2. CULTURAL NARRATIVES AND STATUS HIERARCHIES

Tools for Identifying and Disrupting Inequity in Mathematics Classroom Interaction

INTRODUCTION

Classroom-based research is clear that the quantity and quality of talk matters for student learning—the more students talk in rich ways, the more they learn (Lampert, 1990; O'Connor, 1998) yet classroom talk is often unequally distributed among students (Sfard & Kieran, 2001; Shah, Lewis, & Caires, 2014). In fact, it is often the students who most need opportunities to share their ideas, who are marginalized and excluded in mathematics classrooms (Featherstone et al., 2011).

In this chapter we synthesize two theoretical lenses for identifying inequitable patterns of interaction in whole-class discussions in mathematics classrooms, as well as strategies for disrupting such patterns. One lens is the sociological concept of status generalization, which refers to expectations of competence, based on status characteristics deemed valuable by society writ large (Cohen, 1994). In classrooms these characteristics can support the formation of status hierarchies that render some students as smarter and more competent relative to their classmates. Building on the theoretical lens of status generalization, we also consider the broader discourses and cultural narratives that mediate the production of local status hierarchies. In doing so, we aim to offer a multi-level account of how inequity can emerge in classroom interaction.

To illustrate these theoretical perspectives, we use classroom vignettes of inequitable interactions in the kindergarten classroom of a novice teacher, Ms. Kelly, during whole-class mathematical discussions. We use the dual lenses of status generalization and cultural narratives to analyze how status hierarchies can operate even in a classroom with very young children. We conclude by offering concrete ways to disrupt such inequities, as well as strategies for promoting more equitable classroom participation and talk.

STATUS HIERARCHIES AND GENERALIZATIONS

If members of a jury presume, as they often do, that the men have better ideas and better understanding of the legal issues involved, that they think...
more rationally and can be more helpful to the jury than the women, status
generalization has occurred. The status characteristic, gender, has generalized
to affect individuals' cognition about the relative ability of the jurors.
(Webster & Foschi, 1988, p. 1)

In the field of sociology, the theory of status generalization has been used to
research social inequities in various contexts (e.g., playground, jury room, and work
groups) and grain sizes (see Webster & Foschi, 1988). The theory contends that
status generalizations are made in relation to characteristics associated with social
advantage and cultural preference. Gender and skin color, for example, are status
characteristics that are generally associated with social advantages and disadvantages
in a myriad of contexts. Status generalization theory explains patterns of inequitable
interaction by proposing that certain status characteristics create hierarchies of higher
and lower expectations for individuals. This, in turn, affects how people participate
and contribute, thereby reinforcing status hierarchies (Cohen, 1994; Webster &
Foschi, 1988).

Applied to the classroom, this theory provides a particularly helpful lens for
analyzing patterns of inequitable participation. We define inequitable participation
as a condition where the learning environment is organized in ways that prevent
all students from having fair access to the opportunities to participate in the
types and levels of classroom discourse needed for learning (Esmonde, 2009).
Status generalization has been applied to the empirical study of the generalized
expectations of competence, based on status characteristics in collaborative learning
settings (e.g., Cohen & Lotan, 1997). This research formed the basis of Complex
Instruction (CI), a pedagogical approach designed to disrupt status hierarchies in
In part, the success of CI lies in its recognition that classroom interactions occur
in a larger social context, which influences how teachers perceive their students
and how students perceive their classmates (Cohen & Lotan, 1997). At the end
of the chapter, we discuss CI strategies that can disrupt inequitable classroom
interactions.

CULTURAL NARRATIVES

Local negotiations over status in social spaces like classrooms should be understood
in relation to broader cultural narratives that circulate in society. All human cultures
construct storylines that facilitate people's sense making about the world around
them (McAdams, 2013). Regardless of their validity, these narratives come to
constitute a society's "common sense," or what is taken to be "true" about people
and the relations between them (cf. Foucault, 1972). Cultural narratives are not only
ideological in character, they materialize in everyday social interaction as they are
invoked in discourse. In fact, their deployment as tools for meaning-making in
human activity is what makes them "cultural" (cf. Cole, 1998).

