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White Teachers' Care for Secondary Mathematics Students in Racially Diverse Classes

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## **Abstract**

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Mathematical learning is supported by caring teaching, which is complex, political work particularly for white teachers in racially diverse classrooms. To investigate white teachers' understandings of care and its influence on mathematics instruction, I conducted a six-month qualitative study in two racially diverse ninth-grade Algebra 1 classrooms, which were cotaught by two white teachers at a public high school. Primary data sources include daily classroom observations, teacher interviews, and student interviews. Based on prior literature and the resulting analysis, I theorize care in mathematics education along three dimensions: academic, social, and political. The academic dimension involves the technical aspects of mathematics instruction. The social dimension involves both the teacher-student relationship and teachers' actions to facilitate students' social connection with each other. The political dimension includes teacher criticality, their ethical use of institutional authority, and conversations with students about race. Findings demonstrate how the teachers' and students' narratives of schooling shaped their understandings of care along these three dimensions. I also show how the teachers' theories of care shaped their pedagogical priorities and choices, how their care shifted over time, and how students understood caring teaching in general and the teachers' care specifically. This study contributes theory regarding the political care of white teachers in racially diverse mathematics classrooms, including how political care shapes academic care, social care, and mathematics teaching. This study also demonstrates the importance of contextualizing

teachers' theories of care to understand why teachers teach as they do, and it surfaces dilemmas of care warranting further attention in teacher education, professional development, and future research.

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## Dedication

To the people who most taught me how to care for others

Tara

Kara

To my many mathematics students in Maine and New Mexico

And to my brother Nathaniel who does his level best to care for his students.

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## Chapter 1 - Introduction

I taught middle and high school mathematics from 2001 to 2019. In that time, I taught at four different schools. Each year at the beginning of the school year, the faculty would gather for opening meetings, and an administrator or facilitator would attempt to set the tone for the school year and ground our work together. In each of the four schools, the faculty were asked to come up with some statement of identity. What were we about? What was our school about? More often than not, teachers would state that there was something about *our* school that was special. There was something about what *we* provided that students and their families could not get at other area schools. When the facilitator asked what it was that made our school so special, without exception, teachers would say *relationships*.

The teachers' relationships with students were what teachers cited as the core of teaching and the school's identity, but we never dug into what that meant. We never delved into what we meant by *relationship*, what the essential elements of pedagogically supportive relationships with students might be, how relationship development with students happened, and how that development might be different for students of different races and ethnicities. We also did not delve into the interplay between our classroom teaching and the relationships we developed with students. We did not inquire as to how our ideas about relationships influenced our teaching, and we definitely did not take that extra step of asking the students what they wanted in a relationship with their teachers.

I started teaching mathematics in 2001 in Maine, which was and remains the whitest state in the nation. In 2006, I moved to New Mexico where I spent the rest of my teaching career. For the first time, I was living in a town wherein as a white person, I was in the minority. I was teaching many students from the pueblos of New Mexico. I was teaching undocumented Mexican immigrant

students and Mexican students who were first generation American. I learned very quickly that my habitual way of relating to students was somehow falling flat. I needed to learn how to be in relationship with students who grew up with different values, ways of knowing and communicating, needs and desires than I was used to. After about a decade of work, I began to gain an understanding of being in relationship with my Mexican and Native students. Despite my newfound understanding of just how important supportive relationships were to teaching and learning, in opening faculty meetings, our talk of relationships remained ill-defined. All of the teachers agreed that we cared about the kids, but no one ever said what that meant.

It was only after I began study at the University of Washington that I began to understand that the import of caring teacher-student relationships to students' mathematical learning was a subject of substantial scholarship. Research has shown how caring relationships support improvements in student motivation and engagement (e.g. Middleton et al., 2017; Yu & Singh, 2018), achievement (Klem & Connell, 2004; Košir & Tement, 2014; OECD, 2019), self-concept (Hannula et al., 2016), peer relationships (Endedijk et al., 2021), and problem-solving resilience (Pitzer & Skinner, 2017). When students feel cared for, they miss less school (Klem, Adena & Connell, 2004; Košir & Tement, 2014), and they are more likely to ask teachers for help when they need it (Federici & Skaalvik, 2014). Teacher care for students helps them build a sense of community, which contributes to their belief that mathematics is valuable and relevant (Maloney & Matthews, 2020).

Teacher care is particularly important in middle and high school as students transition away from the single-teacher classrooms of elementary school (Midgley et al., 1989; Roeser et al., 2000). Caring relationships have also been shown to be most valuable to students of color and those who have been historically underserved by schooling (Battey, 2013; Decker et al., 2007; Gehlbach et al., 2016; Muller, 2001). In studies of excellent Black teachers, teacher care has been integral to helping

Black youth thrive by helping them build community and empowered identity (Gay, 2010; Hunter & Stinson, 2019; Roberts, 2010; Ware, 2006). Caring also holds a central place in teacher support of Latine youth when teachers connect to students' communities and work to understand students' perspectives (Antrop-González & De Jesús, 2006; Ransom, 2020; Rolón-Dow, 2005; Valenzuela, 1999; Watson et al., 2016).

How care is interpreted is cultural. Student understandings of care vary by race and ethnicity (Garrett et al., 2009; Garza, 2009; Hayes et al., 1994). When teachers and students are of the same race or ethnicity, a sense of fictive kinship can contribute to an understanding of shared life experiences and perspectives (McKinney de Royston et al., 2017; Hunter & Stinson, 2019). In the United States, however, there is a racial mismatch for many mathematics students of color with their teachers. About 55% of students in high school are students of color (National Center for Education Statistics, 2023), yet almost 80% of mathematics teachers are white (National Center of Education Statistics, 2019). This mismatch creates questions about how white teachers can care in critical and culturally relevant ways for students of color, particularly in racially diverse classrooms. How do white secondary mathematics teachers understand caring for racially diverse students? How does their understanding influence their pedagogy? And how do students interpret their efforts? The purpose of this study was to investigate these questions.

To do so, I conducted this qualitative study in two racially diverse ninth-grade Algebra 1 classrooms, which were cotaught by two white teachers at a public high school that I am calling Seaview High School. I served as a participant-observer in these classes from September 2022 through February 2023. I interviewed teachers and students and participated in Algebra 1 team meetings. I also observed class on a daily basis and interacted with students. The analysis of these data sources contributed to my investigation of how the teachers understood and enacted care for

their students, how their theories of care influenced their pedagogical priorities and choices, and how students understood caring teaching.

As I will elaborate in the chapters that follow, I found how important teachers' and students' narratives of their own schooling were to their understandings of care. Teachers' and students' understandings of care then influenced the classroom experience academically, socially, and politically. For teachers, their understanding of care shaped how they set up tasks and supported student enactment of tasks, how they facilitated collaboration and groupwork, and how they attended to power in the classroom. Teachers' theories of care proved to be important for understanding why teachers teach as they do, and teachers learning about students proved to be an important lever in improving teaching and care for students.

In Chapter 2, I frame the investigation. I describe Care Theory and how it has been developed to account for race and power and the significant relational assets of communities of color. I review the literature on care in secondary mathematics education, and I articulate my research questions. I then introduce three dimensions of care as an analytical tool: academic care, social care, and political care and how they should be understood together. Although these are defined more fully in Chapter 2, in broad strokes, academic care involves a teacher's care for students' mathematical learning. Social care involves a teacher's care for their interpersonal relationship with students and students' relationships with each other. Political care involves a teachers' ethical use of their institutional authority and their work towards a just and empowering education for their students. Finally, I detail what elements of mathematics teaching I focused on in analyzing the teachers' pedagogy to connect it to their theories of care.

In Chapter 3, I provide details about the study design. I specify the setting and participants and sources of data. I also detail my methods of analysis and the study's limitations.

Chapters 4 – 7 detail the findings of this study. In Chapter 4, I provide background on the teachers and the students to contextualize their understanding of caring teaching. For the teachers, I examine their understanding of mathematics, teaching, and equity. For the students, I describe their mathematical identity narratives, their academic goals, and their social anxieties and desires, and for students of color, some of their experiences of racism in mathematics education. These understandings shaped how teachers and students understood caring teaching.

In Chapter 5, I analyze the teachers' understanding of the social dimension of care. I describe how they understood care for students' social learning and social connectedness, and I relate that to their pedagogical choices to have students work collaboratively as well as how that was structured. I tie their theories of care to the routines, norms, roles, and feedback mechanisms they designed for groupwork. I also describe the students' understanding of social care, especially their desire for social learning and teachers' help managing social distraction.

In Chapter 6, I analyze teachers' understandings of the academic dimension of care. I also tie those understandings to what types of tasks they set up, how they thought about whole class discussions and how they discussed mathematics and problem-solving with students in their conferrals. I then detail how students understood academic care. I describe their appreciation for attentive teachers who explain mathematics well and provide engaging lessons that are at the right pace for them.

In Chapter 7, I analyze teachers' understandings of the political dimension of care. I describe how teachers thought about caring for students of color primarily through policy and were hesitant to engage in conversations about race and racism. I also offer how a contradiction in their principles of political care led to an instructional dilemma (Lampert, 1985). Their desire to resolve that dilemma prompted them to agree to design an intentional learning experience for themselves to learn about and from the students. This opened up the opportunity for students of color to share

their experiences of racism in schooling. When the teachers listened and responded with changes to classroom policies and their pedagogy, they enacted *politically clear listening* that catalyzed improvements in their academic and social care for students.

In Chapter 8 I draw from all of this study's findings to articulate the contribution this study makes to Care Theory in mathematics education. I highlight how the findings contribute to the field's understanding of academic, social, and political care. This study contributes especially to a theory of political care for white teachers teaching in racially diverse classrooms. I detail the elements and dilemmas of white teachers' political care as found in this study and more fully theorize *politically clear listening* as a part of white teachers' political care. I detail the essential elements and outcomes of politically clear listening and the conditions under which it was enacted in mathematics classrooms. I discuss dilemmas of care and how and why the three dimensions of care I put forth should be understood together including what they provide as an analytical tool for understanding classroom interactions. Finally, I suggest areas for future research, and I offer implications for teacher education.

## Chapter 2 – Key Concepts, Literature, and Research Questions

In this chapter, I clarify the conceptual underpinnings of the study. I begin by explaining Care Theory. Because *care* and *caring* are such commonplace terms, it is useful to understand how caring has been theorized, particularly in education, including its ethical underpinnings, specific terminology, and nuances. I discuss how Care Theory has evolved to account for ethnicity, race, and power. Then I synthesize how care has been studied in secondary mathematics education. After outlining my research questions, I explain the academic, social, and political dimensions of care that I used as analytical lenses for this study and what elements of mathematics teaching I examined to understand the relationship between teachers' theories of care and their pedagogy.

### Care Theory

The origins of care theory in education lie in white feminist theories of ethics (Gilligan, 1982; Noddings, 1984, 1995, 2010, 2012). Before Care Theory, many theories of ethics grounded ethical action in individual motives or justifications. Individual actions may have been understood to impact other people and one's relationships with others, but ethics was a personal and individual matter. As an alternative, Noddings (1984) took the *relationship between individuals* as "ontologically basic," (p. 3) or as she wrote, "My very individuality is defined in a set of relations" (p. 51). Ethical behavior in Care Theory is not defined by individual choices and justifications but the quality of relationships between people. For education to be a moral endeavor, the quality of the relationships between its participants must be of paramount importance.

Noddings (1984) describes care as a dyadic relationship between the *one-caring* and the *cared-for*. Caring requires both feeling and action. If one has feeling without action, then one *cares-about*. Caring-about can occur when the one-caring becomes *engrossed* with another, the cared-for. Engrossment involves being able to see the cared-for as a possibility for the self. It also involves

*motivational displacement* wherein the cared-for's motivations become the motivations of the one-caring. For a teacher to care-about a student, she<sup>1</sup> must understand and want to adopt the student's motivations and be fully present and receptive to the student. At this point, she *cares-about* the student. If she then acts for the benefit of the student based upon her understanding, she is doing her part to *care-for* the student. To have caring feelings without action is *caring-about* and not *caring-for*.

The ethics of care is founded upon the desire to help someone else feel the good feeling of being cared for. Noddings posits that most people have some experience of being cared-for, especially as children, and that experience becomes our definition of the "good" that we strive for in ethical activity (p. 49). This kind of care is *authentic* and requires *receptivity* to the reality of the cared-for. If the receptivity is forgone and the feeling state stifled, the one-caring can turn too quickly to a rational-objective state, in which the cared-for is not being experienced as a person but as an idea (p. 26). This *aesthetic care* lacks the relational feeling that grounds *ethical caring* (p. 23).

Receptivity is vital to authentic and ethical care. For example, imagine a student requires assistance solving a mathematics problem. Perhaps he has made a common error and is frustrated. A receptive teacher is going to be present with the student, listen to his reasoning, and attend to his emotional state, working to fully understand his thinking and frustration. Subsequently, the teacher uses her knowledge and judgement to help the student achieve *his* goals. Noddings would say she is caring for him authentically. Compare that to the scenario wherein the teacher sees a student error soon after arriving at his desk and quickly redirects him in line with the learning objectives she has planned for the day. In this case, the teacher is not receptive to the student's thinking or frustration. She is not engrossed in his experience. Her motives are not necessarily his motives, and as such, the

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<sup>1</sup> In this section, I adopt Noddings' convention of using female pronouns for the one-caring and male pronouns for the cared-for. The purpose of using female pronouns for the one-caring is to emphasize that this ethics theory is situated in feminism. The purpose of using male pronouns for the cared-for is to differentiate the cared-for from the one-caring when discussing care.

student has been redirected to achieve *the teacher's* goals irrespective of the student's goals. Noddings would say she is showing care about the ideas of learning but not necessarily care for the learner. She is caring aesthetically not authentically.

The cared-for's understanding of caring is essential to establishing *caring relations*. If I care about you, and I take action to care for you, this does not necessarily result in a caring relation. You must feel that my actions are caring and respond to them. You, as the cared-for are the arbiter of what is deemed caring. If my efforts, despite their circumspection and intent, do not feel caring to you, I am in fact not caring for you. Only if my actions are successfully felt as caring am I caring for you. When you acknowledge your receipt of care, there is a caring relation between us (Noddings, 1984, p. 68). In the case of a student and a mathematics teacher, the student's acknowledgement can be a facial expression, a positive statement, or a newfound effort for, engagement with, and/or affect toward mathematical learning.

### **Culturally Relevant Care Theory**

Care Theory as originally developed has been critiqued in two ways that bear direct relevance to how white teachers care for racially diverse students. Care theory did not account for how relating is cultural nor the role of power in caring. Scholars have shown empirically how student understandings of care vary by race and ethnicity (Garrett et al., 2009; Garza, 2009; Hayes et al., 1994) showing the importance of culturally relevant care. For example, Garza (2009) analyzed 93 student responses to an open-ended questionnaire given to Latino<sup>2</sup> and white high school students who had two teachers, one who identified as Mexican American and another who identified as white. The questionnaire asked questions such as “I feel that my teacher cares about me because” . . . and “I feel that my teacher does not care about me because” (p. 307). Students were then

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<sup>2</sup> For all studies I review in this chapter, I use the racial/ethnic terms used by article authors.

prompted to provide specific examples to support their statements. Open coding across student groups led to five dominant themes. Students said caring teachers:

(a) provide scaffolding during a teaching episode, (b) reflect a kind disposition through actions, (c) are always available to the student, (d) show a personal interest in the student's well-being inside and outside the classroom, (e) and provide affective academic support in the classroom setting. (p. 310)

Garza differentiated between teacher actions that supported academic achievement and those that reflected teacher disposition. For example, providing scaffolding was an action that supported academic achievement, but being funny or kind reflected a teacher disposition. Latino students were more likely to see achievement-supportive actions like lesson scaffolding, academic support, and availability for help as caring. White students' descriptions were less academic, focusing on kindness and showing a personal interest in students instead. Thus, Garza's analysis highlighted how students of different races understood caring teaching differently.

Similarly, Hayes and colleagues (1994) analyzed responses to open-ended questionnaires that prompted students to describe the actions teachers who were "memorable for their caring" took to show their care (p. 7). They surveyed 208 6<sup>th</sup> graders from three schools, one that was predominantly European-American and the other two that were predominantly African-American. Hayes and colleagues (1994) found themes in the students' responses that included "responded to the individual," "helped with academic work," "encouraged success and positive feelings," "provided fun and humor," "provided good subject content," "counseled the student," "interested in all students/fair," "avoided harshness," "listened," "managed the class well," and "other" (p. 9). Hayes et al. (1994) found that African-American students cited academic support, encouragement, and individual responsiveness as caring most while European-American students cited individual responsiveness, fun and humor, and "provided good subject content" most (pp. 15 - 16). The races of teachers in

this study are not mentioned, but the analysis showed how students of different ethnicities understood care differently.

Garrett and colleagues (2009) studied 60 sixth-grade and 95 ninth-grade student perspectives on care and analyzed their responses to open-ended questionnaires by ethnicity (African-American, Latino, and white). Garrett et al. (2009) asked students to describe how they knew their favorite teacher cared about them and identified the following five themes to student responses: academic support, teacher personality, taking an individualized interest in each student, fairness, and for some students, the use of rewards. A higher percentage of both African-American and Latino students cited academic support as caring. A higher percentage of white students cited actions reflective of teacher personality and being personally interested in students as caring. Teacher race/ethnicity was not analyzed in this study, but the students were found to have varying understandings of care along racial lines. Together these studies show how students' understandings of caring teaching vary by race and ethnicity.

Scholars have built on Noddings' work to theorize culturally relevant care. Noddings' Care Theory is based in white women's feminism and theorized a dyadic relationship and did not explicitly account for the caring of *communities* of color. For example, "other-mothering," or Black women caring for each other's children, is common in Black communities (Beauboeuf-Lafontant, 2002; Ware, 2006). Other-mothering involves assumption of responsibility of Black women (and Black men (McKinney de Royston et al., 2017)) to care for all Black children, including teaching them about race and racism and doing so in community (Thompson, 1998). It is an important part of not only how Black teachers care for students but how Black students understand caring teaching. Another example of a community approach to care is Mexican families' tendency to see education as intertwined with their community (Valenzuela, 1999). This value informs how many Latine students and their families understand caring teaching (Antrop-González & De Jesús, 2006; Rolón-Dow,

2005). Teaching and learning are community endeavors, and teacher learning about students and their families is vital to caring relations.

Watson and colleagues (2016) used *culturally relevant care* as a lens to understand how Black and Latino male high school students understood and experienced care in a mentoring program for “over-age and under-credited Black and Latino youth” (p. 987). They defined culturally relevant care as “a process in which one’s humanity is affirmed by building community, trust, warm demanding, and integrating the cultures and experiences of community members” (p. 986). Through analysis of session observations, interviews with the mentor, and a focus group with fourteen male students aged 16-20, Watson et al. (2015) showed how important community is to culturally responsive care. The participants in the study emphasized the creation of mutual trust as a catalyst for having high expectations for each other. This trust also enabled participants to be warm demanders (Ware, 2006) of each other to hold each other accountable to high expectations but in a humanizing way. The formulation of culturally responsive care is important because it expands Care Theory beyond the dyadic relationship between teachers and students to involve the care students manifest for each other as they create a community of care with the teacher and the teacher’s role in helping them build community.

### **Critical Care Theory**

Scholars also built on Noddings’ work to theorize a care theory that was critical. Care Theory’s genesis was in white women’s feminism and paid little attention to power or systemic racial oppression (Thompson, 1998), which impacts interactions and relationships (Antrop-González & De Jesús, 2006; Battey et al., 2018; Roberts, 2010; Rolón-Dow, 2005). For example, Noddings’s (1984) Care Theory did not account for how whiteness influenced teachers’ conceptions of caring for students of color nor how those students would interpret the care of white teachers. It also did not account for the power dynamic between teachers and students. Teachers hold institutional

authority, and students know it. Their relationships develop within the context of that power dynamic.

Scholars argued that Care Theory's foundation in white liberal feminism resulted in a theory of ethics that treats white normativity as safe and good (Thompson, 1998). For communities of color, however, whiteness is not safe. Rather, whiteness is the seed of ongoing racial oppression (Bell, 1992; Leonardo, 2002, 2013, 2019). Thompson (1998) explored the reformulation of Care Theory from a Black feminist perspective. She argued that care for Black children involved "colortalk," which is "the explicit recognition that someone is White, Black, or Brown" (p. 524). Without colortalk, adults could not engage in *race talk* or teaching children about race or racism. Race talk is intended to help children process their own experiences of racism while helping them build an empowered identity (p. 535).

Other scholars echo Thompson's arguments for the importance of colortalk and race talk as elements of teachers' *political clarity* with students of color (Bartell, 2011; Beauboeuf-Lafontant, 2002; McKinney de Royston et al., 2017; Gay, 2010; Roberts, 2010). For a teacher to cultivate *political clarity* with her students, she must be aware that both societal and school structures result in inequitable access to success in schooling and recognize her own role in perpetuating those inequities (Beauboeuf-Lafontant, 2002; Gay, 2010). As Gay (2010) writes in her chapter on culturally responsive care, "while most teachers are not blatantly racist, many are culturally hegemonic" (p. 48). This means political clarity involves teachers interrogating the whiteness of schooling and their own assumptions about students and families of color (Pennington et al., 2012; Rolón-Dow, 2005; Thompson, 1998). As in all caring, a teacher's awareness and interrogation must also translate into action as teachers work to understand students' racialized experiences and needs (Pennington et al., 2012), bolster students' developing identities (Beauboeuf-Lafontant, 2002; Thompson, 1998), and work against systemic inequity in their schools and classes (Gay, 2010).

In addition to race, critical care accounts for teacher authority. Authority is “the probability that a command with a given specific content will be obeyed by a given group of persons” (Weber, 1947, p. 139). Teachers have authority in multiple ways. For example, teachers may have charismatic authority (Weber, 1947) when students accede to teachers’ demands and wishes out of affinity. They may have expert authority (Weber, 1947) as those who understand mathematics. They also may have the institutional authority to grade students, communicate with their parents, and enact school-sanctioned consequences for student behaviors. Teachers’ institutional authority is the type in which the power differential between mathematics teachers and their students is most overt (Amit & Fried, 2005).

Noblit (1993) provided an instructive argument about how teachers can use their institutional authority to care for students. Through an ethnographic study in a second-grade classroom, Noblit investigated the care practices of a Black teacher and theorized that she cared for her students through her use of *moral authority* or the “ethical use of power” (p. 24). Moral authority is one that is institutional but also negotiated between teachers and students (p. 24).

The negotiation of power between teachers and students is a theme in some of the critical literature on caring. Students of color described caring teachers as those who decreased the power differential between them as reflected by students’ descriptions of caring teachers as older family members (McKinney de Royston et al., 2017; Hunter & Stinson, 2019; Roberts, 2010; Ware, 2006; Watson et al., 2016). For example, Antrop-González and De Jesús (2006) studied care in two primarily Latino urban schools to contribute to a theory of critical care. They observed classes and conducted semi-structured interviews and focus groups with students to theorize the role of high expectations and building community in the culture of care in the two schools. They found that caring teachers exemplified “transforming power relations through *personalismo*” (p. 421).

*Personalismo* was reflected when students “described their relationships with facilitators as like a

friend, like family, or like a parent” (p. 421). Students described teachers as acting like co-students, co-learners: “The teachers don’t have that aura of being superior because they belong to the faculty or administration. For me, the teachers acted like co-students. They cared because they were there to work with you and learn with you” (p. 422). However, students emphasized that teachers also “knew their place” (p. 422) meaning that while the teachers were like family, they were not peers of students; they assumed a role that was reminiscent of a family elder.

Similarly, when McKinney de Royston and colleagues (2017) observed four classrooms and interviewed three teachers and 26 students to understand the features of caring relationships in an all-Black and all-male after-school program in Oakland, California, students referred to their mentors as “older brothers,” and the Black teacher in Watson et al. (2016) referred to the students as his “younger brothers” (p. 997). Students’ descriptions of caring teachers as older family members showed how a teachers’ ethical use of authority to decrease power differentials is a vital part of caring for students of color and the importance of building community bonds.

Scholars have created frameworks to develop Care Theory to be culturally responsive and critical (Antrop-González & De Jesús, 2006; Bartell, 2011; McKinney de Royston et al., 2017; Roberts, 2010; Rolón-Dow, 2005; Watson et al., 2016). For example, McKinney de Royston and colleagues (2017) conceptualized the Black teachers’ care for Black students as illustrative of *politicized caring*. Politicized caring involves understanding students as children who are growing up subject to racism, having politically clear conversations with students about race and racism, forming communal bonds between students and with students’ families, and helping students develop positive identities through high expectations and support (p. 8).

As another example, Rolon-Dow (2005) conducted in-depth interviews with nine Puerto Rican middle school students to investigate how race and care were linked for them. She found that

the students valued their teachers' personal connection and responsiveness and teachers' efforts to understand their home communities. Many of their teachers were white and did not live in their community near the school. Students struggled with white teachers' deficit assumptions about them and about their families, and they viewed those assumptions as evidence of teachers not truly caring about them. These findings contributed to Rolon-Dow's (2005) theorization of *critical care praxis*:

First, critical care is grounded in a historical and political understanding of the circumstances and conditions faced by minority communities. Second, critical care seeks to expose how racialized beliefs inform ideological standpoints. Finally, critical care translates race-conscious historical and ideological understandings and insights from counternarratives into authentic relationships, pedagogical practices, and institutional structures that benefit Latino/a students. (p. 104)

In summary, critical and culturally relevant care involves teachers working to understand the perspectives and racialized experiences of students of color, interrogating their own assumptions about students and families of color, seeking to counteract the white normativity of schooling, and finding ways to engage students in politically clear conversation. Critical teacher care also involves sharing authority with students to negotiate moral authority or the ethical use of institutional authority. Critical and culturally relevant care is particularly important for white teachers seeking to care for racially diverse students.

### **Research on Care in Secondary Mathematics Education**

Scholars in mathematics education have studied teacher and student understandings of care. For the purposes of this study, I focus on the literature on care in secondary classrooms. All of this research uses care theory as a theoretical foundation. Some of it uses some of the critical frameworks enumerated above. In what follows, I survey the landscape of care theory in secondary

mathematics education and describe how the theorizations contained therein contribute analytical tools for studying care along academic, social, and political dimensions.

Jansen and Bartell (2013) interviewed four white mathematics teachers and 22 of their racially diverse students to investigate their understandings of care although race was not a central feature of their analysis. They categorized the participants' descriptions as academic and/or interpersonal. *Academic care* is care for the “technical aspects of teaching and learning” and the creation of “shared intellectual space” (p. 34). Academic care involves teachers having, communicating, and holding high expectations for student learning while working to understand and respond to student thinking as they help students learn mathematics (p. 34). Academic care also involves what Hackenberg (2005, 2010) described as *mathematical caring relations*. Hackenberg (2005) analyzed her own tutoring of two students to argue that mathematical caring relations involved *cognitive decentering*. Teachers engage in cognitive decentering when they put their own ideas on hold to construct a model of student thinking. Such a model allows teachers to understand students' ideas and be authentically responsive to them (p. 242).

According to Jansen and Bartell (2013), *interpersonal care* requires teachers to learn about the students' perspectives of schooling while attending to the “social dimension of the classroom” (p. 34). Interpersonal care involves empathy and the creation of a “welcoming classroom community” (p. 38) by getting to know students, respecting them, and providing emotional support. They frame interpersonal care as primarily between the teacher and the student without attending to how teachers care for the relationships between students.

Ellerbrock and Vomvvoridi-Ivanovic (2022) augment Jansen and Bartell's (2013) concept of interpersonal care by expanding on what is required to make a welcoming and culturally responsive classroom community. They conducted a qualitative case study of one white novice teachers' care practices in a racially diverse Title 1 school to understand how he built a community

to support “responsive middle level mathematics teaching” (p. 12). Through analysis of interviews and classroom observations, Ellerbrock and Vomvoridi-Ivanovic found that building a caring community for culturally relevant teaching required the teacher to attend to student-student relationships and especially their feeling of emotional safety (p. 18). They argued that for teachers to engage in *relational care* (p. 13) they must nurture student-student relationships intentionally in addition to building their own caring relationships with students. Their findings were consistent with studies outside mathematics education that emphasize the importance of building community to culturally relevant and critical care (McKinney de Royston et al., 2017; Watson et al., 2016).

Averill (2011, 2012) Averill observed 100 year-10 classes in six ethnically diverse schools in New Zealand. She enlisted the help of Maōri advisors to investigate “[the] teaching pedagogies and behaviours [that] are effective for developing and maintaining caring teacher-student relationships in multiethnic mathematics classrooms” (Averill, 2012, p. 110). She and her Maōri advisors classified teaching they thought were caring according to an indigenous framework that centered students’ cognitive and emotional, relational, spiritual, and physical well-being. Some of the teaching qualities and behaviors they deemed caring reflected Jansen and Bartell’s (2013) definition of academic care. For example, they found that when teachers are “consistent, firm, and explicit about their practices and expectations” (p. 111), they are caring for their students. They also found teachers care when they “acknowledge prior learning, support and reinforce new learning, attend to relevance of content, encourage, assist, and give feedback” (p. 111). In addition, Averill identified how attending to the physical needs of students during instruction is important, an element that could be considered academic care.

