and just had them-

like we kibitzed a little bit,

you (Lynn) were there,

and um we kibitzed a little about what we were seeing

and what we-

like they surprised us a little bit.
they did something different mathematically than we were expecting

we kibitzed around it a little bit
and then we stopped them in the middle, which we had planned to do,
and gave them, like,
un, two silent minutes to just read other groups’ posters
so they could see, be informed(^)/

/mhm
by other things that were happening around the room,
and then they went back in and um

(someone comes in here and some talk with them)

um, yeah and then we basically, like we didn’t even,
hér only content objective, like math content objective, was around kids using the pythagorean theorem /

/mmm
in a situation that’s not just like a naked triangle but they have to-
and then there was a lot that we were trying to support around participation and like getting kids to talk who don’t usually talk, and that kind of stuff.

(yawning) I like that idea. let’s do it.
should we do it?
yeah, I can’t,
i’m burnt.
yeah
like this- this... I ca-
yeah,
let’s not do it, OK.
good.
this sounds refreshing,
like it sounds..
yeah, so there were a number of things we did that made it work.
So one thing we did that was like (high voice) amazing,
it was like crazy good,
was um,
we took a piece of paper, we taped it into the middle,

uh huh
it happened to be blue.
we taped it to the middle of the table
and one of the things that I- in the launch that I told
them we were expecting from them
was that this paper- that they all
they had four of these (the task card with diagram)
because I wanted them to be able to sketch and try
things,
okay
but I didn’t want them to be doing this (body hunched
over the paper, hiding it from others), /right?
/okay/ right.
so that this paper had to be physically touching that
blue paper at all times
through the whole class
and it was amazing.
I love it.
cause these big huge tables make it really hard, right?
yeah
but they were like
in their space,
they were like this the whole time.

uh huh
I would love, thi-
it was super fun, you wanna do it?
this sounds great!

Like I feel like I’ve just been like, taken a shower
right now.
yay!
Like I just,
I can’t
yeah
do another day of this (gesturing to the worksheets on
her table)
like this-
/awesome/ because I don’t know what I would offer
you around that. (laughs)
right.

thank you!
ok so I think we are on the same page /then

/yeah/ yeah

about, like, what’s happening
yeah
cool.
intake of breath.
this sounds great!
yay!
yay!
and I had so much fun,
we- it was so fun,
and her kids are just like,
they were-
we have to ask them to be generous with me because
they don’t know me,
so I have to say, like,
just with big smiles, like
Ms Benito is letting me play today.

um, I think they’ll be really happy
to see somebody else
(laughs)
like I’m sure they /are pretty burnt with me.

there are.
there’s a ton of sweet kids /
/yeah
that get really overshadowed by /
/yeah
like four rough kids
and like the rest of them are like really good.
yeah
so-
and my proposal might be, like, if-
if Joaquin keeps getting up,
maybe he just gets up.
Like let’s prioritize the learning of the class /
as best we can,
and just make sure for this day,
just so that we can like
have a good day and learn something
and play, you know what I mean?
yeah
let’s not let him-
derail
yeah, he kinda just- he walked out today
yeah
and I was like
okay
oh god!

(laughs)

So we-
    so Lydia-
    so I have all this stuff that Lydia and I generated
    that we could transition over here.
    yay!
    so we talked about like, um,
    I know.

I haven’t even done this problem but it looks really interesting.

oh really?

yeah,
    and they won’t know the answer by the end
    and that’s totally fine, yeah.
    yeah,
    cause our content objective is /

/okay
    they will apply the pythagorean theorem(^),
    okay
    which,
    like,
    they’re gonna generate some pathways, right,
    mhm
    and they are gonna- these make right triangles
    and, in her class the thing that surprised us content wise
    cause the grown ups that I did this with didn’t do this,
    mhm
    was that they used, i
    t was actually super smart and I just didn’t expect it,
    they used proportional reasoning
    to estimate this length with a ruler.

oh wow
    because they were like,
    well this says it’s 12 and on the ruler it’s 7 inches,
    or centimeters, or whatever it was,
    then this is about, you know, whatever, 8 and a half centimeters,
    so that’s about- like that’s what they were doing /
/wow
    which is amazing,
    and awesome, but /not the content objective/
/does that actually work/ on here?
that doesn’t work on here though, does it?
because it’s not drawn to scale.
I don’t know if it’s drawn to scale.
ok
it might be.

so the whole-

OK,
so-
so we had to kibitz a little and decide,
oh given that we are seeing that,
how do we get them to the pythagorean theorem,
which is what our content objective was,
but there were ways
right

mmm
some of the grown ups.

so what is the point of this?
you start here at S,
yeah
and you are supposed ot find the shortest
route to get to-
back to S having touched all the walls
oh, o::h,
having touched all the walls in some way.
yeah

so you could be following it
or you could be, okay I see,
just touching it.

it’s a race,
so the kids are in a school yard, t
he way it’s set up,
this is a bird’s eye view,
you have kids. (reading) children are playing a game
in a rectangular school yard.
this is it, right?

mhm
children start at point S, which is four yards bla bla
bla,
they have to run and touch each of the other three
walls and then get back to S.
The first person to return to S is the winner.
So what’s the shortest route for them to take is the question.

hm

and so none of them,
in her class they weren’t actually-
like they were making sense around shortest,
none of them got anywhere near being able to prove
that their route was the shortest,
which neither did any of the adults /

when we did this for an hour, right,
like that’s a hard thing to do.
But, they did-
so Lydia was suspecting that they were gonna get
stuck with the fact that there’re so many decisions to make.

mmm

like you have to decide, like,
well where are you gonna go on this wall first?
where are you gonna go on that,
so then, in the launch-

and did you have kids, like, following this line

I don’t think so

uh huh uh huh

ok

uh huh

which still they have to use Pythagorean Theorem,
right /

to find that length,
so it’s cool.

right

so then we thought about,
okay, so what do we have to-
how do we have to launch it-
what’s the participation we need to ask for to get them
past that

mhm

so we had, so I told them, like,
you’re gonna have to make decisions.
I did a- I wrote some version of this under the doc
cam in the launch,
it wasn’t exactly a multiple abilities launch,
but it was like that kind of thing?

yeah

setting them up for the kinds of things that are gonna
have to happen
and I used it-
it was really launching the participation quiz.
ok
so this is what we’re going to be looking for.
ok
you’re gonna have to be willing in this problem to try stuff.
there’s no way to know that what you’re trying is right.
there’s absolutely no way to know.
So you’re going to have to be willing to just make stuff up and try it to see what you learn from it.
so /

/cool
we’re going to be listening for things like...
what does that sound like?
we’re going to listen for,
“let’s try bla bla bla” or “what do you think if we bla bla bla” or
that’s what we’re looking for.
And, um (.)
we talked about the middle space thing,
the blue paper thing.
mhm
um..

(laughing) I love that idea

and we talked about a quick start
It was really cute with the participation quiz,
we talked about this in our debrief,
so we had made a big deal out of a quick start,
that was the first thing we were looking for in the participation quiz
and we said, we’re grading it.
this is a quiz today.
and they were like ooo. (laugh)
Um (laugh)
it was really cute.

(laughs)
I gave grades at the end.
did you?
awesome.
publicly (laughs)
yeah,
and I don’t know that I would do that in every cl-
we talked about it /during class like is that safe/
(laughs) um, um
OK, so....

this is very refreshing, /by the way/

/so one other thing/ that we saw that was so cool for
Lydia I think and for me too was,
the kids did the quick start,
like the quick start means the facilitator gets someone
to read,
OK, so they got them to read and then
all the groups were like this (blank face and quiet)

(laughs) right.

they just freeze frame
any other structure, they would have been like (raises
hand),
we don’t know what to do.

yeah
and they didn’t.
and we didn’t talk to them and we-

I was busy writing like quick start, facilitator reading,
I was busy with my poster so I wasn’t available, right?
mhm

and then, like,
they started talking(^)
and things started happening(^).

um, which was super fun I think,
because it gave them,
so she’s gonna come in now, tomorrow
and say, OK, you guys just proved that you don’t need
me all the time,
so she’s gonna institute something like,
I don’t know quite how she’s gonna choose to do it,
but we talked about, like,
Gina at City does the 10-minute rule,
like every day.
the first 10 minutes after I launch you into group
work, mhm
you don’t get to talk to me.
at all.
no team questions

yeah,
i’ve done that
as well.
it’s really powerful.

yeah,
so she has now the momentum to say why,
because look you guys,
look how hard that problem was

mhm

nobody asked anything.
did you guys learn the math you were supposed to learn.
Yep.
(laughs)

Ok, then you have just proved you don’t need me to do that, right?