Importantly, cultural narratives structure, but do not determine, social
interactions. What people say to each other and how they interact with each other
are not entirely novel productions. Rather, they often reflect and propagate pre-
existing ideas and longstanding norms, albeit with some degree of modification in
relation to local circumstances. To illustrate the point, consider that a new school
opening in a neighborhood will often be remarkably similar to the older schools
that came before it: the building will be divided into classrooms, many of the same
subjects will be taught, the bureaucracies will be similarly organized, and there
will likely be considerable overlap in the kinds of pedagogies used. This is not
coincidental. Schools are designed in accordance with existing cultural narratives
about how schools should look, how they are meant to function, and how teachers
and students are supposed to act. While there will be some variation, cultural
narratives ensure a general regularity to social contexts and how individuals are
positioned within them.

In education there exists a variety of cultural narratives. For example, there
is the idea that some students are innately more "gifted" than other students—
that there are "fast" kids and "slow" kids (cf. Horn, 2007). Such narratives
often construct hierarchies of students' academic potential by inequitably
distributing intellectual status between students (Ernest, 1991; Parks, 2010).
Cultural narratives about social identities can also be consequential for student
learning. For example Wortham (2006) showed how racial and gender narratives
positioned Black boys and girls in a high school English classroom with identities
as "outcasts", which coincided with diminished opportunities to participate in
whole-class discussions.

In mathematics, racial narratives exist about the mathematical potential of
students from all racial backgrounds (Shah, in press; Stinson, 2008). These
narratives imply a racial hierarchy of mathematical ability where non-Asian
students of color are deemed inherently inferior (Martin, 2009). Overall, cultural
narratives exist about subject areas like mathematics, as well as about social
identities (e.g., race, gender, and language proficiency). These narratives comprise
the discursive context within which local teaching and learning interactions
occur. We argue that analyses of those local classroom interactions must account
for these larger narratives.

RESEARCH CONTEXT AND ANALYTICAL APPROACH

We illustrate these theoretical lenses using a classroom video observation of
a kindergarten mathematics lesson. We purposely chose an early elementary
mathematics classroom to demonstrate how status hierarchies and cultural narratives
can be explored in these early grades. This particular kindergarten classroom was
observed as part of a longitudinal research project following graduates of our
institution's teacher preparation program through the beginning years of teaching
(Crespo, 2006).
At the time of the focal observation, Ms. Kelly (pseudonym) was in her second year of teaching and working in an urban charter school serving a community of mostly Latinx and emerging bilingual students. Unlike her Latinx students, Ms. Kelly was White, middle class, and a monolingual speaker of English. Furthermore, the school had a striking racial disparity as the administrators and teachers were, in the majority, White, while the support staff and students were Latinx. There were 30 kindergarteners (ages ranging from 5–6 years) in Ms. Kelly’s classroom (16 boys and 14 girls) with varying levels of English proficiency, some of whom were new to the United States. In the US kindergarten is the start grade in the formal K-12 school system, and for many students who have not have had access or attended pre-schools, it is their first experience with formal education. Ms. Kelly’s classroom also had a teacher aide who was a native Spanish speaker, but due to an “English-only” policy at the school, interactions with the students were expected to be mostly in English.

Ms. Kelly was required to use a heavily scripted curriculum (Saxon Math) that greatly influenced her teaching practice. The focal lesson in the present study concerned measurement: “Ordering objects by length and measuring length using nonstandard units” (Lesson 87 in the textbook). The lesson followed a typical “I do, we do, you do” lesson script, where a teacher demonstrates what to do and then students reproduce what has been demonstrated. The first part of the lesson involved visually ordering colored paper strips from shortest to longest, and the second part involved using linking cubes to make cube-sticks the length of the paper strips. The purpose of this second activity was to quantify (in terms of cubes) the lengths of the shortest and longest strips. Additionally, the explicitly scripted lessons included written scripts for the teacher to state verbatim. These scripts anticipated students’ expected responses, which were typically single-word statements.

