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High school mathematics teachers' noticing of inequitable talk

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Abstract
To make instructional decisions that interrupt inequitable talk in the classroom, teachers must notice it in the first place. In a two-year Professional Learning Experience (PLE) focused on the core practice of facilitating equitable discussions, we found that two different groups of math teachers took up the work of noticing for equity in different ways and with varying degrees of success. We analyzed teachers' written goals for teaching, videos of their in-person classroom instruction, video recordings of their coaching sessions, and sets of video annotations. Our findings indicate that teachers who noticed for equity: (1) engaged in conversations about status and identity (2) had more student-centered goals, and (3) were more likely to select "bumpy moments" of their instruction to discuss in coaching sessions. These findings have implications for instructional coaches, teacher educators, and professional learning facilitators interested in supporting teachers with noticing inequitable talk in their classrooms.

Keywords Teacher noticing · Equity · Participation · Group work · Video club · Discussion

Introduction

Talk is an important part of student learning in math classrooms. However, students from marginalized groups, such as racially minoritized youth and female-identifying[1] students, tend to talk less and be silenced more often than their white male-identifying counterparts (Butler-Barnes et al., 2021; Carlone & Johnson, 2007; Gholson, 2016). Most teachers want to make instructional moves that foster equitable talk in the classroom, but before they can intentionally do so, they must *notice* instances of inequitable talk in the first place. Such noticing is challenging. Teachers are already working to notice students' engagement with content, reaction to activities, and general participation, and there is a limit to how

[1] For the purposes of this study, the terms "male" and "female" refer to any student or teacher who self-identified as such. We recognize that these are imperfect terms that present gender as binaries, yet we use these terms throughout the paper because participants used them.

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much information they can process in any given moment (Sherin, Jacobs, & Philipp, 2011; Sherin & Star, 2011) Also, math teachers—especially those who lack confidence about how to best address issues of equity—may prioritize noticing students' content knowledge above student interactions (Wager, 2014). To support teachers in developing and refining their noticing of inequitable talk, we first need to learn more about the characteristics that influence how they take up the practice.

This study draws from data collected during a two-year professional learning experience (PLE) committed to equitable instructional practices, such as fostering productive classroom talk. The PLE included two face-to-face summer institutes and multiple video coaching sessions over two academic years. Six secondary math teachers recorded their classrooms, uploaded videos to a video-annotating platform, and met in video clubs with a coach. In these video clubs, teachers reflected on their instruction as well as their students' learning and social interactions. We focused our study on two groups of math teachers who took up and discussed the work of noticing inequitable talk in different ways. Broadly, we wondered why their noticing was different. Specifically, we asked:

1. What were the differences in the way teachers in the PLE noticed inequitable talk?
2. What teacher characteristics might be associated with differences in noticing for inequitable talk?

Conceptual framework and literature review

Teaching and learning are situated

We draw on conceptual frames and empirical work positioning teacher learning as situated in individual, sociocultural, and historical activity. In other words, when it comes to learning to teach, "the physical and social contexts in which the activity takes place are an integral part of the activity" (Putnam & Borko, 2000, p.4). Likewise, teachers' identities, including race, gender, status, and power, influence their teaching practice (Cooks, 2003; Lee & Johnson-Bailey, 2004; Maher & Tetreault, 1994; Vinlove, 2016). For example, Su (1997) found that minoritized teacher candidates had clearer and stronger commitments to teaching for social justice than their white peers. We are especially interested in the ways that teachers' identities can influence their instructional visions, pedagogical commitments, and what they notice in the classroom.

Understanding teachers' commitments can provide insight into teachers' instructional decision-making (Schoenfeld, 1998; Shavelson & Borko, 1979). For example, Wager (2014) found that teachers' commitments to equitable mathematics pedagogy shaped what they noticed in the classroom. Additionally, Shah and Coles (2020) demonstrated that teachers' commitments to antiracist teaching were connected to their noticing of racial dynamics in the classroom.

In addition to a focus on instruction, we also attend to the reality that systemic inequities are pervasive in schools. School has long been a place where ways of learning, behaving, and participating are bound up in white, middle class discourses (Brown & Brown, 2012; Gee, 2004), which reward individualistic and competitive behavior. Secondary school math instruction is and has been dominated by white male teachers as compared to other disciplines (Malzahn, 2020), reinforcing those discourses. As a result, students who are minoritized based on race, gender, and income have to do extra emotional and cognitive work

to navigate these discourses, contending with stereotypes, microaggressions, and being silenced and/or ignored in classroom discussions (Carlone & Johnson, 2007).

In the following subsections, we first define academic and social status and explain how status in the classroom impacts the participation of girls and racially minoritized students. Then, we discuss how academic and social status impacts students' verbal participation in classroom discussions.

Status and teachers' perception of status

Expectation state theory asserts that there are hierarchies of status in classrooms that influence group dynamics and the group's ability to accomplish a task (Berger & Wagner, 2007; Correll & Ridgeway, 2003). These status hierarchies impact student participation and student learning. Racially minoritized students and female-identifying students often have to contend with others' attributing them with lower academic status (Esmonde & Langer-Osuna, 2013; Langer-Osuna, 2011; Nasir & Shah, 2011; Wood & Kalinec, 2012). This phenomenon is particularly troubling because students who are afforded more status talk more, and students who verbally participate more learn more (Chi & Wylie, 2014; Cohen, 1984). Cohen and Lotan (2014) argue that academic status influences even non-academic tasks because "…academic status has the power to spread to new tasks where there is no rational connection between the intellectual abilities required by the task and the academic skill making up the status order" (p. 30). It is therefore important to attend to status because of the influence it has on students' identities as math learners and their learning in math (Hand, 2012; Horn, 2012; Langer-Osuna, 2017).

To make instructional moves that challenge existing status hierarchies in their classrooms, teachers need to develop awareness of the ways students navigate both teachers' and peers' perceptions of their competence in academic contexts. Boaler (2006) observed that detracked mathematics courses in one high school promoted equitable access for all students when teachers worked to ensure that their students had equal status. Math teachers leveled the status playing field by assigning competence to students perceived to have less status and supporting equitable participation through assigned group roles. Similarly, Horn (2012) argues that teachers can create equal status in classrooms by trying to disrupt classroom status hierarchies and valuing a variety of ways of being competent in math.

In the focal PLE in this study, much of the instruction was led by Ganitha,[2] an instructional coach with math expertise and teaching experience. Ganitha taught early-career math teachers about academic and social status during the in person, two-week-long summer PLE. Ganitha used the term "academic status" to refer to how students navigate their own and their peers' perceptions of their competence in academic content. She used "social status" to refer to the ways students negotiate their own and their peers' perception of their popularity in the class. She taught that students can possess any combination of statuses, such as having more academic status (perceived as "smart" in math) but have much less social status (ignored in group work due to not being liked).