In addition to studying academic and interpersonal care, some scholars have studied care in mathematics classrooms with a critical, political lens. In her literature review, Bartell (2011) argued for *caring with awareness* in mathematics education. Her framework provides useful conceptual tools

for understanding the political dimension of teacher care in racially diverse mathematics classrooms. Bartell (2011) writes that to care with awareness teachers should help students build positive identities while interrogating their own “assumptions and practices about students’ cultures and communities, including rejecting and confronting deficit and colorblind perspectives” (p. 65). Bartell (2011) also exhorts teachers to “engage in discussions of race and racism with their students, listen for counter-narratives that might help shape a more caring bond between them and their students, and stand in solidarity with students” (p. 65). Here Bartell joins scholars outside of mathematics education (Beauboeuf-Lafontant, 2002; McKinney de Royston et al., 2017; Roberts, 2010; Rolón-Dow, 2005; Thompson, 1998; Watson et al., 2016) in highlighting the need for political clarity in caring for students of color.

Hunter and Stinson (2019) showed the importance of teachers and students co-constructing a comfortable classroom community and teachers’ political clarity with students. Hunter and Stinson (2019) observed a 10<sup>th</sup> grade Geometry class and interviewed three purposefully selected Black students and their Black teacher. Students described caring teaching as that which motivated the students, helped them build self-confidence and self-discipline, and bolstered their political awareness. They found that an important element to caring for Black students was the creation of a non-judgmental, safe, and comfortable classroom community (p. 28). They also found that students cited colortalk and race talk with teachers to be caring. Hunter and Stinson emphasized that Black students made assumptions about their fictive kinship with Black teachers that contributed to the sense of connection:

Clearly, the students perceived connections to the teacher participant based on his appearance (he too was a Black male) and assumptions they made about him (e.g., possible shared experiences as a Black male). Pursuing this further and based on the participants’

identified themes used to describe caring, we are all but certain that these assumptions were also rooted in their historical interactions with teachers of other races. (p. 28)

Hunter and Stinson's (2019) findings were consistent with Bartell's (2011) argument that political care for mathematics students involves teachers' interrogation of their own assumptions about students and their communities and the vital role of politically clear conversations to caring for students of color. The importance of fictive kinship to the politically clear conversations of Hunter and Stinson's (2019) participants calls into question whether the same political clarity from white teachers would have felt caring to the Black students.

Understanding how mathematics teachers care for students is important, but so is understanding teachers' dispositions towards that work. Maloney and Matthews (2020) drew on the concept of teacher dispositions as "patterns of thinking and how one is disposed to act" (Thornton, 2006, p. 56) to theorize urban US mathematics teachers' dispositions towards care. Their analysis of open-ended surveys and interviews with racially diverse secondary mathematics teachers and their students yielded two types of dispositions: empathetic and transactional.

*Empathetic* dispositions towards care involve not only teacher actions that support students in achieving their goals but also actions that affirm students' mathematical identities (Maloney & Matthews, 2020). Teachers with an empathetic disposition contemplate partnering with students in their academic and personal struggles as part of caring for students, and importantly care is understood as not contingent on students' relational initiation, reciprocity, or mathematical success. Academically, those with an empathetic disposition provide a rigorous press on students' mathematical ideas while providing scaffolding for their productive struggle in class. Interpersonally and politically, empathetically caring teachers attend to students' emotions and work to understand students' experiences of positionality and power.

*Transactional* dispositions towards care are characterized by teacher expressions of a feeling of care without the student-centered, responsive actions that support learning (Maloney & Matthews, 2020). Academically, a teacher with a transactional disposition expects that students will improve on their own, and caring is understood as contingent upon student effort and achievement. A transactional disposition involves a simplified view of students and often binary understandings of students – either students want to succeed, or they do not. Interpersonally, transactionally caring teachers allow their relationship development to be dependent upon a student’s relational initiative and do not concern themselves with students’ lives outside of school. Students are just students, and the teacher’s responsibility to care for students begins and ends in class. This calls into question the extent to which a transactional disposition towards care can be culturally relevant.

In their discussion, Maloney and Matthews note that seven out of twelve of the teachers in their study were teachers of color, but three of the four teachers who were categorized as having an empathetic disposition were teachers of color. The fourth was a white woman, Ms. Ellena, who had two years of experience and was in the midst of a fellowship for culturally responsive teaching. They characterized her as a teacher with “underdeveloped” (p. 424) criticality in her caring but as someone who positioned her students as “co-producers of both mathematical knowledge and classroom culture” (p. 425). Here Maloney and Matthews point to Ms. Ellena’s ethical use of authority to decrease the power differential between her and her students as essential to a white teacher’s empathetic disposition towards care.

Matthews (2020) augmented the above study by delving into how teachers’ own mathematical learning experiences influenced their dispositions. Matthews conducted semi-structured interviews with 12 racially diverse secondary mathematics teachers and observed their care practices in class. Matthews (2020) found that teachers who credited their own initiative, attitude, or effort for their perseverance through mathematical struggle were less likely to adopt

empathetic dispositions towards caring for their students. Teachers who credited support from teachers or other students were more likely to adopt empathetic dispositions towards care. Matthews also noticed in his observations that those with more empathetic dispositions were more likely to be responsive to student needs to help them solve their problems including adjusting their teaching and pacing to help students engage with learning. Teachers with more empathetic dispositions also provided more specific feedback, while those with transactional dispositions resorted to becoming “cheerleaders” (p. 524) for student improvement without helping students learn specific mathematical concepts, procedures, or strategies.

The studies described above constitute substantial contributions to our understanding of secondary mathematics teachers’ care for students. Caring mathematics teaching involves attending to students’ thinking and scaffolding learning opportunities. It involves the cultivation of a kind and respectful interpersonal relationship while helping students build community. Caring with criticality and cultural relevance requires teachers to adopt an empathetic disposition, which is more likely when teachers view students as capable co-authors in a community of learning. Missing from this literature base is a more comprehensive understanding of the genesis of teachers’ theories of care and how those theories impact mathematics instruction. Also missing is a fuller understanding of how white teachers can navigate the political work of teaching to care for students in racially diverse classes and how students of color understand their efforts to care.

There is a gap in our understanding of how white mathematics teachers care for racially diverse students. Culturally relevant and critical care has been studied outside of mathematics education (Antrop-González & De Jesús, 2006; McKinney de Royston et al., 2017; Roberts, 2010; Rolón-Dow, 2005; Watson et al., 2016), but none of these studies were in racially diverse contexts. Research has focused on the political dimension of care in mathematics classrooms between Black teachers and Black students (Hunter & Stinson, 2019), but to date, no study has investigated the

political clarity of white mathematics teachers who teach a racially diverse class of secondary students nor theorized political clarity for white teachers. This study fills that gap and includes an analysis of how white teachers' care is understood by racially diverse students and why students understand teacher care as they do.

### **Research Questions**

As such, this study is designed to investigate the following research questions:

1. How do white teachers of secondary mathematics conceptualize care for racially diverse students academically, social, and politically, and how is their understanding linked to their narratives about mathematics, teaching, and equity?
2. How do white teachers' understandings of care influence their pedagogical priorities and choices?
3. How do racially diverse students understand academic, social, and political care, and how is their understanding linked to their identity narratives and experiences in schooling?
4. And how can we understand the role of political clarity in how white teachers care for students of color?

In what follows, I will outline the conceptual framework I built to investigate these questions, which was informed by the theory and literature above.

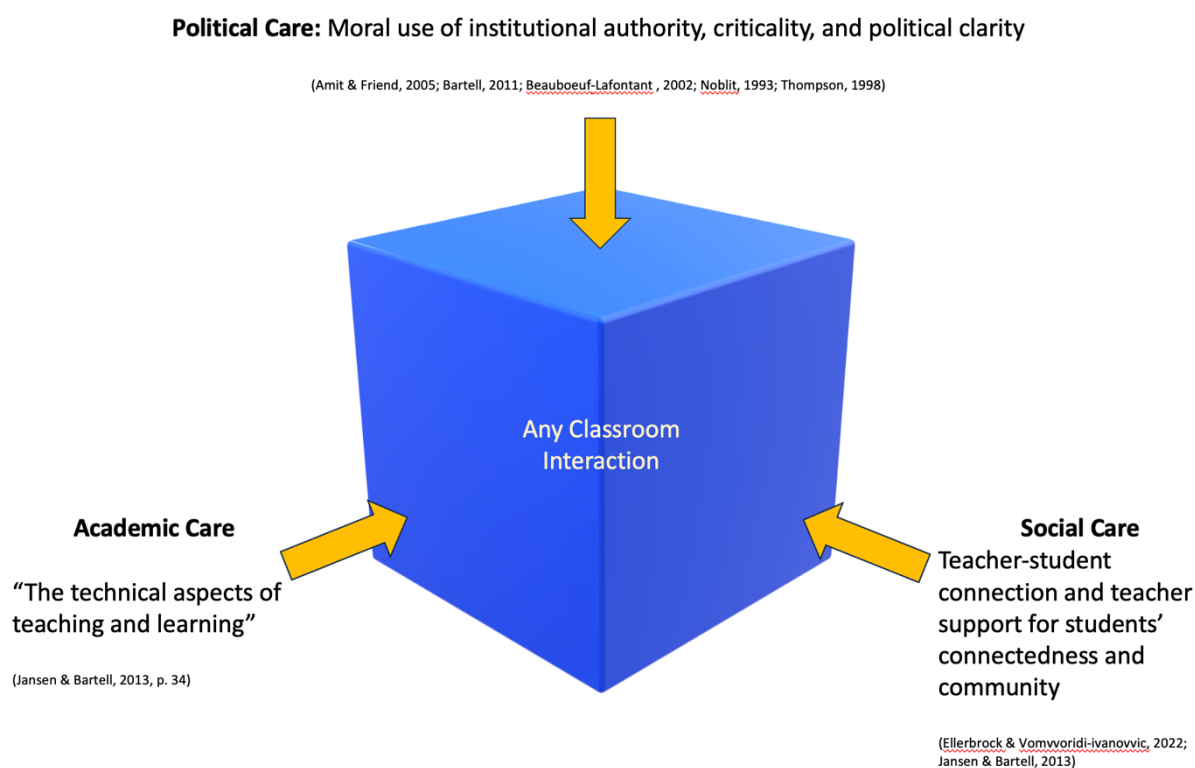
### **Conceptual Framework**

#### **Three Dimensions of Care**

To understand white teachers' care for racially diverse mathematics students, I conceptualize ethical and authentic care along academic, social, and political dimensions. I use the concept of *dimensions* of care to conceptualize how academic, social, and political care are to be understood together. Just as the volume of any physical object can be understood with reference to its length, width, and height, I understand care with reference to academic, social, and political dimensions.

Just as for any physical object, length, width, and height exist simultaneously, so too with the three dimensions of care. Any classroom interaction, such as the setup of a mathematical task or a conferral between teachers and students to support enactment, can be understood as embodying varying teacher and student understandings of academic, social, and political care (See Figure 1).

**Figure 1 - Three Dimensions of Care**



Synthesizing from the above research, I use Jansen and Bartell’s (2013) concept of *academic care* to refer to “the technical aspects of teaching and learning” (p. 34). Academic care involves teachers explicitly communicating their high expectations for student learning (Antrop-González & De Jesús, 2006; Averill, 2012; Jansen & Bartell, 2013; Maloney & Matthews, 2020), attending individually to each student (Averill, 2012; Jansen & Bartell, 2013; Maloney & Matthews, 2020), enacting engaging lessons that are scaffolded for varying students’ learning needs (Averill, 2012; Jansen & Bartell, 2013), and working to understand student thinking (Averill, 2012; Hackenberg,

2005; Jansen & Bartell, 2013). Furthermore, a caring response to student thinking includes a rigorous press for deeper thinking (Maloney & Matthews, 2020); timely, clear, and specific feedback (Averill, 2012; Matthews, 2020); and thorough explanations that do not supersede student thinking (Hackenberg, 2005).

I define *social care* to refer to what Jansen and Bartell (2013) termed interpersonal care between teachers and students (Jansen & Bartell, 2013) and what Ellerbrock & Vomvvoridi-Ivanovic (2022) termed relational care, which teachers enact to support students in building caring relationships with each other. Social care includes teachers' efforts to get to know students and "interact personably and respectfully" (Averill, 2012, p. 115) while incorporating humor and fun. As teachers care for student-student relationships they contribute to the construction of a "welcoming community" that is the hallmark of culturally relevant care (Watson et al., 2016).

I define *political care* to refer to teachers' understanding of the inequities of schooling, the interrogation of their role in those inequities, and their interrogation of their assumptions about students of color and their communities (Pennington et al., 2012). Political care also involves an ethical use of power as teachers enact moral authority in the classroom, treating students with fairness and respect while negotiating the ethical use of institutional authority (Noblit, 1993). Finally, political care involves engaging in what others have referred to as "political clarity" with students (Bartell, 2011; Beauboeuf-Lafontant, 2002; Hunter & Stinson, 2019; McKinney de Royston et al., 2017). As defined by Bartell (2010), *political clarity* includes colortalk and race talk and listening to students' counternarratives to "stand in solidarity with students" (p. 62).

Academic, social, and political care should be understood together. Learning is first and foremost a social endeavor (Lave & Wenger, 1991; Vygotsky, 1978), and Care Theory is consistent with a social understanding of learning (Goldstein, 1999). It is not possible to enact academic care for a student without interaction. Therefore, any teaching and learning scenario can be understood

both academically and socially. In addition, because of the power dynamic between teachers and students in the institution of schooling and racialized and gendered power dynamics in classrooms, all teacher-student interactions occur within a context of power differentials (Battey et al., 2018). As such, academic and social interactions in schooling are political. Therefore, I argue academic, social, and political dimensions of care represent dynamics that are always at play for any given classroom interaction.

For example, teacher care for students as they solve a single mathematical task can be understood through all three dimensions of care. Teachers must care academically for student thinking and learning as they work to understand student thinking and support them to deepen their learning. They must care socially for student connection and belonging as they attend to how students interact with each other and with the teacher. They must care politically as they interrogate their own assumptions about students and promote equitable and empowered classroom interactions and learning. The three dimensions of care always coexist in mathematics instruction.

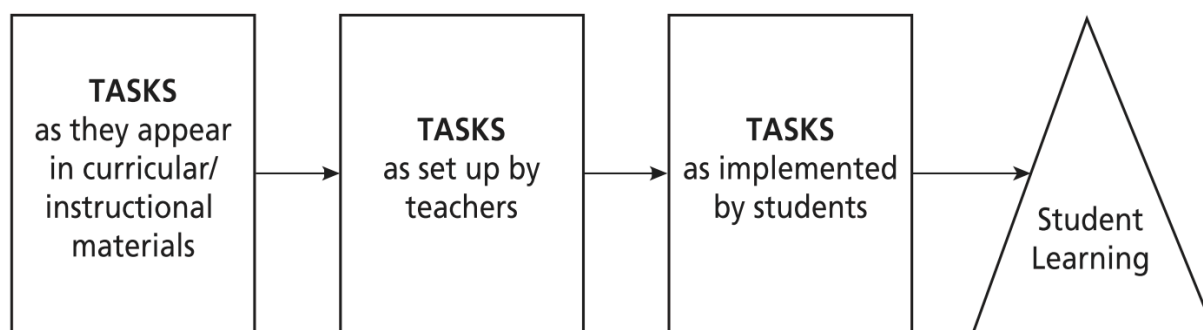
### **How Teachers' Theories of Care May Shape Mathematics Instruction**

The purpose of this study is not only to investigate how white teachers understand care for students in a racially diverse classroom, but to discuss how their conceptualizations of care shape their mathematics instruction. This section outlines the elements of secondary mathematics instruction I looked for to learn how teachers' understandings of care influenced their pedagogy. Specifically, I focused on how teachers set up and enacted tasks with students and how they facilitated students to explore tasks together while engaging in mathematical discourse to tie teachers' pedagogical choices and priorities to their understandings of care. As I will detail in the next sections, mathematics education research indicates that how teachers support student discovery of mathematical concepts through engagement with cognitively demanding tasks is vital to their learning.

### ***Mathematical Tasks***

The tasks teachers give students have profound implications for the opportunities students have to learn mathematics (Remillard et al., 2008, 2014; Stein & Smith, 1998) and are therefore important to tie to teachers' theories of caring for students. Most tasks are provided by curricular resources, and teachers decide how they intend to set up any given task for students. Remillard (2005) describes teachers' use of curriculum as "how individual teachers interact with, draw on, refer to, and are influenced by material resources designed to guide instruction" (p. 212). Teachers' plans for launching tasks and supporting students both in conferral and discussion represent their *intended curriculum* (p. 213). Just as teachers have agency to set up tasks for students differently from curriculum writers' intentions, so too do students have agency to take up tasks differently from teachers' intentions. As students take up the tasks and teachers respond in the moment, the teachers' and students' interactions with the tasks constitute *enacted curriculum* (p. 213). This progression of how curricular tasks connect to student learning as teachers make decisions about how to set them up and support their implementation can be seen in Figure 2.

**Figure 2 - The Mathematics Tasks Framework (Stein et al., 1998, p. 11)**



Not all tasks are created equal. Tasks with high cognitive demand require a student's use of mathematical reasoning on non-routine problems as they decide which mathematical procedures to use (Smith & Stein, 2015). High cognitive demand tasks can help students connect procedures to

underlying concepts and are a central feature of teaching with ambitious goals for student learning (Henningsen & Stein, 1997; Jackson & Cobb, 2010). How teachers set up tasks for students and how they are enacted is influenced by a variety of factors. For teachers to select high-cognitive-demand tasks for students, they must first believe their students can be successful (Wilhelm, 2014). This has equity implications. If teachers have low expectations of students of color or students of low socioeconomic status, they are less likely to give them cognitively demanding tasks (Rubel & McCloskey, 2019). Teachers must also maintain the cognitive demand in how they set up the task in a launch (Jackson et al., 2013) and in their conferrals with students (Henningsen & Stein, 1997). Maintaining the cognitive demand requires teachers to avoid suggesting methods of solving the task or changing the task prompt to reduce opportunities to reason for some students (Jackson et al., 2013). Maintaining cognitive demand also requires a teacher to be receptive and responsive to student thinking, which in turn requires a deep understanding of the mathematical concepts and procedures relevant for the task (Wilhelm, 2014).

### ***Groupwork***

Certainly, there are many caring ways to teach mathematics. The classroom in this study featured groupwork prominently as teachers set up tasks for student collaboration. Tasks are *groupworthy* if they are “open-ended, productively uncertain, and require complex problem solving” (Cohen & Lotan, 2014, p. 85). Groupworthy tasks draw upon multiple abilities and often result in multiple representations of important mathematical concepts and relationships. For groupwork to be an effective classroom structure, students must share both social and mathematical authority (Jackson & Cobb, 2010; Jansen, 2012) and build on each other’s ideas instead of offering their own serially (Barron, 2000, 2003; Staples, 2007). To foster such collaboration, effective teachers of groupwork promote and support each student to be responsible for both their own learning and that of their teammates (Boaler, 2022). This support often comes through the negotiation of productive

social norms with students (Cohen & Lotan, 2014). The social norms should contribute to students being or becoming “the kinds of people who study in the classroom and who expect others to do so as well” (Lampert, 2001, p. 265). They should include the construction of a culture of learning where students understand that their job in class is to learn and trust their capacity to do so while treating each other with respect (Boaler, 2022). Norms are negotiated between teachers and students as expectations are set by both parties and feedback is given when those expectations are violated (Yackel & Cobb, 1996).

Groupwork is understood as an equity-oriented pedagogy (Boaler, 2008). For it to be so, students need to learn how to work together in groups (Cohen & Lotan, 2014). Teaching students to collaborate means teaching them explicitly about interdependence (Lotan, 2003). Teachers must facilitate group problem-solving to attend to unequal status among group members (Cohen & Lotan, 2014). Otherwise, groups can replicate many of the inequities of society (Kurth et al., 2002).

Teacher attention to class and group status dynamics can include strategies like the establishment of a growth mindset culture within the classroom (Boaler, 2022) and explicitly valuing multiple abilities in problem-solving (Boaler & Staples, 2008). Teachers can also assign competence to low status students by publicly and explicitly highlighting their constructive contributions (Boaler & Staples, 2008). For groupwork, teachers can assign roles so each student has a way to contribute to productive mathematical exploration (Cohen & Lotan, 2014).

### *Discourse*

How teachers and students discuss a task and the mathematics that undergirds it is vital to student learning. Mathematical discourse can happen with individual students, with small groups, or with the whole class. Scholarship has contributed to a rich body of knowledge about how teachers talk to students about mathematics. Some of the principles at the core of rigorous mathematical discourse with students include having mathematical goals for the discussion, valuing student ideas,

and helping students orient themselves to mathematical concepts (Kazemi & Hintz, 2014) while building a community of accountability to mathematical ideas (Michaels et al., 2013). To understand student thinking and facilitate its growth, teachers ask questions to develop their own understanding of student thinking (Steffe & Wiegel, 1996). They ask questions to facilitate a student's problem-solving or press for greater understanding, and at times provide conceptually rich explanations (Chapin et al., 2013).

Discerning when and how to explain mathematics to students is an important part of teaching and academic care. On the one hand, explaining how to solve a problem before a student has had the time and attention to try it can reduce the cognitive demand of a task and thereby opportunities to learn mathematics and engage in mathematical practices (Jackson et al., 2013; Wilhelm, 2014). Students do sometimes need teachers to explain, but as is true for tasks, not all explanations are created equal. Conceptual explanations focus students on key mathematical concepts so they understand not just how problems are solved but why mathematical procedures work (Lobato et al., 2005). Explanations that are conceptual and connected to students' prior knowledge preserve students' mathematical agency while advancing their thinking (Lobato et al., 2005), which is consistent with Hackenberg's (2015) concept of the cognitive decentering required for mathematical caring relations.

### **Framework Summary**

In summary, my conceptual framework involves understanding teachers' theories of care and their implications on their pedagogical priorities, choices, and interactions with students. I understand care to be for the benefit of students. I also understand the students as the arbiters of what feels caring to them.

I theorize care along three dimensions that should be understood together: academic, social, and political. I follow Jansen and Bartell (2013) in defining the academic dimension to involve the

“technical aspects of teaching and learning” (p. 34). I define the social dimension of care as involving both the teacher-student relationship and teachers’ actions to facilitate students’ social connection with each other as they build community. I define the political dimension to include teacher criticality of the inequities of schooling and their role in them, teachers’ ethical use of institutional authority, and political clarity – conversations wherein teachers and students talk about race.

In investigating understandings of care, I analyzed how teachers’ theories of social care were informed by their own schooling narratives and shaped their facilitation of groupwork and student collaboration. I analyzed how teachers’ understandings of academic care were informed by their own schooling experiences and shaped how they set up tasks and supported students in enacting tasks while they engage in mathematical discourse. Finally, and crucially, I sought to understand all of the forgoing within the political context of two white teachers teaching racially diverse classes. As such, I analyzed how these teachers understood the political dimension of teaching and their care for students of color, and I sought to understand how their political care influenced their academic and social care. Importantly, I also analyzed student understandings of teacher care along the academic, social, and political dimensions.

## Chapter 3 - Methods

To investigate teacher and student understandings of care and how they influence instruction, I designed a six-month qualitative study at Seaview high school, a racially diverse suburban public school. I studied teacher care in two racially diverse Algebra 1 classes, co-taught by white teachers. Through a combination of interviews and participation and observations of classes from the first day of school in September through February break, I learned how students and teachers understood care and how their understandings influenced their pedagogical choices and priorities. Specifically, I investigated the following research questions:

1. How do white teachers of secondary mathematics conceptualize care for racially diverse students academically, social, and politically, and how is their understanding linked to their narratives about mathematics, teaching, and equity?
2. How do white teachers' understandings of care influence their pedagogical priorities and choices?
3. How do racially diverse students understand academic, social, and political care, and how is their understanding linked to their identity narratives and experiences in schooling?
4. And how can we understand the role of political clarity in how white teachers care for students of color?

### Setting

Seaview High School was suburban and racially diverse. In the 2022-2023 school year it served about 1500 students. About 50% of the students identified as white and 50% identified as students of color. The students of color identified as Hispanic/Latino, Asian, Multi-racial, or Black/African American (See Table 1). The school's demographics had shifted over the course of the prior decade from a school that had primarily white students to a more diverse student body.

For the past several years, the mathematics teachers, most of them white, participated at least quarterly in equity-oriented professional development. These sessions included discussions of implicit bias and white privilege, conversations about access to learning opportunities and resources, and discussions of classroom policies related to grading.

**Table 1 - Student Racial Breakdown as Provided by Seaview School District**

<b>How Students are Identified by the School District<sup>3</sup></b>	<b>Percent of Seaview Student Population</b>
White	49%
Hispanic/Latino	15%
Asian	12%
Multi-Racial	12%
Black/African-American	10%
Native American	1%
Hawaiian/Pacific Islander	1%

I selected Seaview largely because of my experience observing mathematics classes as an instructional coach in a teacher education program. In 2020, one of the candidates I coached was placed with two mentor teachers, Ms. Fisher and Ms. Royce. I saw these teachers co-planning, co-teaching, and reflecting on lessons together as they set up tasks for students and supported their collaborative exploration. I also saw them engaging in discussions of equity in their teacher teams and department meetings and talking about equity as they made classroom policy decisions. Ms. Fisher's and Ms. Royce's emphasis on groupwork and student collaboration, their use of a problem-based curriculum, and the prevalence of equity professional development at Seaview made their Algebra 1 classes a fitting context for understanding social, academic, and political care. In addition, Ms. Fisher and I had engaged in a previous research study of how teachers' dispositions towards care shifted during COVID online learning (Nucci, 2021, 2022).

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<sup>3</sup> Racial identifiers in this chapter follow the convention of the district on student intake forms.

The mathematics department used the College Preparatory Mathematics (CPM) curriculum, which was organized around sequences of cognitively demanding tasks and collaborative exploration. CPM was designed on three pillars: collaborative learning, problem-based learning, and “mixed space practice.”<sup>4</sup> The collaborative learning principle was that students learn more when they are involved in mathematical discourse. As such, many tasks in CPM were designed around teams of students making sense of complex problems. The problem-based learning principle was that students will be able to transfer their understanding of mathematics to other contexts when they learn mathematics in context. Mixed space practice involved students revisiting prior material for months as they learn new concepts and procedures. For each unit, CPM provided sequences of lessons with high cognitive demand tasks centered on a set of unit concepts and some decontextualized algebraic problems meant to help students develop procedural fluency.

The students in the classes I observed were primarily from Mills Middle School. In the 2021-2022 school year Mills put all eighth-grade mathematics students into Algebra 1, but they did not incorporate groupwork as a central pedagogical feature. Mills eighth-grade teachers made recommendations as to which of their students should be placed in a regular Algebra 1 class with one teacher at Seaview, and which students were “struggling” – students who should be placed in a class with two teachers. Ms. Fisher described their students as those who wanted to succeed in school and in mathematics but “struggle.” The students in the study did not receive special education services nor were they identified as emergent multilingual students at the time of the study.

The two Algebra 1 classes I observed had a total of 60 students, 46 of whom agreed to be in the study with parental consent. Ms. Fisher and Ms. Royce co-planned and co-taught both classes,

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<sup>4</sup> <https://cpm.org/why-choose-cpm/>

but always to Period A before Period B. Most of Period A's students were students of color. 19% identified as Asian and either Chinese or Filipino. 16% identified as Black/African American, most of those identifying as Ethiopian. 10% of students identified as Hispanic/Latinx, and 13% as multiracial. 42% of Period A students were white. In period B, most students (55%) were white. 21% identified as Hispanic/Latino, most identifying as Chicano. 10% identified as Black/African American. 7% identified as Asian and 7% as multiracial (See Table 2).

**Table 2 - Students' Racial Identifiers for Periods A and B**

<b>Seaview's Racial Identifiers</b>	<b>% of Period A Students</b>	<b>% of Period B Students</b>
White	42%	55%
Asian	19%	7%
Hispanic/Latino	10%	21%
Multi-racial	13%	7%
Black/African American	16%	10%

## **Participants**

### **Teachers**

Ms. Fisher and Ms. Royce were white female teachers who had been coteaching for six years, and both had only taught at Seaview. Ms. Fisher was one of the mathematics department chairs and had been teaching mathematics for seven years. Ms. Royce, who was a mathematics and engineering teacher, had taught for sixteen years. During the year of this study, Ms. Fisher also had a student teacher, Ms. Vincent, who occasionally led whole-class instruction and regularly conferred with students on their mathematical work. She took part in many of the post-class debrief sessions, but I did not interview her for the purposes of this study.

### **Focal Students**

The students I interviewed were racially and ethnically diverse. Four of the students were white. Four were Black/African American. Two identified as multiracial, and I interviewed one

student who identified as Asian and another who identified as Latina. Some of these students had an ethnic identifier on their student intake forms. For others, I learned how they identified ethnically during the interview (See Table 3).