Hence the instructional script that was made available to Ms. Kelly by her textbook guided her to structure whole-class discussions in ways that followed the well-known “Initiation-Response-Evaluation” (I-R-E) pattern that research shows is prevalent in US classrooms (Edwards & Mercer, 1987; Pimm, 1987). The IRE classroom discourse pattern socializes students to view the teacher as the sole authority and holder of knowledge, and hinders students’ sense making and perceptions of their peers as knowledgeable resources for learning.

With regards to our analytical approach, each author viewed the selected classroom video separately and made descriptive observations about the classroom interactions using their respective lenses of status and cultural narratives. Next, we convened to discuss our observations and inferences, as well as questions that arose while viewing the video separately. Both authors then wrote their analysis of Ms. Kelly’s lesson using the consensus points that resulted from these discussions.

Complementing the video analysis, we also tracked patterns in classroom discourse using a validated observation tool called EQUIP, which stands for "Equity Quantified In Participation" (see Shah et al., 2016). EQUIP is based on a methodology called equity analytics, which analyzes quantitative patterns in how dimensions of classroom discourse become distributed across social and academic markers, such as gender, race, and performance level. For example, EQUIP can tabulate the percentage of teacher questions that went to boys rather than girls. For the present study, we used EQUIP to identify any disproportionalities in Ms. Kelly’s classroom with respect to gender, specifically in terms of the distribution of student participation, teacher questions, and the explicit evaluation of student ideas. Analytics on these dimensions of classroom discourse allowed us to check our impressions and biases based on the qualitative analysis of the video.

**STATUS AND CULTURAL NARRATIVES IN MS. KELLY’S CLASSROOM**

As noted earlier, status hierarchies in classrooms are constructed during students’ participation in classroom discourse. Some forms of participation are constructed as “model”, while other forms of participation are dismissed as “non-model.” Qualifying as “model” has to do with how students engage intellectually with the teacher, their classmates, and the discipline, as well as with issues of behavior and discipline.

In analyzing interactions in Ms. Kelly’s classroom, we make two claims. First we argue that the criteria for being a “model” student were narrowly construed. That is, the ways a student could be defined as “model” were limited. Second, we argue that being “model” in Ms. Kelly’s classroom revolved around three themes that further exacerbated status hierarchies in the classroom: (1) control; (2) competitiveness; and (3) language proficiency. We identified these themes based on our analysis of the video data in relation to literature on status issues and societal perceptions of mathematics. As we show, classroom interactions related to these themes intersect with broader cultural narratives about mathematics teaching and learning, as well as contextual factors pertaining to Ms. Kelly’s school and her positionality as a new teacher.

**Control**

A dominant narrative in education is that “good” classrooms are ones where the teacher is in control of the lesson and student participation. Narratives related to the theme of control were evident in Ms. Kelly’s classroom in two key areas: teacher control over students’ participation, and teacher control over the authority to evaluate the correctness of student ideas. The following transcript illustrates these forms of control:

Ms. Kelly: *Alright, listen very carefully—you have materials on your table. I want to give a double thumbs-up to the tables where NO ONE touched them. Oh I love how Table 1 has not touched them; they are all right where I put them. I want you to take your strips and your mat and put them all in front of you. Leave your linking*
cubes in the middle of the table. Listen. I haven’t told you what to do yet. They should still be in a pile, like Silvia and Beatriz and Carlos have them in a pile.

Ms. Kelly: Ok, now on your paper you are going to put them in order from the shortest to the longest, just like I did. Remember when we are putting them in order: do we put them so that this one is down here and this one is down here and this one is up here?