[2] All names are pseudonyms.

Verbal participation

Active participation improves learning in math classes (Forman, 2013; Kyriacou, 1992; Pratton & Hales, 1986). A study of students in elementary math classrooms showed that verbal participation in class discussions positively predicted their scores on achievement tests, and that the more frequently teachers supported student participation, the more students participated (Ing et al., 2015). Although there are many ways that students can participate in classrooms (Fink, 2020; Langer-Osuna et al., 2020), we focus on verbal participation or "talk" in this study as an important activity that constitutes meaningful participation because students with less academic and social status tend to talk less. When watching classroom video clips, we looked at instances in which any student in the recording silenced, interrupted, or ignored another student. Then, we used the definition of status that Ganitha taught during the PLE to analyze what teachers noticed in those instances and how they talked about social and/or academic status.

Defining teacher noticing for equity

Noticing

Noticing helps teachers make sense of the complex phenomena they observe during instruction and classroom activities. Early conceptualizations of teacher noticing tended to take a cognitive bent, focusing primarily on what was happening in teachers' heads as they observed classroom phenomena. However, Goodwin (1994) noted that "the ability to see a meaningful event is not a transparent, psychological process but instead a socially situated activity accomplished through the deployment of a range of historically constituted discursive practice" (p. 606). Similarly, Louie (2018) challenged the cognitive perspective, arguing that noticing is situated within cultural and ideological contexts. For example, teachers with anti-racist inclinations leverage their understandings of race and racist structures to notice racial phenomena in their classrooms more readily (Shah & Coles, 2020).

Noticing for equity and noticing inequitable talk

Noticing for equity is "the ability to see, interpret, and respond to behaviors both within and outside of the classroom that facilitates equitable interactions, participation, [and] ultimately, learning" (Patterson et al., 2019, p. 458). Because noticing can prompt changes in behavior, noticing for equity provides one potential remedy to inequitable talk by offering teachers an opening to intervene and respond to discourses that privilege white, male, middle class ways of knowledge expression (Erickson, 2011).

Our approach to understanding how teachers noticed for equity was guided by Jacobs et al. (2010) framework for teacher noticing, which includes three primary categories: attending, interpreting, and responding (AIR). In their framework, *attending* describes how teachers notice particular aspects of classroom interactions. For example, when attending to inequitable talk in the classroom, a teacher might recognize that a minoritized student is not talking in small group work. *Interpreting* describes how teachers explain or make sense of classroom interactions. In continuation of the previous example, the teacher might interpret the minoritized student's lack of verbal participation by considering why the student

is not speaking; perhaps the teacher perceives that the small group is silencing the minoritized student's perspective. *Responding* describes how teachers use instructional moves in response to classroom interactions, such as when a teacher decides to assign group roles to allow a student to have more influence via facilitating the conversation.

van Es et al. (2017) describe *noticing for equity* as teachers' ability to "see phenomena through an equity lens and use that lens to interpret these phenomena and inform their instructional decisions" (p. 266). The researchers reported on a two-year study examining secondary math educators who were purposefully selected because of their commitments to achieving equity in their classrooms. They found that all teachers noticed the status and positioning of their students, or.

> How groups function and how students support one another in group work; who is participating and taking the floor during whole class discussion and how different forms of student participation afford opportunities for others' learning; and how the teacher constructs opportunities for students to take up space (van Es et al., 2017, p. 266).

This excerpt demonstrates some of the common features that teachers notice when they are committed to equity. However, less is known about the characteristics that support teachers in noticing inequitable talk.

The purpose of our study was to examine how and why some high school mathematics teachers take up the practice of noticing inequitable talk differently than others. We view *noticing inequitable talk* as one subset of practices within the noticing for equity framework. We note that if teachers and researchers only attend to inequities in the classroom, they may reinforce deficit orientations toward students (Adiredja & Louie, 2020). Consequently, noticing inequitable participation is necessary but, by itself, insufficient for promoting equity in classrooms. Teachers must also make moves to address inequitable participation, notice productive shifts in participation over time, and attend to productive modes of participation in classrooms. That being said, we focus on noticing inequitable participation in this study because it is one vital step toward addressing inequities in the classroom.

Guided by a focus on inequitable talk, we sought to analyze *why* the differences we observed in teachers' noticing of inequitable talk may have occurred. Our goal was to identify characteristics that teachers, teacher educators, and professional learning facilitators might use to support teachers and strengthen their noticing of inequitable classroom talk.

Participation in video clubs

Structures like video clubs with coaching might strengthen teachers' noticing inequitable talk because they are situated in teachers' actual practice. In video coaching groups, teachers share video clips from their classrooms with colleagues and a coach. When teachers watch videos of their own or others' teaching, they can slow down, zoom in on particular moments of interaction in classrooms, collaboratively examine colleagues' teaching practices, and explore the impact of intentional shifts in pedagogy to strengthen practice (Borko et al., 2011; Brophy, 2004; Rosaen et al., 2008; Star & Strickland, 2008; van Es & Sherin, 2010). An additional affordance of group video coaching is that it can leverage the "collective participation" (Lee & Smith, 1996) of teachers from the same content area (Desimone & Pak, 2017).

When teachers collaboratively work together to reflect on the more vulnerable parts of their instruction, they report an improvement of their teaching practice (Kelly, 2013).

In an interview study, Romano (2006) found that asking elementary teachers to reflect on "bumpy moments" in their teaching was a useful practice for supporting teachers with recognizing, examining, and developing their instructional practices related to equity. In our study, we were interested in how video clubs could serve to help teachers reflect on vulnerable and "bumpy moments" in their own and their peers' instruction. We were also interested in how participation in a video club focused on noticing for equity impacted whether or not teachers noticed inequitable talk in their classroom videos. To accomplish this goal, we studied a range of teacher characteristics that may have an impact on teacher learning, such as their pedagogical commitments and the way they participated in activities during video coaching group sessions. We acknowledge that these characteristics make up only a small portion of each teacher's overall context, which is shaped by various site-specific factors (ideologies present at their school sites, narratives surrounding the school and local community, administrative pressures, and others). However, these characteristics have the potential to offer insight into the ways teachers take up noticing inequitable talk in their practice and reflection.

Research questions

We focus on examining the complexity and challenges inherent in noticing inequitable talk by asking these two questions:

1. What were the differences in the way teachers in the PLE noticed inequitable talk?
2. What teacher characteristics might be associated with differences in noticing for inequitable talk?

The study

Methodology

To explore our questions, we designed a multi-case, mixed-methods study (Stake, 2000; Yin, 2013). This comprehensive approach allowed us to examine a range of contextual factors (e.g., Marco-Bujosa et al., 2017) while exploring how two groups of teachers took up the practice of noticing inequitable talk. This versatile methodology supported qualitative analysis of teacher applications to the PLE, student talk in classroom videos, and teachers' discussions with their coach during video club sessions. This approach also supported a quantitative comparative analysis of instances of teacher noticing of inequitable talk in each group.