**Table 3 – Interviewed Students with Class Period, Race, and Ethnicity**

<u>Student</u>	<u>Period</u>	<u>Racial Identifier</u>	<u>Ethnic Identifier (if provided*)</u>
Annalee	B	Black/African American	African American
Baelee	B	White	
Bonnie	B	White	
Byron	A	White	
Chanelle	A	Multiracial	Latina and African American
Fiona	A	White	
Heleri	A	Black/African American	Ethiopian*
Kofi	A	Black/African American	Ethiopian*
Lizette	A	Latina	Mexican and Guatemalan*
Neberu	A	Black/African American	Ethiopian*
Russell	A	Asian	Filipino
Sheila	A	Multiracial	Chinese and Hispanic

(\*ethnic identifiers were learned during the interview.)

In mid-September, I extended a general invitation in each class for students to come for an interview during their advisory period, which was each day for 35 minutes. From those whole-class invitations, only Bonnie, Byron, Fiona, and Lizette approached me to accept the invitation. I invited the remaining eight students listed in Table 3 individually through the course of the first semester as I developed relationships with them through assisting them with their mathematical learning.

### **Researcher**

I was a participant-observer in this study. I attended class each day. I kept jottings about task launches, class discussions, teacher-student interactions, and student engagement, but I also participated in teaching and learning. I participated with teachers by relaying what I was seeing from students and asking probing questions to support their planning. I participated with students by

helping them with their mathematical work. Given the critical nature of my inquiry into how white teachers care for students of color, I was aware of my own positionality as an experienced, white, male mathematics teacher.

Ms. Fisher and Ms. Royce regularly positioned me as a more knowledgeable other for a few reasons. One is that I had more classroom experience than they did in a wider array of mathematics classes and at more schools. I was also understood as a teacher educator and as a doctoral researcher. Ms. Fisher and Ms. Royce often asked me for input on their planning, teaching, and classroom structures, which indicated that they thought of me as a more experienced colleague who could act as a coach. As I will discuss in more detail in Chapter 4, they had limited experience discussing race before their teacher preparation programs. Because they knew I was an instructor in a teacher preparation program, they also seemed to look to me as a more experienced other with regard to discussing race.

The divide between the students and me was even more pronounced because I helped them with their mathematics as a teacher would. They saw me as a teacher but without the institutional authority of Ms. Fisher and Ms. Royce. I did not grade them, discuss their behavior with them, or administer any Seaview-sanctioned consequences for actions they took. Rather, I acted as a helpful in-class tutor. The relationships I formed with students were important for recruiting interviewees and for the sense of comfort necessary for students to speak with me frankly. I relied on our relationship when I asked some students of color for second interviews specifically to discuss their understanding of race in schooling and political care with white teachers.

Sociopolitically, I had other positionality considerations. I am white and male. Both of these frames of reference required careful research design. I sought a deep understanding of how students of color thought about teacher care with white teachers, but I was uncertain how students of color would feel discussing race with me. As I describe in the Data Sources section below, I crafted the

inquiry into political care with sensitivity to the potential vulnerability and discomfort such a discussion might have engendered for students of color.

I had to account for my positionality in analysis too. Before being a researcher, I was a classroom teacher for 18 years. I am familiar with the classroom environment, but that has constraints and affordances. My familiarity with the classroom environment can contribute to many assumptions, and it allows for deeper and more nuanced conversation with classroom participants (Lyle, 2003). This impacted not only what evidence sources I collected but how I analyzed it including what I attended to. I was raised in white, male, capitalist, and individualist ways of knowing and relating. It informs how I make sense of the world, including the classroom environment and interview data in ways I may not recognize (Milner, 2007). Therefore, a key focus in my interviews was to repeat back statements to teachers and students to put them in the position of verifying or modifying my understanding. I also have submitted my analysis in whole and in part for review by a diverse group of mathematics education research colleagues.

### **Data Sources**

The data sources for this study involved field notes from classroom observations and my participation in formal planning and informal planning meetings; artifacts such as teacher planning documents, anchor charts, and instructional resources; and transcripts of teacher and student interviews conducted from August of 2022 to February of 2023. I conducted my first interview with teachers before the start of the school year in August. I then interviewed them three more times at the beginning of the school year and twice between Winter Break and February Break. I attended and observed class on a daily basis from the first week in September through February Break. In an ordinary week, that included two to four 100-minute classes and two 35 minute classes. I also interviewed twelve students from November through February Break. Figure 3 shows how many minutes and hours are attributable to each data source over the course of my time at Seaview.

**Figure 3 - Timeline of Data Generation**

	August				September				October				November				December				January				February				Total Minutes	Total Hours
Week ->	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4		
Minutes of Classroom Observations					270	380	170	400	210	270	370	170	182	190	297	100	300	370	370	370	370	370	200	270	400	370	370		6399	106.7
Minutes of Meetings with Teachers					88	86	80	73	19	45	75	65	15	73	57	33	51	27	151	22	35	5	54	0	0	0	0		1054	17.6
Minutes of Teacher Interviews				102		62		60				60									56					51			391	6.5
Minutes of Student Interviews													59	26	53	36		50			55		24		46	40			389	6.5

### Classroom Observations, Artifacts, and Informal Meetings

I attended both Period A and Period B at Seaview regularly from September through February. The classes met three times each week – twice for 100 minutes and once for 35 minutes. The 100-minute classes typically started with 15-20 minutes of warm-up with procedural problems from material covered during the previous class period. After a brief teacher launch, about an hour of class was devoted to delving into new material by giving problems to the table groups that they were meant to solve together and discuss as teachers circulated. The last twenty minutes of class were devoted to independent practice. Ms. Fisher and Ms. Royce had decided to provide independent practice time to students in lieu of homework.

I attended 110 classes and over 100 hours of class time from the first day of school until February Break. I audio recorded the teachers each day with lapel microphones to capture their whole class instruction, their conferrals with each other and their interactions with students. During class, I kept jottings to record that which could not be recorded by audio (Emerson et al., 1995) such as the general energy level of students, the affect of the teachers, or how students were collaborating and engaging with mathematical work. After class, I used my jottings as fodder for ethnographic field notes to describe how teachers set up tasks, how they interacted with students, and how students interacted with each other. I also collected some artifacts of class such as the teachers' lesson plans and materials and photos of board visuals.

Each day after class, I recorded our class debrief. These informal conversations could be anywhere from 5 to 30 minutes long and involved Ms. Fisher, Ms. Royce, and I talking about how

the lesson went. They drove the agenda of these informal talks often discussing specific students or the energy of the class as a whole. I did not ask pre-written questions during these times but did ask follow-up questions as they discussed what type of affect, engagement, and thinking they saw from students. After class on Mondays, Ms. Fisher and Ms. Royce met with a third algebra teacher, who was not in this study, to discuss the upcoming week's Algebra 1 planning. I did not record these sessions but included my observations of Ms. Fisher's and Ms. Royce's participation in these meetings in my jottings and fieldnotes for the day.

### **Teacher Interviews**

I conducted five semi-structured interviews (Bhattacharya, 2017) with Ms. Fisher and Ms. Royce. The first four interviews were each two weeks apart at the start of the school year (See Figure 3). I focused these first four on the teachers' understandings of caring teaching before the bulk of my classroom observations. Although we discussed their understandings of whiteness and equity at Seaview in the fourth interview, we delved deeper into those topics in a fifth interview in January.

The first interview was 100 minutes long and took place before the school year at the teachers' request. They had wanted my assistance brainstorming how to set up and support groupwork in their Algebra 1 classes. During this process, I asked questions about their understanding of care for their students' social well-being. I asked why the collaborative work was centered in their pedagogy and what their goals were in structuring it. I asked for their rationale for the groupwork norms, roles, and feedback processes they were proposing.

The second interview was an hour long and took place two weeks after the start of school. It was focused on contextualizing the teachers' theories of care. I asked about their own experience learning mathematics. I asked them to describe their journey into the teaching profession and to discuss their current trajectory of professional learning. I also asked the teachers to describe what mathematics is. To evoke their theories of academic care, I asked them to describe what a successful

student looks like and a successful class. I also asked them to describe their expectations of the incoming ninth graders about whom, at this point, they knew little.

The third interview was an hour long and took place at the end of September. I began this interview with a reflection on classroom practices during the first week of school. During the first interview, teachers had discussed both their planning for collaborative problem solving and caring for the social well-being of their students. They had also discussed equity-oriented policies, which I describe more fully in the Findings chapters below. In the first half of this interview, I asked the teachers to comment on the enactment of their planned policies and the evolving classroom social norms. In the second half of this interview, I asked the teachers to comment on students with whom they found it easier and more difficult to build caring relationships. This was a valuable source of data as teachers discussed the specifics of caring for individual students. I also asked teachers to describe their understanding of academic care, by first clarifying caring-about versus caring-for and then asking, “What does it mean to care for students as mathematical learners?” I followed this question by asking what actions the teachers would need to take to make that care happen. To explore their understanding of what student learning should result from their care, I asked each teacher to say what would constitute evidence of students’ conceptual understanding of the concepts of the opening Algebra 1 unit on evaluating expressions.

The fourth interview was also an hour long and took place three weeks later in the middle of October. During this interview, I sought to contextualize previous teacher statements about students by asking them what they understood about the communities they served. It was here that they discussed their understanding of how and why Seaview had grown more diverse over the past decade. They also discussed the resultant equity-oriented professional development at Seaview, and I asked questions about how they were thinking of caring for students of color to unearth their notions of the political dimension of care. At this time, I also introduced the EQUIP tool (Reinholz

& Shah, 2018) for tracking equity of participation in mathematics class. During my observations, I tracked participation with whole-class instruction along racial and gender social markers and by discourse dimensions such as whether the teachers were asking *what*, *how*, or *why* questions of students. Although a detailed analysis of this data set is not central to this study, the data did provide fodder for discussion in our fifth interview in January.

The fifth interview was an hour long and was focused on teachers' understanding of race and equity. After diving into the EQUIP data and a discussion of the racialized and gendered participation in whole-class discussions, I asked questions about the teachers' understanding of race. They responded with autobiographical accounts of their own history with race in their schooling, in their teacher education programs, and at Seaview. They discussed their discomfort with talking about race and their appreciation for the equity-oriented professional development at Seaview. They lauded the work of the Diversity, Equity, and Inclusion team at Seaview and credited them with providing equity-oriented classroom policies that the teachers expressed enthusiasm for enacting. We also discussed their understanding of white normativity at Seaview, and the teachers described their understanding of implicit bias, internalized oppression, and an understanding that many of their students of color would feel uncomfortable at Seaview. This conversation was a rich dataset from which to understand the teachers' narratives of the political dimension of care for their students.

### **Student Interviews**

I interviewed twelve students (See Table 3) to understand their narratives of schooling and of teacher care. Each interview lasted between 20 and 40 minutes. I began each interview by asking students to describe their relationship with mathematics. This led them to articulate their history with mathematical learning. I also asked them to discuss what role they saw mathematics playing in their futures to understand their goals and contextualize their descriptions of academic care. I then

asked them to tell me stories about teachers who they believed did and did not care for them to understand what teacher actions they found caring and what teacher actions felt uncaring. As they told their tales of teachers, I asked how they knew a given teacher cared for them and what teacher actions they pointed to as evidence. I also explained my job as a teacher educator and posed the hypothetical scenario of them being an expert I could bring into my methods courses. I asked them what advice they would give to new teachers on how to care for their students.

I did not ask students to comment specifically on whether they found Ms. Fisher or Ms. Royce caring because my position as a participant-observer led many students to regard me as another teacher in the room. Although I explained to all students the confidentiality of their responses and that neither their participation nor their responses would in any way impact their grade in mathematics class, I was still wary of putting students in the position of feeling they had to provide an evaluative statement of their teachers. I doubted they would feel the freedom to be honest with such a direct prompt.

At the end of the interview, I asked each student about their concerns with entering the social milieu of high school as ninth graders to contextualize statements about how teachers can care for their social well-being. I asked them to describe their experience in groupwork in mathematics class including what their best and worst groups had been and why. These questions opened up avenues for their stories of social learning that helped me theorize how they were thinking of the social dimension of care.

Interview questions around political care were fraught. I am a white, male researcher who was seen and treated by students as a teacher in their classroom. As mentioned, I positioned myself as a teacher on purpose because helping students with their mathematics was a way for me to develop relationships with them through which we could engage in honest and deep conversation. If a student of color brought up race in the interview of their own accord, I probed for clarification. I

then took the opportunity to tell them my supposition that most of their mathematics teachers had probably been white, which all students affirmed. I then asked them about teachers of color they had had and how their relationship with them differed from those they had with white teachers.

To gain deeper insight into how students of color thought about the political dimension of teacher care, and especially political clarity with white teachers, required a more in-depth interview. Cognizant of my positionality and the possibility that discussing race and schooling may be difficult for students, I designed a second set of interviews with two focal students Lizette, a Latina, and Neberu, a Black boy of Ethiopian heritage. Over the course of the semester, both students seemed to be comfortable with me in class. Both students also discussed race in class with friends. For example, Neberu and Kofi discussed one day who counted as Black. When I understood their willingness to discuss race, I asked both for a second interview in February specifically to discuss race in schooling, and both agreed to the second interview<sup>5</sup>.

My second interviews with Lizette and Neberu were 40 minutes long. I began each with an open question about how they saw race playing out in schooling. This open question started their storytelling about their experience of race and racism in their education. As they told stories, I picked up on words to ask follow-up questions. For example, Neberu started talking about bias, and so I asked him what he understood bias to be. Lizette used the term “whitewashing.” So, I asked her to tell me what she meant by that term. As the students’ narratives of race in schooling unfolded, I also asked questions specifically about the teachers of color they had had and their relationships with them. I asked about the role of political clarity in those relationships by asking how those teachers

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<sup>5</sup> There were two other students who could be described the same way – as students of color who had discussed race in class and with whom I felt I had formed a supportive relationship that would be the foundation of an in-depth interview. Both students sought me out to have an interview after my general whole-class invitation. However, neither students’ parents granted consent for an interview.

talked with them about race and racism. I then asked each if they had had or could imagine having similar politically clear conversations with white teachers and why or why not.

### **Analysis**

Analysis proceeded through multiple phases to describe how teachers and students understood social, academic, and political care, and how teachers' theories of care were enacted in class through their pedagogy. I then connected participants' understandings of care to their own narratives of schooling. Below, I detail each of the phases of analysis this required.

#### **Phase 1 – Analysis of Student Understandings of Care**

I began analysis with student understandings of care because it is the cared-for who are the arbiters of what actions are caring (Noddings, 1984). I began with rounds of open coding and emergent theme analysis of student interview transcripts to describe student understandings of care. I then categorized those themes along social, academic, and political dimensions. For example, I categorized student descriptions of their feelings of warmth with caring teachers or teachers' efforts to care for their social connection with other students as *social care*. I categorized students' descriptions of how caring teachers supported their learning as *academic care*. I categorized students' statements related to classroom discipline, how teachers use their institutional authority, or any statements about race in schooling as *political care*. Consistent with my conceptual framework of dimensions of care, some codes fell into multiple categories. For example, when students discussed groupwork, these statements reflected both academic care and social care. The political care category was applicable to most of the transcripts of the second interviews with Neberu and Lizette. For those interviews I also differentiated between statements they made about white teachers and those they made about teachers of color. I also searched all student interview transcripts for specific statements students made about Ms. Fisher's and Ms. Royce's efforts to care for them to describe the extent some students thought their efforts were caring and why.

I also sought to contextualize students' understanding of care. Themes arose in student interview transcripts about students' feelings entering the social milieu of high school, their appreciation of groupwork in class, and their descriptions of their own social distraction that contextualized how they wanted teachers to care for their social well-being. Themes also arose around students' mathematical histories and goals that contextualized their understandings of academic care, and students narrated prior injustices with teacher abuses of power, some of which were narrated as racism by students of color. These narratives served to contextualize how students thought caring teachers should properly use their authority in the classroom.

### **Phase 2 – Analysis of Teacher Understandings of Care**

The data I analyzed regarding the teachers' understanding of care included the transcripts of the five interviews. I also identified some of our informal after-class meetings for analysis by reading through all my field notes and pinpointing relevant conversations. I analyzed the data first by engaging in open coding (Bhattacharya, 2017). I broke the text into turns of talk wherein each teacher responded to one of my questions. I then used open codes to describe their statements sometimes using *in vivo* codes. For example, when I asked the teachers a direct question about what it meant to care for their students as a mathematics teacher, this one turn of Ms. Fisher's acquired the codes "asking questions," "concern for student comfort," "safety," and "smiling:"

I was thinking like, if I if my student feels safe in the classroom, in terms of, they feel safe with me, they feel safe being in this space, and they feel safe to like, ask me or their group a question. And it just if we care for them if we have developed a space where they feel good, and they feel like they can be in this space and make mistakes and still leave with a smile.

After open coding, I grouped codes by emergent themes (Merriam & Tisdell, 2016). For example, in the above section, I grouped “concern for student comfort,” “safety,” and “smiling” together into a theme entitled *the import of student comfort*.

I then related the themes to the concepts of social, academic, and political care. For example, the import of student comfort was related to both social and academic care. In general, the social care category included themes related to how the teachers interacted with students and attended to students’ social connectedness in class. The academic care category included their descriptions of caring for student learning and success. The political care category included statements about how they used their institutional authority, the actions they espoused to work for equity at Seaview, and their willingness to talk with students about race and racism.

I also analyzed the teachers’ narratives of schooling to contextualize their understandings of care. I followed a similar process of first open-coding and thematizing their statements, and then I related them to their statements about care. For example, both teachers discussed the ways they felt valuable as a teacher and visions of student success that undergirded their understanding of academic care. It became clear that social learning was central to their own mathematical learning narratives and also undergirded their understanding of social care. To contextualize their understandings of political care, I analyzed their statements about their own experiences with race in school and with discussions of race and equity in their teacher education programs and the professional development at Seaview. I also analyzed statements they made about how whiteness functions at Seaview and accumulated the codes into themes. I then related the themes that described their understandings of care to the themes from their personal narratives to describe not just how they understood care but their personal context for that understanding.

### **Phase 3 – Analysis of Teachers’ Efforts to Care in Class**

Next, I analyzed how the teachers’ understandings of social, academic, and political care were enacted in the classroom. In this phase, I analyzed transcripts from teacher interviews and informal meetings, my field notes from class observations, and transcripts from recordings of class. I began with social care because collaborative problem solving was such a central feature to mathematics teaching at Seaview. For social care, I looked to how the teachers managed collaborative problem solving. I analyzed the policies that they initiated, especially the norms for groupwork, the roles for student participation, the feedback structures they provided for students, and the way they constructed groups for groupwork. I found parallels between each of these structures and articulations of social care from Phase 2 of the analysis to connect the teachers’ social care theory to their classroom practice.

To understand the teachers’ enactment of academic care, I analyzed how teachers set up and supported mathematical tasks. For task set-up, I reviewed the written curriculum in the College Preparatory Mathematics (CPM) textbook and the teachers’ lesson plans to consider their intended curriculum (Remillard, 2005). Primarily, the teachers followed the CPM curriculum closely. However, there was a significant point of departure. They inserted a unit in the curriculum and each designed tasks for that unit for which there were no resources. This provided an opportunity to see how each thought about setting up and supporting mathematical tasks and how their choices connected to their theories of academic care, which I explain more fully in Chapter 6.

To understand how the teachers’ theories of care informed their task support with students, I analyzed audio recorded interactions from one class in each of the five units in the first semester (See Table 4). I based my class selection on analysis of my field notes and teacher lesson plans to find lessons that followed the usual warm-up, classwork, independent practice class pattern. I did

not analyze classes for which the students were reviewing or taking tests. I also limited my choice to classes for which I had audio of both teachers.

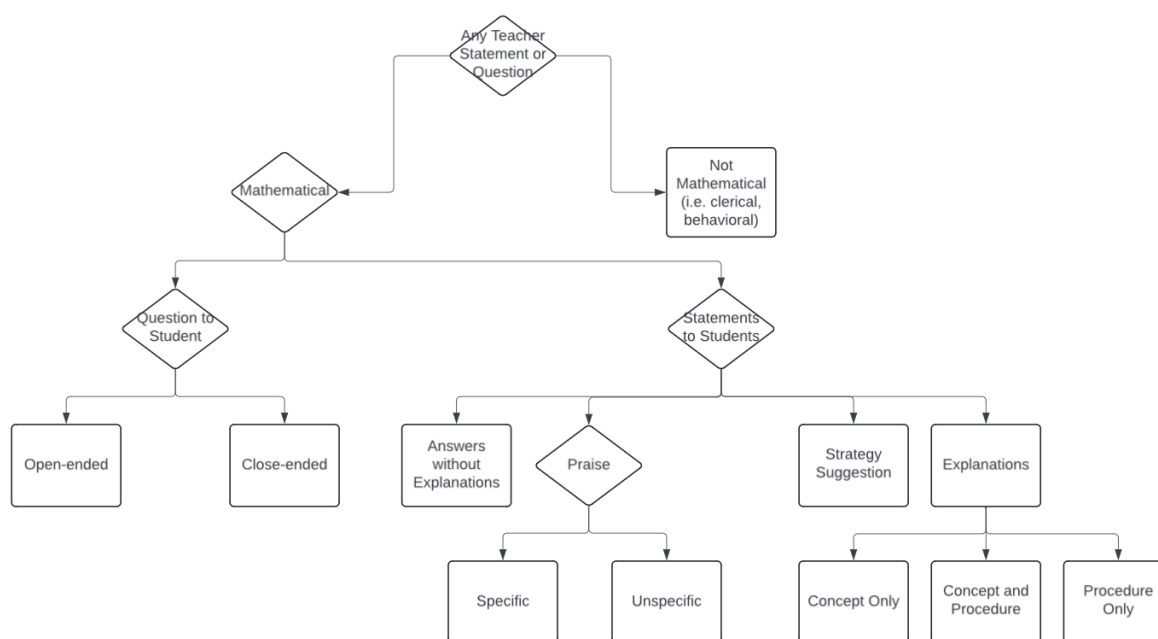
**Table 4 - Quantity of Coded Statements or Questions to Students for Each of Five Lessons**

<u>Unit</u>	<u>Topic</u>	<u># of Ms. Fisher's Statements or Questions Coded</u>	<u># of Ms. Royce's Statements or Questions Coded</u>	<u>Total # of Statements or Questions Coded</u>
Functions	Understanding and Using Function Notation	174	195	369
Linear Functions	Understanding and Finding Domain and Range	221	232	453
Solving One-unknown Equations	Solving one-unknown equations	272	310	582
Slope	Turning Tile Patterns into Linear Expressions	216	225	441
Graphing Linear Functions	Graphing Linear Functions from a Real-world Scenario	207	258	465
<b>Totals</b>		1,090	1,223	2,313

For each class I analyzed, I began with open coding of each teachers' statements and questions to students. I then categorized the 2,313 coded statements or questions based on to the decision tree in Figure 4. Teachers' statements and questions may be mathematical or not. For example, behavioral mediation or clerical discussions about grading or instructions I coded as non-mathematical. For the roughly 60% of interactions that were mathematical, I analyzed how teachers were asking students questions and answering student questions. When teachers asked students

questions, I coded them based on whether they were open-ended like, “Tell me what you are thinking about this?” or close-ended like, “Is that the slope or the y-intercept?” When teachers responded to student questions, I looked for how teachers gave feedback to students. For example, did they give corrective feedback without explanation (Hattie & Timperley, 2007)? Did they praise specific mathematical practices (Selling, 2016) or not? Did they suggest problem solving strategies to help students with mathematical reasoning? When explaining mathematics to students, did they do so conceptually or procedurally or both? As I performed this analysis for 500 minutes of class audio for each teacher, I looked for both quantitative and qualitative patterns in the data, connecting the patterns to the teachers’ theories of academic care.

**Figure 4 - Categorization of Teacher Statements and Questions when Interacting with Students**



A teachers’ conferral with a student typically contained many statements or questions. Here is an example of Ms. Royce discussing the turning tile patterns into linear expressions with a student and codes (*italicized in parenthesis*):

That is such an awesome visual way of saying - I love how you explained that. That's fantastic. (*mathematical, specific feedback*) Okay, let's see if we can combine the methods. (*mathematical, suggesting problem-solving strategy*). So, like, this is a great way to look at it - that is indeed the correct number. (*mathematical, verifying student answers without explanation*) Let's see if we can use the method here that you use to corroborate that number. (*mathematical, suggesting problem-solving strategy*). Okay. Let's, let's really put the food away now. (*non-mathematical, behavior negative*)

To understand the teachers' enactment of political care, I used the class recordings to look for evidence of politically clear conversations with students. I searched my field notes for instances of student talk of race and how teachers took that talk up (or not) in the moment. I also analyzed the enactment of classroom policy. The teachers had espoused certain equity-oriented policies as an element of their political care for students. So, I looked to see how their enactment matched their espousal and where it deviated. For example, and as will be explained more fully later in Chapter 7, the teachers espoused a no-homework policy as an equity-oriented strategy. They did not deviate from this policy in my time with them. On the other hand, they also had contended that they should not grade behaviors as an equity-oriented strategy. This policy they deviated from. The deviation from one policy and not another provided insight into how the teachers were thinking about and acting on political care for their students. Understanding the deviation required analyzing teacher interview transcripts and post-class discussions to understand how they narrated changing or adjusting policy through the semester.

### **Member Check**

To support the trustworthiness of my analysis, I conducted a one hour member check (Merriam & Tisdell, 2009) with Ms. Fisher and Ms. Royce. I explained my preliminary analysis of the data and described how I saw their understandings of care manifesting in the classroom. I also

described how I saw some of their efforts to care shifting over time as they learned about their students in formal and informal ways. I was clear with the teachers about the member checking process from the start and gave them some prompts to use. For example, I told them that they should seek to disagree with analysis they thought was errant, ask me why I had reached certain conclusions, or add their own analysis to supplement my sense making. For example, when discussing social care, I pointed to their use of norms, roles, and feedback structures as enactments of their theory of social care. Ms. Royce added on by saying, “I feel like the one thing missing from that list is seating,” which prompted me to go back through the data set to add an analysis of how the teachers constructed groups for groupwork and its connection to how they thought about social care. Also, Ms. Fisher added that “I wonder how . . . like, we had four people. So, I wonder how that would look different for someone who is one person.” This prompted me to go back through the student data set to see how they talked about the care they could receive with four teachers in the room as opposed to only one.

### **Limitations**

There were three notable limitations to the study design. One limitation was the lack of video recordings of students working in small groups. As I will describe in Chapter 4, much of the teachers’ social care and pedagogy focused on collaborative groupwork. If I had obtained more video footage of students working in small groups, I would have been able to provide a deeper analysis of how students responded to the teachers’ efforts to support their social connection. Such a student response would provide evidence of *caring relations* along the social dimension.

Similarly, student voices are difficult to discern in the audio recordings of instruction. The two lapel microphones recorded the teachers well, but they did not record student statements or responses well. From my field notes, I noticed that students tended to be louder with each other when socializing about non-mathematical tasks but would ask mathematical questions quietly. This

and technological limitations of the microphones meant that I did not get many instances of student voice on audio during class. That limited my analysis of teachers' conferrals to the questions and statements teachers were making without equal treatment to the questions and statements of students.

As stated, I was a participant-observer and intentionally assumed a helping role in the classroom. As such, much of my time was spent interacting with students to help them with their mathematical learning. This had constraints and affordances. An affordance was the ability to understand how students understood the material and the tasks they attempted. This contextualized my understanding of teachers' responses to students about mathematics. A constraint to the role was that I was very seldom available to observe directly Ms. Fisher's and Ms. Royce's conferrals instead relying on audio recordings as a data source.

A third limitation is my own whiteness. As stated above, my whiteness influences how I understand the world – what questions I ask, what statements I follow up on, and my values as an educator and a researcher. It also influences how people interact with me. I believe the students of color at Seaview would have had different conversations with a researcher of color because of the fictive kinship so well documented in educational research. Future research by scholars of color into how racially diverse secondary students understand care from white teachers could complement this study in important ways.

## Chapter 4 – Teachers’ and Students’ Narratives of Schooling

The purpose of this chapter is to contextualize participants’ understandings of social, academic, and political care that I detail in Chapters 5-7. Theories and enactments of care stem from people’s personal narratives. For example, teachers who narrated overcoming struggles in mathematics through the assistance of others assumed a more empathetic disposition towards care (Matthews, 2020) leading them to understand students in context and attend to students’ emotions during problem solving (Maloney & Matthews, 2020). For the Seaview teachers, I describe their understandings of what mathematics is, what teaching is, and their understanding of race, whiteness, and equity in schooling to contextualize their theories of care. As is made evident in subsequent chapters, these narratives undergirded the participants’ understandings of care.

At the end of this chapter, I also provide some context for student understandings of care. Students are the arbiters of care. They get to decide what teacher actions are caring, and their understandings stem from their narratives, concerns, and goals in schooling. For the students, I provide a glimpse into their identity narratives and social concerns as they started their high school mathematics journeys to contextualize their understandings of teacher care described in later chapters.

### Ms. Fisher

#### Ms. Fisher’s Understanding of What Mathematics Is

The 22-23 school year was Ms. Fisher’s seventh year teaching Algebra 1 and upper-level mathematics courses. She valued her own mathematics schooling for its contribution to her social connection and identity development. She described herself as a quiet student who had a difficult time making friends, but then she said, “In high school, I definitely made friends with a group that was all very brainy like me. You’re like, nerdy, and so that was great.” It became clear that when Ms. Fisher had thought of herself as “brainy” or “nerdy,” she gave mathematics pride of place. For

example, when discussing her eventual need to retake some mathematics courses in college, I asked her why she persisted through the struggles, and she said, “I had to take math because . . . I was the smart kid who needed to do some sort of STEM field to make any money and to like, so people would see me as a smart person.”