Class: No::oo... (choral response)

Ms. Kelly: No::oo. They all have to start in the same place, don’t they. So if this is your paper you want to have them all lined up in the bottom. Okay? Can you do that for me? Put them from the shortest to the longest make sure they are all even at the bottom. [Ironically the example on the board is lined up at the top.]

Class: Yee:es... (choral response)

Student: Can we start now?

Ms. Kelly: Yes you can start now, thank you for asking. Once you are finished I want you to give me thumbs up.

Ms. Kelly: [While the teacher circulates around the tables and monitors she reminds the students to make the papers are starting at the same bottom part.]

Line them all up at the bottom of your paper. It might be easier if you lined them up at the edge of the paper can you try that for me, thank you...

Ms. Kelly: Very nice! You did such a good job boys and girls.

This short classroom excerpt illustrates how “model” participation in Ms. Kelly’s classroom can be characterized in terms of intellectual and behavior compliance. The lesson follows the “flow” predetermined in the lesson plan, and students speak and act only in ways solicited and authorized by the teacher. Indeed, the “I do, we do, you do” structure of the lesson, also, may have contributed to the centralization of control with Ms. Kelly. Students listen and wait for the teacher’s instructions, and respond to teacher questions with single “yes” and “no” answers. “Model” participation is publicly praised (“They should still be in a pile, like Silvia and Beatriz and Carlos have them in a pile”). When students are sent to work independently, the teacher circulates while continually reminding students to line up the strips at the bottom of their papers to ensure correct ordering of the strips. As students complete their work, they must indicate to Ms. Kelly that they are done so that she can check their work.

Throughout the lesson, we did find that many different students in the class were afforded opportunities to participate in the whole-class discussion. This suggests that the teacher was interested in engaging students in classroom discourse, rather than only lecturing at them. However, we also found that these opportunities were nearly always limited IRE-style sequences. Students were placed in the role of “filling in the blanks” of the teacher’s predetermined lesson script. Of all of the questions asked by Ms. Kelly, 85% (29 of 34) were closed-ended. Students were rarely asked open-ended questions that might lead to a range of responses, or responses that the teacher might not have been able to predict while planning the lesson. In other words, student participation existed, but was heavily regulated by the teacher.

In teacher-centered classrooms, teachers have considerable influence over how participation opportunities are distributed with respect to socially constructed identities, such as gender. Research suggests that gender can also influence who receives participation opportunities in classrooms (Sadker, Sadker, & Zittleman, 2009). In mathematics education, gender is a particular status characteristic that gets conflated with mathematic ability, and girls are often perceived to be mathematically inferior to boys (Walshaw, 2001). Although there is insufficient data to make strong claims, there is moderate evidence of the influence of such gender narratives in Ms. Kelly’s classroom.

For example, boys participated 62% (21 of 34 opportunities) of the time, which was slightly disproportionate relative to their demographic representation in the class (53% boys). Further, we found that the few instances of extended dialogue with students were between Ms. Kelly and boys in the class. Finally, throughout the lesson Ms. Kelly makes general statements about students needing to think before responding to her questions, on one occasion she singles out a female student, Juana, for “not thinking before shouting out answers.” However, we acknowledge that more data would be needed across multiple lessons to establish patterns of gender bias.

Apart from gendered patterns in participation, it is noteworthy that Ms. Kelly uses the phrase “boys and girls” as a way to solicit students’ attention. Boys and girls are categories of students that are continually emphasized in many elementary school classrooms when the teacher wants attention from the class, issues instructional directives, and praises students (e.g., “Good job boys and girls”). Although this is a very common way to address elementary school age children, it repeatedly reinforces the notion of a false gender binary (cf. Butler, 1990). In the later grades, especially in middle school, this incomplete conceptualization of gender becomes a status generalization associated with hierarchies of mathematical ability.