(laughs)

It was super fun.

OK, so so we did a launch like around some of this stuff and I can actually ask her for the notes.

We were very rushed because we planned like right before the lesson so

mhm

we didn’t go into it like fully,

like well thought out plan, um.

well hey,

welcome to my world.

yeah, right?

(laughs) it’s alright.

totally

it happens all the time

I know right?

well, this is what’s real,

you do what you think of and you don’t do what you don’t think of.

um (.)

yeah, so we told them as much as we could about what we wanted it to sound like and what we were listening for.

we did- we did two colors,

one color was, um,

like the things that are really helping you move forward

okay

and if we have a question or if there’s something going on that we think is not helping you or we’re not sure is helping you move forward, we’re gonna use the other color.

so I would write things in the other color like

um (.)

is everyone’s voice being heard,

question mark.

mmm

so I said look for this color,

that’s gonna be feedback,
that’s what you need to look at
and that’s giving you some messages about what you
might need to adjust, /

/mhm
in your groupwork.

um, I think (to Lynn)
what else did we write in blue?
we were using green- purple and blue.
we wrote

yeah, is all work in the middle, like when they were
still not touching it yet

yeah

Yeah, um

I think it’ll be good for them to see somebody else up
there, too

okay
like,
I think it’ll be good.

cool!

so /how many groups are there?

/they might think/ that like something’s going on,
and it might make them more participatory.
mmmm

like, they’ll probably think you’re like some really
huge bigwig from the district

(laughs)

that’s gonna like-

(.) well this is another idea that I had, was that we
could um (.)

I think,
what if she (Lynn) and I do the participation quiz
together?

okay

and you watch
okay

you don’t have to do anything,

you don’t have to write anything down
and you, oh maybe,
I think what I would love for you to listen for so that
we could debrief around it-

is like give you guys- or-

well, is,
like if our content objective is they are using the
Pythagorean Theorem

663
mhm
um, correctly, or sensically, (laughs) mhm
like in the, you know using it in a way it can be used
to find missing lengths,
mhm
is that happening in all the groups?
and how is that sounding
and how is that happening?
oh
oh, not squaring?
oh, ok.
ri::ght
ri::ght
but
so I think if you listen but like,
we can set it up for the kids like Ms Benito is not
talking to you today.
mhm
don’t even ask.
like don’t even-
and if Joaquin is wiggin’ out or whatever, she can
handle it.
Lynn, that’s your job.
cause you know the kids.
I don’t have any relationship with those kids, so-
he hates you?
oh, he hates everybody.
That’s good.
I feel like I do a little bit too actually.
I mean I’ve been in that class before-
last time /I was here I was in one of the afternoon
classes.
/yeah you were here last time/ yeah
but the first couple times I was here I was in third
period,
oh yeah
so it’s not like they’ve never seen me before.
No they, yeah, they have seen you
I’ll recognize some of them,
like I recognize Omar when I see him in the hallways and stuff so um,
so anyway um,
and then you just like put your feet up(^).
(small laugh)
go around and listen(^), have a good time(^), enjoy it(^), and like
then we can see what we get from that afterward.
we can talk about it.

I almost wonder if you should be here for first period.
(,)
Cause they’re the ones that are so:: tough to get to do

groupwork.

third period are actually better at groupwork,

uh huh

they’re just cray cray.
yeah

but, like, first period, I can’t get them to work together

often. (,)

(4s) I think cause it’s been a newer group since

January.
yeah yeah

and it’s small,

and it happened to be like all the quietest kids.
yeah

I went from like extreme crazy town first semester to

like the quietest kids ever second semester (laugh)
mhm mhm

ok, so I would

what do you think?

let’s do third period this time

ok

because what won’t be very useful for us

is if there’s nothing to write on the papers.

ok

yet.

right?

yeah, do you think I should do this for all periods

tomorrow?

whatever portions of it you want- you feel
comfortable doing.
sure play with it, yeah.
have fun.
see what happens.

I have three 8th grade classes
well I think the one thing is just gonna be, like how do you-
they’re gonna have to be willing to try things that they
don’t know/

and not freak out about it.

So that’s gonna have to be supported,

but that can get supported in the launch, right?

and you could do like a mini version of a participation
quiz where you’re not trying to write down for the
whole class what everybody’s saying all the time? but
you can say like,
I’m listening every time anyone is like willing to try
something
I’m writing a point on the board.
or something like that where you’re just really
supporting that,

cause that’s the only thing, is if they-
like in Lydia’s class(^
they had done that quick start launch(^
and then at that moment of silence when no one had
any idea what to do(^
if they had stopped there(^)
and not been willing to sort of forge through it,
that would have been sort of-
then they would have needed the teacher again

and not been able to do it without

you know what I mean?

so I think if you, yeah, I mean I- that’d be great.
I can come to first, /if you prefer.

I can do whatever you want

uuuh, what do you think, Lynn?

when do you think she should come? (5s)

third? ok

in my experience with hard-

oh god,
I know I could use a day off (laughs) also, in my-
yes, yes.
and in my experience
I’m so burnt with them
with Kamilah’s first period class,
when they were really quiet at the beginning,
the quieter the class,
the longer it takes me as an outsider to get in.

mmm
do you know what I mean? like
when I did stuff with her, like my first couple times here,
when I would intervene with groups, or talk with
groups, like (.)
mhm
they were nice to me, you know nothing bad happened,
but the did not take me up on anything I was offering them, /for a while/
/I know,/

it’s tough
so I that because I will be a total stranger to them,
that first period class has never seen me before,
I think it’s unlikely,
or it’s less likely that I can make this work /
mhm mhm
with them.
whereas often more boisterous classes, like-
they’re boisterous, right? they’ve got-right?
and they are very- /
/they’ve got energy
it’s easier for me to be friendly and they’ll be friendly back, right /

/mhm

unless you’re Joaquin.
or they’ll, or some of them will anyway.
Maybe not Joaquin, but.

unless you’re Joaquin.

/take everything with a grain of salt.

Joshua David’s been better.

Oh, Aiken.
Who was actually really bad when you videotaped,
but he’s actually a great kid normally

oh yeah.

yeah,

there’s some autistic-

cool!

so for first period, do you think I should just boycott
this too (the blue worksheet) and do that.

yeah, you might as well keep-
if you feel comfortable doing it,
you might as well keep your- make your life easier,
keep your kids in pace, right? /

keep em on the same stuff

um

have you seen this?

no.

I’m sure I have, cause I read this whole curriculum

I’m just wondering, do I ever need to do that? (laughs)

this is the- a really hard part of it.
cause they are supposed to estimate the-

(laughs)

how far are you guys going in the- in this-
this is unit 6, right?
how many are there, eight? (.)

I think so

oh that’s the ninth.

modeling is the ninth

mm
and what’s seven?
do you know?

isn’t bivarian- bivarian (laughs)

bivarian

(comically) the new drug bivarian

no, isn’t that like-

(laughs)

Bavarian
isn’t that the last unit?

oh

that more, it has- I just read it
and it has, it’s more like um
it’s not really new content.

it’s like a wrap up,
kind of like big cool problems and a project,
that are sort of /cross/ course

/that’s cool/

or trying to be.
I’m just looking in here to see if I can remember

/what the other units are.

ok.

I just,
/I know that they’re gonna need

ok.

well, I know that they are gonna need to understand

how to like-

estimate square roots,
like I know that’s part of their standards...
so I know they need to do this.

they do?

it used to be in 7th,

well yeah, but I always feel like, if you’re not gonna
cover all the standards anyway,
cause you’re not gonna get through all the units, then
you get to pick and choose.

ok
(laughs) like /which ones are gonna set them up best
for ninth grade?/

mmm
(3s) yeah it’s like introducing square roots, perfect
squares, and how to estimate square roots.