Ms. Fisher said she “felt a lot of shame” about having to retake college courses saying, [Retaking courses] was extremely hard for me too because I – in my brain, I was always like, “I am a smart kid,” but then as soon as any of those like, things happen, all of a sudden, I'm like, “Oh, I'm not a smart kid, I can't do this.” And so, I retook [the course], and it was always just like, in the back of your brain.

Ms. Fisher also lacked confidence in her mathematical understanding. She said, “I always had low confidence in math I think,” and she connected that low confidence with being tested. She said she had “a lot of like the test anxiety when it comes to like the standardized tests. And so like, when it came to my, my WestB<sup>6</sup> test, I super panicked. Had to take it three times because I just couldn't!” This test anxiety was not limited to formal standardized testing either. Here Ms. Fisher described being “tested” by some students during her first year of teaching and how it stoked some insecurities:

My first year teaching, I had, like, one or two boys in my class, who kept like testing my math knowledge, and I would always like do fine, but I'm like, this is coming back to me - those memories of like, testing my math knowledge of like, “Am I good enough for this?” And now I feel good. I'm like, I can do this. I'm fine. But it's always in the back of my brain. I'm like, “Can I do this? Am I okay?”

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<sup>6</sup> WestB was a state, standardized, mathematics content test secondary teachers had to take for licensure.

Given Ms. Fisher's struggles in college and on mathematics tests, and her association of success in mathematics with being a "smart kid," it is perhaps unsurprising that when I asked her to define *mathematics*, she defined it with an emotional metaphor:

Mathematics, for me is- was kind of a gray cloud. And now that it's connected to teaching, and I feel good about my career as a teacher, I think it is a happy cloud. But I can see why the kids have a grey cloud still. Because for me in college- In like high school, I just kind of was fine. It was, you know, a white kind of puffy cloud. But college, it was definitely a gray cloud.

Ms. Fisher here showed how she was thinking of mathematics as primarily an emotional experience that can bring happiness (happy cloud), struggle and doubt (gray cloud), or experiences that feel "fine" in the middle (white puffy cloud).

Ms. Fisher reported greater success in her mathematical education with procedures than concepts. She said that she got an A in her Calculus class, which was in a lecture format, by just writing down what the teacher wrote, studying, and passing high school tests, even though she "didn't understand any of it." She reported mathematical concepts as more difficult for her. When describing her college coursework, she said, "I hated the ones though that were theoretical math. Like my brain just could not process it, like the proofs and all that stuff." When I asked Ms. Fisher what she would look for in student work to see that they understood the mathematical concepts, she said, "If I ask a kid to show me like, okay, let's practice this problem now, but I'll be here to like support you, I want them to verbalize as they write. And if they're able to verbalize . . ." When Ms. Fisher said "verbalize as they write," she was referring to students' narration of their procedure for solving a mathematical problem. This shows how she prioritized procedures in students' mathematical learning.

In summary, Ms. Fisher described mathematics primarily in emotional terms, tying it to her identity development, social connection, and career aspirations. She narrated self-doubt in the subject because she had experienced test anxiety and the need to retake college coursework, and she told of difficulty with theoretical mathematics narrating a value for mathematical procedures.

### **Ms. Fisher's Understanding of Teaching**

Ms. Fisher said, "I love my job." She enjoyed teaching and working in schools. She got her start in teaching by coaching high schoolers through financial aid and college applications processes. She described how she worked in an area high school, talked about how she really enjoyed "helping kids," and described how it made her feel seen and heard in a new way:

It was the first time that I kind of was the leader of [a] group. And I had never been the leader and like, had a strong voice. Like, my whole life, I was quiet. And then all of a sudden, when I was at the front of the room and helping the kids, I was like, "Hey, I feel really good!" Like directing this group. And I finally feel like I have a voice. And I also can, like, help individual students and answer questions and help those students feel good about what they're doing.

Here, Ms. Fisher described how teaching allowed her to "have a voice" in a new way and that she felt good about helping students, but specifically about helping students by "directing" and "answering questions" to "feel good" about what they are doing.

Teaching was more important to Ms. Fisher than mathematics. In fact, when I asked her why she persevered through her struggles in college mathematics, she said it was because she wanted to teach. She described her thought process at the time, "I want to do teaching. Okay, what do I want to teach? Oh, I'll keep taking math classes. I think I like math well enough to teach math. Like, it wasn't always like, 'Oh, my God, I love math.'" Later she said, "I don't know, I like, don't even

really think about the math part when I like, think about teaching, because the math is just kind of there.”

In summary, Ms. Fisher wanted to be a teacher prior to wanting to study mathematics. She loved teaching and felt that in the teaching role, her voice could be heard in a new way, but that mathematics was not central to her vocation. It was “just kind of there.” Ms. Fisher narrated teaching as a role wherein she could be helpful by directing and explaining to help students feel good about themselves.

### **Ms. Fisher’s Understanding of Race, Whiteness, and Equity**

Ms. Fisher grew up in a majority white town with racial divides between children of Latine migrant workers and children of white farmers. When I asked her about how she understood her engagement in equity work at Seaview, Ms. Fisher started her answer by describing her upbringing in in “Trump country,” and said,

We had majority white, and then we had Latino - a lot of field workers. And so we had like, the Latino kids and the Future Farmers of America kids . . . So, it was a lot of white versus Latino in high school, which sucked. And I don't remember ever talking about race in school ever until I got to [my teacher education program].

Ms. Fisher narrated social justice as being important, but she somewhat separated it from teaching. She described her teacher education program as “a lot of like social justice history,” which was “really important stuff and really good, but I want to get in the classroom and know how to like, teach this or do that.” Ms. Fisher narrated teaching as delivering content by “teaching this” or technique by “doing that,” whereas social justice was a matter of “history” and somehow separate from the work of teaching.

Perhaps due to her limited experience discussing race, Ms. Fisher said she was uncomfortable talking about race and was worried about saying “the wrong thing” during the race

and equity professional development meetings at Seaview. Here is how she talked about that discomfort:

There's lots of like, invitations to the race and equity team and all kinds of like cool opportunities, and I always think, I don't think I have anything to contribute. And so, I always shy away from the, like, the race and equity talks. I do get, like anxious about them beforehand . . . We just had one on Wednesday, and I just like felt anxiety about going through it and didn't want to go, and then it turned out great, and we had great discussions, but every time I'm like, I'm not gonna have anything to say or I'm gonna say something stupid, or? Yeah.

Here Ms. Fisher narrated that her key understanding about how she should participate in equity meetings at Seaview was to have something to say and to say “the right thing.” This understanding of their equity professional development days left her feeling nervous and wanting to avoid the meetings, but she went anyway and ended up having a good experience.

I could see Ms. Fisher’s discomfort in many of our conversations about race. She seemed hesitant to say words like *Black*, *race*, *racism*, or even *students of color*. For just one example of several, here is how she described the demographics of Seaview, “I forget what the like actual percentage, isn't it like 50%? Or like, last couple years? It was 50% white, 50% - . But it might be higher now?” Ms. Fisher said the word *white* but did not finish the sentence by identifying the 50% of Seaview students as students of color. Regularly, when I would bring up equity with Ms. Fisher, she tended to focus more on gender equity than racial equity. For example, when she was talking about racial caucusing in her teacher education program, she mentioned that there were only two Black teacher candidates, and then said,

We still had very majority white and so even though we were talking about race and equity, it still felt underrepresented and – I don't know, I do remember like we had like . . . a male and

female group. I remember like being able to talk and that was actually very powerful, being able to just sit in a group of females and, and talk about experiences and a lot of crying, you know, like, just like, it was very powerful.

We had not been discussing gender in this conversation but race in her teacher education program when Ms. Fisher switched to discussing gender. This pattern continued throughout our time together. When I would bring up equity of participation, for example, she would talk about gender balance as opposed to racial patterns.

Ms. Fisher also understood race as tied closely to socioeconomic class. When I asked her about the communities of color that Seaview served and how she learned about those communities, she said,

Seaview, I think, used to be more of a, like, suburbs, or just like white families were leaving the [adjacent] City and moving north . . . Alicia [the previous principal] said something like . . . Seaview is no longer really building houses; they're building more apartments now . . . Less houses, more apartments is kind of what I always think of.

Again, Ms. Fisher does not say *black* or *people of color* only *white*, and the previous principal Alicia Martinez's perspective of conflating race and class really stuck with her as she "always thinks" of "less houses, more apartments." She often considered race and class together like this example in our conversations.

Ms. Fisher narrated an understanding of white normativity at Seaview and coming to new understandings in Seaview's equity professional development about how that white normativity impacted her students of color. For example, she described how she had worked with Ms. Martinez to rethink admission criteria to the National Honors Society, of which Ms. Fisher was the advisor and whose membership had been overwhelmingly white and female. Ms. Fisher also narrated an

understanding of how white normativity at Seaview contributed to the racialized experiences of students of color by talking about students' discomfort. With strong emotion, she said,

I think a recent [professional development] we did . . . was [about] just like students who've just like, come to school and are just like students of color who come in and just feel automatic, just like, it's not a safe space. [Students feel], "This is not comfortable for me!" Like for me [Ms. Fisher], like school was always like, "I belong here! I feel really comfortable." And then we just like read an article about those students that just feel like constant like, pressure and blanket. And I'm like, "Oh, my God, like . . . Am I doing this to my students?" And it's just hard not being able to change that right away.

Here Ms. Fisher described her learning about the political reality of her students of color. She realized that although she felt comfortable in the white normative space of schooling, students of color may not. She described that as feeling pressurized for them, like being smothered by a blanket, and she felt a new empathy for that discomfort. She also worried about whether she contributed to that experience for her students and showed dismay at not knowing the answer to that question. These feelings made her want to take equity-oriented action right away.

Ms. Fisher found some ways to take action that resonated for her in some of Seaview's quarterly equity professional development, and she had deep respect for the work of Principal Martinez. She wanted ideas that would allow her to address equity concretely in her practice. Of repeated mention was the faculty's book study of *Grading for Equity* (Feldman, 2019). Ms. Fisher said that book study was "the best" professional development, and when I asked her what made it the best, she said,

Because it is explained in a really concrete way. . . A lot of the race and equity work that we do feels like non-closure. And that's just like one of the norms that we come away from race and equity, knowing we're not gonna have closure. But this feels like we have something

concrete that we could do in our classrooms that would feel like we are taking an action.

Yeah. And that felt really powerful. And we were actually like, within, like, a week or two of reading a section. I was like, I'm gonna try this, like, I want to try, like, I'm not gonna give extra credit on this next test. And I was like, done! I feel like I just did something impactful.

Here Ms. Fisher described how having concrete examples of policies she could enact to make her classroom more equitable provided her a course of action, like eliminating extra credit on tests, that would be “impactful” so she could get equity “done.” She narrated this as preferable to the “non-closure” work of discussing equity and white normativity at Seaview that occurred during their professional development sessions.

In summary, Ms. Fisher had experience with racial tension in high school but little experience talking about race before graduate school. She found it easier to discuss gender and class than race. She considered social justice and the work of teaching as separate during her teacher education program, and the Seaview professional development spurred a newfound empathy for students of color who felt uncomfortable immersed in the white norms of Seaview. Ms. Fisher preferred “concrete” processes that she could “do” to take action for equity, and she preferred to work for a sense of closure than have race and equity conversations.

### **Ms. Royce**

#### **Ms. Royce’s Understanding of What Mathematics Is**

The 22-23 school year was Ms. Royce’s sixteenth teaching at Seaview. She had always been one of the Algebra 1 teachers, but that was the only mathematics course she taught. Otherwise, she taught engineering and robotics courses.

Ms. Royce narrated how learning mathematics enabled her to feel valuable because of proficiency she did not experience in other subjects. She says, “Math is the only place that I really felt like, value . . . I really struggled with reading as a young kid . . . and math was like the one place

that I felt like, I can do this.” In high school, Ms. Royce engaged in a year of independent study of mathematics and really enjoyed working on her own. It was at this point in her narrative when she said, “I just loved math . . . I kind of loved like exploring it.”

Ms. Royce did eventually struggle in mathematics – first in high school Calculus and later in college classes. Ms. Royce credited good teaching, working with friends, and learning how to “work harder and work smarter,” for overcoming her struggles in mathematics. By “work[ing] harder and smarter” she meant working to “actually understand the math as opposed to just being able to do the math.” This quote points to how she valued conceptual understanding of mathematics over a solely procedural understanding.

I saw Ms. Royce’s understanding of what it means for mathematics to be conceptual when I asked her how she would know students understood the concepts of their first unit. She said,

I kinda want students to be able to, like, verbally say, “Okay, this function notation is simply a –.” You know, it's naming this equation. They could say “equation” [as opposed to “function”], I wouldn't really care, you know, and “I recognize that an input might go into it and a number comes out that would give me an output.” I kind of like want them to like have that general concept.

When Ms. Royce described evidence of student’s conceptual understanding, she did not insist that students use the proper mathematical terms for their understanding, instead being satisfied with a student saying *equation* instead of *function* despite their mathematical difference. She also did not talk about students narrating their steps of procedures as evidence of their conceptual understanding but rather their articulating their understanding of a *function* by naming functional families and understanding that one *input* should generate only one *output* in a function.

Application and utility were important to Ms. Royce's understanding of mathematics. She did not learn college mathematics to be a teacher but studied mathematics to be an engineer. When I asked the teachers how they defined mathematics, Ms. Royce answered after Ms. Fisher. She said,

I did not think about puffy clouds. I think of math as like this tool that can help you like, organize . . . important parts of your life, not not emotionally important, but like structurally important. Like, I think of math as this tool that allows you to, you know, make the spreadsheet that allows you to track how you're going to retire at 55, as opposed to just being like, I dunno, I'll just put that money in the bank account and see what happens, right? . . . I think of math as . . . simply just an ability to problem-solve, because I don't think – it's not all about the numbers.

Here, Ms. Royce emphasized understanding mathematics as a tool for organizing the world and solving real-world problems that are personally meaningful like financial and engineering problems. In fact, she described loving engineering course she taught because it “encompasses the math and the way I want it to be done.” She said, “I developed the [engineering] classes that really integrate the math skills in a very, like natural way. I rarely teach a math skill in those classes, but they have to use them.”

In summary, Ms. Royce narrated that mathematics helped her feel valuable as a child and that it was hard work with peers that helped her succeed. She also valued understanding mathematical concepts not just procedures and understood mathematics as a way to organize the world and solve real-world problems of personal import.

### **Ms. Royce's Understanding of Teaching**

Ms. Royce started to pursue teaching while she was wrestling with not enjoying working at an engineering firm. She started tutoring students in an after-school program and enjoyed being with the students. She said, “I guess I just really enjoyed working with those students. Like, I was

exhausted from work, but all I wanted to do was like, go over and hang out with these high school kiddos.” She had tutored students for their SATs when she was in college to pay for her education, and she described how she felt valuable in the work:

I think I just felt valuable in being able to kind of like work one-on-one with students and help. Like I could see through those years that like those students’ scores were going up, and they were getting into better schools because of it. And I was like, oh, okay, I can do this like, and so I loved that. So, I think I just hooked up with [the after school] program because it made me feel valuable whereas my job did not make me feel valuable.

When Ms. Royce introduced herself to others, she said she was an engineering teacher not a mathematics teacher even though she had always taught mathematics and taught mathematics before she started the engineering program at Seaview. She said the job of an engineering teacher is to teach people, “to build things and build them properly, build them to scale, build them so they work well.” This is how she narrated her understanding of teaching mathematics:

I think of my job as a math teacher, as, like, trying to build that toolkit that allows people to – yeah – hands on build something that works well, like be a, I don't know, like, a productive person that doesn't need somebody else to build everything for you, or do everything for you in your home. Or like, you know, like, again, it's not about like the exact skills of the classroom but more about that, like, can, like, can I teach students to trust their own problem-solving abilities to solve a problem on their own no matter what that problem is? If it's your faucet breaking, or if it's your finances, or if it's your debt, or it's your whatever, like, can I fix that problem? On my own?

Here, Ms. Royce narrated teaching mathematics as primarily teaching problem-solving for engineering or financial application, not specific mathematical procedures, which she calls “skills of the classroom.” She narrated the cultivation of independence in problem-solving as key to being a

“productive person.” The independence she emphasized here is important to how she thought about teaching. She said, “If I can teach that to students, like recognizing their own value and solving that problem on their own, then I think I've done my job.” Here she linked students learning independence with cultivating their own sense of value perhaps in a similar way to how she narrated feeling “valuable” in teaching and in her own mathematical learning.

In summary, Ms. Royce taught because she enjoyed students and seeing her efforts contribute to their measurable growth and success. She narrated teaching as a way to help people build problem-solving tool kits and a sense of personal value that would contribute to them being able to solve their own real-world problems and do so independently.

### **Ms. Royce’s Understanding of Race, Whiteness, and Equity**

Ms. Royce grew up in a predominantly white, upper-middle-class community. She said, “I grew up in primarily white culture on [Salmon] Island, like, there was one Black kid in my class. Yeah, one Asian kid.” Ms. Royce also recognized that she had grown up privileged and narrated it as unjust:

I was born with a lot of privilege because of the physical location I was born in because of the color of my skin because of my parents’ social, socioeconomic status, you know, like all those things are like, huge leg-ups that I got.

She added, “50% of kids are malnourished in Haiti right now. And I just think about those kids, and so, those kids were dealt that deck. Yeah. And I was dealt this deck. Like, yeah, what the heck?”

Ms. Royce described her limited experience discussing race prior to and in graduate school. She she said, “I feel like my generation when we were growing up, if we were not racist, we didn't see race. Yeah, we didn't talk about it . . . We were blind to it, which is like, that makes no sense.” She began talking about race in graduate school but described those conversations as limited when compared to the equity discussions at Seaview. She said,

I mean, even at my teacher training – That was 2007. – Like we talked about [race], but we didn't really *talk* about it, not the way we're talking about it now [at Seaview] . . . I didn't have a race and equity class . . . No, it was more like, make sure you have the Black kid in your [class] picture.

Here Ms. Royce narrated her understanding that not all race and equity conversations are equal. She described her teacher education program as not providing her with explicit talk about race and equity nor a critical lens for understanding racism in schooling but focused on multiculturalism and an uncritical inclusion of students of color in class photographs. She added on that those conversations were different from conversations at Seaview which took a more critical approach. She described the Seaview equity professional development this way: “We did a lot of work on like, unintentional bias, and institutional racism and how that has impacted our students of color over time. And that was all led by our race and equity team.”

Ms. Royce discussed institutional racism by tying race to socioeconomic class and by narrating her understanding of white normativity at Seaview. Here she described how one part of the town of Seaview was a neighborhood of lower income families of color and another was a wealthier white area. She said,

All the students that are on the east side of Rte X . . . There's a lot of apartments in that area a little bit more, I guess, moderate-income housing, right? We also serve like Cornwall Home communities. So, Cornwall Home is state sponsored low-income housing . . . and that comes with food instability . . . And then we have the families that live right on that cusp that Hillside Beach area, I mean, for a total lack of PC terms, we used to call that area, “the rich white kids.”

When I asked Ms. Royce if she was intimating that the families east of Rte X and at Cornwall Home were families of color, she confirmed my inference. Then, Ms. Royce narrated the white wealthy families as:

These white kids who've been involved in swim teams since they were little kids, and they're all really close. And they all push each other, and they're, you know, they know how to do school and you know, like, that's a different community than the rest of Seaview here.

Here Ms. Royce differentiated the “rich white kids” from “the rest of Seaview” and communicated her understanding that those wealthy white students “know how to do school.” By this she meant that they “push each other” to be successful in school and get good grades. By differentiating that from “the rest of Seaview” she expressed doubt as to whether students of color could be described the same way.

There is some evidence to suggest that Ms. Royce understood the success of white wealthy students to be due in part to the white, middle-class normativity of Seaview. She discussed the white normativity of Seaview when talking about how she had worked with Principal Martinez on hiring committees and had to rethink many of her assumptions about metrics used in hiring to work for a faculty that was more racially representative of the student body. She also discussed her understanding of white normativity at Seaview by describing her own implicit bias:

I just know that there are things trained in my background, about how I view what a classroom should look like, that you know, just require constant work. Like that idea of a quiet classroom. Yeah, that is super white culture, you know? Yeah. Like, church isn't necessarily quiet in Black culture, but church is *very* quiet in white culture. You know? Or, like, and a classroom is very similar in that attention. And so like, I definitely think of all those norms. And that's just one small example. But like, all those things that I think of is – I want my classroom to look like this. So, then I wonder who I am, like, I don't know,

constantly nagging or on, because they're doing the wrong thing. And is it wrong? Probably not necessarily. It's just different, you know?

Here Ms. Royce referred to her background as a source of implicit bias that values certain norms in school. She drew a parallel to the difference between white and Black churches, and then she reflected on her part in imposing those norms on students when she asked herself who she was “constantly nagging” and for what while recognizing that her judgements of “right” and “wrong” in the classroom are “trained” in her background, but not necessarily truly right and wrong.

Ms. Royce said that understanding white normativity conceptually does not necessarily allow her to see her own implicit bias. She said, “my lens is so my lens” and “It's like I can make assumptions about what somebody else's lens might be. But they're all assumptions. I'm not, I'm not *living* it.” Ms. Royce demonstrated here her understanding that the experience of oppression and racism at having to operate in a pervasively white system was something she could understand intellectually and empathize with, but not truly understand experientially because she was “not *living* it.” As a result, all she had were assumptions about what it would be like for students to learn in the white normativity of Seaview. For example, consider her description of Rodrigo, A Latino student:

I think Rodrigo's a pretty good example yesterday, right? Rodrigo doesn't act school. The way we might picture a scholastic student does. He's a real smart kid. Oh, yeah. Like, he's got some great background . . . but he doesn't necessarily do school, the way we picture you know? . . . And so yeah, maybe he's a good example of that. Right? Like, a good example of somebody who's probably pretty uncomfortable in the classroom.

Here Ms. Royce articulated her assumptions about Rodrigo’s experience and her understanding of how a student of color may feel uncomfortable amidst the white normativity of Seaview.

Ms. Royce also articulated her understanding of internalized oppression and how that would make it difficult for her to notice students’ racialized discomfort:

I also think that students by the time they get to high school have been, like, so shaped and molded and told what's the “right” way to look and do school that I think we don't know what students are feeling. Like this thing that I'm doing, or I know this is expected of me, I'm going to do it, but it's so unnatural for me, you know, like, I think we have a hard time spotting [student discomfort].

Here Ms. Royce communicated her understanding that although she could see and perhaps imagine the discomfort of Rodrigo, there are many other students of color who know how to “do school,” but may be just as uncomfortable learning amidst the white normativity of school. She said the discomfort of those students would be hard for her to see.

Her privileged background combined with her understanding of the white normativity of Seaview and its impact on students was uncomfortable for Ms. Royce. She said,

Anytime you really have to, like, examine your own background and your own privilege, it's, it's just harder. Yeah. And the emotions that come up are weird around it. You know, it's like you almost have some like, guilt, but guilt isn't helping anything, you know?

As a result, she found the equity professional development sessions difficult. She said, “I find that work hard. Yeah. Just emotionally. Yeah. Yeah. And a little helpless feeling.” She added that “It's hard work . . . and there's never any closure to it . . . It's the open-ended work,” but she added that “I don't think it's on people of color to make this work happen. You know, it's on all of us.” So, Ms. Royce recognized the need for her engagement in equity work, especially as a white teacher, and expressed difficulty with her own white guilt and the hard work of open-ended race and equity conversations at Seaview. Like Ms. Fisher, Ms. Royce appreciated the *Grading for Equity* (Feldman, 2019) book study because it gave her a way to take action to work for equity. She said,

Like you could do it tomorrow. I feel like that's the best training. It's like that training that you feel like you can put into action, or at least a small step that helps you become a better teacher or equitable teacher tomorrow, the next day, the next day.

In summary, Ms. Royce grew up in a privileged white community, and she recognized her privilege. She did not grow up discussing race and had limited conversations about race and equity in her teacher education program, but she said she learned much from the Seaview race and equity professional development sessions. She described learning about systemic racism both economically and within the Seaview school system and how whiteness functioned to create oppressive experiences for students of color. She also learned about implicit biases and recognized her limitations to truly understand the experiences of people of color. She discussed the internalized bias of many students that may make their discomfort hard to see. At the same time, she expressed discomfort with the open-ended and hard work of equity professional development and appreciated the concrete processes she felt she could employ immediately and consistently to become a more equitable teacher.

### **A Brief Introduction to the Seaview Students**

I interviewed a dozen racially diverse ninth-grade students (See Table 3). Although their understandings of care are described in subsequent chapters, I highlight here some important elements of their experience that contextualize their understandings of care. For example, the students I interviewed entered Seaview with deficit mathematics identity narratives and knew they were labeled as “struggling.” They also articulated social anxiety about entering the social milieu of high school and racialized experiences of mathematics education.

### **Students' Mathematics Identity Narratives and Academic Goals**

The students were placed together in the ninth-grade Algebra 1 classes because they had previously struggled in mathematics schooling. Unsurprisingly, they reported many negative

mathematics experiences, and eight of twelve narrated negative mathematics identities. Here are some examples: Baelee, a white girl, said, “Until this year, I’ve hated [mathematics] so bad. Like, in sixth grade, something went downhill, and I started getting really bad at math.” Lizette, a Latina, said, “I’m not very smart, I would say. And it’s just my memory with like math and all that kind of stuff. It’s like very bad. . . . I’m a very slow person, and I don’t understand, I can’t process things very well.” Bonnie, a white girl, said, “I feel like my foundation wasn’t always very good. And, like, when you’re little, it’s not blamed on the teachers, it’s blamed on you. And so I feel like, you know, you’re only as good as your confidence let’s you be. . . . I suck, it’s fine.” Annalee, a Black girl said, “I’m a person who will need more time – a lot more time – especially having things being explained to me sometimes it needs to be explained over and over and over again to actually click. Or else I won’t really be able to understand it as well as others.”

When students said they were “bad at math” or “suck” or that they were “slow,” they showed their negative identity narratives about who they are and who they believe they can be (Sfard & Prusak, 2005). Without exception, these negative mathematical identity narratives were expressed emotionally; students expressed anger, shame, or resignation. Despite the negative narratives, nine of the twelve students, unprompted, described their desire to improve in mathematics class this year. For example, Annalee said,

I have a lot more motivation this year. . . . This year, I’m asking you a lot of questions, and I’m able to understand things a lot better . . . I think I’ll be able to understand it if I keep asking questions and like, doing my best work.

Sheila also narrated a renewed desire to succeed in her schooling, and like many other students, she connected a renewed motivation for succeeding in school to a concern for her future. She described how the previous year she did not care in school, “I just didn't care. Like I just didn't do the work because I just didn't care,” but she also told how this year was different:

This year, I care because it like, actually like goes towards my like college . . . And I just like, feel like school is important now. Last year I just didn't care less. . . Up until I think this year I wasn't planning on going to college, but I feel like it is a good idea, probably.

Some students talked about mathematics being connected to skills of daily living like paying taxes and managing their finances. Others discussed mathematics as connected to career aspirations. For example, Russell, an Asian boy, wanted to be an architect or an engineer. Heleri, a Black girl, wanted to be a nurse to go help people in Tigray where her family is from, and two other Ethiopian students Neberu and Kofi wanted to go to college for entrepreneurship and described mathematical understanding as important to that goal. Others wanted nothing to do with mathematics in their futures, but even those students still understood grades in high school as important for future schooling. For example, Fiona, who wanted to go into linguistics and did not see mathematical understanding as important to that career goal explicitly, said,

Midway through [last] year, I'd already signed up to retake algebra because I wanted to not have a terrible grade be on my permanent record and just to understand it better before going into more math because you have to keep doing it!

Fiona did not see mathematics as important to her career path but did want to understand the subject better because she understood that one of the functions of her current mathematics class was to prepare her for subsequent mathematics classes in her academic progression. Fiona was not alone in caring about her grades and the high school transcript. Eight other students expressed a goal to earn good grades, which for them served as a measure of their mathematical understanding and success in school.

In addition to wanting to succeed in school, most students said they enjoyed mathematics more when they understood it. For example, Chanelle, a Latina, said, "I like math because I get it," and Neberu, a Black boy said, "I like math when I understand it." For Neberu and others,

*understanding* meant feeling confident about mathematical procedures. Neberu described understanding this way,

If I don't understand it, it just feels like I'm . . . just doing stuff without actually doing it . . . cuz if I don't understand it, I always ask questions, and I just keep asking them, and so I just do what the teacher's telling me, and then when I actually understand now, I feel like, "Oh, I *know* what to do." . . . If you guys tell me how to do it, teach me how to do it, I'll understand it.

Here, Neberu equates understanding with "doing" math. Here he did not talk about solving novel problems or understanding mathematical concepts but about knowing what to do in a set of mathematical procedures. He wanted teachers to tell him "how to do it" but did not mention understanding why the procedures worked or were the right tool for solving a given problem. Other students had similar descriptions of what understanding mathematics meant.

In summary, student identity narratives and a concern for their futures informed student goals to understand mathematical procedures and succeed in mathematics classes, as measured primarily by grades, with an understanding that doing so would also help them enjoy the subject.