Apart from control over student participation, the theme of control also manifested through the regulation of student answers and ideas. When students offered a right answer, they typically received a warm smile or a verbal affirmation from Ms. Kelly. On two occasions during the lesson the teacher initiated a class-wide affirmation where students—if they had the correct answer—were directed to pat themselves on their backs and say, “Good job self.” Altogether, these discourse moves signal that right answers are valuable, and that students can accrue intellectual status in the eyes of their classmates and the teacher by being right. In effect, students needed to be right in order to be a “model” student.

Alternatively, wrong answers are met with imposing looks or leading questions from the teacher. Rather than opportunities for discussion and sense making, the implication is that wrong answers are hiccups to the lesson flow and must
be uprooted. While Ms. Kelly does not tend to disengage from students who provide wrong answers, follow-up questions do not probe students' idiosyncratic understandings. Instead, the goal appears to remove any struggle or frustration in order to get students to "see the light" (i.e., reconsider wrong answers until they provide right answers).

Ms. Kelly's reactions to right and wrong answers reflect a dominant narrative in mathematics education that claims mathematics learning is centrally about the pursuit of right answers. While this view of mistakes and misconceptions is common in mathematics education, it conflicts with research on how people learn (Bransford, Brown, & Cocking, 2000; Smith, diSessa, & Roschelle, 1993), as well as a growing counter-narrative in mathematics education that values Dweck's (2006) notion of growth mindset (see Boaler, 2013). While this may be a perspective also present in other school subjects, the focus on right answers is especially pronounced in mathematics.

Broadly speaking, the issue of control is characteristic of how many perceive the discipline of mathematics. That is, mathematics is widely seen as being about precision and exactness, and mathematical problems are thought to have one solution. Compared with the "messiness" of other subject areas, like the social sciences and humanities, mathematics is considered to be abstract and distinct from the problems of the "real world." The broader discourse about mathematics as a discipline informs how many believe mathematics should be taught in schools—ensuring that a mathematics classroom is kept sanitized of mistakes and misconceptions. The irony in this case is that the topic of measurement concerns approximation and accounting for imprecision (e.g., error bounds).

To be clear, in arguing that this classroom is organized around narratives of control and correctness, we do not mean to "bash" the teacher. There are a number of contextual factors that contribute to and potentially explain the patterns we observed. First, there are thirty kindergartners in the classroom. Managing this number of young children can be challenging for a veteran teacher, let alone a novice teacher in her second year. As a beginning teacher Ms. Kelly had less autonomy to pursue a more open-ended type of lesson. In fact, the school itself signaled control through the choice of scripted curricula and the requirement that both students and teachers wear uniforms. Understanding what is happening locally in the classroom must also be situated within this context.

**Competitiveness**

In addition to control, Ms. Kelly's classroom was also organized around a culture of *competitiveness*. The kindergartners in Ms. Kelly's classroom were seated at round tables in groups of five or six. Though this set up suggests that the classroom may have been a collaborative space for learning, this particular lesson had been structured in ways that promoted competitive and individualistic classroom interactions. This is evident in the way Ms. Kelly opened the lesson. She directed students' attention to four multi-colored strips of construction paper of various lengths displayed on the board. She asked the class: "*Who can tell me which strip is the shortest?*" Students quickly raised their hands and competed for the teacher's attention to be picked to answer her question. Clearly, the teacher could not pick all of the students. The following whole-class interaction involving a student named Joaquin serves to illustrate competitiveness in Ms. Kelly's classroom:

**Ms. Kelly:** Joaquin, can you tell me which strip is the shortest?
**Class:** [Many students have their hands raised.]
**Joaquin:** The green one.
**Class:** [Many hands are still raised.]
**Ms. Kelly:** The green one is the shortest? (A doubting tone.)
**Ms. Kelly:** (To class) Raise your hand if you think the green one is the shortest.