I mean, I feel like you coul do-

I mean I feel like what really matters, what grown ups
really do
is you should probably know between which two

whole numbers

some square roots are.

mhm

right? because like,

it’s useful for us to know

mhm
um things like that,
but I feel like you could give something like this,
as warm up without asking them to estimate to the
nearest tenth
right
just give them some square roots and ask them, like,
to /make sense of between which two whole numbers
is it
and they can be like ok, well seven squared is forty
nine,
six squared is thirty six,
it’s between six and seven.
That’s really all grown ups ever do with this, right?
and then they grab a calculator /if they need to. know
any more than that/, right?
I mean that might not be, i’m not saying that it’s
useless to do this other work,
but I’m saying for your time

and sort of the weight of what is useful,
I feel like if that feels useful to you, which it may or
may not,
you could stick it in warm ups,
skip this /lesson and move on./

Yeah, and put it in the goddam calculator!
//we have calculators in our pockets every day!/
yeah.
OK, yeah
and then all of your classes will be on the same
problem
and then also you’ll have something more interesting
to think about because you’ll get to see how it went in
different classes with different stuff happening.

(murmur) I like it.
(whispering) I like it.
(full voice) Um, do I need to make copies of this?

Yeah
we’ll just do one on each table,
or how are you
four

oh we are doing four on each table.

with the paper in the middle, yeah,
so they have- cause they /have to be able to rough
draft draw

/Oh, yeah right/ so they each have it, but it has to
touch that,

OK.
yeah yeah yeah

So four so everybody has a copy.

ok

So the set up that we would need to make this work I
think would be,
if we’re gonna do posters around the room, would be
going them up.

/just like any kind of-

um/
yeah, just poster paper

which I can come in and do,
wait, where am I second period?
I’m with Aya second period.

and you want em for each table?

how many groups do we have in this class?

eight

eight.

uh yeah,

so I want one for each if we can,
so I could do one two three four five six (pointing to a
spot on the wall for each number),
one in the front for this group, and then one on
windows or something for this group.

OK

yeah

Oops, I just did, did I just do it? yeah, I just did it.
cause this table is empty, right? this is the supplies
table?

(yawning while talking) for my first and my fourth
period

uh huh

should I not do the poster things?

whatever /you wanna do,
it’s a lot to do/

yeah, I mean it’s doable with one person,
what I often do with participation quizzes when it’s
just me is just
put em all on the board

project it
or project it although it’s hard to get anything
projected that you can fit eight things on
where kids can actually read em,

so maybe markers on the white board,
you know, where you’re just writing in one place
and you just know, when it’s just you,

you catch less from each group, /but that’s totally fine.

it’s just not public

it’s just not public, yeah.
so it’s not serving /as feedback to everyone else,
right?

which is fine, right?
we trade off, right?
we don’t do it all

it’s feedback to the group

yeah, yeah

so I for sure need eight posters for when you come in
and then the other classes...
(bell rings)

make decisions based on what’s gonna feel fun and
easy,

okay
that’s what you need right now,
in my humble/ estimation (laughs)

Yeah, I don’t really know how to run, like (.)
seven or eight posters on my own.

no no no no,
that’s cray cray,
yeah yeah yeah,
don’t do it.
don’t do it.
so what I would recommend is whatever
if you’re going to do any kind of public feedback, make it on the board with a marker. um don’t even try to do the two color thing.

I would just like say, I’m looking for the papers need to be touching the middle, you are going to get points when that’s happening, and I’m gonna give you points every time I see or hear you being willing to try something, okay or something like that. you know? and a quick start, maybe. And just mark those down when you see em and don’t worry if you miss em, just whatever you catch. OK it gives you something to do, too, so that they know that you’re not gonna be in with them.

ok, also um your like opening notes are pretty important for this task, wouldn’t you say? yeah I’m just wondering if I’m gonna be able to run it as well as you, like I don’t know if I’m gonna have the same- if I do it for all the classes, I- unless I- like I feel like this one (pointing to something in the coach’s notes) is like really key to like setting it up how you are explaining it. well, I think there are a couple key aspects. I think there’s a lot of room to play- ok and it'll just unfold differently. I think the key aspects are (.) whatever you think you need to say to them to get them to be willing to try things that they don’t already know ok let me, can I write this down? yeah, of course (going to get a paper) cause I’m gonna forget all this.

Yeah (arriving back to the table) OK, so to open this and launch it, (pause then laugh) I was like this notebook’s full! OK. (5s)
OK, so launch
(3s) alright.
So I think for the launch, you are gonna tell them how you’re giving them feedback,
right
so you’re gonna, if you’re gonna call it a participation quiz, or whatever you’re gonna call it,
I’m gonna be taking notes on the board, whatever you want to say
ok
and tell them what you’re looking for
and those things that you’re looking for in this case need to be,
you just need to make a little bit of a big deal at the beginning about, you’re gonna have to try stuff that you don’t know if it’s gonna work.
You’re gonna HAVE to do that on this problem, so I’m gonna give you points every time that’s happening.
(someone comes in)
hi
oh, uuuuh
Student: Can I take it right now?
uh yeah, can you wait like five minutes? OK
Is that a student?
what?
is that a student?
yeah,
I love her
so grown up!
oh my god
yeah, she’s samoan.
They’re just big.
not in my class
ok, so you’re gonna /try stuff
try things you don’t know how to do
yeah,
or you don’t know if they’re gonna work, right?
so you have to be willing to get started.
ok
um
/put it down
wow
/committing to anything
yeah, yeah
I think you could just put a blue paper in there in the beginning before first period.
We could do it right now if you want.
or any color (laughs)
a paper that we can refer to easily,
and then just leave it there for the whole day.
I'll make sure it's colored.
Color helps for referring to.

Um (.)
Quick start might support you, and then, (there's an announcement coming over the loudspeaker into the classroom).

she's always drunk.
sorry, (makes a sound immitating the voice),

anyway, sorry.
(laughs) um, and then since it's such a big deal to be willing to try things, I think there's also something around like ask people for their ideas,

okay
and like,
I want to hear you say,
little, maybe we should try this, or what should we try?
or, you know

mkay
and that's it.
I don't think you have to make a big deal out of it.
That's all.

OK
and then just let them know you're not going to be talking to them cause you know they can do it without you.

the whole period

yeah
you didn't talk to anybody the whole period?

pretty much.
I started a little bit, like the last ten minutes

um at about ten minutes toward the end I started interacting a tiny bit with groups, just to push participation really.
okay

Um, there was a couple groups where they made some improvements in hearing from everybody, but there was still one person who really thought it was her job to teach everybody everything

mmm

and so I did a little bit of like-

a little more interacting to try to push on that,

mhm

but I waited until, yeah, the last ten or fifteen minutes,

do I- cause I usually have facilitators read the problem to the group

/sure

/should/ I still do that?

yeah

okay.

and that’s their first quick start points, yeah

and it’ll be fun to see if they all do that, it was so cute, read read read read read (long silence) (laugh)

what was that?

dead silence

after the reading

cause no one knows what the hell to do, right, they read it out loud and they’re like-

oh you should,

I guarantee i’ll probably sit there for like fifteen to thirty minutes first period with them not without being able to do anything.

Or they might do something but they will not communicate with each other.

but if they are touching the blue paper, even if they don’t talk, someone’s gonna see what that person did over there and they’re gonna be like (.), and they might copy, which in this case might be totally fine, right,

right

they might get an idea and write it down, they might say like,

what did you write right there?

you know, we don’t know

did you do checkpoints?

nope

so no checkpoint either.

mkay

didn’t talk to them at all
(3s) yeah, well we did, what I was looking for was looking for content wise, what I was looking for was, you know the content objective was pretty humble, it was just use the Pythagorean Theorem. It just happens to be in a rich problem

so you did tell them to use Pythagorean Theorem no, no, but that’s what Lydia wanted them to do so I was looking for that?

okay and when it wasn’t totally happening, because some groups were doing that estimating thing, then we kibitzed a little bit and we were like, uh, there are groups, like not even doing that, because they’re- they’re doing this other thing which is super smart, but we didn’t think of it and it’s not the objective, right?

(laughs)

so then we figured out a way like, we put on the participation quiz poster for a couple of groups, the one group I could find that was doing it, I put it on the poster, using the pythagorean theorem. (. ) Then when we called them together to read each other’s posters, I knew that would be available, because they’re reading it, right, so there’s the idea sitting there, and then I asked them- I told-

I publicly assigned competence to the idea of the proportional reasoning and I was very honest and said it did not even occur to me that anyone would do that and that’s super awesome and smart AND I wanna push you to go from estimating to calculating, so that estimation is powerful, but I want to see if you guys can actually calculate exactly what that distance has to be, so I want you guys to talk about that, so doing that and then asking them to read the posters, they all got to pythagorean theorem.

no, I didn’t say anything about it. Yeah. We did have that do now, which was just like, we made it super short, which was just like, write down everything you know about the pythagorean theorem-
okay, that’s good

I didn’t even really care what they wrote. it just gave me good information when I walked around.