Study context

The data came from a PLE for high school teachers in math, science, history, and English/Language Arts. The PLE designers' broad goals were to support instructional quality and retention for early-career teachers (between three to six years of experience) who work in

high schools that serve low-income[3] families, and where students are more likely to experience the negative impacts of teacher turnover.

Teachers applied to the program in school teams of 3–4 coworkers. Each teacher submitted an application that responded to questions such as: "What are your goals for improving your teaching? How do those goals align with the features of the fellowship program?".

The PLE used a core teaching practice framework (Grossman, 2021), with a specific emphasis on the practice of facilitating equitable discussions. To support its goals, the PLE designers used an equity framework to focus teachers' understanding of their instructional stance on five areas: classroom culture, equity of voice, explicit naming, content in context, and content critique. The teachers met for a two-week summer institute for professional development on this topic, and they also met with their coach virtually six times per year (three times individually and three times in their groups). Teachers attended a second two-week summer institute and participated in six more virtual coaching sessions in their second year of the program. This study focuses on the participants' second year of virtual coaching, which occurred after the two summers of intensive instruction on facilitating equitable small group discussions.

Participants

Teachers. This study focuses on two groups of math teachers, each consisting of three teachers. These teachers were all active participants in the PLE, highly motivated, and committed to their students. Their demographic backgrounds, number of years taught, and teacher preparation varied. They taught in a variety of school contexts representing a range of locations and school sizes. Most schools had a high population of students eligible for free/reduced lunch. Some schools were racially diverse, some homogenous (See Table 1 for details.)

Coach. Ganitha, the instructional coach, identifies as a Brown woman of South Asian descent. She is a National Board Certified mathematics teacher with seven years of experience mentoring novice teachers. She also co-developed and co-facilitated the mathematics PLE.

Activities

As the math coach, Ganitha's goals were aligned with those of the PLE in that her professional learning sessions emphasized facilitating equitable small group discussions. She also incorporated instruction about math, identity, and status in small group work. Teachers read texts by Langer-Osuna (2017) and Horn (2012), which focused on equitable mathematics teaching through understanding how student authority is constructed in collaborative mathematics and shifting perspectives on mathematical competence through noticing status in the classroom.

In the professional learning sessions, Ganitha presented videos of students engaging in small group work and prompted teachers to note the various and shifting expressions of students' academic and social statuses. Ganitha and the teachers discussed Berger,

[3] The term "low income" is used by the program, but we want to acknowledge that any terminology regarding socio-economic status is fraught. In general, these teachers teach at Title 1 schools with an average of 80% of the student families qualifying for free or reduced-fee lunch.

Table 1 Participant demographics sorted by small group

Group	Name	Number of years taught	Teacher prep program	Race (self-identified)	Gender (self-identified)	U.S. region	Public school type	Free and reduced lunch %	School size
Group A	Anthony	4	University	Multi-Racial (Black and Asian Indian)	Male	West	Pilot school[1]	81–90%	500–1,000
	Jade	3	Teaching Fellowship	Asian	Female	East Coast	School with IB	81–90%	<500
	Marie	3	Math for America	White	Female	East Coast	Unscreened School	50–60%	<500
Group B	Isaac	2	University	Asian	Male	Midwest	Comprehensive School	30–40%[2]	500–1,000
	Mike	4	University	White	Male	South	Magnet	81–90%	<500
	Chris	3	Teach for America	White	Male	East Coast	Charter School	81–90%	<500

[1]Pilot schools are public schools that operate independently of their local school board.

[2]Issac changed schools after his first year in the program.

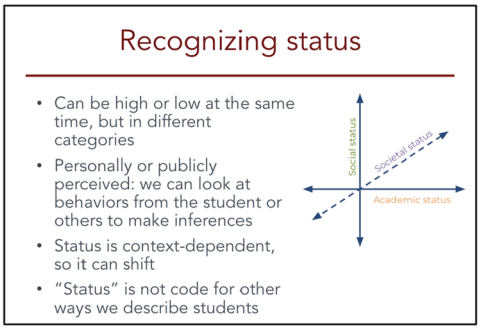

Fig. 1 A sample slide from Ganitha's instruction

Rosenholtz, & Zelditch's (1980) premise that expectations in group work are determined by status information, and that differing expectations of competence influence students' behaviors, interactions, and talk. Then Ganitha introduced "status treatments," with the goal of reducing the correlation between status and verbal participation (Cohen & Lotan, 1995). She taught approaches for establishing cooperative norms, group roles, multiple-ability orientations, and assigning competence. Using the Cycle of Collaborative Learning (McDonald et al., 2013), participants rehearsed these approaches during the summer PLE (Fig. 1).

Data collection took place during the 2018–2019 school year, the participants' second year in the program. Over the course of this year, Ganitha and the teachers met in video club groups three times. Before each session, teachers submitted 10–15 min videos of their classroom teaching focused on students' participation in small group discussion. Teachers uploaded those clips onto the web-based video annotation application TORSH Talent so they could annotate each of the videos with time-stamped comments, or "comment tags."

Data sources

This study uses four data sources: teachers' applications to the fellowship (6 applications); videos of their classroom instruction (10 videos); teachers' and coach's time-stamped comment tags on videos (410 comments), and videos of the groups' conversations (6 videos). Each classroom video was ~ 13 min long, and each recorded coaching session was ~ 1.5 h.

We stored all data on a restricted Google Drive and downloaded the videos to transcribe them using a third-party live transcription service. We de-identified the data and used Dedoose software (Sociocultural Research Consultants, 2019) to code the transcripts.

Case selection

To select the data sources that we examined in this study, we first reviewed the classroom videos that teachers uploaded to TORSH Talent. Initially, we looked at all videos uploaded by both mathematics and science teachers (132 videos in total) during the 2018–2019 school year. In each video, we looked for instances where students were explicitly silenced or ignored (described in further detail below), and whether the lesson was taught in a whole group, small groups, partner, or individually.

After watching these videos, we decided to focus on the seven small groups in the math cohort (3–4 participants each; 24 participants total) for two reasons. First, the cohort of math teachers all shared the same coach, Ganitha, which minimized variation in teacher

uptake based on coaching style. Second, Ganitha emphasized small group work during the summer institute and coaching sessions and asked teachers to choose clips focused on some aspect of small group work. Ganitha's instructions opened the door for a rich examination of noticing inequitable talk.

After deciding to focus just on the math cohort, we rewatched the videos and excluded those where we (1) could not hear or understand what a teacher or the students were saying for more than half of the video, (2) could not see speakers in the video because they were not in the camera frame for the entirety of the video, or (3) only saw the teacher speaking or lecturing for a majority of the segment. Of the 63 math classroom videos, we excluded 27 videos using these criteria. We then coded the 36 videos for incidents of inequitable talk in each.