**Class:** [Several students raise their hands.]
**Ms. Kelly:** (To Joaquin) Do you remember what 'shortest' means?
**Joaquin:** Small.
**Ms. Kelly:** So the green one is the smallest. Which one is the smallest?
**Joaquin:** The yellow one.
**Ms. Kelly:** The yellow is the smallest? Yeah? There's nothing smaller than the yellow? [Uses leveling hand gesture pointing at the bottom of each strip; numerous hands are raised at this point.]
**Joaquin:** The blue one.
**Ms. Kelly:** The BLUE one! [An excited tone.]

In this exchange the chosen student, Joaquin, repeatedly does not produce the desired answers, and seems unsure as to how to correctly answer the teacher's questions. He appears to change his answer each time the teacher repeats it back and questions it. While this is happening, Joaquin's classmates keep their hands raised and compete with one another to be the teacher's next pick. It is noteworthy that when one student is speaking, other students are permitted to have their hands raised, as if hoping that their classmates answer incorrectly so they can have a turn answering the teacher's question. Ms. Kelly does not ask students to lower their hands and listen to Joaquin. This pattern was typical of other interactions we observed in the lesson, and was also more pronounced when the speaking student produced an incorrect answer. In that case, students quickly raised their hands in a bid to produce the correct answer. Because the authority to determine correctness was centralized with Ms. Kelly, being selected to provide a correct answer was a primary way for students to garner status.

The atmosphere of competitiveness in Ms. Kelly's classroom reflects a more general narrative in education about schools being places where students compete for limited resources. Rather than collaborators, students are positioned as rivals for their teacher's attention and approval. This narrative of "learning as competition" overlaps with another narrative pervasive in mathematics education: that speed is
central to mathematical success. That is, it is commonly thought that mathematics learners should not only get the right answer, but they should get the right answer as quickly as possible (cf. Schoenfeld, 1988). The emphasis on speed fosters a classroom culture of competitiveness, where students attempt to accrue status by being publicly recognized as having the right answer before their classmates.

Parks (2009) has referred to this particular genre of teacher-student interactions as a “game show,” where students are expected to answer quickly and correctly. In this classroom, getting called on by the teacher before one’s classmates becomes desirable and high-status because only a few students get the opportunity to experience this public recognition of competence. The routine of students raising their hands and being called on by the teacher also reflects a narrative about mathematics learning being an individual endeavor. Students sit in groups but do not—and are not encouraged to—share their ideas with, ask questions to, or assist their classmates. Instead, classroom interactions revolve around the teacher. During independent work time, students cannot proceed to new work until the teacher has individually checked their current work. Students are not constructed as having intellectual resources to share with their classmates. At best, students are instead constructed as cohabitants in the classroom.

Language Proficiency

A third way in which hierarchies around “model” and “non-model” students were constructed in Ms. Kelly’s classroom revolved around language proficiency. With respect to emerging bilingual students, there was evidence that Ms. Kelly may have been attempting to attend to the specific needs of emerging bilingual students. One way this manifested is in the type of language she used and how she used it. For example, Ms. Kelly frequently named the colors of the paper strips on the whiteboard while discussing them. Further, on one occasion she explicitly slowed down and enunciated certain key vocabulary words (e.g., “short-EST”). Ms. Kelly also used a variety of gestures to clarify her questions to students. Of course, there is insufficient data to definitively conclude that Ms. Kelly employed these moves as a way of tailoring her instruction specifically for emerging bilingual students. Whether she would teach in the same way in classrooms with English dominant students remains an open question.

While these moves may have been intended to support emerging bilingual students, there were also missed opportunities. All of the students had proficiency in Spanish, but the teacher did not use their home language. To make vocabulary less of a barrier, the teacher could have used Spanish words like “pequeño” (small) and “grande” (large). Scholars have argued that too much emphasis is placed on vocabulary—as opposed to mathematical sense making and engagement in mathematical practices—in the mathematics education of emerging bilingual students (see Moschkovich, 2013). Leveraging this linguistic resource might have mitigated both the linguistic challenges of the lesson and status hierarchies around language proficiency.