Oh, at one point I think in the do now I was like, Oh, maybe consider what you use it for, because I saw a lot of, it’s the equation /bla bla bla

(while writing) you know or use it for.

yeah

mhm

Yeah, so then I just yelled, see if you can include ideas about what you use it for, and there were some kids who had written like, it’s about right triangles, you know, whatever, I just wanted it to sort of prime their brain, whatever they have. and I did not go over it, I didn’t get them to share any ideas or anything,

I like that

I think I gave them one minute

mhm

after they had worked on it for a couple by themselves, I gave them one minute to share ideas with their groups.

Some kids did, and maybe some didn’t.

Whatever

Did you say anything like, I’m gonna give you a really hard problem.

um (to Lynn) did I say that?

(3s) I did say,

Ms Martin tells me, I gave them some-

I gave them some credit for knowing stuff

that they were gonna need for this problem.

So I said, Ms Martin tells me you guys have gotten good at using the Pythagorean Theorem to find distances,

(to Lynn) did I say that?

To find missing sides,

so I did actually, there was a little bit of content / in my launch/

but that was it.
Well, and a lot of kids weren’t even initially for a long
time seeing triangles.
they were seeing lines, right?
mmm
They were seeing distances, but they weren’t seeing
this (tracing the three sides of a triangle) as a
meaningful thing, a triangle sitting there that was
useful.
mhm
And some kids like did a lot of work before they got
there, they did this,
by that I am pointing at your thing of rulers,

1938
they did the like, well if this says twelve and it’s seven
centimeters, then this, they were thinking distance,
mhm
for a long time, which is fine.
did you give them calculators?
yeah
yeah, yeah, yeah.
So yeah, Lydia said that they had been working on
this estimating [square roots] thing and um,
we decided, in order to get them into, like, actually
into rich problem solving, let’s set that aside for a
minute,
cause she feels like they can kinda do it, /for this
and did you have any groups that said like,
okay we got it, checkpoint. or we think we have it.
(should head)
no?

1955
nope, there was one group that right toward the end I
heard them not talking to me but internally
making a decision that one of their pathways was the
shortest one,
so they seemed like they were maybe getting to the
place of thinking they were done,
mhm
and I did talk with that group, just to push them
cause that was also a group where two people had
been dominating
mhm
so I just like
asked them to generate another one.
I said I don’t know if the one you have is a really short one or not, cause I haven’t even been listening, I don’t know. I don’t know what your solutions is, but whatever it is, I want to challenge you. Come up with one more and I want it coming from this side of the table.

mhm
And they kept working. I don’t know what they did with it. cause I was talking to you guys, but

Oh, did I just draw on the one that we could have used /as an original? /
/Oh/
do you have another one? /I bet Lydia does, but /
/And we can erase it/ Yeah, she’s probably got one.

Oh, she recycled them?

What the hell. OCD, anyone?
God, this is the problem with being too organized. Cause then you don’t have a million things lying around to use when you need them.
That’s amazing. That’s why her classroom is so clean, huh?
So not the thing that was my problem at all (laughs). My classroom was like (gesture)

But she could also email yeah
I know she made it on her computer-
I never throw mine away either, yeah, cause I have so many kids that ask for extra copies.

Um, awesome, fun!

Cool. Thanks, I’m excited.
Yay! If nothing else, we’ll have a good time.

we’ll learn something
2006 yeah,
2007 I’m super excited
2008 we won’t do that.
2009 I know, I’m so burnt on this
2010 I know
2011 I just can’t look at this another day.
2012 Don’t.
2013 (laughs)
2014 Don’t look at it.
2015 This is like so much more interesting.
2016 Ok, I told Aya I’d swing back by too, so
2017 (to students) Ok, you guys, come on in.

Heather Cycle 4 Debrief Conversation

Heather Mia

do you need me to move this stuff?

  eh,
  I’ll just do this and then I’ll come sit next to you.

  okay.

Yeah that was so nice of you (to teach it)

  (laughs)

  Oh my god.
  Wow!
  Um,
  and thank you for that
  email.
  yeah.

  Um, do you want a piece of gum?

  Sure.
  I’m chewing a really old nasty one so, ( )

  I have like teacher breath by the end of the day, so ( )
  my throat’s been all messed up lately.

  Okay.

  (walks back to table and sits down). okay.

  So.

  Yeah.

  Tell me what you thought.

  (sits down)

  (laughing) I have some interesting thoughts, too.

  (laughs)

  Yeah, no I actually would love to hear what you
  thought first.

  Um.

  I have lots of thoughts but they’re very jumbly right
  now.

  I don’t have anything coherent.

  Well, I’ll start with the positives.
Um, for the most part, even with all three classes I was really impressed that I had very little like, (raising hand) ‘Ms Benito Ms Benito Ms Benito’ you know, I had very little of that. So that was really good. Like I thought it was good that they, took on the task without much, feeling like they needed me for something. So that was a positive. Um, and I thought most of them at least tried to attack the problem or do something. Like we didn’t have that like huge silence except a little bit- first period was probably the toughest with that and I expected that. Um, and I will say with the high needs of third period (laughing) yeah, uh huh which you took on really well (laughs) (laughs) they were pretty well behaved for the most part and good. yeah you know, with the exception of a couple- toughies. Omari was not here. Oh yeah, right. That makes me sad. I know, /I need to do a whole thing/ with him too /I wish he was./ But um I like him. I know.
I love that kid.

(gets up and takes photos of the participation quiz posters)

Um,
yeah so I thought
I mean Jose presented what he did, right

(laughs)

which, I mean whatever.

As to be expected.

I mean I expected it to go like that with him. (.)

Um (.)

But I- So tell me what- did you feel like there were other
ones that were challenging.

other things that were challenging?
yeah like behavior stuff that was a problem in that class.

Well Marcos has been a problem,
the kid over in the corner.

u:::h

He’s with a group of girls
We’ve had a lot of problems with him in that group.

okay

I’ve had a lot of problems with him in general (small
laugh)

okay, uh huh

He just kinda gets ve::ry,
like he thinks he knows it all kinda thing.

okay

but he can also be really sweet.

so-

I just, I haven’t seen his sweet side come out.

I talked to him about it-

I’m like waiting for that to come back

uh huh

cuz I know it’s there.

uh huh

Um,

I also- and this is-
this is kind of- I didn’t get to explain-
you guys don’t know the background on every little
dynamic

yah

but this table?

yeah

so there was a blow out with Abel and Billy

mhm
Billy is the kid on the other side

and Abel- apparently Billy tore his eraser.

No, this was like a week ago

and like Abel has never gotten over it.

and it’s become this huge cause of tension with them

and like
ever since then it’s like

a big problem

and Abel is very particular of who he works with.

I have a really hard time with him doing groupwork.

I noticed him and Andrew were like doing great work

and not involving Billy at all.

It was like this (gesturing between two seats at the table) and Billy was like where you’re sitting (in a different seat)

and it was really tough for them to-

And then this table (pointing)

Thomas!

and Faith.

Faith sits across from him?

Faith sits here (pointing)

okay

and Thomas’s here (pointing)

Thomas just got off of like meds for depression.

and I kind of,
don’t think that was the smartest move.

Like he’s always like that (shows head down on her arm on the table)

He doesn’t want to participate,

like I have a hard time getting him involved.
So we had /may be a little bit of a breakthrough/ at the end with them.

/but you (/)

yeah,

and you pointed something out.

you know you were saying that Kalea and Jimmy

mhmm

were kinda owning everything.

mhmm

cuz they’re both really high level

mhmm

thinkers.

But you brought up an interesting point.

that these two were feeling like left out.

mhmm

and like not a part of.

mhmm

or maybe made to feel stupid,

or I don’t know.

mhmm

you know?

mhmm

so it was kind of a good perspective you brought up.

on that one.

mhmm.

I think-

Oh good!

Andrew’s a good kid.

He-

(touching her chest)That’s good to hear.

awesome.

I th- It’s more Abel who really- and I’ve had many
talks with Abel.

mhmm

he’s also extremely hard on himself.

mhmm

like he’s one of those kids who has to be perfect,
and he’s in track and if he doesn’t have a perfect run
it’s like- if I try to give him a high five, he’s like

’nope.’

it wasn’t perfect.

you know what I mean?

uh huh
He won’t even high five me.

uh huh

like if it’s not perfect.

and he’s very-

he wants to do everything himself mhm

and he’s very hard on himself.