Coding videos for inequitable talk in students' classroom discussion

Based on our definition of inequitable talk, we focused on identifying instances of silencing or ignoring in the video clips. Our definition included the following components:

Silencing: One or more students interrupt or talk over another student so that the latter student stops speaking or contributing
Ignoring: One or more students does not acknowledge another student's talk; the student no longer participates in the discussion.
No talk: A student does not talk during the entire activity, and the other students and/or teacher do not address this silence.

We note that classrooms should be vibrant spaces where students feel excited and comfortable to participate verbally. To clarify our definition of inequitable talk above, we acknowledge that when students interrupt to engage with or build on each others' ideas, it is not necessarily a bad thing. In fact, these responses can often be a sign of a lively and engaging discussion. Instead, we are interested in moments where interruptions lead to students withholding their verbal participation in the discussion. For example, the following exchange between students in Isaac's 9th grade math class contains instances of both ignoring and silencing, as indicated in square brackets in the transcript. In this exchange, Sam, Alex, Vanessa, and Carla reviewed their homework:

Sam	*[For problem]* 3A, only pair A and pair D are the same shape. This is because their angle measurements are the same. Did you guys get the same answers?	
Alex	Does this mean that the square and the rectangle are the same shape?	
Vanessa	I said that no, that–	
Sam	–This is a square and a rectangle.	[Sam silences Vanessa]
Alex	What is this then?	
Sam	No. They aren't the same shape.	
Carla	They are the same. [continues inaudibly explaining]	
Alex	Because of the angle measurements	[Alex ignores Carla]
Sam	Oooooh	
Vanessa	I said that they weren't…	
Alex	–The angles and the proportions have to be the same.	[Alex silences Vanessa]
Sam	Ooooh that's true.	

Carla	[Continues explaining (specific words inaudible)]	
Sam	Dude. See, we have a child prodigy here. We should kick him out.	[Sam ignores Carla, points to Alex]
Vanessa	Wait. So you said yes?	
Sam	Okay. So I should add that.	[Sam ignores Vanessa]

In this excerpt, the male-identifying students dominated the conversation while largely ignoring the female-identifying students. Both Sam and Vanessa expressed a misunderstanding of the problem, but the group members directed their explanations to Sam while talking over Vanessa. Sam and Alex then moved on to the next problem without addressing the fact that Vanessa still expressed some confusion about the concept. Then, Carla expressed that she understood the problem, giving the correct answer and a rationale before Alex did. However, she was not given the title of "child prodigy." Instead, Sam responded to Alex's repetition of Carla's answers. This sort of inequitable talk continued throughout the clip and is illustrative of the instances we coded as inequitable talk.

Selecting two focal groups

After coding the classroom videos for the seven groups of teachers, we looked at the patterns of inequitable talk across the groups and chose two for deeper analysis. These two groups represented extremes (Seawright & Gerring, 2008): the most and least noticing of inequitable talk. In addition, the discussions in these two groups differed from our expectations based on our own observations of the classroom videos, as the "least-noticing" group had the most instances of coded inequitable talk and vice versa. We had five classroom videos for each group to work with (10 in total). For one of the two groups, we found no instances of silencing or ignoring in their classroom videos; however, the members of that group consistently engaged in noticing inequitable talk. In the second group, four out of the five classroom videos had coded instances of explicit silencing and ignoring in their classroom videos; however, in that group, teachers rarely noticed inequitable talk. We then made a purposeful selection (Palinkas et al., 2015) of these two groups to explore the differences between them.

Data analysis

Coding content and general noticing talk in video club groups

We analyzed teacher noticing by exploring patterns in teachers' comment tags and group video meetings. For our units of analysis, we used individual comment tags on each video and turns of talk in the meetings. The first two authors then coded each comment tag (n = 410) and turn of talk (n = 1,155). Drawing on teacher noticing and noticing for equity frameworks (Erickson, 2011; Jacobs et al., 2010; Sherin et. al., 2011), we developed a deductive codebook, and we also used a constant comparative approach (Glaser, 1965) to develop inductive codes from patterns in the data.

Ultimately, we developed 9 codes, including the following:

Noticing general participation: Observations of and suggestions for student interaction and participation not related to inequitable talk
Noticing inequitable talk: Attending, interpreting, and responding to instances when one or more students silenced or ignored another student's talk and/or a student does not verbally participate
Status talk: Observations or inferences about students' academic or social status

Some units of analysis could be double coded; for example, we could code a comment tag as both *status talk* and *noticing inequitable talk*. Although codes could overlap, general participation codes could not also be coded as noticing inequitable talk. For example, if the teacher noticed something related to identity or equity, we coded it with the code for noticing inequitable talk. In addition to coding the content of each unit of analysis, we also coded the role of the speaker (coach, focal teacher, group member). There were a total of 497 code applications across the comment tags and turns of talk.

Noticing inequitable talk in comment tags and video club groups

We looked for instances in which teachers attended, interpreted, or responded to inequitable talk in their own or other teachers' classroom interactions. As we began to notice differences in the two groups' instances of noticing inequitable talk, we also developed subcodes to describe teacher talk about constructs related to student academic and social status. The first two authors conducted inter-rater reliability tests (MacQueen et al., 2008), using Cohen's Kappa values for each code and subcode in the coding scheme (De Vries, Elliott, Kanouse, Teleki, 2008). Our inter-rater reliability test yielded a pooled Kappa of 0.72. We then coded the rest of the data. See Table 5 in the appendix for descriptions and examples of selected codes.

Thematic analysis of comment tags and video club group codes

Identifying Themes in Teacher Noticing. The research team engaged in thematic analysis of codes across data sources to derive overarching themes (Saldaña, 2015). We looked for patterns in teachers' general discussions of equitable participation during coaching sessions, and ways that teachers attended to, interpreted, and responded to inequitable talk during specific moments of small group instruction. The research team developed these themes through collaborative discussion. As we refined themes, we engaged in member-checking (Patton, 1999) by sharing our emerging analyses with Ganitha, the participating mathematics coach.

Identifying Themes in Video Clip Rationales. We followed a similar process as outlined in the paragraph above for determining themes in teachers' rationales for clip selection. We examined every instance coded as a rationale for clip selection and identified patterns in the reasons that teachers provided for their clip selections. Two members of the research team read every coded instance of the rationales and engaged in a process of refining themes through collaborative discussion.

Coding teachers' applications for pedagogical commitments

To analyze teachers' PLE admission applications, we read their responses and then divided each into "idea units," with two researchers discussing together when one idea ended and

another idea began (Jacobs & Morita, 2002). For example, in one response a teacher noted, "My goal for teaching has always been to improve the urban education system. However, from my experiences at [school], my mindset broadened to include helping my students get the same (if not better) education they would at a selective enrollment school." In this example, we noted two separate ideas, distinguished by the teacher's use of the word "however." In this way, we ultimately identified 37 total idea units.