### **Students' Social Anxiety**

The Seaview students also articulated social anxiety about entering high school. For example, Heleri, a Black girl, described coming to Seaview in the Fall:

I was scared. Yeah, I was like, I was anxious . . . because a lot of people at Seaview . . . came from Mills [Middle School], I think. So, like, all of them knew each other, and then it was just like me and some like other Community School people . . . It was different from my old school because I knew people, but here, it's just like so many different people.

Most students came to Seaview from Mills Middle School, but for Heleri, coming to Seaview from the Community School, from which few students hailed, meant she felt few social connections at Seaview at the start of the year.

Neberu, a Black boy, was also from the Community School, and when I asked him if he'd rather be with friends or meet new people in his mathematics group, he said, "Honestly? [be with] friends because for me, it's like awkward when there's just new people. Whether they talk or not, it's just like weird I guess." Heleri, Neberu, and even students from Mills, expressed social anxiety and sought to dissolve the social awkwardness of being a new ninth grader at Seaview where many students from other area middle schools created a new social milieu for students to navigate.

### **Students' Social Desires in Mathematics Class**

Ten of the twelve students described working with friends in mathematics class not only as less awkward but also useful for learning because students counted on peers to help and explain mathematics. In describing the value of friends in her mathematics groups, Lizette, a Latina, said,

I know, they're good friends. I know, they're gonna help me out. And I know, like, if they're stuck on something, I can try to help them . . . And like, it's like good friends [means] like a good experience. You know? We're good on working together.

Despite the value of working with friends on mathematics, however, all students also described a high level of social distractibility in mathematics classes both in middle school and at Seaview. For example, Annalee, a Black girl,

It's also kind of hard with the people around me or being distracting. Then I want to join into the conversation . . . It's hard to kind of like make friends. So, I always want to try to socialize as best as possible, but I realize it's not time to socialize while you're in class, and you should be doing it like during a lunch or passing.

Annalee here articulated how she wanted to make friends at Seaview specifically to address how “it’s really scary being in high school,” but her social desire was often in conflict with her academic goal to do well in school. People around her were distracting, and she would want to join in.

Neberu called the social distraction “disturbful” when describing one of his middle school classes, “All my close friends were in that class. So, we would all talk with each other and stuff, I guess. Kids are disturbful.” Bonnie, a white girl, expressed a similar sentiment. She said her ideal group would not consist solely of her friends because “Then it’s like, you don’t do anything.” Even when Fiona was describing her best group experience in math class, she added that although they worked well together, “We would get very sidetracked because we’re, like, teenagers and can’t focus on anything.” All twelve of the students pinpointed specific students (including themselves) that were distractions in their prior and current mathematics classes. The students expressed frustration at others who were off-task, distracting, and loud.

Ten of the twelve students articulated a desire for balance between the learning work and social fun in class. Without exception, these students described their best groups as the ones who had fun together and were able to succeed with their mathematics work. When they talked about groups that were not good, they described being with students who were only social and not at all engaged with mathematical learning or those who worked on mathematics without any socializing. For example, Sheila, who was multiracial, described one of her worst mathematics groups, “There wasn’t really any talk at all. It was just really boring, and we just all got our work done, and then we just sat there.” The students wanted balance between productivity and fun learning with friends.

### **Students’ Racialized Experiences of Mathematics Education**

Although white students did not narrate a racialized experience of mathematics education upon entering Seaview, many students of color described racialized schooling experiences without me asking. As Lizette put it, “we get treated differently. I feel like that’s a big thing. And then,

sometimes because of that, we don't get the proper education.” Their understanding stemmed from previous racist experiences in schooling. For example, Heleri told the story of a white teacher doubting her achievement in mathematics class:

I just had a bad experience with this teacher. She was nice, but . . . we had these mini quizzes that we would do every Wednesday, I think, and it was pretty easy. So, I'll get it like fast. It was like timed, and I would like do really good on it. But I just felt like - because she would just like, not believe that I did it on time. Like she didn't believe that I actually, like, got all the answers right. Like I was actually like, good at it. . . I think it was like a race thing - a racism thing, cuz I used to go to all white school and stuff. So yeah, it was just weird. I didn't know how to feel about it. So, she would just give me extra work to actually see if I actually like did good. You know? She would be there to watch me, even though - Yeah, that was weird.

Here, Heleri narrated how her white teacher did not accept her success on timed math quizzes. Heleri felt watched and targeted with extra work and attributed that to racism.

Other students talked about racist policing by teachers. In Lizette's second interview, she told stories of racist policing in school that were echoed by some other students in the class who were not interviewed:

Like for example, in Mills [Middle School], let's say there was this teacher, right? Yeah, he would go up to this one boy, and he was white. No mixed nothing. He was pure white. He always said, 'Look, put your phone away.' Never take it away. For the entire school year, he only took his phone away like what? Twice? Yet, if it was some other kid right? Who was colored, or girl especially, immediately take away - no warning. No nothing. That made me so mad. Like I even call him out for it. Like, I don't know if you're doing this on purpose or

on accident, but you're being racist. Yeah. And a little bit sexist. It's kind of like, annoying.

And I've seen I've witnessed that so much throughout my life.

Lizette told this story as an exemplar of what she's witnessed over time. She highlighted a white teacher's preferential treatment of white students through enforcement of consequences for misbehavior on students of color, and especially girls of color, but a lack of enforcement for white boys. Students' racialized and racist experiences in mathematics class and schooling more broadly was central to their understandings of teacher care, which will be more fully discussed in Chapter 7.

## Chapter 5 – Social Care

In this and following chapters, I describe teacher and student understandings and enactments of care along the social, academic, and political dimensions. Teacher understandings of care will be connected to the understandings of mathematics, teaching, and equity presented in the previous chapter. Student understandings of care will be connected to their narratives, concerns, and racialized experiences learning mathematics just described.

Before diving into social, academic, and political care, it is worth stating that both teachers believed caring for students to be vital to teaching. Ms. Fisher agreed with Ms. Royce when she said, “There's not a kid in our class that wants to learn math from somebody that they don't trust.” Both teachers also said that learning about students and building supportive relationships with them was central to their own learning to improve their teaching practice. As Ms. Royce put it, her learning was “not about the math, of course, it's about the students.” Ms. Fisher agreed describing her professional learning as centering “the human part of teaching, and less about the curriculum.”

Ms. Fisher and Ms. Royce both said that part of their work to care for students involved learning about them as individuals. For example, in an interview in October, the teachers described students they were working to support. Ms. Fisher articulated how she was thinking about supporting Aaron, a white boy who had consistent behavioral problems at school and Sarah, an Asian girl who regularly fretted over her grades using “warm hug” as a metaphor for care:

We don't know what this kid's warm hug looks like versus this kid's warm hug, right? Like maybe Aaron's warm hug needs to be more consequences . . . versus Sarah, who loves points. Maybe her warm hug is, “Hey, I'm going to do school the way that I know that I need to do school,” and we're going to support her.

Ms. Royce agreed with Ms. Fisher's statement and said part of her care for students was getting to know "60+ personalities" at the start of the school year wherein "every single one of them is a new entity to me." She said, "I don't know how they operate yet" signaling her agreement that learning about individual students is vital to learning how to care for them. The importance of care and the need to learn about students cuts across academic, social, and political care. Because teachers have to learn about students to learn how to care for them, Ms. Fisher's and Ms. Royce's care for their students shifted over time. I will describe some of those shifts in each of the social, academic, and political caring chapters that follow, but the focus of this chapter is the teachers' and students' understandings of social care. Social care involves attention to students' social and emotional learning and helping them feel a sense of belonging in the classroom (Ellerbrock & Vomvovridi-Ivanovvic, 2022). Here I show how the teachers' understandings of social care informed their teaching practices including how those practices shifted over time as they learned about their students. I then detail how students understood teacher care for their social well-being.

### **Ms. Fisher's Understanding of Social Care**

Recall that Ms. Fisher narrated feeling lonely in school before she made friends with others who identified as being "good at math." Not only did mathematics help her connect socially in high school, but she credited social learning for easing some struggles with mathematics in college. She said, "I had one class where it was just groupwork the entire time . . . I loved that class, because we just got to work together, and he didn't even lecture. We just like, learned it together." Ms. Fisher emphasized the importance of social connection to her learning and enjoyment of mathematics.

For Ms. Fisher social care involved the construction of a safe environment where "students are respectful of each other" and would feel safe asking each other questions and helping each other with mathematics. She described caring for students' social interactions such that "They're asking

each other questions and . . . relying on their teammates first, instead of always, ‘Teacher Teacher!’ And I’d say yeah, [having] mostly productive conversations.”

Ms. Fisher said caring for students’ social well-being was particularly important after COVID online learning. She said students were learning, “How do we function as humans?” and “How do we interact with people? And how do we sit close to someone?” Ms. Fisher emphasized students learning social “self-control.” She said, “I’ve noticed a lot, yeah, it feels like seventh or eighth grade self-control or sixth grade self-control right now . . . Before the pandemic, we just didn’t really have that issue.” Ms. Fisher saw students working together in mathematics class as value-added, but she framed the difficulty students had with balancing their social needs and social distraction as a matter of student “self-control.” So, her care for them involved helping them learn social “self-control.” In addition to being part of how she understood social care, her emphasis on students’ learning “self-control” had important implications for her understanding of political care, particularly as a white teacher teaching racially diverse students. I discuss this in far more depth in Chapter 7, the chapter on political care.

The actions Ms. Fisher articulated as being central to her social care for students included a heavy emphasis on groupwork, helping students learn explicitly about social norms of class, and providing students timely and accurate feedback on their group process. When we met in August to brainstorm plans for the school year, her top priorities were determining what group roles would be best for the students, how to have an authentic conversation about the norms of working together, and how we should provide feedback to them about collaboration. Ms. Fisher said she would “love for us to have actual, like, simple genuine roles” that meant something to the students and provided them with real ways to collaborate that they would take up. Ms. Fisher also proposed feedback processes that would give students real-time feedback about their collaboration and how close it came to the established norms. It was important to her to be clear with students about how to work

together productively and harmoniously. For example, in our opening meeting she suggested writing “plusses and deltas” on the whiteboard for each group indicating ways in which they were working together that were consistent (plusses) and inconsistent (deltas) with the class norms. She said, “It tells them exactly what they're doing well, and exactly what we'd like to see changed.”

### **Ms. Royce's Understanding of Social Care**

Like Ms. Fisher, Ms. Royce credited social learning with helping her overcome her struggles learning mathematics. She said, “I'd say my first like big barrier was Calculus in high school. That was hard for me, I had to work really, really hard. But I had a great friend group, and we all like worked really, really hard together.” Here Ms. Royce credited collaboration with others in helping her with her struggle productively in Calculus. Similarly, when she discussed her struggles in college mathematics, she said she “did very poorly” because she “didn't have a friend group to study with yet.” She said, “I just thought I should be able to do it. And that was kind of like a little bit of a slap in the face.” Ms. Royce narrated the feeling of being unable to learn and solve problems independently as a blow to her esteem and social learning as a necessary condition for success in advanced mathematics.

Ms. Royce understood caring socially for students as primarily involving helping students learn social problem-solving skills in class. She said, “I don't need them to love the math, but [I want them to] kind of want to get started. Because it's kind of fun to talk with your group about these things. And it's kind of fun to problem solve.” She also wanted students to interact around mathematics and do so respectfully. She said that her ideal class would “be a class that like, they always ask each other, and they always listen to each other.”

Ms. Royce centered the use of groupwork in class to social care. The actions she cited before the start of the school year to support that care included real-time, non-evaluative feedback so that students could learn to work together. For example, in our opening meeting before the start of

school in August, she started brainstorming how to provide feedback on collaboration that would be useful to students but not evaluative. She suggested placing a non-evaluative social feedback system on each table, “so they're not worried that it goes into the gradebook, but like, that has like . . . maybe some sort of help scale or, you know, and we can like, I don't know . . . [give] feedback from that?” She also suggested an opening conversation wherein students would discuss their best and worst collaborative experiences to post at the front of the room norms for working together of which the students had authorship. She said,

We could do an activity with the class that helps them be a part of that [norming] process.

Like what does good groupwork look like? Yeah. When have you been like in a team that you felt didn't function well? What were the issues? When have you been on a team that did function? . . . We could even come up with a, you know, a list of them and put it up.

Moreover, Ms. Royce valued clear and authentic roles for students to engage with social problem solving. She said she saw them as “a resource for helping everyone feel valued” and described inauthentic roles like Materials Manager as insufficient for caring for students' social engagement when she said, “And that is not ‘Go get the scissors.’ That's not sending the message.” The roles she and Ms. Fisher found to be clear and authentic are described more fully below.

### **Teacher Enactments of Social Care**

Both teachers wanted students to work productively and respectfully together. Both discussed creating a “safe environment” where students would ask each other questions and listen to each other. Ms. Royce spoke of wanting students to have fun because it can motivate work on solving problems and that she wanted students to “feel valued” because they had a way to contribute something authentic to group problem solving. Ms. Fisher agreed, and both teachers thought caring socially for their ninth graders involved teaching them to be productively social, especially after years

online during COVID. This shared understanding of caring for students' social well-being can be seen in the teacher's management of groupwork.

A typical 100-minute class involved a 20-minute warmup and 20-minutes of independent practice at the end of class. The independent practice was a time when students could use their headphones to listen to music. During independent practice, the room was quiet, and students mostly did not distract each other from work. The middle hour was devoted to students in collaborative groups working to solve problems.

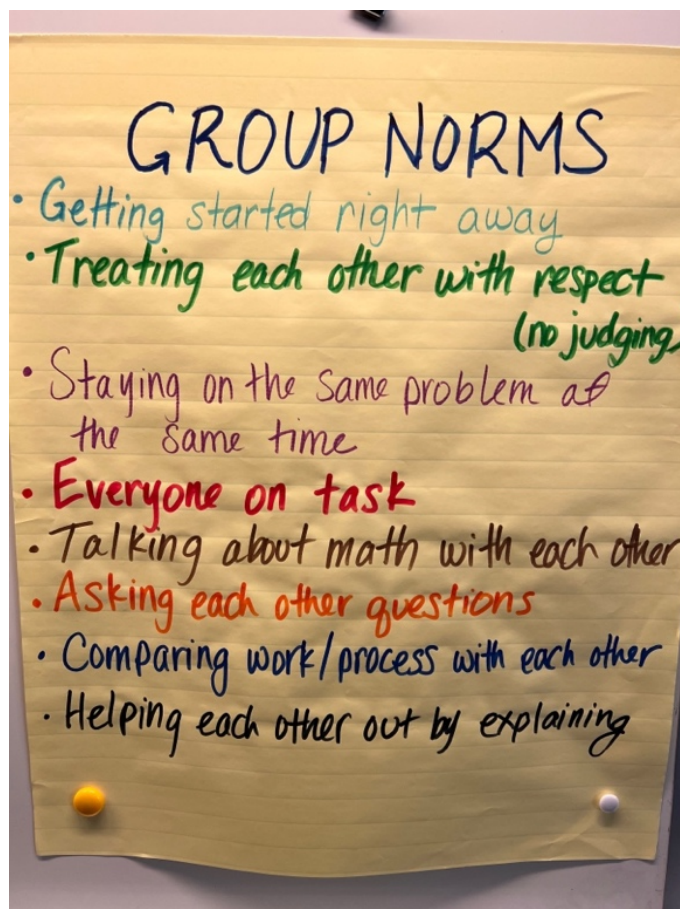
It is noteworthy that the social problem solving presented a greater demand for the teachers' classroom management. The classroom was louder when students worked together, and students were more likely to require coaching for productive behavior in their groups. It also took longer and required more coaching from the teachers to garner student attention for whole-class instructions or mathematical discussion. Quite simply, it would have been far easier for Ms. Fisher and Ms. Royce to design their instruction primarily around individual work. The effort they put into social learning represents an enactment of social care as they worked to teach them how to work and solve problems productively together while still hopefully having fun. Ms. Fisher and Ms. Royce showed their understandings of social care through the norms, roles, routines, and groupings they enacted for groupwork.

### **Groupwork Norms**

The class norms for groupwork and how they were constructed reflected the teachers' understanding of social care. Ms. Fisher and Ms. Royce set the norms for working in groups at the beginning of the year by asking students to share stories at their tables about groups they had been in for school that worked well together and those that did not. Students then brainstormed why the groups that worked well did so and why the groups that did not work well failed to collaborate productively. The teachers gathered these ideas from both classes and distilled them into a list of

group norms. Figure 5 shows the anchor chart they created from the many post-it notes the students generated.

**Figure 5 – Group Norms from Algebra 1 Classes**



These norms were posted at the very center of the front set of whiteboards and remained there throughout the school year. Notice how many of the norms mirror how the teachers described social care for students. They include “treating each other with respect,” and “asking each other questions,” “staying on the same problem at the same time,” and “helping each other by explaining.” Not just the content but the construction of these norms reflected the teachers’ understandings of social care. They said caring for students’ social well-being meant coaching them to interact productively, and the crowdsourced norms constituted fodder for the teachers’ coaching for students’ socio-emotional development.

## Groupwork Roles

The teachers also provided roles for students to meaningfully participate in group problem solving that reflected their understanding of care. These roles were so central to their enactment of groupwork that they asked me to meet with them to brainstorm ideas before the start of the school year. In August, we spent 30 minutes brainstorming authentic roles. Ms. Fisher and Ms. Royce had used roles from a book previously, but Ms. Fisher said, “I feel like we always just resorted to using the roles to say, okay, resource managers get the supplies,” but she said all the other roles were “just a little bit fibby,” by which she meant inauthentic. She followed up with, “I’d love for us to have actual, like, simple genuine roles.” Ms. Royce agreed asking, “I wonder if we can rethink [the roles].” She said the purpose of roles was as “a resource for helping everyone feel valued. Yeah, like I want to give everyone a valuable something to do.”

The teachers determined four roles they thought were authentic. Table 5 shows the placards they made for each table describing the four roles. Notice how some of the roles mirror the norms. The Ready-Set-Go role was meant to get the team started on the problem. The Conductor role was meant to keep the team together. The Phone-a-Teacher role was intended to make students ask each other questions during problem solving, and the Quality Control role was meant to press students to compare their work when they are done.

**Table 5 – Groupwork Roles and Functions**

<b>Role</b>	<b>Function</b>
Ready-Set-Go	Gets everyone started on each problem and makes sure everyone is ready to start. <ol style="list-style-type: none"> <li>1. “Is everyone ready to start problem?”</li> <li>2. Assigns someone to read the problem.</li> </ol>
Conductor	Keeps everyone on the same problem at the same time
Phone-a-Teacher	Calls a teacher over when there is a TEAM question
Quality Control	<ol style="list-style-type: none"> <li>1. At the end of each problem, check to make sure all parts were done.</li> <li>2. Everyone has finished their work and agrees on the answers.</li> </ol>

Despite the intentional construction of what they thought would be authentic roles, only the Phone-a-Teacher role was consistently emphasized in class. The Ready-Set-Go role and the Conductor role were assumed by the teachers. As Ms. Fisher and Ms. Royce circulated to groups, many of their interactions with students focused on getting students started. Similarly, much of their team coaching involved urging students to stick together. The teachers also had quality control as a norm and thus urged groups to compare their answers both on the plus/delta chart and in their conferrals with groups, but it was a duty of all students not just the one with that role. The Phone-a-Teacher was emphasized repeatedly during task launches. Sometimes they gave out stacked red and green cups for the Phone-a-Teacher to use to call over a teacher only when there was a team question. If the green cup was on top, no questions. If the red cup was on top, the whole team had a question, and when the teachers approached the table, their first question would be, “Is this a team question?” During group tests, each team was given two popsicle sticks that they could turn in to ask a teacher a team question. These mechanisms were meant to get students to ask each other mathematical questions before calling a teacher.

The enactment of the roles for social problem solving reflected how the teachers thought about social care for students. Both teachers had said that their care for students’ social connection in mathematics class should result in students asking each other questions. It is therefore unsurprising that the Phone-a-Teacher role was prioritized among the roles they created. Although they had discussed wanting students to have authentic roles as mechanisms for meaningful participation to feel valued in the group, the remaining three roles were not part of the teachers’ priorities for social coaching (Wilson et al., 2017). The importance of students spurring each other to start, sticking together, or checking their work was not in the teachers’ descriptions of social care. They only both described the importance of students asking each other questions as vital to what

their social care should generate. As such, the Phone-a-Teacher role was emphasized, and the others were not.

### **Groupwork Routines**

The social learning routines that Ms. Fisher and Ms. Royce set up in the classroom showed their understanding of social care. For example, they had one instructional routine that they called a “team challenge.” The team challenges involved students receiving one problem to solve at a time. When they believed they had solved the problem and could explain it, they would go to one of two teachers stationed in the room to provide their answer and their explanation. If acceptable, they would then get another problem to solve, but a different student from each table would have to bring up the next solution and explanation. By providing only one problem on one piece of paper and requiring each student to participate in solution and explanation, the teachers were attempting to care for the social well-being of students by creating the conditions for interdependence (Cohen & Lotan, 2014). The teachers also ran review games for student foursomes and each unit had not only an individual test but also a group test during which students were free to help each other solve problems. These structures reflected Ms. Fisher’s and Ms. Royce’s descriptions of social care as involving helping students to ask each other questions and rely on each other to solve problems.

### **Feedback on Collaboration**

The teachers’ feedback for students was also a way in which they enacted their understanding of social care. The day after the norms were posted and each day after, the teachers put a grid on the board with a space for each of the eight table groups. In the grid teachers wrote “plusses” and “deltas.” The plusses were denoted with a “+” symbol and a description of why students were engaging in productive collaboration. The deltas were denoted with a “Δ” symbol and a description of what behaviors needed to change to improve group collaboration. See Figure 6 for an example of the teachers’ plus-delta chart for a class in mid-September. Notice that explaining

mathematics to each other, staying on the same problem at the same time, asking each other questions or comparing solutions were all plusses. Not getting started and being off task were deltas.

**Figure 6 – Plus/Delta Collaborative Feedback Chart**

<p><b>TABLE 1</b></p> <ul style="list-style-type: none"> <li>+ quick start</li> <li>+ comparing</li> <li>+ EXPLAINING/HELPING</li> <li>+ talking through process out loud</li> </ul>	<p><b>TABLE 2</b></p> <ul style="list-style-type: none"> <li>+ quick start</li> <li>+ sticking together</li> <li>Δ off task</li> <li>+ COMPARING</li> <li>+ thinking out loud</li> </ul>	<p><b>TABLE 3</b></p> <p>A green diagonal line from bottom-left to top-right.</p>	<p><b>TABLE 4</b></p> <ul style="list-style-type: none"> <li>+ Quick start</li> <li>+ discussion</li> <li>+ sticking together</li> <li>+ GROUP QUESTION</li> </ul>
<p><b>TABLE 5</b></p> <ul style="list-style-type: none"> <li>+ EXPLAINING/HELPING</li> <li>+ sticking together</li> <li>+ comparing</li> </ul>	<p><b>TABLE 6</b></p> <ul style="list-style-type: none"> <li>Δ no quick start</li> <li>+ asking questions</li> <li>+ explaining</li> <li>+ comparing</li> </ul>	<p><b>TABLE 7</b></p> <ul style="list-style-type: none"> <li>+ quick start</li> <li>+ EXPLAINING/HELPING</li> <li>+ sticking together</li> <li>+ thinking out loud</li> </ul>	<p><b>TABLE 8</b></p> <ul style="list-style-type: none"> <li>Δ no quick start</li> <li>+ comparing</li> <li>+ explaining</li> <li>+ all engaging</li> <li>+ asking each other questions</li> </ul>

This feedback on social problem-solving was a daily part of class, and the teachers understood this as their enactment of social care to coach them on how to be productive together and what behaviors undermined that productivity. They also sought to keep that coaching positive. As Ms. Fisher said one day to me as an aside, “I’m looking for plusses.” Both teachers sought to coach students to be socially productive more by using the plusses to highlight positive collaboration than by using the deltas to call out students who were undermining collaboration.

Both teachers also engaged in social coaching in their conferrals with groups as they helped them with their mathematics. This included approaching groups who were diligently but silently and individually working and telling them that they should be talking with each other about their work. The teachers urged students to be on the same problem at the same time and would talk to students

who were charging ahead or not engaged to have them stay with the group's pace. Teachers would suggest moving papers into the center of the table when someone had a question so that all students could see and participate in the inquiry. They would encourage interdependence, like when Ms. Royce said to one student who was not collaborating, "You have information your team needs," to urge him to see his space in the group as valuable.

The teachers spoke not just to students who were productive without interacting with each other but those who were interacting without engaging with the mathematical problems at hand. Sometimes this involved moving students from one group to the next, but the movement was not framed as a punishment for behavior but as a matter of social coaching. For example, when Ms. Royce moved students from one table group to another and they balked, she said, "You can argue with me all you want, but . . . it just worries me that you're not in the setting that's going to help you learn the math." She did not isolate the students nor tell them they were being moved because of misbehavior but rather moved them to put them in a more manageable social environment for them to be able to learn to collaborate and "learn the math."

Teachers would also talk to students who were disrespecting each other. For example, in September, Kofi would regularly make fun of his teammates by calling them "stupid" or making fun of their names. Ms. Fisher spoke to the group to tell them that they must be kind with each other. When some of the group members rolled their eyes at her statement, she said, "You guys can be better. I don't care if you make fun of me, just do it." The next class period, she also took Kofi into the hallway to discuss his comments to other students in his group even those he considered friends. Although I was not present in that conversation, Ms. Fisher and I had discussed her pull-out of Kofi beforehand. My fieldnotes document that Ms. Fisher said it was important not to be judgmental with students. She said that teasing may be a part of Kofi's home family dynamic and that it was important to realize that as a possibility and coach him on the expectations of her classroom. This

coaching shows how Ms. Fisher was enacting her understanding of social care for Kofi and his tablemates as she worked to build what she thought was a “safe environment” wherein students were “respectful of each other” while also being respectful of the students.

The feedback structures for students were reflective of how Ms. Fisher and Ms. Royce sought to enact social care. They prioritized students working together but understood that it was difficult for students to do so while managing social distractibility. Their social coaching therefore took the shape of specific feedback like the plus-delta chart; coaching for students to interact, avoid distraction, and collaborate; and coaching for students to be respectful of each other to establish and promote a safe environment.

### **How Groups Were Created**

Ms. Fisher and Ms. Royce also showed their understanding of social care in the way they built groups for groupwork. New groups were set for each unit. Because the teachers did not know the students well, groups for the first unit were random. For the second and third units, the teachers randomized the groups and then checked each table to see if there were students who struggled to work productively together and moved them. They also put together students who had been separated who were wont to get up and walk over to other tables to connect with a friend. It was for the fourth unit, however, that teachers started to build table groups centered on students’ mathematical and academic strengths and peer relationships. This included putting students together whom they thought would collaborate well and setting up groups to put those who they thought needed support with those they saw exhibiting leadership. For example, they identified Neberu and Sheila as students whom other students looked to for setting the tone of the group and put those students with some they thought could use a productive and connecting influence. Another example involves their concern about a transgender student named Max who was withdrawn and could use social support. They brainstormed a “gentler” student who might connect with Max and made sure

to put them together in their next grouping. The teachers also considered which students were friends and which students from different social circles might work well together. Then they would try pairings and reassess during the unit to see if their pairings and groupings were helpful for students trying to manage social learning with social distractibility.

The teachers' social engineering was reflective of their understanding of social care for students. They said social care should involve students having fun and connecting to motivate engagement with mathematical material. They also said that they wanted a safe environment where students could learn how to collaborate productively and respectfully. Once they started to know the students more, they purposefully created groups that would support students to connect with friends and manage their social distractibility by putting them in groups with people who would help them engage with mathematics productively. This social engineering is consistent with their descriptions of social care in mathematics class and was the main way in which their enactment of social care for students shifted over time as they learned more about their students.

### **Student Understandings of Social Care**

Recall that students shared that they had social anxiety upon entering high school. They sought to allay that anxiety by enjoying and benefiting from social learning in mathematics class. They also sought to combat their admitted social distractibility, which often impeded their pursuit of their academic goals. These narratives informed their description of caring teachers as those who helped them balance making friends and peer helpfulness with their tendency for social distraction. The analysis presented here includes students' descriptions of teachers they found caring. Some included Ms. Fisher and Ms. Royce in their narratives, and some discussed previous teachers.

Students said that caring teachers would help them realize the benefits of peer socializing in mathematics class while mitigating social distractibility. They suggested caring teachers would do this

by encouraging social connection, intentionally grouping students, and altering classroom structures when they needed help reining in their distractibility.

For Seaview students, teachers cared for their social balance in part by valuing and making space for unfacilitated social connection. For example, Neberu described his most caring mathematics teacher from middle school, Ms. Lazio, “The classes were like, 40-50 minutes. So she would give us like the first 10 minutes to just stay in our actual class and talk.” Here, Neberu was appreciating the teacher’s valuation of social connection as a part of class and seeing it as care for his social well-being. Byron, a white boy, echoed this appreciation when he described Mr. Hawk, a caring mathematics teacher he had in middle school by saying,

At the beginning of the class, he encouraged us to, like talk to each other. And like, if we like if we're talking, if we're talking to each other during the day of class, you just let us do it for a couple minutes because he's kind of trying to encourage that because right after we got back from online, where we weren't really talking.