(3s) mhm

so

yeah so I wanted to tell you a little bit about what

happened here (pointing to the table with Kalea and

Jimmy)

yeah let’s talk about it.

yeah cuz what I was hearing there which I was

hearing-

we talked about this briefly,

(to Lynn) the two of us (gesturing to herself and

Heather) in class that you were not in that little huddle

we were having, um

that Kalea

was telling.

and not ever asking.

mhm

she was talking but she was telling.

and kind of- oh and she would tell Thomas?

mhm

to shut up,

every time he opened his mouth,

she told him to shut up.

Wow!

Now it’s possible-

I heard her say shut up multiple times,

it’s possible that what she was responding to was off

talk task,

I don’t know.

He’s generally off task but

but I wouldn’t assume that that’s necessarily what-

right

so that was the dynamic that was happening,

so that maybe makes it

harder for him to enter into a math conversation

(laughing)

right

if every time he’s talking someone is like shut up.

and then keep telling you- talking at you.

yeah

shut up.

I’m talking, you know.

mhm

so that was goin on.
and then, um
and I felt like they were kind of um-
so I was trying to support them through the
participation quiz (pointing at a poster on the wall)

(looking at poster) yeah.
and they were just not really attending to it
mhm
or like I think maybe it was behind Kalea

:o:h
and I don’t think she was turning around and looking
at it
or at least not frequently.
I think that Thomas and Faith were reading it.
mhm
but it wasn’t them who had the power to do anything
about it.

mmm
Because what was on there was,
‘everyone’s voice being heard?’ um,
and I kept saying ‘ask for ideas’ right down there in
green with four exclamation points
it’s like ASK FOR IDEAS.
yeah
and it was really for Kalea.
because she really needed to ask,
stop talking and start asking, right? um,
So then you- (to Lynn) she (heather) and I talked a
little bit and I thought that what I was-
I ended up doing something different than I thought
because what was going on there was different,

um but-
So I asked Heather her permission or maybe her ideas
about coming in,
and asking them to come up with one more path

yeah
and asking it to come from this side of the table.

So I was asking Heather if she thought that was safe,
and if that was something I could do, like-
when I don’t know kids it’s scary to do stuff like that
because-
you just don’t know what you might be setting up
that’ll be really bad.

right.
you know, um
I think it was okay, though.
I think it was kind of giving them permission.

Yeah, so what I ended up doing was um,
something different that I didn’t-
it was happening in the moment and I honestly didn’t
know how to feel about it,
but they had-

(5s) so the only-
I had thought there might be a different way to get
ideas out of them,
which was, what they had was the only numbers that
existed on their-
so they had all these pathways (drawing)
and this happened in a number of groups
where they had something like this drawn

mhm
right, um
and they were like ‘that’s the shortest path’
with no numbers anywhere.

mhm
and so I was like, ‘well how long is that path?’

mhm
like part of this task is actually figuring out how long
that path is

mhm
so you can decide if- you know there might be another
one you could compare the lengths and see which is
shorter.
the only numbers they had there were on Kalea’s
paper,
other kids might have written them down but they
clearly had originated from her,

mhm
and I-
so I asked her where they came from,
and she explained they were-
it was basically the proportional reasoning with the
ruler.

that thing we saw before and that we
had not seen before with this task
but where she like was figuring out-
and so I was- so I said,
I listened to her and I said, ‘okay so,
what I’m hearing is that - what I call that is
proportional reasoning,

mhm
and that’s really useful.’
She’d set herself up a little scale.
(small laugh)
I think she’d been like (writing) this much is four
whatever, right?
She like made a little map key or something.
So I was like, ‘okay so that-
that to me is proportional reasoning,
that’s super smart AND that involves estimating.’

mhm
and I think that there’s a way here,
that we can know exactly how long that is,
a different strategy,
that involves calculating and not estimating.
so we will know really kind exactly,

mhm
how long those distances are.
which will help us really know for sure what’s shorter.’

um
‘and so I want you guys to talk about that.’
and I said something- I don’t remember- I wish I knew
it’s- I think I audio recorded myself so we can get it if we want to, but um
(. ) I said something that was asking for it to come from this side. (pointing)

mhm
Maybe-
but then I said, I also told them,
‘this group’- this is the only group I talked to about grades.

mhm
‘because there’s one thing I’m not seeing.’
‘and I’m willing to give you guys an A
if you are able to do this one thing and it’s gonna be really hard.’
‘but I’m gonna ask you guys,
to really get everybody’s ideas into the conversation.
and the reason I’m insisting on that is because I know you’re gonna learn more when that happens.

mmm
I know that you’re gonna learn more and it’s not happening yet.
and I get that that’s a really hard thing to do.
but if you guys can make that happen,
that’s how you guys are gonna get an A for this.’

mhm
and I- and then I checked in with Thomas and Faith,
and said, ‘is that okay?’
and then said something specifically about ‘I want this next thing to come from this side.’
a proposal or a question or a-
you know.

get this group moving, like you
get this group moving, is that okay?
and they accepted it, Faith did not look happy.

but they didn’t say no.
Thomas looked a little happier and a little more
willing maybe.
Um and then um,
and then Thomas did,
propose something.

And then Kalea’s response was really interesting.
Um, I wish I had that on video.
Because I still don’t know how /to interpret/
/we might be able/ to hear it.

Yeah.
She said-
I remember what she said but I just can’t remember what-
So she said and it almost sounded a little bit
confrontational,
but she was like- he said something and she was like,
’but how do you know?’
Oh he said this is shortest or something.

He said something about some path being the shortest.
That’s what he said.

He made a claim.
And she said, ‘well how do you know?’
and he said, ‘cuz there isn’t a shorter one.’
and she said, ‘well how do you know?’
and he was like, ‘because I can see it.’
and she was like, ‘look.
this and this (marking on paper.)
I could say these are the same length cuz they look the
same length, but how do I really know?’
So she was doing a thing where she was asking
questions
that were really good useful questions,
and I think she may have been pissed. (laughs)

yeah they were really pissed
cuz at one point Jimmy yelled at them and was like,
’you guys need to talk!’
because you had told them that
they had to come up with the answer.
uh huh

and I heard her yell at them

oh

'you guys need to talk!'

well it’s interesting.

cuz they weren’t saying something.

and like I think,

Jimmy is very-

she’s actually generally pretty like soft spoken,

uh huh

but she’s super smart.

uh huh

but she is very I think grade-

yeah

getting

yeah.

which was my intention.

I was trying to use that grade to like make ‘em take it seriously.

cuz /so far they hadn’t been/

/but it felt very threatening/

yeah

/ but I was trying to-/ (laughing)

/( )nicest way to go about/ getting your group to communicate. (laughing)

So but I did- so when Kalea-

'talk!'

(laughs) right.

So when Kalea said, ‘how do you know?’

I just decided to interpret it really generously.’

okay

and to say, ‘yes!’

‘do that.

that thing you’re asking,

you’re asking your groupmate for ideas.

do more of that.’

(nodding and smiling)

So I wrote that (pointing to PQ poster) I wrote ‘how do you know?’

mhm

and then he (wrote) something else and she’s like,

‘yeah but what do you mean?’

and I think she was kinda pissed,
but like she was saying the right thing.
like that- yes do that.

mhm

I was trying to give her credit for that.
so I think what might be nice for them tomorrow
and I didn’t get a chance to- you know-
me and the end of class,
always a challenge.

um,

(laughs)
but if you would be willing to tell them tomorrow

mhm
that they got their A,
that would be really great.

okay

(laughing) I will tell them they got their A.

Cuz they did.
I asked them to do something really hard,
and they did it,

mhm

and I said- I mean I did say-
I don’t remember if I said, ’you got your A’
but I did say,
’tthank you.
that was exactly what I wanted you guys to do.
and I know it was really hard.

mhm

You did it.
and if we had more time you would have seen that go
further,

yeah
but I really appreciate that.’
so I did say something like that.

I think what’s tough with Thomas and Faith,

uh huh

number one I should never have sat the two of them
together.

okay
cuz it’s just been a bad combo,
mhm

like all week.

okay.