We then created a set of inductive codes to analyze each idea unit, for example we coded a teachers' statement that, "My goal is to… [develop] a curriculum that is engaging, purposeful, and meaningful to students… so that they see the relevance and they can practice their skills more often" as *create relevant / accessible lessons.* The finalized list of codes we applied to the application data is in Table 6 in the appendix. Finally, two raters independently coded each idea unit and discussed code applications until we reached 100% interrater agreement.

Findings

This study set out to explore the differences in the way two groups of teachers in a PLE engaged in noticing inequitable talk. Overall, we found that the teachers in Group A engaged in frequent noticing of inequitable talk during their video club sessions, while the teachers in Group B rarely noticed inequitable talk. We analyzed factors, such as teachers' pedagogical commitments and rationale for video selection, to propose ways to support teachers to notice inequitable talk in their classrooms.

Table 2 Coded instances of general noticing and noticing inequitable talk

	Group A				Group B			
	Anthony	Jade	Marie	Total Instances for Group (% of Instances for Group)	Issac	Mike	Chris	Total Instances for Group (% of Instances for Group)
Noticing general participation								
General Attending	24	18	21	**63 (22)**	27	22	12	**61 (29)**
General Responding	55	52	31	**138 (48)**	38	47	51	**136 (65)**
Noticing inequitable talk								
Attending to inequitable talk	2	3	2	**7 (2)**	0	0	1	**1 (< 1)**
Interpreting inequitable talk	11	6	6	**23 (8)**	1	1	1	**3 (1)**
Responding to inequitable talk	6	8	3	**17 (6)**	1	1	2	**4 (2)**
Status talk								
Academic status	7	9	12	**28 (10)**	4	0	1	**5 (2)**
Social status	4	5	2	**11 (4)**	0	0	0	**0 (0)**

Basic differences in noticing

Our first question was "What were the differences in the way teachers in the PLE took up the practice of noticing inequitable talk?" Table 2 illustrates the number of coded instances of small groups' noticing general participation, noticing inequitable talk, and status talk. In general, Group A had more overall noticing codes than Group B, and both groups had a similar number of general noticing codes in their video comment tags and discussions. Group A, however, had more overall instances of noticing inequitable talk than Group B. Furthermore, we found that Group A engaged in each kind of noticing inequitable talk on their own, whereas Group B only engaged in these practices when the Ganitha prompted them to.

This difference between the groups is notable because when coding the videos, we did not identify any explicit instances of silencing or ignoring in any of Group A's videos. In contrast, we identified explicit silencing or ignoring in four of the five videos for Group B. One possible explanation for Group A's noticing may be that they picked up on moments of silencing or noticing that were too subtle for our codebooks.[4] In comparison, Group B did not pick up on moments that we found to be clear instances of silencing or ignoring. A chi-square test showed that there was a significant difference for the noticing inequitable talk code applications between the two groups, X^2 (1, N = 55) = 21.19, $p < 0.001$, indicating that Group A talked about status much more frequently than Group B.

In the four video clips where a student was silenced or ignored, every silenced student was female-identifying, with several also identified as racially minoritized by their teachers. In addition, we found that in all four instances of silencing, the person doing the silencing was a male-identifying student, white, or both.

Teacher characteristics associated with differences in noticing

After finding that Group A and Group B had different patterns of noticing, we explored our second question: "What teacher characteristics might be associated with differences in noticing for inequitable talk?" We found that groups differed in characteristics related to *conversations about status and identity, video clip selection and rationale,* and *pedagogical commitments,* which we discuss further below. We note that each member of Group A self-identified as a racially minoritized person and/or a woman, while two of the three members of Group B identified as white males and the third member identified as a man of color.

Differences in conversations about status

One element that distinguished the two groups was that teachers in Group A were more likely to comment on academic and social status (Table 2). This difference was particularly interesting as teachers in both groups participated in the same PLE with the same facilitator that emphasized the importance of noticing status, how to notice status, and how to neutralize status so that all students can learn. Across the three coaching sessions, 14% of the Group A teachers' comments were about student status, compared to 2% for Group B.

[4] This discrepancy might be due to the fact that the teachers had a more nuanced understanding of their instructional context and students than the researchers did, affording them greater insights.

These two groups differed not only in the frequency of their conversations about status, but also in the nature of this talk.

Status Talk in Group A. In Group A, we found that the teachers frequently wondered about students' academic and social status in their comment tags and discussions. If the focal teacher did not mention academic or social status, the group members would often inquire by asking about the status of particular students. These reflections and questions about status supported the focal teacher in noticing and responding to moments of inequity. For example, when Jade presented her video, she began by thinking about the students' academic status. Then, Ganitha inquired about a student whose status had not been discussed:

> Jade: I also noticed interesting things about status here. In terms of academic status, the female that you guys can see in the light blue shirt in the video is the highest performing student and is normally very engaged, but I don't know if the camera threw her off that day. She seems like she's distracted playing with her binder. And then I didn't even notice because I assumed that she was participating. I'm like, I shouldn't do that. I should actually really look to see who is participating. And the girl who did the most talking--the one on the left holding the paper--she's actually the lowest performing student in that group. But she loves talking. So she often talks a lot, I think to compensate for her lack of understanding.
> Ganitha: What about the third kid?
> Jade: The third male is often engaged, not engaged, engaged, but I think he was able to push the group when he was engaged. He is high performing, but his attendance [inaudible].

Jade reflected on the connection between students' math abilities and their engagement in class. She also recognized that she made an assumption about a student's engagement while teaching that she later learned was inaccurate after watching the video clip. This incongruity between her assumption and reality promoted reflection about being attentive in the classroom. As Jade thought about the academic status of the students in the video, she engaged in the practice of interpreting inequitable talk by sharing her ideas about why some of the participation dynamics occurred. Later in the meeting, Jade identified targeted strategies for addressing inequities during small group work, which included using group roles more intentionally, supporting students to take on more of the cognitive load, and thinking more about how to support a male student who gets easily distracted in a group with female leadership. In Group A, discussions of academic and social status seemed to support teachers to have complex, and sometimes challenging, discussions about how students' self-confidence or sense of efficacy might influence their motivation and engagement in class, leading to brainstorming of ways that they can address those underlying issues of inequity.

Status Talk in Group B. The teachers in Group B never initiated conversations about status on their own. They did, however, engage in these conversations when Ganitha prompted the teachers by asking explicit questions about students' status if she noticed an example of inequitable talk. Recall the discussion above in which Alex and Sam silenced and ignored Vanessa and Carla. In response to that video, Ganitha added this comment tag to the video:

> It seems like up until now the two boys were just in conversation with each other and more or less ignoring the girls. Now that they need someone to weigh in on their dispute, they turn to the girls. The boy in the glasses says "See, she understands?" but I am not sure he actually listened to her idea--she only said "If you do half..." which

> doesn't really seem like enough evidence that she understands his idea. It seems like he was acknowledging her more as confirmation of his authority.