Byron highlighted here the extra care Mr. Hawk took for his social well-being as he created space for social connection after students returned to in-person classes after COVID online learning.

However, it was important to Byron that the social time for students was not facilitated by teachers.

When I asked him if teachers at Seaview left similar time and space for social connection he said with a disappointed tone, “A little bit, but it’s more forced because we have this sheet in the back of our notebooks where, like, we’ll have a question, and then we’ll go around finding people’s answers to it, but [Mr. Hawk] didn’t force us to talk, but he encouraged it.” Although facilitating social connection did not seem caring to Byron, for him and others, they described caring teachers as those who made intentional time and space for social connection to care for their social well-being.

Most of the Seaview students articulated that caring teachers would help them manage the social distractibility of school to find a balance between social fun and social productivity for

learning. One way caring teachers could help students find that balance was to intentionally put productive friends together for groupwork in mathematics class. For example, Neberu articulated how teachers can be more intentional about the construction of mathematics work groups:

If it's like all loud, kids are not going to get work done. If it's all quiet, kids are not going to get the work done. Just, if it's people who want to do their math and then people who don't, then it's not going to work out. Like, they should actually try to put their – I know they have other things to do – but they should at least try to put things together instead of just random.

Neberu and others thought caring teachers should notice students' social needs and assets and which friends worked well together to plan mathematics groups. It is likely then that many students found Ms. Fisher's and Ms. Royce's social engineering to be caring. Their ability to put together groups that were productive and fun for students increased as they understood the students better.

According to my field notes, many students showed evidence of responding to the teachers' group construction by greater on-task behavior and collaboration in more thoughtfully constructed groups.

Students also gave examples of caring teachers changing classroom structures to help the students balance their need for social connection with their penchant for social distractibility.

Neberu tells a story of a caring teacher who helped him balance work with social fun. Here he described how a middle school teacher Ms. Lazio had formed a pull-out group in mathematics class for Neberu and his friends to give them a structure for balancing productivity with social fun:

She started to take a group of me and my friends [into a separate classroom] . . . She's probably my favorite math teacher. . . It was good, because, because it was mainly my friends. So, we can like joke around. And then, because she was also a chill teacher, we could joke around, but she would also like make us do our work. So, . . . instead of being disturbful

for the whole class, it's better that, like, we just be disturbful in a group while we're doing our work.

Similarly, Annalee discussed how a caring teacher would change classroom structures to help students balance social productivity with social distractibility. She said, “[If we were] doing an activity, and people weren’t listening to avoid doing the activity, right, she would just say we like, like probably’d switch to something different even.” Both Neberu and Annalee’s stories highlight caring teachers changing pedagogical structures to help students balance their desire to learn with friends with social distractibility. For Neberu, that came in the form of a pull-out group for a group of friends. For Annalee it came in the form of changing classroom activities when a teacher was losing attention because of social distraction to help students attend and engage. These statements show how some Seaview students described caring teaching as involving changes to classroom structures that help students balance their desire to connect with their penchant for distractibility. Ms. Fisher and Ms. Royce did change some classroom structures to help students with distractibility. However, because addressing distractibility was associated with the teachers’ institutional authority in the classroom, I discuss the teachers’ changes in more detail in the chapter on political care.

### **Chapter Summary**

Social learning was important to both teachers’ experiences of learning mathematics in high school and college. As such, it was central to their understanding of social care. They believed they could care for students by providing clear social coaching, including constructive norms, authentic roles, and prompt non-evaluative feedback for group problem solving. Over time they also constructed groups based on student assets and students’ peer relationships that helped students balance productivity with fun.

Students desired social connection but understood themselves as socially distractible and did not want socialization to obstruct their goal of academic success. These narratives and desires

informed their understanding of caring teachers as those who attended to their social well-being by providing time and space to connect with friends, engineering groups for groupwork that would help them with their social balance, and changing classroom structures for the same ends.

## Chapter 6 – Academic Care

In this chapter I describe the teachers' understanding of academic care, or care for students' mathematical learning. Academic care involves “the technical aspects of teaching and learning” (Jansen & Bartell, 2013, p. 34). Although the teachers had quite similar understandings of social care, their understandings of academic care varied as did their enactments of academic care. Herein I describe those enactments and how their understandings of care influenced mathematics instruction. I then detail how students understood the academic dimension of teacher care.

### Ms. Fisher's Understanding of Academic Care

Recall that Ms. Fisher described mathematics primarily in emotional terms, tying it to her identity development, social connection, and career aspirations. She narrated self-doubt in the subject because she had experienced test anxiety and the need to retake college coursework, and she told of difficulty with theoretical mathematics narrating a value for mathematical procedures. She loved teaching and felt that it allowed her voice to be heard in a new way, but mathematics was not the driving force of her vocation. She valued directing a classroom and explaining mathematics to students to help them feel good.

Ms. Fisher's understanding of academic care involved care for students' emotional well-being when learning mathematics and helping them build perseverance and confidence in problem solving to support stronger mathematical identities. Ms. Fisher understood that the students in her classroom had been labeled “struggling” by prior schools and that many of them had failed mathematics before. As such, students carried deficit narratives about themselves and mathematics. When I asked her what it meant to care for her students, she focused on helping them rewrite their deficit narratives and build perseverance so they could continue forward in their academic career successfully. She said,

If they're with us in Algebra 1 at this point, it means they've struggled with math, and so the only way they're going to survive Geometry and Algebra 2 and so [on] is if they are able to actually persevere because they jump into quadratics in Geometry. That is so hard compared to what we're doing right now. And so, yeah, if they can persevere and they can leave our classroom, not saying that they hate math every five seconds, I feel like that's a success. Like, if we could turn around some of those stigmas for them, and they can feel okay going into the next year's class. [If] they carry that stigma with them, they're not going to survive . . . we can help them turn that around.

Here Ms. Fisher described the students as those who struggle in mathematics and twice says how important building perseverance is. She also relays her belief that her students likely do not like mathematics and felt the weight of the “stigma” of being students who have struggled with mathematics. She said that part of caring for the students is turning around their deficit narratives about themselves and probably their dislike for mathematics specifically so they can move forward in their mathematics schooling to “survive” advanced coursework. To do that, she said, part of caring for students is making sure they “feel okay.”

“Feeling okay” was a theme in Ms. Fisher’s understandings of mathematics and teaching. So, it is unsurprising that care for students’ emotional well-being was a theme in her understanding of academic care. Here she described her concern for the students’ emotional experience of mathematics schooling,

I can see for the kids why it's so scary, because it *is* scary. Like, one second, you can feel really good, and then one second, all of a sudden, you feel really bad. And it really does depend on the teacher and the teacher’s reaction to if they get something wrong. Like [if] we make a mistake and say something that's gonna dampen their spirits, it's gonna carry on with them.

By “carry on with them,” Ms. Fisher meant that the students would continue to have negative narratives about their abilities and therefore a dislike of mathematics. She saw her response to student error as an important way to care for students because if she made “a mistake” when responding, she would “dampen their spirits” perhaps just like a gray cloud.

Ms. Fisher’s understanding of problem-solving resiliency meant that academic care for students should entail her creation of a safe environment wherein students felt they could ask questions and try out ideas. She said, “I’m trying to teach them problem solving. You can write something down and erase it . . . Try something. Erase it and try again, like, I would love for our Algebra 1 kids to use their eraser!” When I asked her what it would mean to care for her students to help them build problem-solving perseverance. She said,

If my student feels safe in the classroom, in terms of, they feel safe with me, they feel safe being in this space, and they feel safe to like, ask me or their group a question . . . We care for them if we have developed a space where they feel good, and they feel like they can be in this space and make mistakes and still leave with a smile.

So, Ms. Fisher narrated caring for students as creating a safe environment so that students would “feel good” asking questions and making mistakes.

The actions she cited as caring involved responding to student error in ways that were clear about their error but also included highlighting their successes in mathematical thinking and problem solving so they had something to build on and feel good about. She described what she needed to do to care for students,

I myself don't ever react in a way that's like, “No, this is wrong!” Like, I react in a way that’s still . . . making them feel safe. Like, I want them to know that they're wrong, and so finding a way to phrase the question or rephrase the question or answer so that they come away . . . still feeling good about the interaction and not feeling like they did *everything* wrong, but still

knowing that they did something correctly, but can improve on that and feeling safe after that interaction as well. Both upfront and in small groups and like, in like, one-on-one.

Ms. Fisher articulated here that her chief actions to care for students academically was to provide them with accurate feedback on their mathematical thinking so that they can see their errors and learn from them. She also said she should highlight their successes too so that they could learn mathematics, feel good, and build confidence and identity. Moreover, the caring actions she contemplated must be pervasive in her practice. To care, she said she must not “ever react” in ways that made students feel bad about themselves, their learning, or mathematics. Her attention to this must be in every phase of class: when she is up front enacting a launch, lecture, or discussion; when she is working with small groups; and when she is working one-on-one.

### **Ms. Royce’s Understanding of Academic Care**

Recall that Ms. Royce narrated that mathematics helped her feel valuable as a child and that it was hard work with peers that helped her succeed. She also valued understanding mathematical concepts not just procedures. She understood mathematics as a tool for organizing the world to solve real-world problems outside of school and narrated the purpose of teaching to include teaching students such tools. Ms. Royce taught because she enjoyed students and seeing her efforts contribute to their measurable growth and success. She wanted to instill a sense of personal value in students that would contribute to their ability to learn and solve problems independently.

Unsurprisingly then, Ms. Royce understood academic care for students to involve helping them identify mathematical patterns and connections to the real world while they developed confidence in their ability to learn and solve problems both independently and in teams. Ms. Royce understood caring for students academically to be primarily about helping students build confidence as learners over building proficiency as mathematicians. She said, “More than the math, I want them to feel valuable, I want them to have confidence in themselves that they can learn whatever they

want to learn, that there's no person that cannot learn what we're teaching." She added that she wanted all the students to believe they could learn mathematics "in some way to their, you know, to their level or to their understanding or with their style." Feeling valuable and building confidence in their ability to learn no matter the level of mathematical understanding with which they entered or their "style" of learning was how Ms. Royce articulated her vision of what it meant to care for students' learning. In describing what a successful mathematics student would look like, she said,

I'd love a kid who could at least sort of categorize like, "Oh, I see this pattern in these numbers. That must mean, it's, it's a straight line." I don't even want to say *linear*; they don't have to use that word, right? . . . Even a student who would just like try those things I would see as a successful student, I don't really care if they can write all the equations, right? That they can use the proper words for things. But just that they see those patterns and understand that they exist in our world.

Here Ms. Royce articulated her goals for student learning and thereby her ideas about what benefits academic care should provide. She emphasized helping students see and categorize quantitative patterns, by which she meant families of functions, while describing how she does not "really care" for students' development of the procedural and linguistic fluency required to "write all the equations" or "use the proper words." Instead, she articulated the importance of students not only seeing and categorizing patterns but connecting those patterns to real-world phenomena because they "exist in our world."

Ms. Royce also narrated wanting students to manage their emotions during problem solving while also persevering and working towards independence. For example, she described a successful mathematics student:

Let's say they're given a big picture problem. I'd say a successful math student to me would be somebody who could read that problem, take a breath, try something, maybe get it wrong, and then reengage. Maybe try it a different way.

Wanting students to manage their anxiety about mathematics and then try multiple strategies to work towards a solution was part of how Ms. Royce understood what a successful student would look like and as such how she understood the benefits of her care for students' academic success. She also articulated a successful student as one who worked towards the ability to assess their own solutions. She said, she wanted students to "really like trying to find for themselves whether something works as opposed to trying to get an answer from one of us as to whether it's 'right'."

So, Ms. Royce described helping students towards resilient, independent, and low-anxiety problem-solving that connected patterns to the real world as what her care for their learning should provide. When I asked her what actions she should take to care for her vision of student success, she said she must respond to student error in ways that boosted rather than degraded student confidence and resiliency. Here she described caring for students' mathematical learning,

I think of it as like fostering their confidence in their own thinking, like fostering their confidence in the fact that they – You can try something! – their confidence in the fact that if they don't get it right, they're not gonna get in trouble or they're not gonna get like, like, yelled at.

Ms. Royce's statement that the students are not going to get "yelled at" was meant to describe responding appropriately to students and building a safe classroom environment to bolster confidence. She also said that part of her work was building on student thinking and student success. For example, she said caring for students is,

Like spotting their little sparks of success. But they don't always see it in themselves. Like it's, I don't know, it's not constantly reprimanding. But seeing those positives and calling those positives out [so they] start realizing that like somebody else is seeing good in them. Here she described how her caring actions included “not always reprimanding” for student mathematical error but that caring teaching required her to notice student success and then call it out to give students a message that she is “seeing good in them.” Highlighting student thinking and helping students build on it were actions Ms. Royce contemplated to work towards a safe environment to care for students’ mathematical learning. Ms. Royce saw this work as central to helping students build confidence as learners and problem solvers so that students could “try something” and “reengage” as they solve mathematical problems.

### **Teacher Enactments of Academic Care**

In this section, I offer an analysis of the teachers’ efforts to care academically for their students. I examine how the teachers’ conceptualizations of academic care influenced how they set up mathematical tasks and how they supported students’ enactment of the tasks. Although Ms. Fisher and Ms. Royce had similar conceptualizations of social care, and therefore similar practices, there were differences in how they understood and therefore enacted academic care. Woven throughout the descriptions of the teachers’ academic care practices are some that are unique to Ms. Royce, unique to Ms. Fisher, and shared between them. The intention here is not to provide evaluative comparison of these teachers’ efforts to care for their students but to use the juxtaposition to illustrate how their teaching was informed by their understandings of what it meant to care academically for students.

### **Modifications to Curricular Tasks**

To illustrate how Ms. Fisher’s and Ms. Royce’s understandings of academic care influenced the mathematical tasks in their classroom, I focus on one illustrative case at the beginning of Unit 3


on solving one-unknown equations. The first two units of the school year largely followed the first chapter in the Integrated I College Preparatory Mathematics (CPM) textbook entitled *Functions*. The second chapter of CPM was entitled *Linear Functions* and provided the bulk of classroom material for Ms. Fisher's and Ms. Royce's Units 4 and 5. The teachers inserted Unit 3 into the CPM progression to teach students how to solve one-unknown linear equations before they worked with linear graphing. Both teachers described solving one-unknown equations as an "important skill" to the students, and they each provided a day of instruction at the beginning of Unit 3 to teach students this important skill.

Ms. Royce instructed the whole class on the first day of the unit with an introduction she expressed pride about during our planning meeting because she said it provided a conceptual foundation for understanding solving equations. She had adapted this task from one called "The Mystery Bag Game" in an *Interactive Mathematics Program* curricular resource<sup>7</sup>. Ms. Royce's task, shown in Figure 7, involved Smaug the dragon playing with his friend Stilton who hides gold pieces in "mystery bags." Smaug is to determine how much is in each bag by using a double-pan balance or scale and some lead weights. The task suggests to students to make a drawing for each of the ten problems that followed (the first of which is shown in Figure 7) and prompted students to explain how they knew they were correct. The task had a picture of a scale, and drawings of scales were included on the following day's warm-up that featured a picture of Smaug and similar verbiage about finding the amount of gold in mystery bags.


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<sup>7</sup> Her adaptation was to change the king and jester character in the Interactive Mathematics Program to a dragon and a mouse.

Figure 7 – Ms. Royce’s Task for Solving One-unknown Linear Equations



**Situation:** Smaug, the dragon, has so much gold that he spends most of his time protecting it. Because Smaug, the dragon, gets bored he likes to play the mystery bag game. He has his best friend Stilton, the mouse, fill one or more empty bags with the same amount of gold. They call these bags “mystery bags.” Stilton, the mouse, takes out a pan balance and places a combination of mystery bags and lead weights on the two pans so that the two sides balance. Smaug, the dragon, tries to figure out the weight of the gold in each bag.



For each of the situations below, help Smaug figure out how much gold is in each mystery bag. **(Each time they play the mystery bag game, Stilton fills the bags with a different amount of gold.)**

For each situation, explain how you know you are correct. You may find that drawing diagrams is helpful.

- 1) There are two mystery bags on one side of the balance and 6 ounces of lead weights on the other side. How much gold is in each bag?

After teaching this task to Period A, Ms. Royce commented on the importance of the conceptual basis for the learning and considered ways to improve the task. She said,

I’m wondering, particularly after [Period A], yeah, I’m wondering [for the launch in Period B] if we, like draw one scale out together for the first one or something like that – just to like make that connection . . . I also saw a lot of students get to that last one<sup>8</sup>, and then just go right back to whatever they remembered from middle school and write it out just like an algebra problem, as opposed to like, really pulling that concept together. So, I wouldn't mind just bridging that gap a little.

Here Ms. Royce commented on the student enactment of the task. She noted that some students set up symbolic equations to solve, and she postulated that their strategy was more indicative of memorization of procedures learned in middle school than conceptual understanding. As such she

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<sup>8</sup> The last problem to which she refers said, “What if you had a mystery bag problem that mathematically looked like this  $2M + 25 + 3M = 10M + 4 + 6$ . How might you solve this problem?”

proposed reformulating task set-up to help Period B's students make a more explicit connection between a symbolic manipulation of unknowns, coefficients, and constants in an equation with the concepts of *unknowns*, *constants*, and *equations* represented by mystery bags, lead weights, and scales respectively. She said she wanted to “bridge the gap” between the conceptual understanding and writing equations out “just like an algebra problem,” meaning symbolically.

Ms. Royce also contemplated helping highlight and connect the problem-solving strategies of different students the following day. During our debrief after teaching the task in Period A, she commented,

That might be another sort of gap to bridge. On that warmup, right. Like if we can have, even if there's one where we have the picture drawn? Right. Then maybe going over it. We can talk about it multiple ways. Find that student who just plugged the number in, find that student who drew the picture out, maybe started canceling things out, and find the student who may be like, actually just did like the rote mathematics. And maybe we can have all three of them show their work.

Here Ms. Royce discussed how she noticed three approaches to solving the task. Some students used a guess-and-check strategy. Some students drew out a set of scales to determine how much gold was in each mystery bag, and some students used symbolic manipulation to solve the problem, which she called “rote mathematics.” Here she suggested connecting these strategies to help students tie the symbolic manipulation to the scales especially and to show the efficiency of these methods over guess-and-check to “bridge the gap” between these strategies.

This task reflected Ms. Royce's understanding of caring for students academically. She believed caring for students' mathematical learning meant giving them tools for solving real-world problems independently. She also believed that students needed to understand mathematical concepts to be able to solve problems on their own. So, she set up her task to help students

understand the concept of *equality* through the scales, the concept of *unknowns* through the mystery bags, and the concept of *constants* through the lead weights. She then refined her set-up for Period B to connect those conceptual understandings to symbolic representations of equations. To promote independent problem solving, students were prompted to draw the scales and the mystery bags and lead weights and tell how they knew their answers were correct. She also did not tell them to check their work by plugging their solutions into an equation but left open the question of how they would know they were correct. Her use of scales, which are real-world tools, connected to her belief that academic care involves giving students tools to solve problems, and although dragons with pets and mystery bags of gold are hardly real-world problems, she attempted to contextualize solving equations for students to make the mathematics real. Also evident here is a lack of vocabulary focus for Ms. Royce. She had said that she did not care if students could, “use the right words” to describe mathematics. So, although she has a conceptual and contextualized task, this lesson did not emphasize clear definitions for those terms or involve language planning for multilingual students, which is consistent with her understanding of academic care. Finally, Ms. Royce’s plan to highlight the mathematical agency of multiple students to show a variety of problem solving strategies for comparison is consistent with her emphasis on students cultivating independent problem solving.

Ms. Fisher’s choice of task for one-unknown linear equations also reflected her understanding of academic care. On the second day of Unit 3, Ms. Fisher took the lead. She designed a task that also was not in the CPM curriculum and projected it (see Figure 8) on the board while narrating her completion of its first row. The task included a set of procedures to think through how to solve a one-unknown linear equation. She suggested students substitute a number into the equation, simplify, and then write down the steps they had followed. They were then to reverse the order and operations of those steps to create for themselves a second set of steps they could follow to solve the equation for the unknown.

Figure 8 – Ms. Fisher’s Task for Solving One-unknown Linear Equations

Algebra 1 Name: \_\_\_\_\_

Unit 3 Day 2 - Equation Solving					
You are trying to solve the following problems:	Substitute 2 into the left side of your equation and use PEMDAS to evaluate. Note: Ignore the right side here!	Write out the steps you used. (Scrambling)	Now write the <u>opposite</u> of those steps in the <u>reverse</u> order. (Unscrambling)	Do the unscrambling steps to both sides of the original equation until you get $x = a$ number. (solution)	Check your solution by plugging it into the original equation and trying to get a number = itself.
1) $\frac{2(x+4)}{5} = 6$	$\frac{2(2+4)}{5}$ $\frac{2(6)}{5}$ $\frac{12}{5}$	① Add 4 ② Multiply by 2 ③ Divide by 5	① $\times 5$ ✓ ② $\div 2$ ✓ ③ $- 4$ ✓	$\frac{2(x+4)}{5} = 6 \cdot 5$ $\frac{2(x+4)}{2} = \frac{30}{2}$ $x + 4 = 15$ $x = 11$	$\frac{2(11+4)}{5} = 6$ $\frac{2(15)}{5} = 6$ $\frac{30}{5} = 6$ $6 = 6 \checkmark$
$\frac{2x+3}{5} = 1$					

Just like Ms. Royce, she considered the task after it had been enacted by Period A. She described how she was having difficulty with students refusing to take up the task. She said,

I was getting really frustrated because they were like, refusing to try the forwards and backwards steps. But then . . . I'm like, okay, then show me how *you* would do it? Because I'm like, Oh, you must know how to do it, but no, they're struggling with it.

Ms. Fisher’s task set-up mirrors her understanding of academic care for students. She believed academic care involved helping students build confidence and “survive” future high school mathematics classes. She believed that understanding mathematical procedures was central to that endeavor. Therefore, in teaching students to solve one-unknown linear equations, she set up a procedure for students to follow to uncover a procedure for solving one-unknown linear equations. Unlike Ms. Royce, Ms. Fisher did not emphasize independence in her conceptualization of academic care. Rather, she wanted students to learn procedures in her class so they could succeed in subsequent mathematics classes. Note also that these equations do not have context, nor is there a focus on the *equation*, *unknown*, *constant*, or *solution* concepts or vocabulary. This is consistent with Ms. Fisher’s understanding of academic care as involving giving students small opportunities to build

confidence and feel comfortable while learning procedural tools for succeeding in future high school mathematics classes, but without an emphasis on concepts, real-world problem solving, or the use of mathematical vocabulary.

### **Whole-Class Discussions**

Ms. Fisher and Ms. Royce supported student engagement with tasks through whole class discussion and conferrals with individuals and groups. The teachers structured class to minimize whole-class discussions because of doubts about student attention and the efficacy of whole-class discussion. So, most of their whole-class discussions came in the form of task launches. For the one-unknown linear equation tasks described above, for example, the teachers' setup of the task was the only whole-class discussion.

From October to January, I collected whole-class discussion data in thirteen 100-minute classes to track discourse dimensions and social markers. Most of these whole class discussions involved the teachers attempting to bridge the students' work on the warm up to new mathematical learning for the class. In my analysis of these discussions, I found that about 80% of both teachers' questions to students consisted of closed-ended and often binary prompts to students to calculate numbers or identify steps to a procedure or parts of a graph. For example, when finding slope, Ms. Fisher would ask students questions like "What goes on top? Change in Y or change in X?" Students would then individually volunteer answers, mostly without being called upon<sup>9</sup>.

The teachers' understanding of whole-class discussion reflected their understanding of academic care and was captured when they gave after-class advice to Ms. Vincent, the student teacher. Ms. Vincent had just facilitated a 16.5-minute discussion of graphing linear equations using

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<sup>9</sup> Although not a focus of this study, the EQUIP data showed that this technique was associated with disproportionately more participation from white males in class.

the y-intercept and the slope<sup>10</sup>. Ms. Fisher said that Ms. Vincent's discussion was "too long" and that she needed to "keep it super simple." She suggested Ms. Vincent should point at the y-axis on the graph in the discussion and "just being like, Wait, like, Here's the slide (representing a line), where does it cross? Like, super straightforward and simple."

Ms. Royce added on to Ms. Fisher's advice that Ms. Vincent should dive more deeply into student thinking in whole-group conversations. A student named Baelee had asked what to do "when the slope was not divisible by the x-intercept," and Ms. Vincent had not understood Baelee's question and glossed over it. Ms. Royce followed up with Baelee later to discover that she was asking about how to graph a line whose slope, when applied from the y-intercept, made it fall on non-integer values on the x-axis unlike all the problems on the worksheet. Ms. Royce gave advice to Ms. Vincent about how to handle a student's question she does not understand, "It's hard to [do] in the moment . . . [but] if I don't know what a student means, the *ask* is actually super valuable: 'Tell me more about what you mean by *divisible* there.'" Ms. Fisher offered her own advice as well saying, "If you're like, really, really not sure, [say,] 'Thank you so much for sharing. I appreciate that feedback. Who would like to build on to that?' . . . There's ways to kind of move past it."

These descriptions of how to handle unanticipated mathematical questions from students are illustrative of how Ms. Fisher's and Ms. Royce's understanding of academic care for students informed their facilitation of whole-class discussion. For Ms. Fisher, she described caring for students as a matter of caring for their comfort and bolstering their confidence but did not center conceptual understanding in her descriptions. As such, her whole class discussion advice for Ms. Vincent involves thanking the students for their "feedback" and asking other students to build on

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<sup>10</sup> Although not a focus of this study, Ms. Vincent's whole group discussion included wait time and individual thinking time for students that was atypical of class. Ms. Vincent had far more participation from female students and students of color than was typical in this classroom during this discussion.

the idea without addressing the idea. The goal of her discussion strategy is to “move past it,” to move past a difficult question so as not to sow confusion and to keep discussions “super simple.” Ms. Royce’s conceptualization of caring for students centers their construction of mathematical tools for solving real world problems independently. So, her advice to Ms. Vincent is different. She did not seek to move past a question she does not understand but to probe more deeply into it by asking a follow-up question like, “Tell me more about what you mean by *divisible*.” Ms. Royce’s cognitive decentering (Hackenberg, 2005) to work to understand student thinking is consistent with her understanding of academic care for students, which centers their comprehension of mathematical concepts so they can work towards solving problems on their own.

### **Conferring with Students**

As mentioned, Ms. Fisher and Ms. Royce sought to support student enactment of tasks primarily through discourse with students in small groups. Groupwork was a central feature of their class structure, and their conferrals during classwork reflected their understanding of academic care.

#### ***Ms. Fisher’s Conferrals with Students***

Almost 70% of Ms. Fisher’s mathematical questions to students involved a series of close-ended, often binary questions meant to help a student take small steps through a procedure or line of reasoning. For example, here Ms. Fisher was conferring with a student who was trying to make a slope-intercept equation from an input-output table that started with an output of five and decreased by four as the input value increased by one.

Student:        Would it be minusing four?

Ms. Fisher:    Well, is that your growth or your starting point?

Student:        Growth

Ms Fisher:     Your growth. Okay, so where should we put that in our equation? Is it the red spot or the green spot?

- Student: The red spot.
- Ms. Fisher: Yeah okay so you're saying like negative four –
- Student: So it would be  $y = -4x + 5$ ?
- Ms. Fisher: I love that. That's perfect.

This interaction is representative of Ms. Fisher's typical conferral strategy. A student's question is met with a series of binary choices. First, is the negative four a starting point or growth? And then in which of two spots, color-coded red or green, should that number go? When the student gave Ms. Fisher a correct response, she replies "I love that. That's perfect." Ms. Fisher's understanding of academic care as helping students manage algorithmic procedures correctly and bolstering their confidence in the process is readily apparent in how she conferred with this and other students. She would give students a series of this-or-that questions to help them achieve a correct answer, following up with a general positive affirmation like, "I love that" or "That's perfect," when they gave her a correct response to bolster their confidence.

Ms. Fisher was more likely than Ms. Royce to answer student questions without explanation. For example, during the unit on solving one-unknown equations, the class was playing a Jeopardy review game. One of the equations had a solution of zero. When teams had their answers written on white boards and were waiting for the answer to be revealed, Ms. Fisher approached several teams to tell them that their answer of "no solution" was not right and that there was a solution to the equation, but the confusion between a solution of zero and no solution to the equation was not clarified. Although Ms. Fisher would correct student error in conferrals, which was consistent with her description of academic care, when it came to any thinking that might be made public, she sought to reduce the likelihood that a student would give an erroneous answer publicly. At those moments, she prioritized students' confidence and comfort over their understanding of their error.

Ms. Fisher was also more likely to give procedural explanations including telling students how to solve problems by telling them what steps to follow. For example, here she explained to a student how to solve one-unknown linear equations using the table she had set up (see Figure 8),

That was just to help us establish what our forwards steps are, like figuring out if we were to plug in a number, such as two, then that would be our forward steps, right? You're like to minus 12. But now that we've got our backward steps, the first thing we're going to do, let's, let's show that we're dividing by two, dividing by two. You see how that's the first backward step? . . . So the forward was to help us – You see the left side that has the F on it? So we like figured out okay, if I were to plug a number in, I would subtract 12 from it. And then I would multiply that number by two. That's how I got that left side. But then I said, Okay, well, how do I write my backward steps? Now, I'm going to reverse the order. And I'm going to do the opposite operation. And once you figure that out, then you can just go ahead and do those steps to your original equation.