I think there’s something possibly going on with those
two even, like it’s just-

okay
and they’ve been off task all week,
so I think-
both of them are notoriously,

haven’t been,
like super great, groupworthy people. yeah yeah
and they haven’t really been holding their end, either of them in general yeah
so I think that sort of stigma yeah has been following both of them. yeah
like Thomas’s had his head on the desk, almost every single day yeah
of last week and this week. yeah
and I have to be like, ‘you need to lift your head, like you need to lift your head, like-’
and this is happening in all his classes, he’s- I don’t know.
So then today was a great day for him, right?
Yeah like that ending moment, I think was really good for him. I think that (.)
(interruption from intercom) I hate- (stops and listens) OK, so I think that-
it’s like how do we get the stigma of that away from him, cuz I mean I’m gonna be real.
If I was- had a group with Thomas and Faith, yeah
after the way that they are with groupwork, I’d be irritated too uh huh
like they’re generally completely off task. All the time. yeah yeah
Like every day I come around to do checkpoints, and they’re like the last two with anything on their paper. yeah
and like the groups have to like hold up and wait for them. yeah
and it sucks. and I don’t know how to like-yeah
make that better.

yeah.

you know, I’m kind of at a loss. Cuz I want to make it better too, but I don’t know how.

yeah

Like

I think you started getting there.

Yeah, it was just like a little-
a little moment that had we had more time we coulda built on, I don’t know, but um

I think um

Yeah, I mean one of the things we ask from our kids which is really hard but I think worth asking from them?

for me relates to like,

maybe the kind of people we hope they’ll be.

mhm

which is being generous with each other.

and like being forgiving,

yeah.

and like being willing to like let go of our perceptions of what someone is capable of or is gonna offer

mhm

and like be open.

yeah.

because sometimes they surprise you and sometimes they show up with something really useful, right?

that’s really hard to do and it’s really hard to do in March.

(nods)

right, like there’s a lot of cemented stuff from habits that are built across-

and Thomas’s a new student here too.

oh okay.

He just started here like I don’t know

(to Lynn) what like two months ago?

okay okay

So he’s been through like massive adjustments

uh huh

oh he’s got parents.

that email us like every day.

super overbearing parents.

oh.
yeah.
That's interesting.
(.) So anyway, I think /like the reas-/ anyway/
I definitely felt the, the um
(./the challenge of trying to work with kids I don’t
know./
/I’m worried about Faith too./
yeah
yeah
I’m very worried about Faith.
on a lot of levels.
mmm
I’m worried about her with boys.
mhm
I’m worried about her-
a lot of times she::’s- like I’ve gotten
I tried to get really serious with her at her conference
about
the fact that I feel like a lot of boys pick on her.
uh huh
she doesn’t see it that way,
or didn’t want to admit it.
but I feel like there’s been bullying
that has gone on.
uh huh
with Faith and the boys. (.)
I don’t know what’s going on with her and Thomas,
but her- she-
I feel like she has very low self esteem.
uh huh
and like probably one of the lowest in my class.
yeah
Like if I was to pick out anybody in that class that I
think is the least confident in themselves,
I would say Faith.
uh huh.
of that entire class.
uh huh.
And I don’t know how to like,
like I don’t want her to be that way.
yeah
you know, and I want her to feel worthy
yeah
but i don’t- like how do we-
well all we can do is try, right?
and all we can do is try little bits and stay open to the
pot- the possibility that things could shift.
yeah

and they will or they won’t, right?
like we only have what we have.
So maybe had I known that,
about that group, had I known that group,
I know

I might have tried to find a way that the poster wasn’t behind /Kalea/
/Kalea/ yeah

And Jimmy.
because the way we did it,
it sort of felt like,
the people- and because they weren’t really attending to it a lot,

Yeah which maybe I also could have set that up differently,
I could have set something up differently to ask them to attend to it more,

um,
but because they weren’t really attending to it then the only people who were really being supported to change things in that group were the two people with the least power to change things in that group.

right

right?
Um,

which is maybe just-
whatever, so then we try that differently next time.
you know,

I don’t think that we did damage with it.
I don’t think anything bad happened,
and I think maybe we had a little bit of progress at the end there,
and I think Kalea got communicated to her that her job was to ask other people.

Yeah I don’t know if she liked it.

Do you think she got it though?
Like do you think she, heard that?
I kind of feel like she didn’t hear it.

Yeah I don’t know.
I trust you much more than me to interpret her cuz you know her.
Um,

I think that um,

she’s not normally that pushy,
but I don’t know if like she was just pushed over the edge today?
or like-
I love that (end) where she like, 'yeah but how do you know!'

I know, I think from the way her and Jimmy were it was pretty clear to me that they were like really frustrated.

which is maybe okay. I mean in some ways it’s like you’re producing the behavior I asked you to produce, you can be mad if you want, eventually if you keep doing that you’re gonna see that that contributes to things.

things are gonna get better.

so keep asking people what they mean and how they know. yes! thank you and I’m sorry that you’re feeling frustrated, but like (shrug) okay you can feel like that, right? we all- we all have those moments and that’s okay. I don’t think she-

maybe that would have been a good time to do like a- group huddle with like her role. o:h, uh huh or with Thomas’s role or Faith yeah so that we could have gotten them /a little bit more/ involved /interesting/

I forget about the group huddle all the time. uh, yeah. I didn’t think of it either. It’s like such a good, yeah that might have been a good one.

yeah

yeah I feel like we could have huddled around that with Faith or Thomas.

/y/
or we could’ve huddled with Kalea around /like in a way that was really not/ pointing at anyone

/( ) backing off (laughing)/

but cuz we had that one- we had a representative from every group

right

but just to say to that huddle, um, ‘I’m seeing something that concerns me a little bit.

which is just I really need to hear people asking for other people’s ideas.’

yeah.

’so I need you guys to go back to your groups and just make sure that happens.’

yeah

can you do that? /you know like in a really soft way/

that wasn’t pointing her out.

/maybe that would’ve been good./

yeah yeah

Yeah you never know.

and very often I do a huddle around,

um one kid

like Kalea in this case,

and you just sort of don’t-

it’s not gonna hurt anybody else,

(laughing) yeah

and it may have some unintended awesome benefits for some other group,

(laughing) yeah

you just sorta don’t know.

It probably won’t hurt, right? Um,

Yeah that’s interesting.

thank you for that idea.

I forget about the group huddle!

I need to do group huddles.

I haven’t done any.

But when we did the PD, I loved that.

(laughing) yeah

and I’m like, ‘I’m SO gonna take this back!’

and I haven’t done one huddle,

even though it was one of my favorite things.

(chuckles) awesome. ( )

yeah, I think it’s-

you’re thinking of so many things at once and it’s like-

I gotta just like /( )
who did?

Did he?

Oh my god, Michael.

(to Mia) I love that guy.

He was a kid, by the way.

He was like fifteen years younger than me or
something, I don’t kn-
or maybe ten.

Um

probably ten.

I wanna- I wanna hear more about your experience
just being in that really different role

oh my God!

throughout the class,

and what did that feel like to have

It was so- well it was like super nice,
to not to have to have the pressure.

mhm

of like being on

mhm

and like, being an observer,

AND,

at the same time it was like super anxiety provoking
cuz like every time I’d see like Jose I’d be like,

'I wanna say something to him so bad.'

I’m like, I’m holding myself back.

And he’d try to talk- or like
uh, or like I’d see something and wanna like say
something

Like when I saw this group
like I felt like was leaving out Billy,
it like bothered me
mhm

and I wanted to say something but
I was like ‘okay, I’m not saying anything’

It was like (high voice) so hard!

mhm

But it was GREAT! at the same time,
it was SO nice to have a break.

mhm

and it was so nice to do an activity that was just on a
task card,

like I just-

we’ve been doing all this like

CPM wordy,
yeah
just U::H!
yeah
that’s just been feeling really blah
uh huh
and this was so refreshing.
yeah
like it just felt refreshing.
mhm
mhm
awesome.
yeah.
so it was great.
and I loved the middle piece.
/the blue paper?/
/totally loved/ the blue paper.
Oh my god that was so great!
In all the classes it was great.
Fourth period actually like
got I think the furthest
mhm
They’re like one of my-
like I would say the like
highest scoring (air quotes) kids
mhm
if we’re gonna talk about like test scores,
mhm
Um,
some of them were doing some cool-
like some of them- one of them made a right triangle
in the center
oh
and they were trying to like,
make calculations with that.
And then other ones were drawing a line across it,
mhm
to like divide it in half
mhm
and I think they were trying to come up with the
length of that line,
like there’s more like-
getting closer to Pythagorean Theorem
mhm (laughs)
(laughing) in that class.
(.) I also realized,
like as we were- as I was thinking last night,
last night?
today?
that was today.
it feels like it’s been five days in the last two.