In response, during the group meeting, Ganitha offered Issac the chance to reflect on the comment tags. Issac immediately responded to Ganitha's comment above, stating that he wanted to reflect on "[Ganitha's] last post and all that, you know, the academic status kind of thing." Isaac continued by thinking through why Alex in particular might treat his group members that way, and how he might intervene to support Alex to be a more collaborative leader. This example illustrates a larger trend. Once Ganitha explicitly pointed out instances of status in relation to inequitable talk, the group often continued to discuss these elements of status. In this example, Issac was able to brainstorm with the group about how status impacted not only who talks, but also whose ideas got listened to. Based on the discussion, Issac decided to try group roles in future classes to ensure more equity of voice.

Despite this emphasis on silencing and ignoring in the first video discussion, we have little evidence that Issac developed the skill of noticing inequitable talk without being prompted by Ganitha. For example, in the last video club session of the year, Isaac chose a clip because he was interested in how his students used *Quizziz* as a review tool. He thought the application was a fun and interactive platform that could help him better understand what content students were still struggling with. However, in one of Ganitha's video comment tags, she noticed once again that issues of academic and social status continued to play out across gender identities. She commented:

> I think it's an interesting gender dynamic that the girls are the ones doing the writing and calculator usage. I've seen this in a lot of students, which can be interpreted as the girls taking on the "secretarial" or "administrative" work (often paired with the boys directing the mathematical thinking). This may or may not be an accurate interpretation of what's going on for these students --being in control of the writing and the calculator could signify more authority in the group, but it would be interesting to continue paying attention to relationships between gender and the different ways that students are participating in your class. Assigning team roles is one way to disrupt patterns around types of participation because they push students into roles they might not "naturally" gravitate toward.

Ganitha's noticing of how gender dynamics impacted group participation led Isaac to think more deeply about why he might want to incorporate group roles. His first comment in his group was "Sorry, guys, I let you down with the group roles." Due to Ganitha's noticing of the inequitable talk, Isaac shifted his focus from the strength of the lesson to how to address the fact that he needed to be intentional about incorporating such roles to address participation inequities. In an interview with Ganitha, she stated that Isaac contacted her after he finished the program to share that he was now using group roles, and that it was making a positive impact on equitable participation. With Ganitha's consistent support, Isaac began incorporating strategies that disrupted inequitable talk.

Video clip selection and rationale

Ganitha did not explicitly encourage teachers to choose videos in which they struggled with inequitable talk. However, our analysis of teachers' rationales for their classroom video selection demonstrates that Group A and Group B had different reasons for selecting their

Table 3 Examples of typical or common video clip rationales

Group A	Group B
"I'm curious about what I could have done to structure this activity more in such a way to support the various learners in this group."	"[I] was curious to see what different things they would kind of come up with."
"…this is a class with the highest needs, which is why I decided to record this class as opposed to my morning class where I believe that I have a lot of support, and I can make changes."	"I wanted to see how they would get creative with it because I need them to do whatever they wanted and …. the whole conversation is really fun."
"I always record this class because it's like my babies that I want to develop."	"For this lesson and round of practice, I was most interested in whether or not students would be able to identify the particular strategy (or strategies) they should take in order to evaluate a variety of integrals."

clips. The teachers in Group A often selected video clips that included classroom moments where they felt challenged by complex issues of identity or when they desired to improve certain elements of their instruction for the future. They frequently named "struggle" as the reason they selected the clip they shared. In contrast, Group B teachers' selected clips that were grounded in curiosities about pedagogical practice or illustrations of exemplary practice. They also cited examples that were more focused on the past, eager to know more about what happened in the clip. Table 3 demonstrates examples of video rationales for both groups.

Differences in pedagogical commitments

Because the literature suggests that teachers' pedagogical commitments are related to their instruction, we decided to explore whether their goals for participating in the fellowship might offer insight into how they engaged with the equity goals of the PLE. To do so, we analyzed information from their applications. We noticed differences in the teaching goals between the two groups, particularly in response to these questions: "What are your goals for improving your teaching? How do those goals align with the features of the Fellowship Program?" Teachers in both groups had similar mentions of "equity" as one of their core commitments, and no teachers mentioned the role of status. The absence of status makes sense because the teachers had not yet participated in this PLE focused on status treatments, so we looked for other differences in their goals. Table 4 illustrates the results of our coding process.

Teaching Goals in Group A. In their applications for the fellowship program, we coded the majority of the Group A teachers' goals as "student-centered." We defined student-centered as those goals in which teachers explicitly named some aspect of classroom practice that forefronted students' needs. For example, two of the three teachers specifically discussed their classroom demographics and how they would like to better support their students academically and socio-emotionally by making lessons engaging and accessible to all. Teachers in Group A also mentioned phrases like "student engagement" and "improving student discussion" in their stated goals. For example, Jade wrote:

> On my first day of teaching at [school], I immediately realized the inequities many of our students face that affect their ability to receive and maintain an equal and fair education... My goal is to defeat low retention rates by developing a curriculum that is engaging, purposeful, and meaningful to students. One that will capture students' attention and demonstrate the direct impact math has in their life so that they see the

Table 4 Codes for application goals

Code	Sub-code	Group A Coded Instances (% of total codes in Group A)	Group B Coded Instances (% of total codes in Group B)
Equity	*N/A*	5 (20%)	4 (16%)
Student-Centered	Support student discussion	1 (4%)	0 (0%)
	Increase student engagement	2 (8%)	0 (0%)
	Create relevant/accessible lessons	4 (16%)	1 (4%)
	Support student executive functioning skills	1 (4%)	0 (0%)
	School demographics (% of racially minoritized students or Free and Reduced Lunch)	3 (12%)	1 (4%)
	Total	11 (44%)	2 (8%)
Teacher-centered	Foster collaboration among co-workers	3 (12%)	3 (12%)
	Become an exemplary teacher	0 (0%)	3 (12%)
	Participate in professional development	2 (8%)	3 (12%)
	Improve pedagogy	2 (8%)	7 (28%)
	Reflect on own background	1 (4%)	0 (0%)
	Become a teacher leader/lead PD	1 (4%)	3 (12%)
	Total	9 (36%)	19 (76%)

> relevance and they can practice their skills more often. My goal is to develop tools to reach all students so that they learn that "math" is for everyone.

In this excerpt, Jade openly attended to the inequities she noticed in her classroom. Her response indicated that she understood systemic structures and how they affected her students' academic success. Jade desired to combat institutional barriers to positively influence student learning, and she focused on designing curriculum that might improve students' success in math.