Notice that she uses the word *step* five times, emphasizing a procedure for solving one-unknown linear equations. This conferral strategy is consistent with her understanding of academic care and mathematics.

Ms. Fisher was twice as likely as Ms. Royce to highlight student ideas and build on them to teach students procedures. For example, here Ms. Fisher helped students who are trying to build an equation from a tile pattern that started with three tiles and increased by four tiles for each iteration. The students were asked how many tiles the 100<sup>th</sup> iteration would have and to create an equation that would model the number of tiles in each iteration:

Okay, so what I'm hearing is three times 100. And then you added four. I love it. If we make this into an equation, if we said okay, what if we didn't know it was 100? What if it's just 90 or 82? Like no matter what figure it is, let's just leave it as  $x$ . And so, then your equation here

you have  $3x$  plus four. Because you said okay, we're gonna multiply three times 100 And then add four to it. So, I think you guys are super close with your equation. Love it.

Notice how Ms. Fisher started with a restatement of student thinking when she said, “what I’m hearing is three times 100.” After validating that thinking with an “I love it,” she then built on it to move students onto the second part of the problem, building an equation. She suggested the use of the variable  $x$  and substituted it in herself to build  $3x + 4$  as the expression that computed how many tiles would be in the pattern after the  $x$ th iteration. Shielding students from public error, validating correct student answers, and walking students through procedures reflected Ms. Fisher’s understanding of academic care as she prioritized building student confidence by reiterating their thinking and providing clear step-by-step instructions to help them succeed in mathematics class.

### ***Ms. Royce’s Conferrals with Students***

Ms. Royce’s conferrals with students reflected her understanding of academic care. Although she had many interactions with students that included binary and close-ended questions, the majority of those were with two students for whom she was giving much one-on-one support<sup>11</sup>. Like Ms. Fisher, she also would highlight and build on student thinking, but Ms. Royce was more likely than Ms. Fisher to ask students open-ended questions about student thinking like “Tell me about what you are thinking here,” or “What makes you feel like you did something wrong?” She was not looking for one-word answers to her questions but for student explanations of how they were making sense of the concepts and problems. She would also ask follow-up questions to those explanations. For example, when a student was explaining his evaluation of an expression with fractions, Ms. Royce answered his explanation with “Tell me what you mean by ‘flip it.’” Or after a

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<sup>11</sup> Ms. Fisher seldom spent more than a few minutes with one table group, whereas Ms. Royce would often get down on one knee to support students who were struggling the most for long periods of time.

conversation about exponents with a student, Ms. Royce asked, “Do you think you can answer your original question?”

Ms. Royce was also more likely to ask students questions that were open-ended and conceptual. These questions included asking students to describe patterns they were seeing or to connect representations. For example, as students were working to build equations from tile patterns, she asked, “Where in the equation do you see the tile growth?” and then “Where do you see it in the data [table]?” Or when students were working to graph real-world scenarios, she asked students what the x and y axis *mean*, and she would consistently prompt students to label their numbers, tables, and graphs with units so they would ground their algebraic problem solving in real-world context whenever possible.

Both Ms. Royce’s investigations of student thinking and her conceptual questioning reflected her understanding of academic care for students. She engaged in cognitive decentering (Hackenberg, 2005) with students to understand their thinking so that she could make her own model of student understanding of concepts, and she asked students conceptual questions to help students build on their understanding to work towards independent problem solving.

Ms. Royce’s answers, explanations, and encouragement to students were mostly quite different from Ms. Fisher’s. Ms. Royce was more likely to suggest problem solving strategies to students. She would suggest students draw a picture to conceptualize a problem or “plug in random numbers” to understand how an equation might work. She would suggest that students use one problem to think about another problem without telling them how. She suggested students assign units to their numbers to figure out which numbers represent what parts of real-world scenarios. Her suggestions included learning strategies such as “record what you’re thinking,” or “ask your team a question if you’re stuck.”

Ms. Royce was also more likely to give conceptual explanations to students as opposed to procedural ones. For example, when helping students solve one-unknown equations, she consistently referred to scales and lamented that she did not have one to aid her explanation,

I wish I actually had a scale here, because it would really help to actually have a scale. So to keep the scale balanced, right, I would have to have the exact same thing in both hands.

Right? And then if I want to keep it balanced, I could take the exact same thing off of both sides, right? Like, if I, if I took five pounds off of this side and five pounds off of this side, would it still be the same? Let me model this (and then uses her hands to act like a scale).

When one student asked if Ms. Royce could just show her how to solve an equation, Ms. Royce replied, “I’m trying to help you do it again in the future. I’m not just gonna say ‘do this’ right? Because that doesn’t help you. I want you to, like, try to be thinking about *why* you’re doing each thing.”

Other examples of her conceptual explanations included how when working with students to model racing tricycles with linear equations, she would talk about the lines showing how “speedy” one tricycle was as she attempted to have students connect slope with a rate of change in the real world. When she would ask students to explain their work, she wanted their explanations to be *theirs*. At one point when a student asked for help explaining domain and range, she checked herself from over-explaining saying, “I’m trying not to make *your* words *my* words,” and when students had explained correctly and on their own, her response was, “You have it! You don’t need me!” These examples show just how central the cultivation of independent problems solving is not only to Ms. Royce’s theory of academic care but her academic care practices.

Ms. Royce also gave more specific feedback. When working with students, she not only engaged in general cheerleading like Ms. Fisher, saying things like “awesome” and “I love it” and “you got this,” she highlighted students’ specific mathematical practices, and important teaching

practice for building student identity and understanding (Selling, 2016). Some examples include telling students they had done a “great job” double checking their work, showing their work fully, or drawing a picture to solve a problem, naming the specific practice as she did so. She would congratulate students on the “thoroughness” of their explanations, and said, “Wow, great use of resources” to two students when on their own they used fraction bars to compare slopes of linear equations.

Ms. Royce’s explanations and encouragement to students constituted part of how she enacted academic care. Again, she believed caring for students involves helping them gain confidence to cultivate positive identities as learners and independent problem-solvers. As a result, she was less likely to provide, verify, or correct answers for students and more likely to suggest problem solving strategies that they could employ to make progress. She had greater focus on conceptual and contextual explanations so that students could “do it again in the future,” understanding her conferral as complete when she could say to a student “you don’t need me anymore.” So, her explanations to students and the explanations she demanded from students served the purpose of cultivating confident independent problem solvers consistent with her understanding of academic care. She also suggested learning strategies to students like recording their thinking and worked to be specific in her praise of students so they would understand what mathematical practices they were being praised for. This is consistent with her description of academic care as involving student construction of an “I can learn this” narrative.

### **Student Understandings of Academic Care**

In this section, I describe how the Seaview students understood academic care from teachers. I also contextualize their descriptions of caring mathematics teaching in their narratives of schooling and their academic goals. I provide not only the students’ descriptions of caring mathematics teaching but also reasons why the students described academic caring teaching as they

did. Throughout I comment on ways in which this racially diverse set of students found Ms. Fisher's and Ms. Royce's academic efforts caring as evidenced by their responsiveness to the teachers' care.

Recall that the students I interviewed had previously struggled in mathematics schooling, and all twelve students reported caring about their work and their grades or wanting other students to do so. Students expressed ongoing concern for their success in mathematics to overcome negative mathematical identity narratives. They saw success in mathematical schooling as connected to their futures, and they articulated enjoying mathematics more when they felt they understood it.

Students described caring teachers to be those that helped them through individual attention and explaining mathematics well. They also wanted teachers to pace the material appropriately with engaging lesson planning. Although most students wanted clear procedural explanations to help them succeed on mathematics tests, some wanted a deeper conceptual understanding and for teachers to connect concepts through the curriculum.

### **Explaining Well**

Almost all students described caring teachers as those who explained mathematics well. *Explaining well* meant that teachers would explain in multiple ways and explain patiently. Primarily, when students talked about explaining, they were interested in procedural explanations as opposed to conceptual ones because mathematics tests were procedural, and they wanted good grades.

Many of the Seaview students I interviewed particularly appreciated teachers who could explain in multiple ways. For example, Bonnie said, "I love Ms. Fisher. Like, she's just like, so amazing." When I asked her why, she said "I feel like she just teaches super well, and she knows what to say. Like, past teachers, like, haven't always explained it to me in multiple different ways, and she definitely does that." Students also tied the ability to get a variety of explanations to having four teachers in the room (Ms. Fisher, Ms. Royce, Ms. Vincent, and me). Bonnie said having four teachers was useful because "There's more opportunities, and there's different teaching styles for

each [teacher]. . . Some people are more visual, and some people know – I mean, everyone just explains it differently, and then you'll get an explanation that'll make sense eventually.” Seven other students made similar statements, and these statements demonstrate how the low student:teacher ratio contributed to students getting multiple explanations from different teachers in a way they felt was caring for their mathematical learning.

When Seaview students discussed caring teachers, they also described teachers who were patient in their explanations. For example, when Chanelle, a Latina, described a caring fifth grade mathematics teacher, she said, “He would take his time on like, teaching us, and explaining what things mean.” Bonnie described a caring mathematics teacher by saying, “He took a long time on each subject . . . He would answer any questions that you had.” Lizette detailed how this patient process felt to her when describing how she thought her Seaview mathematics teachers were caring:

So, for example, Ms. Royce the other day. I was I was I finished one problem that she helped me on. And then I got to the second problem. And I did the first few steps. That's it. I remember. And then the rest of it - I can't do this. And I am so happy, like, I actually got you guys like as my teachers because like, she didn't get mad at me. She's not like, “I already explained the first one to you. Why are you asking me how like the second?” And I'm so glad you guys do that. She was like, “Okay, we will, you know, same as the last one. You know, we go step by step.” I appreciate that so much. Yeah, like, that's actually very helpful.

Here Lizette is comparing Ms. Royce, whom she says is a caring teacher to prior teachers and pointing to Ms. Royce’s patient explanation of a second mathematics problem after she had already explained a similar first problem. Lizette contrasts that with prior teachers she described as uncaring who would “get mad” and refuse to explain a second problem. This shows how Lizette values patient and repeated procedural explanations and echoes Ms. Royce’s description of care as

including making sure students do not think they are going to get “yelled at” for making mistakes. Six other students expressed similar sentiments.

When Seaview students described caring mathematics teachers and how they explained, most voiced a desire for a procedural explanation. For example, Russell described how he appreciated his Seaview mathematics teachers, saying, “You guys give us a bunch of information . . . how to like do the equation.” When I pressed about whether the explanations he found caring were about mathematical concepts or procedures, he replied, “More like how to do the problems.” When Heleri described the explanations of a caring mathematics teacher from elementary school, I asked her, “Do you remember if she was explaining ideas or explaining steps or some combination?” She replied, “I feel like it was both, but mostly steps.” As Lizette talked about feeling that her Seaview mathematics teachers were caring, she said, “You guys actually try to explain the problem. Go step by step until like we actually understand.” Bonnie also said caring teachers should just “tell me how to do it, and then I’ll be able to do it.” So, most students said that the explanations that felt caring were the ones that went step-by-step. Although Ms. Royce would use this type of explanation when working for long periods with students who were struggling the most, step-by-step explanations were common feature of Ms. Fisher’s conferrals with students.

### **Conceptual Connection**

Although eight students of the twelve clearly articulated a desire for procedural, or “step-by-step” explanations, two students articulated more of a desire for conceptual understanding from teachers to be considered caring. For example, Fiona, in describing a teacher she thought did not care for her said, “It was just maybe there wasn’t enough, like, in-depth explanation of the concepts, which maybe it was okay for other people, but like, as someone who like, struggles to understand math, there just wasn’t enough.” Neberu expressed a similar desire for conceptual explanation and

understanding when talking about how he did feel this year's teachers were caring because of connecting concepts through units:

I like what you guys do, where everything, every new unit, we use something from the past unit. But like last year, we would just go from one thing to a whole new thing. And then by the time we need to remember the first thing we've already forgotten it . . . you guys, like actually make the thing from the past align with the new thing that we need to use.

Here, Neberu was articulating the desire for teachers to build new learning onto prior mathematical knowledge and bridge concepts together to undergird the learning of new concepts so he could understand procedures.

### **Individualized Attention**

Nine students described caring teachers as those who centered student thinking and provided individualized attention. For example, Chanelle said that caring teachers should work to “understand how students think” and “care for everyone’s questions and thoughts.” When Heleri described Ms. Dechanel, as a caring mathematics teacher from elementary school, she said that Ms. Deschanel explained well to the whole class but, “if, like, kids were like, still confused, or she saw that she [would] just like, go ask individually.” Similarly, Lizette described a previous caring mathematics teacher saying, “If she sees me struggling, she'll come over me and help me . . . She'd always like, go to each student personally asked, like, what they needed help with.” This individual attention was particularly important to Lizette because she added, “Every teacher is like, ‘Oh, I care about you,’ but it sounds so fake. I feel like that's because like, they don't actually take their time to like, check in with every student.” Here Lizette is pinpointing the action of checking in with each student individually as an important pedagogical action that teachers can take to show their care for her learning.

Bonnie described the need to individualize pedagogy comprehensively. When I asked her what advice she would give my teacher candidates on how to be a caring mathematics teacher, she said, Math is different for each person, but it's not taught that way . . . So just making sure that you're accommodating to each person and like, like, try to figure out the best ways to teach broadly, rather than just like, this is how I'm going to teach math because this is the one way. Here, when Bonnie said “teach broadly,” she was equating that with “accommodating to each person” and setting it in opposition to teachers adopting one teacher-centered way to teach as they ignore that “math is different for each person.” Sheila made a similar statement when she said, “I feel like a lot of teachers, like they all have teaching styles. Like, you kind of have to like change that depending on who's in your class. You know?”

### **Appropriate Pacing**

Seaview students articulated that caring mathematics teachers were cognizant of their pacing of the material to serve the students. For example, after Fiona described the desire for caring mathematics teachers to explain concepts, she talked about pacing. She said, “I just wanted to understand the whole thing, and like, it just was like, I'd start to understand a little bit, and then we'd move onto something else! I was like, what?” Bonnie expressed a similar sentiment when she referred to the pace of mathematics curriculum as “the line.” Here she describes how adjusting pacing for the needs of the students is a hallmark of caring teaching:

Not everyone is going to be at the line that you want them to be when you want them to be at it, and if you don't take some extra time, help them get to that line, then they're just gonna miss it.

When telling about a caring mathematics teacher from middle school, Bonnie said,

He took a long time on each subject. Like he, he would like, we'd always be behind all the other classes, but he didn't care [about that], and I guess he would answer any questions that you had, and like he would take time with each individual.

To Bonnie, this caring teacher's priority was adapting the pacing of covering mathematical content to the individual needs of students in the room.

Many of the students said caring teachers taught with appropriate pacing of material. My field notes show students responded differently to the teachers' pacing of mathematics. Lizette, Bonnie, and Fiona said they did not like mathematics, but all three commented on how they appreciated Ms. Fisher's pacing and in the fall semester mostly engaged with mathematical tasks during class. Other students, like Kofi and Sheila, did not respond to that type of caring. Both regularly refused or avoided engagement with mathematical tasks and opted instead to socialize with friends. Both reported that math class was too easy and therefore boring. They did not respond to Ms. Fisher's and Ms. Royce's pacing, and therefore were not in a caring relation as their pacing needs went unmet. This is a prime example of how a teachers' efforts to care for students can miss the mark for some students while feeling caring to others.

In the next chapter, I discuss a change that happened in class after teachers met with students in late December to learn how to improve class. During those meetings, the teachers learned how both Kofi and Sheila thought class was too easy, and when the teachers responded by introducing higher cognitive demand tasks that were more groupworthy, both Kofi and Sheila engaged more with mathematics tasks in class. Fiona on the other hand disengaged from mathematical tasks spending more time drawing cats instead and expressing a hope that class might return to more straightforward problem sets. As I discuss more fully in Chapter 8, the tension between the needs of Kofi and Sheila and that of Fiona highlights the complex work of teachers learning to care for students who have a variety of needs and beliefs about what caring teaching is.

## Engaging Lessons

Seven Seaview students articulated that caring mathematics teachers would plan engaging lessons. For example, when I asked Baelee if she thought some teachers were more caring than others, she said, “You can tell like, how much like effort they put into their lesson plans. They do like more exciting stuff, like, actually trying to get you interested in getting to work.” Baelee reiterated the importance of good lesson planning to caring for students later in the conversation, and she was not alone in this sentiment. As students described caring teachers, they provided many examples of activities, projects, and games in mathematics, Spanish, history class, and art classes that they remembered fondly as being fun but also helping them learn. For example, Sheila described how an engaging lesson in her history class mattered for learning,

It was like, it was really fun. But we were also learning while we were like doing it. And like, that’s what I remember. Like, I remember things being really fun. But then also think farther than just the fun will be like, Oh, I actually like learn stuff from that.

Byron, a white boy who says he loves mathematics, described something similar when he told about his most caring mathematics teacher’s class,

It was sort of – He tend to make it fun throughout the year. Like, like having little contests or like, we had a Tetris tournament, where the prize was your favorite candy. Or for the volume unit, I think we were trying to figure out how much Coke was in a pool. Whoever was closest was presenting [their solution at the end of class] . . . We did like the scavenger hunts where we had like, [we had] a problem that we had to find . . . the problem that goes with it.

To Byron having fun in mathematics class “throughout the year” was a key element to his description of a caring mathematics teacher, and the fun included compelling problems like figuring out how much Coke could fit in a pool or math games and contests.

Typically, Ms. Fisher and Ms. Royce used similar worksheets for the warm-up, classwork, and independent practice. During class, I wrote jottings describing student engagement with the tasks at multiple points through class. On days with a sequence of worksheets, it was typical to see eight or nine cell phones out at a time. Many students were pushed back in their chairs away from the table, and many table groups were not interacting around the mathematics. On days with complex and open-ended tasks with higher cognitive demand problems, which started in January, the cell phone counts dropped to below two for the whole 100-minute period. Students interacted and cooperated to create posters connecting equations, tables, and graphs to model real-world scenarios. This is the type of student response constitutes evidence of caring relations and that students did indeed feel the teachers' more engaging lesson planning was caring.

### **Chapter Summary**

The teachers' mathematics instruction reflected their understandings of academic care, which stemmed from their understandings of teaching and the nature of mathematics. Ms. Fisher described mathematics primarily in emotional terms, tying it to her identity development, social connection, and career aspirations. She narrated self-doubt in her understanding of mathematics and loved teaching. She said teaching was a role in which she could be heard and that she felt valuable running a classroom and explaining mathematics to students. Ms. Fisher saw caring academically for students as helping them remove the "stigma" of being people who had failed mathematics before and build algebraic skills and identity to "survive" subsequent mathematics classes. She sought to walk students through mathematical procedures to bolster student comfort and confidence and set them up for academic success. This understanding of academic care informed her set-up of procedural tasks and her conferrals with students. She worked to help students understand the "steps" of mathematical procedures and would often step them through mathematical procedures in her conferrals. She highlighted and built on student thinking to build student confidence and identity.

Ms. Royce valued hard work with others and understanding mathematical concepts. She understood mathematics as a way to organize the world and solve real-world problems. She thought academic care for students meant helping them become independent problem solvers who were confident in their ability to learn. This understanding of care influenced her setup of tasks and her support for student engagement with tasks. She set up and sought to refine tasks to incorporate student understanding of mathematical concepts and their connection to procedures. She also asked many open-ended questions to students to have them articulate their own understanding. She suggested problem solving strategies with the goal of student independence, and she gave specific praise for problem solving strategies she deemed useful and productive. She did not insist on linguistic precision as students spoke about mathematics.

Many of the students I interviewed outright identified Ms. Fisher and/or Ms. Royce as caring teachers. Most described academic care with reference to some pedagogical practices common to Ms. Fisher and Ms. Royce. Most students said caring for their learning included patient, varied, and procedural explanations common of Ms. Fisher's instruction while some students wanted conceptual understanding to be able to "understand the whole thing," which was a focus of Ms. Royce's conferrals. Some students found it caring when the teachers linked concepts and procedures together from one unit to the next, and students valued appropriate pacing of curriculum. When they felt the pacing was right for them, they felt cared for but narrated or showed not being cared for when the pacing was too fast or too slow. Finally, all students felt teaching through engaging and memorable lesson planning was caring.

## Chapter 7 – Political Care

In this chapter I describe how Ms. Fisher and Ms. Royce understood and enacted political care for their students. Recall that political care refers to the attention to power within a caring relation in two basic ways. One is the power dynamic between teachers and students as teachers hold institutional authority. The second is the power dynamic specifically between white teachers and racially diverse students. As such, this chapter offers an analysis of teachers' racial criticality and the role of political clarity, or straight talk about race and racism with students of color, in the teacher-student relationship. Although Ms. Fisher and Ms. Royce enacted academic care differently, they were quite similar in their understanding of political care. I describe how the teachers' understanding of equity and their role as a classroom authority intersected and shifted over time. I detail how students understood the political dimension of teacher care including an analysis of how students of color thought about political clarity with white teachers, and I provide evidence of ways in which the teachers' political care efforts felt caring to some students.

### Ms. Fisher's Understanding of Political Care

Ms. Fisher was uncomfortable talking about race at school. Unsurprisingly then, when I asked her if she had politically clear conversations with students about race and racism in schooling, she said "honestly, no." She had an understanding that some students, by virtue of their race and white norms at Seaview would be uncomfortable, feeling "pressurized" or "blanketed" in school and in her classroom. However, when I asked how she cared for students of color who were feeling uncomfortable in her class. She said,

If the student is not interacting or something like they're maybe having a bad day or something . . . I don't read into it as being like, I'm making you feel uncomfortable because of our activity. Sometimes it's more of like, oh, you're just you're acting different today. So

therefore, you must be having a bad day yourself, right? And I tend to just kind of be like, “Hey, how are you? Are you okay?” . . . I just automatically like resort to “Hey, it seems like you're having a bad day. You want to talk to your counselor?” And I kind of like, a lot of times I push off that responsibility, I think, to others to check in with students sometimes. And I don't resort to thinking of how am I? Yeah, how am I impacting sometimes based on the system of school.

Here, Ms. Fisher candidly described that when faced with a student of color who felt uncomfortable in some way during class, she would tend towards temporary explanations for their discomfort; they were “acting different” or “having a bad day.” She did not consider the student’s racialized experiences in school. Instead, she expressed concern about their well-being and feelings but then would “push off responsibility” for helping them without interrogating her own whiteness or the whiteness of Seaview and its impact on students of color. Recall that *caring about* involves the emotions of the one-caring, but *caring for* requires action (Noddings, 1984). Ms. Fisher cared *about* the students and their racialized experience of school when she expressed dismay over whether she might be making students feel uncomfortable in the white normativity of schooling. However, this quote shows how she did not care *for* the students in the midst of their discomfort.

The way Ms. Fisher did understand caring for students politically was through equity-oriented classroom policies. For example, she lauded the prior principal for making uniform Canvas pages as a policy for equity at Seaview. She said,

I think, a pretty significant shift . . . [was] norming, so that our students, maybe who don't speak English at home, are able to access our Canvas pages and have the same format on all of our Canvas pages, so that our families are able to, you know, help their students even if there's a language gap.

Here she described that caring for emergent multilingual students could be accomplished through aligning the format on class Canvas pages. Ms. Fisher also very much cited her use of policies from *Grading for Equity* (Feldman, 2019) as part of her political care for students and articulated ways she should change her grading practices to be more equitable to grade “not behavior, not a group” but “what that student knows.” These policies included the elimination of extra credit. She said, “the book talked about how who's really getting those extra credit points? And is it the students that needed the most?” Her question about who is getting the extra credit was in the context of our discussion about race and class in schooling. Here Ms. Fisher’s unspoken message is that white, middle-class students were more likely than students of color or working-class students to get extra credit points even though it is the latter who may need the points more. Finally, Ms. Fisher saw the elimination of homework as a policy to care for equity in her classroom because “Is dad or mom gonna sit down with you and do homework with you and help you with your math?” Again, this was in the context of our discussion about race and class differences at Seaview. Here Ms. Fisher is articulating her understanding that the white, middle-class families at Seaview were more likely to help students with homework making homework itself an inequitable classroom policy and that to care for equity required the elimination of homework in her Algebra 1 classes.

Ms. Fisher discussed her institutional authority at Seaview as a matter of grading. In an interview from previous research (Nucci, 2022), Ms. Fisher had said, “I feel like all of my teacher power comes from the gradebook and my ability to force a kid to do an assignment for a grade.” She also described her power to exclude students from learning saying, “I can force a kid to go out in the hallway if they’re being disruptive. If they’re refusing to do something, I am on them, like that moment.” However, she reiterated her stance not to grade behaviors adding, “but it’s also not tied to a grade. Like I’m not gonna dock a kid’s grade [because] they’re being disruptive and I kicked them out of class.” So, Ms. Fisher understood her authority with students in the classroom as

stemming primarily from her power to grade students and remove them from class, but she did not conceptualize using her grading power to address student behaviors as a part of her political care.

### **Ms. Royce's Understanding of Political Care**

Like Ms. Fisher, Ms. Royce's understanding of political care for students did not include having politically clear conversations with students about race and racism. When I asked her if she talked with students about the white normativity and racist structures in schooling we had been discussing, she said simply, "not much." Ms. Royce, like Ms. Fisher, contemplated caring for students of color primarily through classroom policies suggested by the race and equity committee at Seaview. She discussed how they changed their grading, removing grading for collaboration:

What we're not grading on is . . . how many times a student feels comfortable talking to their group, which I feel like those are some of those things that like, yeah, if you are white and grew up in a white community and you learned to work this way, like, you're gonna do great at that. And so those are the types of behaviors that I really feel like we have stopped grading. Like you're not getting a check for every time you talk. Right? [You can] show your understanding in many different ways.

Here Ms. Royce pointed to a previous practice of grading collaboration as inequitable and the change in their grading policy as an action they are taking to care for equity. Ms. Royce also cited the elimination of homework to care for students of color specifically. She said,

I also think that taking away that homework piece this year, has helped even that playing field . . . because, again, that's that disparity. If a kid goes home, and you know, they have a family that is there at home and sets up homework time for them, and you know, knows how to do that . . .

Ms. Royce articulated here her belief that some homes support schoolwork at home while others do not. As previously described, she narrated those homes to be more likely white and middle-class

homes, and therefore, she believed the elimination of homework “evens the playing field” by eliminating an advantage for white, middle-class students. This is how she thought about caring politically for students of color.

Like Ms. Fisher, Ms. Royce contemplated using her institutional authority, at least in part, to manage student behaviors in class. She said, she was “trying to teach a skill [like putting your phone away] that everyone can understand.” Recall, however, that Ms. Royce said, “There's not a kid in our class that wants to learn math from somebody that they don't trust,” and that caring for students meant not “constantly nagging” or “constantly reprimanding” them. Ms. Royce described her approach to classroom discipline as wanting to provide the “warm hug” of caring while teaching students to control their impulses and maintain a safe and productive classroom environment.

### **Teacher Enactments and Dilemmas of Political Care**

Recall that I have framed political care as having two general components. One relates to teachers' care for their use of power in the classroom as those who hold institutional authority. The other relates to teacher care for the racialized experiences of students of color including politically clear conversations about race and racism. For Ms. Fisher and Ms. Royce, these two aspects of political care intersected. They were critical in their understanding of whiteness at Seaview and their use of policy to address inequity, but they were uncritical about teaching students “self control.” Their care principles conflicted causing a dilemma, and over time they shifted their political care efforts as they tried to reconcile the dilemma.

The key policies Ms. Fisher and Ms. Royce enacted as their commitment to equity work in their classroom were consistent with their narrations about caring for equity from interviews at the start of the school year. Most of these policies were around grading. Based on their book study of *Grading for Equity* (Feldman, 2019), the teachers were happy to follow school policy of allowing assignments to be turned in late without penalty and to eliminate what they called “atomic zeros,”

which were unrecoverable zeroes for assignments that were not turned in. 50% was the lowest grade that could be entered in the gradebook for assignments even missing ones. In addition to these school policies, Ms. Fisher and Ms. Royce no longer gave grades for collaboration. They also created the independent practice time at the end of each class period to substitute for homework. The policies they enacted were largely consistent with those they narrated before the school year as elements of care for equity in their classroom.

Every class started with a reminder, usually from Ms. Royce, that it was time to transition into readiness for class. She would regularly say cheerfully that it was time to get notebooks out, put earbuds and cell phones and food away, and be ready to learn. Especially at the beginning of the school year, the teachers struggled to garner student attention for whole-class instruction or discussion in Period A, often reverting to count-downs to get student attention. Several times those countdowns, which started at 10, proceeded into negative numbers until students got settled. Ms. Fisher and Ms. Royce gathered wayward student attention by referring to whole tables by saying something like, “I’m waiting on Table 4.” They would also publicly voice positive behavioral feedback such as, “I see Table 3 have their notebooks out. Table 5 have their notebooks out . . .” Only once did I see them call specific kids out for continuing to distract others while they were trying to start whole class instruction.