I know, right?

As I was reflecting today,
between then and now,
I realized that in Lydia’s classroom when we did it,
they had had more Pythagorean Theorem (lessons)

mmm
before doing this one,
and even then they almost didn’t get it-
to the Pythagorean Theorem,
to applying it.
Right, but they all did.
And here the Pythagorean Theorem was newer.

mhm
you had done less with it.
yeah
I think at the time that this task landed,
and so it was sort of making sense for me,
that it was harder for them to connect that to this.
Right?

They were not connecting.

no
the Pythagorean Theorem with this at all.

Jenna Smith?

uh huh

(laughs) you’re like AHHHH (gesture with hands and
face raised)

Of course as the bell’s ringing.

Awesome.

So did any of your classes use it?

I don’t think so. (getting up)
I did save the work from fourth period-
(walking away) I haven’t been able to look at it yet

yeah
but um, I saw like closer getting at,
cuz I’m wondering if we wanted, if you,
I mean I don’t know what you want to do with this, but if you wanted to come back, and sort of give them opportunities to make that connection to the Pythagorean Theorem, maybe Jenna’s comment-
Jenna, is that her name?

Maybe Jenna’s comment could seed it.

mmmm
Like you could build on that.
mhm
you could say, ‘Jenna-
like she, what’s her status in the class?

oh, Jenna’s like,
really smart.
Like top of the class.
But she’s not like (.)
you know, like super oblivious,
I mean (hand gestures)
she doesn’t need attention.
for it.
yeah yeah
like she’s quiet.
yeah
a very quiet kid.
(looking together at student work)
uhhh /they were finding area/
/a lot of them had numbers that I had no idea where they came from./
yeah yeah

yeah
(looking at more student work) mhm (4s)

mhm

(.) (pointing)/o:::h/

(pointing)/o:::h/

Mandy
Mandy’s- oh look, hypotenuse
Who’s in Mandy’s group?
(pointing) that was this table for fourth period.

Mandy, Joelle, Kenneth, and Mario.
Oy vey.

(gesturing across the papers) We see a problem here.

(laughing)

I brought this up to them actually.

uh huh good

Cuz they had-

they were actually really great at

using the middle space,

and they had all their papers like this

mhm

and then I said, ‘wow’ I was like,

'I’m seeing like really different things

on all your papers.’ (laughs)

(laughing) I love how you say that.

You’re not like,

'I see a whole bunch of numbers over here,

and none of y’all have any numbers,

what the hell is going on?’

(laughs) It’s like-

(pointing to a paper) here’s a bunch,

(pointing to another paper) getting a little bit less,

(pointing to another paper) a little bit less,

(pointing to another paper) and a little bit less, no.

but it was like,

I was like, ‘oh,

I was like, ‘I see a lot here but I don’t see it on

everybody’s,’ and I’m like,

'how are you guys all working together on this?’

cuz I was like, ‘it doesn’t seem like cohesive here.’

and they were like,

'oh, no no no!

they were like, 'she,

is putting all the work and we’re dictating everything,

and then we’re discussing it,’

and they actually really were.

awesome!

it was kind of amazing.

cuz they took her paper

cuz they were all like pushed

and the turned it this way (gesturing)

and they were talking this way with it

like as a present-ation piece,

awesome.

I know,

cuz I totally /questioned the same-/ /shows me not to assume, right?/

I know

awesome
I was right there, I was like, ‘oh, ‘Mandy’s doing all the work.’ which she might have. I mean they could have been lying. But-

That’s a hard lie to come up with.

Yeah, I mean they actually like-
Joelle’s the one that said that and she’s very reliable, and she was like, 'no we’re like dictating it.’ and I was like, ‘oh.’ so that was I think some of the most that I had seen.

(flipping through more papers)
this one...

so this they forgot to square root this, right?

yeah, something like that.

Juan was kinda gettin’ on to something (handing paper to Mia) here

(flipping some more) I don’t know what he was doing, but yeah he was, look-

12 plus 16 is 28, 12 plus 16 is 28.

(laughs)

but he was remembering that there was some relationship of adding sides and hypotenuse.

oh, cuz their group when I questioned them, one of the kids brought up the small square and the medium square equals the large square.

so I think he was trying to do that.

yeah.

awesome.

Yeah, that’s kinda cool.

(flipping through papers) Here’s Judy’s (looking at Lynn and laughing)

(takes paper and looks at it)

Dude. (they look together)
Judy’s like major smart. although she didn’t really-
I mean,

(4s) six point four eight one yards. where did that come from?

I don’t know.
It’s hard for me-

I’m thinking that there’s proportional reasoning happening with a ruler, although-
that looks like some-
squares

she did the Pythagorean Theorem to find this
(pointing)

mhm

this is 20 yards.

that’s what this says.

Ok that’s gettin’ something.
yeah.
she found that distance.
Okay, so we have three papers,
which means three different groups,

mhm

at least,
yeah

hm?

what?

okay

oh, right, cuz it would reduce down to that.
yes.

that’s okay, um
(quietly) and she drew a pretty flower

(laughs) she loves to draw.

so this must be in that group, right?

that was this group.
yeah.

and so is this one.
this is David.

He was in that group and he-
(.)

the same David we just saw walking down out there?

(. ) No.

Not David B.

No, this is David Lee.

okay

very different (chuckles)

okay. (4s, looking at student work)
(chuckles and points to paper). I guessed randomly.

that’s how he knew.
(both laugh)

um,

But he was doing some things

yeah

here too.

Is this in that group (pointing)?

yeah

does this have the 20 yard diagonal.

Okay, so it feels like if you wanted to come back to

this, um,

and give them an opportunity to connect Pythagorean

Theorem to this problem,

(nods)

and work on it,

mhm

together some more,

we could.

you could and you could seed it with kids’ ideas.

mhm

right?

Cuz they have it.

they have pieces of it.

and it’s kind of cool that no one has it perfectly yet.

right?

right.

but they have-

so you could get that to come out of kids,

I don’t know what you want to do or if,

I mean I think the math objective here was pretty (.)

mhm

humble, but it has not yet been met.

yeah

which was that kids use the Pythagorean Theorem

in this particular kind of a set up to do some thinking

around distances that can be seen as hypotenuses?

(chuckles)

um,

so they could still do that,

and that might be more useful than other,

like continuing with that might be a better way to get

at that than-

I mean I’m sure there are other problems in your (.)

binder that do that same thing, right?

so it’s not that you have to, you know.

um

(4s) What I could do is say like, ‘Okay’

Here’s a path

yeah

that somebody did,
Like how can you use Pythagorean Theorem to try to go further with this. (.)

I like it but I think I would want you to just harvest some of this, like because some groups, didn’t yet answer that question exactly,

but they’re on the way.

Like there were groups- or maybe you would ask that after you’ve said, 'look here are three different groups, that came up with ways to connect the Pythagorean Theorem we’ve been learning about to this problem.

let’s look at it.

None of them finished it yet.’

'but that’s super smart, let’s look at those for a second.’

you could just like cycle them under the doc cam.

Yeah, I can do that. or something.

we did- I did a gallery walk with them a quiet gallery walk with this class only, just because I saw all that good stuff uh huh uh huh uh huh and I wanted them all to get exposure yeah yeah

so maybe I can like, yeah, say like, ‘here’s some highlights of a few that I saw, were getting closer.’

maybe we could have a group discussion?

hmm (.) yeah. (.) It still sounds to me-

it doesn’t sound yet,

what I’m hearing from you yet doesn’t sound like, 'these kids did something really mathematically smart.’

okay do you know what I mean?

so say that.
I want it to sound like that. It doesn’t have to be those words. okay so I don’t mean say it the way- in my language. mhm it still has to be Heather language. but I feel like I want you to tell everyone, they made an awesome connection, mhm that you didn’t give. you didn’t ask them to use the Pythagorean Theorem mhm but they were able to see- so in order to use the Pythagorean Theorem here, you have to see these as triangles. mhm which, I think a lot of kids what happens is they don’t. they’re just looking at straight lines. right. like they’re looking at this and then this and then this (gesturing with pen to paper), they’re not attending to, look, here’s a triangle right. because this part of it doesn’t really matter to them. mhm right. so they have to see the triangle. they have to recognize, that it’s a right triangle which gives it this special relationship that they can use, mhm you know what I mean? mhm so they did that, which is awesome, so let’s just (hand gesture) say, ‘Yay! Look at that smart thinking that got generated.’ Or however you do it, right Heather way, right. and then, ‘okay, so can we use that awesome idea that they generated, with something like this to figure out, how would we?’ okay.
and then to do that here a number of things are going
to have to happen, right?
like they’re gonna have to decide what this length is.
right.
which I don’t know if this person has yet decided.
I mean if they went to the midpoint then they could
say what this was
hmm yeah
this was six, right
and then, find that length.
yeah.
totally.
yeah they could say,
‘well let’s choose one that we know so we- or they
could say,
‘let’s decide what happens if you make a triangle that
hits at 3.’