Teaching Goals in Group B. When we coded the applications from the teachers in Group B, we found they did not directly reference students' success. Instead, their goals were teacher-oriented, including phrases like "improving pedagogy" and "professional development opportunities." For example, Chris wrote:

> My primary goal for improving my teaching is to become an exemplary teacher by the end of the next academic year…I have been lucky to have mentors that push me to improve my teaching on a daily basis and develop my teaching skills. As a result, I have worked to cultivate a lens that I bring to my own teaching and how I might improve on a daily basis. As I continue to push my own thinking regarding my classes, becoming an exemplar teacher would allow me to assist new teachers so that they can adopt best practices for their own classrooms.

While Chris described his desire to improve his teaching skills, he did not include any references to how this improvement was related to students. It is clear that Chris was reflective about his growth as a teacher and had a desire to improve, though he did not explicitly make connections between this growth and student learning.

Discussion

Differences in noticing

We began this study with the goal of understanding the ways that math teachers in a comprehensive PLE notice inequitable talk in video clips of their classrooms. The first question that we asked was "What were the differences in the way teachers in the PLE took up the practice of noticing inequitable talk?" In answering this question, we found that while both groups were similar in their general noticing, one group had many more instances of noticing inequitable talk across all facets of noticing. The same group was also more likely to discuss students' academic status. By choosing two groups of teachers with markedly different patterns in their noticing, we were able to examine these differences more closely.

The fact that we did not find inequitable talk in Group A's classroom videos even though these teachers frequently discussed status and inequitable talk may highlight the importance of framing in relation to what teachers notice. Louie and colleagues (2021) propose the addition of *framing* to the attending, interpreting, and responding framework of teacher noticing. These authors argue that frames, or interpretive lenses used to make sense of a given task, shape what teachers notice in the classroom. Specifically, in this case, our frames as researchers may have been different than those of the teachers in Group A because they had socially situated knowledge of their classrooms that we did not have. This example illustrates that frames might provide important insights into what teachers

(and researchers) notice in the classroom. Further research might examine how framing relates to what teachers notice about inequitable talk in their classrooms.

Teacher characteristics connected to noticing inequitable talk

Our second question was, "What teacher characteristics might be associated with differences in noticing for inequitable talk?" We noted that the teachers' identities might have impacted what they noticed. For example, Group A, which included women and/or racially minoritized teachers, noticed inequitable talk frequently, while Group B, which was two white men and one Asian man, did not. When considering the other characteristics associated with the differences in noticing, our findings showed that the teachers who noticed inequitable talk 1) thought about the academic and social status of their students; 2) chose video clips with a rationale focused on addressing instructional challenges; and 3) had pedagogical commitments centered on students.

Teacher and coach identity

We saw indicators that the teachers' identities seemed to influence what they noticed in the videos. The literature demonstrates that teachers from dominant groups (i.e., white, male) tend to view mathematics instruction from that dominant perspective (Ladson-Billings, 1995), and it could be the case that teachers in Group B were less prepared to notice inequities because they had less experience with non-dominant perspectives and norms. This observation is in line with prior research indicating that teachers' identities greatly influence their teaching and instructional decisions (Cooks, 2003; Lee & Johnson-Bailey, 2004; Maher & Tetreault, 1994; Vinlove, 2016). In this study, the instructional coach Ganitha was a racially minoritized woman who had pedagogical commitments to teaching for social justice. Her identities and role in the video clubs might have been important in interrupting dominant discourses around mathematics instruction to focus more on noticing inequitable talk for the white and/or male teachers in Group B. Existing studies demonstrate the effectiveness of instructional coaches for improving teachers' practice (e.g., Kraft et al., 2018; Russell et al., 2020). Further studies might explicitly examine the link between coaches' identities, including their pedagogical commitments, and how they support noticing for equity in the mathematics classroom.

Taken together, our results point to the importance of research-based PLEs that include instructional coaching and a professional community so that teachers have opportunities to learn to notice inequitable talk as well as to notice for equity more broadly. Noticing is a socially situated act, and what a teacher notices can be influenced by the community of professionals they work with (Beauchamp & Thomas, 2009). The teachers in Group B did not notice inequitable talk until their coach pointed it out, which then shifted the conversation toward addressing these inequities. Her role was integral to the process of teacher learning and development for the group. This notion was evident in both teachers like Isaac who reflected on ways he could have neutralized inequitable status and talk, as well as his group members who also participated in important discussions about equity that influenced their teaching. So while the overall design of the PLE seems to be significant in the development of early career teachers, the role of an instructional coach with the skills to support teacher noticing for inequitable talk seems to be a particularly critical feature of the PLE design and worthy of further study.

Teacher discussion of academic status

In our exploration of noticing inequitable talk, we focused on the role of academic and social status. Previous research by Cohen and Lotan (1995) demonstrated that when teachers use pedagogical moves to interrupt existing status hierarchies, they can foster more equal-status interactions in heterogeneous classrooms. The PLE in this study was situated in authentic physical and social contexts (Putnam & Borko, 2000). It provided teachers with opportunities to discuss and disrupt status hierarchies by analyzing illustrative video clips with the support of an experienced instructional coach. However, despite engaging in the same, intensive PLE, the participants did not take up noticing in similar ways.

More specifically, teachers in Group A used the lens of status to understand relationships and interactions among students during group interactions– an approach that aligns with the work of North and colleagues (2019) who suggested that "attention to social status dynamics is important for creating a positive social climate that supports early adolescent engagement in math and science classes" (p. 597). For the teachers in our study, focusing on academic and social status supported teachers in noticing inequitable talk, which is consequential in helping teachers mitigate the misperception that math comes easier for white, male-identifying students (Crosnoe & Schneider, 2010) in their classrooms. The conversations about status seemed to act as catalysts for teachers to become more aware of how some students might experience small group discussions, and therefore consider strategies to interrupt instances of inequitable talk and explicitly addressing issues related to identity and equity.

Video clips focused on instructional challenges

Selecting classroom video clips that illustrate instructional challenges is another key behavior of the teachers who noticed inequitable talk. We observed that the teachers in Group A tended to select video clips of their instruction that highlighted pedagogical challenges or problems of practice despite having minimal guidance about what to choose for their video clips. Group B, on the other hand, tended to choose clips they thought were exemplary, even though their coach noted these clips contained examples of inequitable talk.

Our findings suggest that to get the most out of instructional coaching models that use video analysis, it is helpful for coaches to provide clear guidelines that center matters of equity/inequity for video clip selection. Guidelines need not be overly prescriptive, but should support teachers with selecting moments of instruction that they find to be challenging, especially in terms of student participation and small group interactions. In this study, the teachers were able to be vulnerable and receptive to criticism, which highlights the importance of fostering a community where teachers feel comfortable discussing "bumpy moments" from their classrooms. Prior research suggests that teachers are more likely to select video clips that feature challenging (rather than exemplary) lessons when they feel their team will support them in analysis (not evaluation) of their pedagogy (Borko, et al., 2011). Romano's (2006) findings also suggest that if an instructional coach explicitly prompts teachers to select and discuss clips from difficult classroom moments of their classes, they are better able to reflect on their teaching and decision-making processes.