In the transcript presented earlier involving Joaquin, Ms. Kelly made a point of clarifying whether Joaquin understood what the word “shortest” means. This seems to be a very reasonable teacher move because all of Ms. Kelly’s students were learning English as an additional language. However, using the lens of status generalizations in this particular exchange, we can also see that Joaquin’s mathematical competence and English proficiency were both called into question. It is also important to note that earlier, Joaquin was also reprimanded for off-task behavior. Depending on the frequency of these kinds of evaluations, being positioned in the low end of these three areas of competence could lead the teacher and his classmates to assign low expectations and status to Joaquin.

As we discussed earlier, our analysis is less an indictment of the teacher’s shortcomings and more a statement about the schooling context. The school itself had an English-only policy. While the teacher’s aide could speak Spanish, Ms. Kelly could only speak English. So even if the school permitted bilingual education, the teacher in this class of emerging bilingual students was not prepared to do so. These policies and contextual factors reflect longstanding narratives about the hegemony of the English language in the US, and its role as a prerequisite for full citizenship.

DISCUSSION AND IMPLICATIONS

Much of the literature on status hierarchies in mathematics classrooms has focused on small cooperative groups. In part, this is due to the relatively substantial body of work on Complex Instruction, which emphasizes group work (e.g., Featherstone et al., 2011; Nasir, Cabana, Shreve, Woodbury, & Louie, 2014). Our study contributes to this literature in two ways. First, we examined how status hierarchies are constructed at the level of whole-class activity. And second, we showed how the construction of those status hierarchies is linked to instructional practices mediated by longstanding and widely circulating cultural narratives in mathematics education, such as those of control and competitiveness. Similar to Wortham’s (2006) approach, we maintain that situating local status dynamics within the broader discourses that exist about mathematics teaching and learning can more fully illuminate the nature and basis of status hierarchies in mathematics classrooms.

Ms. Kelly’s classroom was organized in ways that constructed a hierarchy of “model” and “non-model” students. Importantly, neither the teacher nor the students explicitly invoked narratives related to this hierarchy. Rather, the narratives were tacit in how Ms. Kelly and her students interacted with each other, which revealed the norms in place for participating in classroom discourse. In Ms. Kelly’s classroom the “model” student is compliant, attentive, answers correctly, and follows rules. “Non-model” students provide wrong answers and do not follow directions. Because these categories are binary and oppositional, they serve to sort students and foster a learning environment that is more competitive than collaborative.

Given the demographics of Ms. Kelly’s classroom, the narratives related to gender and emerging bilinguals are also important to consider. In mathematics girls are often
positioned as mathematically inferior relative to boys. A similar narrative persists for emerging bilingual students, who are often perceived to be less mathematically competent than English dominant students. While we did not find strong evidence of these false, deficit narratives, we highlighted the subtle ways in which issues related to gender and emerging bilinguals were constructed in Ms. Kelly’s classroom.

The lenses of status and cultural narratives serve as tools for identifying patterns of inequitable classroom interactions. Noticing disparities in students’ opportunities to participate is a first step towards addressing this problem. The lenses we shared here can serve to support teachers in analyzing and reflecting on their teaching practice in relation to status hierarchies and cultural narratives that further amplify educational inequalities in their classroom. These lenses can also help to imagine particular solutions or strategies that could be used to disrupt or change patterns of classroom interactions that undermine equitable student participation. We close by offering several small but important steps that could be taken to improve the nature and the quality of students’ participation in Ms. Kelly’s classroom.

Disrupting: Control

One strategy Ms. Kelly could consider is to use a version of the EQUIP approach employed here to study the amount, distribution, and length of participation in her classroom (see Shah et al., 2016). Tracking the distribution of teacher versus student turns, wait time, and the frequency and types of questions are ways to identify and potentially track progress towards redistributing the discourse patterns in her classroom. Implementing talk moves that foster student discourse (e.g., turn-and-talks, “say more”, and “who can repeat?”) might also help (see Chapin et al., 2009).