mhm
you know?
mhm
let’s try that one and see what happens.
or what if it’s a five, or you know, um
and that’s what that- the launch was trying to support
that.

let’s just try.
yeah.
decide one.
make it three, or five, or six, or-
mhm
you know make it whatever the hell you want,
just make it something and see what we can do with it,
you know.
um,

okay
which is really hard,
for kids, right?

yeah
cuz like-
I mean it’s hard for grown ups.
I mean I have a lot of kids that are so scared to put
anything on their paper.

mhm
I finally had to do a challenge,
of one group to put something on their-
to draw some path.

uh huh
I was like, I’m gonna challenge you in the next five
minutes,
and you’re gonna have to take a risk right now.
good! /did they do it?/

draw something in there.

yeah.

yeah, they did.

(nods)

it was really hard for them,

and they didn’t want to draw anything in there,

yep.

they were totally scared.

yep

if it was like wrong or whatever.

it’s interesting.

yeah.

it’s scary to be a kid.

yeah.

(laughs)

oh, /interesting./

(laughs) Fascinating, that’s /so awesome though./

that, /one of the groups were doing/ that?

we told them to come up with ideas and try ’em, right?

so

it’s actually smart cuz then they /can see where

they’re gonna make their line go to/

(both laugh)

three hundred.

yeah

(both laugh)

Kids are so super interesting.

I wish I could just watch them all day.

I know.

that was interesting.

So how are you feeling about,

whatever.

Better.

I’m definitely feeling better.

Um,

I kinda had a meltdown this morning.

mhm
but I got to vent a little bit with a teacher. 
I know I had kind of a rough conversation yesterday
(laughing) with you guys.

(shaking her head)

Um,
but I’m feeling better,
for sure.

uh huh
and that was like-
you teaching the class today-
when you came in you were like,
’what do you need? what should be our focus?’
and I was like-
you know I couldn’t even like think,

uh huh
cuz I was so overwhelmed.
yeah.

and then your idea of teching the class was like, such
a great solution to that.

mhm
like I just needed a day
yeah
to like- not be a teacher.

I know,

(laughs)
You were a teacher all frickin day, I just,
(laughs) 55 minutes.

But like for us,
that’s so huge.
yeah

yeah

mhm

/You know where we’re gonna be for a week in the summer/

she was here because of Jose.
her and Jose have a pretty good realtionship.

yeah

so she comes in sometimes,
and like monitors him or like,
she’s taken him,
too when he’s out of control
mhm

she’d like him go into her room, so

mhm

which is so helpful.
like u::h.
he’s tough.
like I, you know,

I feel like I don’t have the resources.

to like,

yeah

handle that kid.

I know and for me,
I don’t have the responsibility cuz I’m not his teacher,
so it’s easier for me, right?

yeah

So all I- all I was doing was-

Yeah, so all I was doing was like,
all I can do is be kind,

right

respond to you in a kind way,
and like attend to the learning of the students in this
class.

yeah

so like what he was doing was like, just-
I didn’t feel like it was getting in the way really ever,
there was that one time he was sitting with that group,
when I did say something to him about it.

'You know I just really want to make sure this group
is getting to do the learning that they are trying to do
today, and,

um, so let’s just make sure that they have space to do
that.'
Or something like that.

and he was fine.
He said- (.)

He likes to mock me.
I know, he’s a real smart alec with me.

yeah.
But I think it’s easy for me to not be triggered by that

right

I don’t see him every day, right (laughs)

(laughs)

yeah he did.

He drew a quadrilateral
Yeah he did.
That’s awesome!

/didn’t he also/ in the whole group discussion at the beginning,
he like offered some ideas
that were really helpful.
He was kind of using a little bit of a smart ass voice,
but I don’t care.

yeah.

He’s so in fear of math.

I mean really high anxiety.

it’s tough for him.

(. ) Um,

(yawning) so,

Well thank you.

that was a fun experiment.

Thank YOU.

Yeah.

Thanks for teaching.

that was awesome.

(laughs)

(laughs) I wish you could be here every day.

(laughs)

from now until May.

it’s such a win win.

because I so miss, you know.

Do you?

You can come teach any time you want.

(laughs)

Any time.

Well right now they’re in math rap videos,

so I’m doing very little teaching

and that’s why we’re having great days,

cuz

What’s second period?

It’s my math support.

oh, uh huh.

They are doing math rap videos,

and they’re-

they’re like really owning it.

Like some of the groups.

Like some groups are struggling a little bit but-
to be- they always do every year when I do this, but,
they’re like really owning the math rap videos, so
I’m super excited to see.
They’re like doing huddles,
and like directing each other, and
I just saw some little viral video,
maybe today or yesterday or something.
that was like a three minute little thing about a kid-
have you seen it?

uh uh

going around on facebook (.)
maybe I’ll try to send you a link.

I don’t know, three minute on a kid there’s a lot.

Oh yeah, sorry.

(laughs)

It’s a kid who’s like-
you can’t read my mind and know /what I’m talking
about?/

/I’m like/ which one? (laughs)

Um, the kid is maybe s:::, eight

mhm

or something and it’s like,

'how to make a rap song

(sharp intake of breath)

in thirty seconds

/oh how cute/

/or maybe (inaudible)/

no I haven’t seen this.

'first you start with a beat.'

and he has a little keyboard and he makes a little beat

on it.

then he’s like,

'and then you add some keys'

and he adds a little keys in.

/that’s cute!/

/and then you/

and then you do some strings,

anyway, and then you add the base, and he does that.

and then he’s like,

'and then you rap about your problems.'

(hits Mia’s arm, throws head back and laughs)

and then it goes to him in this hoodie leaning against a
car

(loud laughing)

he’s this little 8-year old white kid and he’s like
(crosses arms and looks tough)

and he raps- he makes this little rap that’s totally cute

(laughs)

He has a little like kid lisp,
about stealing a cookie
and getting caught
and getting grounded for a week
and um (laughs)

so cute

'and that’s the way it is’ or something like that.

'and then you rap about your problems.’

(laughing) that’s so cute.

and then you write a rap about your problems.

(laughs)

yeah

(all laugh)

Um,
yeah, your kids might enjoy it.
it’s super short.

oh, yeah /I could play it!/

/they can rap about/ their math problems.

Okay I could play it for them,

They’d love that.

Remind me when I get home later,
if you send me an email to remind me cuz I won’t remember.

I’m going to T-facs now.

oh

Then I could send you a link.

I don’t think I can do T-facs.

Cuz I haven’t done anything in my classroom

yeah

for tomorrow.

Kamilah’s not going either.

Well, I can tell you what we’re doing cuz I helped plan it,
and we can talk about whether there’s a way, whether there’s-
some way to support it elsewhere,
otherwise.
We’re focusing on, uh,
sort of,
continuing from last-
were you guys there last time?
You (pointing to Lynn) were there.
Nobody was there last time, okay.

So we did like a- it’s a two-month thing,
where we’re working on strategic planning for next
year
around master schedule and hiring,
mostly around master schedule around like-
mmm

supporting course teams and around like-
what do we- what does it make sense to consider,
as we make those decisions,
or try to interact with the stakeholders who are
making those decisions,

   I was gonna say, we never have-

          You did?

   How is she feeling about math support?

          Cuz I really kinda want an answer,
          before the end of this year.
           yeah.

          Cuz I kinda have some pretty strong feelings about,
          if I get stuck teaching that next year,

          and I don’t want it to go the wrong way (laughs).
           (laughs)

          If you know what I mean.
           yeah

          yes. (gets up and starts collecting her things)

   Like I want to stay at Adams is what I’m trying to say,
          yeah

   (laughing) but there are a few non-negotiables at this
   point for me.

          okay

   Well part of the conversation,
the t-facs conversation is also around um,
around stra- (video ends)