Student-centered pedagogical commitments

Teachers' goals may reflect their pedagogical commitments as they enter into professional learning with a lens of mathematics, equity, or a combination of the two (Wager & Foote, 2013). As indicated in prior research, teachers who have less confidence in their ideas about issues of identity or status tend to notice and discuss more elements of mathematics instruction (Wager, 2014) compared to teachers with commitments to antiracist teaching (Shah & Coles, 2020). When teachers develop instructional goals that prioritize noticing inequitable talk, they may shift their instructional practice to address instances of inequitable talk that they observe in real time or in video retrospection (van Es et al., 2017). Our findings add to the literature on the relationship between teachers' goals and what they notice in the classroom by suggesting a relationship between student-centered instructional goals and teacher noticing. The teachers who noticed inequitable talk more frequently also described student-centered goals in their applications for the fellowship. Developing a student-centered orientation likely supports teachers' noticing of equitable (and inequitable) experiences and interactions among their students.

Conclusion

Our work suggests that PLEs designed to support teachers with noticing inequitable talk in small group discussions should provide opportunities for teachers to reflect on their own identity, instructional goals, and attention to student status. Design features for PLEs geared toward developing teachers' noticing of inequitable talk will want to consider creating opportunities for teachers to share and reflect on artifacts of their own instruction (e.g., videos) with support from an experienced instructional coach committed to equitable instruction. Our findings also suggest that such PLEs and instructional coaches should explicitly support teachers with (1) engaging in discussions about student identity and status in the classroom, (2) selecting artifacts representing instructional challenges, and (3) developing professional goals centered on students. By designing PLEs that are situated in authentic problems of practice and focused on students' identities and experiences in the classroom, teachers may be better positioned to learn how to notice for equity in their classrooms and disrupt inequitable talk that limits student learning.

Appendix

Tables 5 and 6.

Table 5 Codes for comment tags and video club group conversations

Code	Subcode	Description	Example
Noticing general participation	General attending	Teachers describe how students are working together. No explicit references to race or gender	"It seems like they are all engaged in the activity."
	General responding	Teachers make suggestions to promote better student participation in the group. There is no explicit reference to race or gender	"Maybe next time you should consider adding group roles."
Noticing inequitable talk	Attending for inequitable talk	Teachers make explicit comments about inequitable talk, including references to gender, race, or status	"I noticed that the girl in red never spoke this whole time."
	Interpreting for inequitable talk	Teachers think about why the inequitable talk might be happening. They provide a rationale for why this might be occurring	"I think that this student is insecure about his math abilities, which is why he is speaking over the girls." "She raises her hand and asked me what I wrote. But it's like, no one at that table was gonna, was gonna ask. And I was talking today about… there's some sort of white privilege involved."
	Responding for inequitable talk	Teachers decide how to respond to the inequitable talk through coming up with a future course of action. This could include a participation strategy or other teacher action that addresses an inequity	"I'd like to try group roles to prevent the boys from taking over the conversation."
Status talk	Academic status	Teacher discusses how the academic progress/status that the student has might be impacting the participation structure in the classroom	"The boy with glasses seems really concerned about protecting his academic status. It's interesting to me that when he was corrected, he would rather say that he wasn't trying than to say that he was convinced by their argument and sees it differently now."
	Social status	Teacher discusses how the social status in the classroom might be impacting the participation structure in the classroom	"This is a popular kid who doesn't want to be seen as dumb. That might be why he is making fun of that girl."
Video clip rationale	*N/A*	Participant talks or asks about why the focal teacher chose this particular clip for feedback	"I wanted to see how they would get creative with it because I need them to do whatever they wanted and…the whole conversation is really fun."

Table 6 Codes for goals in fellowship application

Code	Sub-code	Description	Example
Equity	*NA*	Applicant mentions wanting to address issues of systemic inequities impacting their students	"If I can successfully reach more of my students while teaching content… I would be improving the equity in my classroom."
Student-centered	Support student discussion	Applicant discusses a desire to improve student discussion around content knowledge	"…my goals are to… build students' capacity for having authentic math discussions…"
	Increase student engagement	Applicant mentions wanting better or more frequent student engagement and motivation to connect with class content	"My goal is to defeat low retention rates by developing a curriculum that is engaging, purposeful, and meaningful to students."
	Create relevant/accessible lessons	Applicant states that they want to design a curriculum that is relevant to their students and is more accessible than existing curriculum	"My goal is to… [develop] a curriculum that is engaging, purposeful, and meaningful to students… so that they see the relevance and they can practice their skills more often."
	Support student executive functioning skills	Applicant states goals and objectives related to helping students develop executive functioning skills (e.g., planning, time management, etc.)	"I have also been trying to explicitly teach students the work habits they need to be successful, such as goal-setting and meeting deadlines."
	Naming demographics	Applicant mentions specific details about their students including their grade level, SES, abilities, etc	"I teach some students whose reading and math skills are at a 3rd grade level and other students who are grade levels ahead."

Table 6 (continued)

Code	Sub-code	Description	Example
Teacher-centered	Foster collaboration among co-workers	Applicant wants to improve collaboration between colleagues around teaching practice and curriculum development	"Increasing the impact of collaboration at my school and throughout the district is a goal of mine. Through collaboration, we are able to see the content from different perspectives and make more meaningful connections between the students and their classes."
	Exemplary teacher	Applicant desires to be a model teacher at the school	"By working on my weaknesses and understanding them, I will be able to increase the effectiveness of my practice. Working with teachers who have common weaknesses and strengths will benefit me in the classroom and allow me to become a better teacher."
	Professional development	Applicant discusses wanting to be a part of the program to participate in various aspects of the professional learning experience (e.g., summer sessions, coaching, etc.)	"I am encouraged… that this learning will continue beyond our two-week summer professional learning via virtual coaching to further my development as an educator year-round."
	Improve pedagogy	Applicant discusses wanting to improve their pedagogy or instructional strategies and routines in the classroom	"This year, I have focused on improvements as it relates to instructional strategies—specifically as it relates to lesson planning for Calculus classes…"
	Reflecting on own background	Applicant reflects on their own learning trajectory, educational background, or experiences	"Growing up in a middle class family, I took for granted having a parent that read books to me often or that enrolled me in educational summer programs to maintain my learning."
	Become a teacher leader/lead PD	Applicant discusses their goal of becoming a leader in their school or district	"I am excited about the opportunity to… develop myself, not only in the classroom, but to become a school-wide change agent."

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