Another suggestion to disrupt the narrative of control—while considering contextual constraints—is to identify and plan for opportunities/spaces for mathematical disagreement. This seems a feasible place to begin in Ms. Kelly’s classroom, as this can result in important learning opportunities for students. In this particular measurement lesson, for example, Ms. Kelly was insistent that students line up their strips at the bottom. Instead of narrowing the ways students could think about how to compare lengths, Ms. Kelly might have problematized the placement of the strips and opened a discussion about the pitfalls of various strategies for visually comparing lengths. Valorizing disagreements and misconceptions would serve to reconstruct the characteristics of a “model” mathematics student.

Disrupting: Competitiveness

One strategy to disrupting the culture of competitiveness in Ms. Kelly’s classroom is to implement new norms for soliciting student participation. Rather than students participating individually, Ms. Kelly might ask students to come up with consensus answers in their groups. This would serve to slow down the rapid pattern of IRE sequencies, and also would address Ms. Kelly’s concern that her students “think before shouting out answers.”

A relevant strategy from Complex Instruction (CI) is to consider how tasks can be constructed as “group-worthy” (Lotan, 2003). The physical materials (e.g., manipulatives) used to support lessons can serve as tools for promoting collaborative learning. In this lesson each student had their own materials—this means that students neither had to share them with classmates nor jointly negotiate mathematical meaning. If instead there were one set of materials per table (instead of one set per individual), and if each student was given responsibility for one of the four colored paper strips, students would be more compelled to collaborate and hold each other accountable.

With this rearrangement supporting non-competitive individual and collaborative work, everyone at the table has a role to play in a group-worthy task. This strategy helps us think about how to distribute the physical resources so that everyone has a part to play in the group and no one is left out. This strategy could work even when the classroom is not set up as a CI classroom. This does not require radically changing the structure of the lesson, which is important because like Ms. Kelly, many teachers are required to use a highly scripted curriculum.

Disrupting: Marginalization Related to Language Proficiency

We recognize that because of some of the English-only policies that are in place in some schools, this particular issue might not be addressable within a single lesson or a teacher’s classroom. In our analysis, we pointed out several strategies Ms. Kelly was already implementing to potentially attend to the needs of her emerging bilingual students, such as eliciting and then utilizing students’ preferred language (e.g., “smallest” in conjunction with “shortest”). This is a general practice to help students gain fluency translating between the everyday and school languages that can be extended by eliciting and utilizing Spanish words that can be related to English words in the lesson. With a bilingual teacher aide in her classroom, this is a teaching move within reach for Ms. Kelly. Overall, using such strategies more frequently and purposefully can help disrupt negative narratives associated with the mathematical abilities of emerging bilingual students.

CONCLUSION

Inequities in the form of status hierarchies can have substantial impact on students’ opportunities to learn. For that reason, it is important that teachers be constantly vigilant for issues of status in their classrooms. However, deconstructing such inequities is a complex endeavor because they operate at multiple levels. Not only do teachers need to be aware of subtle patterns in how participation opportunities are distributed, but they also need to recognize how those patterns might relate to
broader cultural narratives about both teaching and learning and socially constructed identities. Equitable teaching poses a considerable challenge that should not be underestimated.

In our view, interventions that attend to the ways in which cultural narratives shape local classroom 'interactions stand a better chance at attenuating inequity. Here we have proposed the lenses of status and cultural narratives as tools for illuminating classroom-level inequities. Rooted in these lenses, we have detailed concrete strategies that teachers can incorporate into their everyday practice. While there is no panacea for inequity in mathematics classrooms, a multi-pronged effort that coordinates multiple strategies has the potential to make classrooms more equitable.

REFERENCES