By the end of September, their ninth-grade classes, especially Period A (See Table 2), presented challenges to the teachers for coaching students on self-control. Here they discuss Period A:

Ms. Fisher: That's a big part of Period A is that impulse control.

Ms. Royce: They can't not.

Ms. Fisher: They can't not.

Ms. Royce: They just can't not throw the football, play with the tape, tape things together, rip the thing up, pretend like it's confetti.

The phrase “they can’t not” sums up how both Ms. Fisher and Ms. Royce understood the self-control they were trying to instill. Self-control meant impeding impulses to engage in behaviors the teachers thought disrupted the learning environment. It is important to note that throwing the football, playing with the tape, taping things together, ripping things up, and throwing it in the air like confetti were all behaviors of white boys in the classroom. Ms. Fisher and Ms. Royce were also concerned with other behaviors in which students of all races and genders partook. These included students using their cell phones, getting up from their tables to walk across the room to socialize with friends, and eating in class.

Most of their behavior moderation with students came in the form of one-on-one conversations. In the classes for which I coded interactions, Ms. Fisher and Ms. Royce each averaged about twenty conversations with students about behavior per class. They would ask students to put cell phones or earbuds away or to go back to their own table group or get started on a mathematics task, but these exhortations were often ineffective and many times blatantly ignored, especially regarding stowing cell phones.

A dilemma of care arose when the teachers’ principle of teaching students self-control conflicted with one aspect of their *Grading for Equity* (Feldman, 2019) policies. The teachers understood from their book study that students should be graded only on their individual learning not on collaboration or behaviors. After Ms. Fisher and Ms. Royce had determined that their one-on-one conversations with students about classroom behaviors were ineffective, they turned to the use of a table-top grading sheet for feedback on behavior.

Each table had a weekly grading sheet. Students could get one point for a “quick start” on the warm-up, up to four points for their collaborative classwork, and one point for their

independent practice. When Ms. Fisher launched the warm-up, she would say, “We’ll be around in 30 seconds to give quick-start points.” If when they came around, a student had started, they would get one of the available six points for classwork for the day. They also would give students feedback individually by using the plus/delta chart (see Figure 6) at the front of the room to substantiate point penalties on the students’ classwork sheet. When their exhortations to students to rein in disruptive behaviors proved ineffective, they started deducting one of the four points for classwork for each delta listed for a student. For example, a student who was eating, talking to other table groups, and seen on their cell phone twice would get zero points for their classwork because they would have four “deltas.” Figure 9 provides an example. Notice how phones, using foul language, and crosstalk with other groups were listed as deltas. For each, points were deducted from the daily classwork grades for members of those groups.

**Figure 9 - Plus/Delta Chart with Behaviors Graded**

<p>TABLE 1</p> <p>+ TALKIN' MATH, YO!</p>	<p>TABLE 2</p> <p>+ comparing</p> <p><del>PHONE</del></p>	<p>TABLE 3</p> <p><del>PHONE OUT</del></p> <p>tasking questions</p>	<p>TABLE 4</p>
<p>TABLE 5</p> <p>+ quick start</p> <p>+ Staying on the same problem at the same time.</p> <p><del>PHONE</del></p> <p>△ cross talk (talking with another group)</p>	<p>TABLE 6</p> <p>+ same problem</p> <p>+ QUICK START.</p> <p><del>ATTENTION OUTSIDE THE TABLE.</del></p> <p>△ language ;</p> <p>+ TALKIN' MATH, YO.</p> <p><del>PHONE</del></p> <p>△ cross talk (talking with another group)</p>	<p>TABLE 7</p> <p>+ COMPARING</p> <p>+ EXPLAINING THINKING</p>	<p>TABLE 8</p> <p>+ EXPLAINING THINKING</p>

In an interview at the end of September, Ms. Fisher explained their decision to start grading behaviors:

I think we've also adjusted in terms of the deltas, like, we started out by just giving the deltas in response to the group norms, but then we have responded to their lack of acknowledgement of the norms by then applying it to their grade . . . [We've] said, okay, we're going to start taking off actual points. And so, I feel like we've introduced the norms at the beginning; we've adjusted it to make it more concrete, and we're finding ways to continue to develop those norms in ways that they will actually follow.

Recall from Figure 5 that the norms Ms. Fisher referred to here are for working collaboratively. They included items like explaining mathematics to each other or asking each other questions, but the norms she referred to in this quote are the norms to start working quickly and to stay on task. Ms. Fisher explained here that their decision to apply penalties for non-compliance of classroom rules and norms to students' grades was a way for the teachers to adjust to students ignoring their requests and entreaties. She believed that the requests were not "concrete" enough. Ms. Royce agreed and said that the students needed consequences:

My vision . . . was that students just sort of naturally want to do good, right? And therefore – I don't mean do well, but do good – and that they would just naturally want to be a good member of their group and follow those norms. And I don't necessarily see that in all of our students, which is interesting . . . And so that's where I'm, like, then having to process that major adjustment. Like, when we tell our students to put their food away . . . they do it for 30 seconds, but they don't give a bleep about pulling it back out again, two minutes later, right? It's like the rule doesn't apply to them . . . It seems like there's a disconnect between actions and consequences, and it seems like there's a bigger contingency of students who think that there should be no consequence to their action.

Here Ms. Royce more fully explained why she and Ms. Fisher started grading behaviors. She described her presupposition that students “naturally want to do good” such that her entreaties about disruptive behaviors would be understood as coaching and followed. Student resistance to her entreaties to stop disruptive or off-task behavior resulted in her believing that what the students needed were consequences. Grading behaviors constituted those consequences. She described the policy as a “major adjustment,” and grading behaviors represented a dilemma as the teachers’ understanding of their use of institutional authority conflicted with their understanding of equitable classroom policy.

Grading behaviors contradicted the *Grading for Equity* (Feldman, 2019) book policy and Ms. Fisher’s and Ms. Royce’s espousal of it as essential to their care for students of color. Even after they started deducting points on classwork for violations of classroom rules, Ms. Fisher maintained that they were not grading behaviors. In that October conversation, Ms. Royce disagreed when she said, “I would almost push back on whether we are grading for behaviors, because I, I do think we are.” She quickly added that in terms of diversions from the book, “That’s all, I mean, that’s the only [exception] that I was like – you know, the book says, ‘Don’t grade on behaviors.’ But we are grading on behaviors.” She also said that the reason was to teach students a “skill” that to her was universal. She said, “We’re trying to teach a skill that everyone can understand. Everyone understands, put your cell phone away and keep it away. Nobody has a non-understanding of this.”

This divergence from the policies from *Grading for Equity* (Feldman, 2019) showed how their care for teaching all students “self-control” trumped their espousal of using equity-oriented policies. I never saw them shame students and only once call someone (a white boy) out publicly for their inattention. Instead, they used a polite demeanor to ask students to comply with classroom rules. After that was ineffective, they shifted to grading behaviors to create consequences, but their approach shifted again as that also proved an ineffective strategy. In response, Ms. Fisher and Ms.

Royce agreed to my suggestion that they learn more about their students. Once they learned more about the racialized experiences in schooling of their students of color, they shifted power dynamics and policies accordingly as I describe below.

### **The Teachers' Politically Clear Listening and their Shifts Toward More Responsive Care**

As previously mentioned, during one of our September interviews, Ms. Fisher and Ms. Royce both said that they did not engage with students of color in politically clear conversations. Ms. Fisher explicitly said that she “pushes off responsibility” for students who seem uncomfortable in her class, even for students of color who may be uncomfortable in the white normativity of schooling at Seaview. I observed this in practice. Four different times I heard students discussing race or racism at their tables, and the teachers, despite circulating as I was, did not engage with the students as a group or individually about race. For example, on the audio for each teacher, I heard Belle, a black girl, exclaim “That’s racist!” to another student during class. Neither teacher spoke to Belle about this to learn what she was finding racist in class. Plain talk with students about race was not a part of their conception of what it meant to care for students, possibly because both teachers expressed worry about saying the “wrong thing.” Their inaction was consistent with their understanding of political care.

There was, however, a politically clear conversation that served to shift the teachers’ stance on grading behaviors and their understanding of their authority in the classroom. As mentioned, Period A in particular posed classroom management challenges for the teachers. Ten weeks after they started grading behaviors, the teachers still struggled to garner student attention for whole-class instruction or to get students to put away their cell phones and food, to take out their earbuds, or to work with their designated team instead of moving to other tables to socialize. Grading their behaviors had proven ineffective.

In mid-December, Belle, a Black girl, came into class and sat down looking dejected. I asked her if she was OK, and she said, "I hate this class." I asked if she did not like mathematics, and she responded, "Naw, the math is all right. It's the class. One cell phone comes out and everyone goes into a panic." This interaction is illustrative of broader student discontent with Ms. Fisher's and Ms. Royce's consistent behavioral entreaties that had continued alongside the behavior grading. Many students were frustrated with the teachers, and the teachers were frustrated with the students' non-compliance.

Class on the Monday before Winter Break was particularly difficult for both teachers and students. Ms. Royce described the class as "combative," and the teachers felt unable to engage in any whole-class discussion amidst many student interruptions. As a result, the teachers replaced the review game they had planned for the day with the unit test that had been scheduled for later in the week. Many students objected to this and expressed anxiety for having the test that day. When a student said, "I thought we had a test *Thursday*," Ms. Royce replied, "Ya, we're taking it today because we can't handle being in a classroom environment, and you're all ready. You're ready. We're not going to spend more time on this." At this point, Neberu countered, "So, this is pretty much revenge then," without a teacher response. Students took the test in silence for the rest of the period.

After that class, the teachers met to debrief. Both teachers felt at a loss as to how to improve class in Period A. Ms. Royce said, "It's a no-win situation, right? Unless we can figure out how to help them feel less frustrated, which would in turn, probably help us feel less frustrated!" At this point, I suggested that they lacked information and that perhaps we should spend Wednesday's 35-minute period listening to the students. They agreed, and we then spent an hour planning out the sessions. The teachers made four groups to have small-group conversations, one group for each teacher. Ms. Fisher and Ms. Royce suggested that students be placed with friends and with the

teacher with whom they were likely to be honest in their feedback about class. After brainstorming possible structures for the sessions, we decided that each teacher would ask two open-ended questions, “Tell us about your experience in math class,” and “How can we make math class better?”

Students gave valuable feedback to the teachers in the breakout sessions that shifted teachers’ political care. For example, when the four of us debriefed after the breakout sessions, Ms. Fisher reported that Carla, a student who identifies as multiracial, called out grading behaviors. She specifically objected to getting one point for a quick-start on the warm-up, which was a behavior. She said it made more sense for teachers to give the quick-start point for successful completion of the warm-up even though she seldom completed it.

Other students discussed classroom behavior and the teachers’ response to it. Three white students, Zed, Max and Rebecca, said the teachers needed to be “more strict,” but Belle, a Black girl, and Lizette, a Latina, could not disagree more. Here is how Ms. Fisher reported the conversation:

I got the most interaction when I asked about math class last year, because they are very aware of race. Apparently, there were a lot of things that they thought were very racist. Last year, they thought that kids were – [students of color] were being targeted. Like there would be a kid, like a white kid who would never get their phone taken, and would never be asked to put it away, versus the [students of color] would get their phones taken constantly.

Ms. Fisher and Ms. Royce did not engage in politically clear talk with students of color; they did not ask about race or racialized experiences in schooling. The students, however, had engaged the teachers with politically clear talk as they described racist policing in their prior school experience. The teachers, in turn, engaged in *politically clear listening*, wherein they listened to the race talk of students, prioritized their accounts of their racialized experiences in schooling, and acted in

response. Here Ms. Fisher described how what she learned in the breakout groups prompted her to think differently about power in the classroom:

I think they are much more perceptive than we realize, . . . and then I think that kind of helped me be – let go of some things. Like they, they are a part of the classroom, and they are a part of the decisions that we make. And we need to allow that to an extent.

This represented a big shift for how Ms. Fisher was thinking about power in the classroom. She listened to accounts of racism from students of color and realized how she needed to “let go of some things” and acknowledge that the students needed to be partners in the decisions and policies of the classroom.

Ms. Royce agreed and drove the subsequent conversation about changes to classroom policies. She brought up the cell phone, earbud, and eating rules particularly. Instead of policing every instance of food, earbuds, or phones to make students comply with rules, the teachers decided that they would have a conversation with students only when there was a distraction from learning. For example, they decided that the phones do distract from learning but not if a student is only using it as a calculator. They also decided that one earbud might not obstruct learning. Likewise, food also would be allowed but only insofar as it did not distract from the learning environment. A snack was OK; getting Taco Bell delivered to class was not. These were conscious decisions to stop policing students in response to the racist experiences with teacher policing recounted by students of color while still working to coach students on behaviors that would be conducive to learning.

The teachers’ politically clear listening and sharing of power and policy with the students represented a “major adjustment” that helped them manage their dilemma of political care. The teachers were reluctant to discuss race with students, but when the students told them of their racist experiences, the teachers learned how race was a dynamic in their classroom. Their subsequent shift towards sharing power and policy with their students helped them reframe their focus on teaching

“self-control.” As I discuss below, they policed students less and made more space for conversations about mathematics. My field notes indicate that their conversations with students who were violating established rules decreased dramatically in subsequent classes. While the teachers continued to ask students to put phones away during class, they stopped policing earbuds and eating. They were less focused on enforcing compliance and more focused on helping students avoid a distraction from learning. This left them more available for mathematical interactions with students.

The teachers also stopped grading behaviors. Not only did they stop taking points off of classwork for violations of classroom rules, but they listened to Carla’s argument that they should be graded on successfully completing the warmup instead of the behavior of getting started on it. Carla mentioned the change with some surprise saying, “You’re doing my idea! You listened to me!”

Importantly, Ms. Fisher’s and Ms. Royce’s politically clear listening and recalibration of the power dynamic in class also led to shifts in their social and academic care practices. For example, in the December breakout sessions, the teachers learned that the 100-minute class felt long to the students. Students lobbied for a ten-minute break for them to socialize in the middle of class, and they said they wanted more physical movement in class. In keeping with Ms. Fisher’s contention that the students needed to have more voice, the teachers acceded. They promised to make the 10-minute break inviolable; it would never be shortened or delayed. The teachers began putting a timed schedule of class on the front boards at the start of each class with the break scheduled in so students would know there would be time specifically set aside for socializing. They also began planning mathematics treasure hunts that involved students moving around the room to find answers to a series of problems. The answer to one problem, for example, would tell you where the next problem was located.

In interviews, students said they had found previous teachers caring when they made specific time for socializing. When Ms. Fisher and Ms. Royce did the same, and students responded showing

evidence of a caring relation. My field notes indicate that once the break was established, students left their tables less frequently, and it took less time and effort for teachers to garner attention for whole-class instruction even at the end of that break. Once the break was established, students started to quiet each other down to elicit cooperation and attention for whole-class instruction responding to the teachers' care and showing evidence of caring relations.

Students also said in interviews that they found it caring when teachers changed classroom structures to help them manage their distractibility. When the teachers listened to the students about incorporating more movement into the learning experiences, they partnered with students in co-creating the learning environment and learning experiences. They changed a structure of class in a way that replaced students' moving around the room to socialize with moving around the room to solve mathematics problems. This was a responsive change that helped students move towards their academic goals and manage social distraction.

The teachers' politically clear listening also catalyzed shifts in academic care. In addition to wanting a break in the 100-minute classes, some students in the breakout sessions said the mathematics was too easy. For example, Ms. Fisher and Ms. Royce would usually apportion about 30 minutes of class time for a review sheet before the unit test. In my group, Sheila said the review sheets were so easy that she took the last one home and completed it correctly in three minutes. Kofi agreed. All four teachers reported students saying that the mathematics was too easy, which made class long and boring.

The teachers recalibrated the power in the classroom and shifted their academic care to make class more challenging and interesting. Without prompting from me, they began launching more groupworthy problems (Cohen & Lotan, 2014) that were of higher cognitive demand (Stein &

Smith, 1998). For example, they launched a Dan Meyer 3-act task<sup>12</sup> to engage students in discourse about linear functions using a video of two different types of cups being stacked to have students explore modeling the heights of the cups based on the number of cups in each stack. They also used a video launch of bouncing balls to set up a CPM task for students to model and explore geometric series and exponential functions. For each, students were tasked with creating explanations, tables, equations, and graphs as a group. My field notes indicate far greater student collaboration and engagement with these more challenging tasks. Students were more likely to be talking about mathematics with each other and more likely to be on-task. Instead of eight or nine cell phones out during class, I counted between zero and two during the 100-minute blocks that included groupworthy, multi-representational, and higher cognitive demand tasks. Although the breakout sessions were my idea, the adjustments the teachers made to mathematical tasks in class in response to student feedback were entirely driven by Ms. Fisher and Ms. Royce. These modifications at the instructional core showed how Ms. Fisher and Ms. Royce adapted their academic care for students after listening to student feedback and putting students on more equal footing as co-creators of the learning environment.

In summary, the teachers' enactment of political care for students changed over time as they engaged in politically clear listening with the students. In the interviews at the start of the school year, the teachers said they did not seek to engage in politically clear conversation with students but looked to equity-oriented policies to care for students of color. They also believed that they needed to use their authority in the classroom to help all students learn "self-control." In Period A, the teachers encountered impulsive behavior, especially from white boys, and problematic behavior like cell phone usage, wandering around the room for socializing, and the use of earbuds during class

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<sup>12</sup> <https://tapintoteenminds.com/3acts-by-author/danmeyer/>

from students of all races and genders. For a time, the teachers' concern with these behaviors trumped the equity-oriented policies as teachers started to grade behaviors to provide "concrete" "consequences" for students. They avoided politically clear conversations with students, but when grading behaviors proved ineffective, the teachers engaged in politically clear listening to students of color. They listened to their accounts of racist policing of behaviors in school, and they worked to shift the power difference between themselves and the students partnering with students to co-create the learning environment and learning experiences. They changed the rules of the classroom, grading structures, tasks, and social structures that constituted shifts in their political, academic, and social care. Students responded to these shifts through greater cooperation and engagement in class showing evidence of caring relations. To understand why they responded to the teachers' shifts in political care, I turn next to how students understood political care.

### **Student Understandings of Political Care**

From September through January, I interviewed a dozen Seaview students, eight of whom were students of color (see Table 3). All Seaview students I interviewed described a desire to be free from abuses of teacher authority and said caring teachers enacted respectful discipline, which involved kindness, understanding the students as people, and refraining from outbursts of anger. Additionally, students of color described the kinship they felt with teachers of color. They valued political clarity with adults of color in their lives but expressed ambivalence about engaging in race talk with white teachers.

### **Student Understandings of a Caring use of Teacher Authority**

Students described caring teachers as those who used their classroom authority fairly and appropriately. For most this included forgoing threats and anger in response to perceived student misbehavior. The Seaview students regularly described caring teachers as those who were kind and understanding and could discern when students were misbehaving and when they were not. Students

described caring teachers as those who were respectful of them and partners in learning with them, like when Baelee, a white girl, said, “They have to give me respect too.”

Seven Seaview students described caring teachers as those who showed respect for the students, and this was often framed by how teachers would discipline students or engage in classroom management. For example, when I asked Heleri, a Black girl, to provide advice on how to be a caring teacher, she said, “don’t be controlling.” When I asked what a “controlling” teacher looked like, she said,

If you don’t listen once, they like scare you or frighten you, like, “I’ll go tell the principal! I’ll call your parents!” but it’s not, like you know, it’s not big. It’s just not listening to what they say, but that doesn’t mean, like that shouldn’t mean like you need to go call their parents . . . they just like threaten me.

To Heleri and others, caring teaching meant avoiding disproportionate responses to student infractions. Most students included respectful discipline in their descriptions of caring teachers, which meant helping students in a calm and patient way to remedy misbehavior. “The wrong way,” Annalee said, “would be like yelling at them or just being like really aggressive.” Kofi, a Black boy, agreed referencing teacher anger or rage as evidence of uncaring teaching four separate times in his interview.

Many of the students said that they found Ms. Fisher and Ms. Royce both patient and kind. For example, Lizette said, “I think Ms. Royce and Ms. Fisher show a lot of patience,” and Kofi described Ms. Fisher’s evenhandedness with regard to discipline. He said, “She’s pretty tolerant . . . And even when she does get mad, it’s not just like, ‘Shut up, or you’re going away somewhere far away.’ It’s more of a like, ‘watch your tone.’ It’s not like, an anger motivated thing.” Here Kofi differentiated between tolerance and the use of teacher authority to exclude students from the learning environment by removing them from class. Even though Ms. Fisher had narrated this as an

element of her authority, I never saw her exclude a student from class. Kofi continued, providing a comparison between a teacher he thought was uncaring, named Mr. Jonny, and Ms. Fisher whom he cited as a caring teacher:

For example, if you had your phone out, if it were in Ms. Fisher's class, you'd just be told to put it away, and you would put it away. Mr. Jonny . . . just like, grabs your phone, stuffs it someone random [place] in your backpack? And it's just, there's a lot of attitude.

Here, Kofi described the difference between a caring and an uncaring use of teacher authority. For him, “a lot of attitude” or enforcing consequences for behavior such that it is an “anger motivated thing” are hallmarks of uncaring teaching, and he found Ms. Fisher’s entreaties to be caring.

Part of respectful discipline was also avoiding public shaming for behavior, a practice that Ms. Fisher and Ms. Royce mostly adhered to. Even on the day in December when students were given a test too early because teachers were frustrated that students “can’t handle being in a classroom environment,” they did not call out names. When I discussed that day in December with Neberu, he did not remember making the comment about the test being revenge for being interrupted, but he did remember that the teachers did not publicly shame students. He said, “Everybody just kept talking over them and talking over them, and I feel like they got mad about that. But the thing I liked that they didn't do then is they didn't point out names.” This stuck out to him, and he used it as support for why he thought Ms. Royce and Ms. Fisher were caring teachers.

In addition to caring teachers being respectful, kind, and patient with students, the Seaview students also narrated the importance of teachers understanding them as people and being able to discern when they were misbehaving and when they were not. For example, when I asked Neberu what would happen if he and his friends were socially distracted and did not do their work in his breakout group with Ms. Lazio, his most caring teacher, he said, “She would split us up like this, but she will make everybody go to their own separate tables in her room. None of us could talk with

each other.” Ms. Lazio had a clear consequence for Neberu and his friends being too socially distracted, but her discernment about whether Neberu’s talking was productive or not was an important part of how he described her care for him. He said,

She loves us. Like, she loves us because there’s a difference, like, because she knows when I’m actually, like, being disturbful and when I’m just like actually trying to do my work but talking . . . I feel like she knows me as a person too.

So, for Neberu, this teacher that he described as his “favorite math teacher” and the most caring math teacher would step in to separate peers when they became too socially unproductive but do so in a “chill” way and appropriately, understanding when Neberu’s talking was distracting and when it was not. By doing so, Ms. Lazio used her authority as a teacher to address Neberu’s behavior not as a matter of compliance but only when he was being sufficiently distracting to obstruct productive social learning.

Students also described caring teachers as those who lowered the power differential between themselves and the students. They talked about caring teachers being “with” the students or described them as family friends. For example, Lizette, in describing her most caring teacher said, “Miss Flanders . . . She was really out there *with* us.” Sheila described the difference between teachers who cared for her and those who didn’t this way, “I feel like with some teachers, it's more of like a family like friend feeling. And then there's like a more like business feeling. It's just like, when you really go into the classroom, you can kind of like feel it.” For Sheila, the family friend feeling related to the teacher feeling more like an older sibling whereas the “business feeling” pointed to the maintenance of distancing power structures between the teacher and her.

Recall that after the December breakout sessions wherein the teachers set out to learn about the student experience of class and how they could improve it, Ms. Fisher said they needed to allow that students are a “part of the classroom,” and they needed to be “part of the decisions that we

make.” The shift in their use of classroom authority to position students more as partners is consistent with student descriptions of care, and students responded. Students were more responsive to teacher entreaties to put their cell phones away, work with their groups, or pay attention. Chanelle, a Latina, described the change this way:

They're not like, as, like, strict as before. Like, they're not like, getting upset as they were before and like, they trust us more. I feel like they trust us more. I don't know, I just feel like they trust us more because like, they put us in like, groups with like, our friends. And so I feel like they trust us more with like, working with them. And I mean, Ms. Royce she like, she like, she like *change*. Like, she helps me out. Like, more in math . . . She was helping me out, like all my work and like, she helped me understand.

Here, not only did Chanelle notice that the teachers had made changes to their social care through how they constructed groups, but Chanelle points to a change in teacher authority when she says that the teachers are not as strict as before the December meeting and the classroom changes that followed. To her this speaks to the teachers trusting the students more. Ms. Royce had said that there was not a student in class who wanted to learn from someone they did not trust. Chanelle provides a counterpoint here to show that the trust has to flow both ways for a caring use of teacher authority. Chanelle also remarks that Ms. Royce in particular changed, and I noticed this as well. With less time and attention spent on behavioral intervention, Chanelle says Ms. Royce became more helpful to Chanelle in her quest to understand mathematics.

In summary then, the Seaview students described caring teachers as ones who reduced the power differential between themselves in the teaching role and the students. Caring teachers do this by trusting students and enacting respectful discipline that involves discernment about whether students are misbehaving or not, proportional responses to infractions not as a matter of compliance but when those infractions impede learning, and addressing student misbehavior without anger,

threat, or shame. Ms. Fisher's and Ms. Royce's politically clear listening helped to show their trust of students, and as they stopped policing students, students noticed and understood the teachers are more helpful, more caring.

### **How Students of Color Understood Political Clarity with White Teachers**

An important part of this study is understanding the role of political clarity in the caring relationships between white teachers and students of color. In this section, I focus just on the narratives of students of color. Although race was a topic some students of color brought up in our interviews, I focus most of my analysis here on the two students, Neberu and Lizette, with whom I had a second interview focused solely on race in education.

Most of the eight Seaview students of color who discussed race told stories of close relationships they had with educators of color and how it felt different than their relationships with white teachers. For example, when I asked Heleri how she felt about a Black science teacher she described as caring, she said that she felt more comfortable because "She was just more like, calm and just like, open. Like she would just be like, she would treat her students as if, like, you know, like, we were like her *omn* like, like, she felt like the older sister." Similarly, Neberu talked about feeling like educators of color felt like family. He said, "we a lot we consider a lot of them family. Even our parents do, too, is not only a kid's thing, because the parents also consider them that."

In addition to feeling like family, students also talked about the political clarity they had with teachers of color. Neberu described a caring Black teacher named Mr. Jet and the political clarity that was integral to their relationship:

I had another a teacher called Mr. Jet. He he - It was his first year at the Community School . . . And all of us got really close to him that quick, and he also made a group where the eighth grade boys would have a circle time to talk . . . Once every other week, we would come and just talk about like three topics. It was equity, community, and integrity. So, he would teach -

like he would just tell us about what these three things are, what they have to do with us and how Black people - how they would have to live in America compared to other people.

Yeah, because there'd just be us in the music room. Yeah, nobody else. So it feels like we . . . can be ourselves. We don't have to have - we don't have to code switch. You know what I'm trying to say? We don't have the code switch around him . . . He taught us Yeah, just like, the struggles. And he told us not to, like make excuses. Because the struggles like just because he tells us not to say Oh, I'm Black. This this. This is why it's harder for me. He wants us to use those struggles to uplift us not to like, talk ourselves down to say, this is why this is why . . .

Mr. Jet could like - he could he has experiences too like he can help. He could tell us personal experiences, not just stuff that - because a lot of other teachers, they would say stuff that happened to other people not what happened to themselves.

Neberu described here how close he felt with Mr. Jet. Previously, Neberu had talked a lot about how the Community School had a close-knit feeling because it was a K-8 school instead of a middle school. He narrated that longevity was important to building caring relationships with adults, but Neberu said that he and his friends got close to Mr. Jet quickly. The reason for that immediate closeness was Mr. Jet's initiative to create a circle of Black students to have politically clear conversations, which included straight talk about being Black in America as well as a clear message that Blackness should be a reason for uplift. Neberu narrated that Mr. Jet conveyed high expectations for him and his friends, and Neberu pointed out that Mr. Jet spoke from experiences that he shared with the students. Neberu differentiated between Mr. Jet and "other teachers." When I asked if "other teachers" meant white teachers, he agreed. So, Neberu thought white teachers would talk about what "happened to other people not what happened to themselves" because they lacked experience being subject to racism. Mr. Jet, on the other hand, could speak from experience. This difference was important to how Neberu felt Mr. Jet cared for him in those politically clear

conversations and related to how Neberu considered having politically clear conversations with white teachers.

Here, Neberu talks about a caring white teacher and what it would be like to have politically clear conversations with him:

I did have this white teacher. His name was Mr. Charles. Yeah, he was actually really cool . . . I feel like we had a good relationship. Yeah, but I don't think I would talk - like I wouldn't talk to him about stuff that I'd talk to Mr. Jet with - because it just feels different. It feels different.

Here Neberu expressed ambivalence about engaging in politically clear conversations with a white teacher with whom he had a good relationship saying it “feels different.” Mr. Jet could speak from experience, and Neberu knew it. Mr. Charles cannot, and Neberu knew it.

It is likely then that Neberu would appreciate Ms. Royce’s understanding of her own limitations regarding race talk with students. Recall that she said, “My lens is so my lens,” and “It's like I can make assumptions about what somebody else's lens might be. But they're all assumptions. I'm not, I'm not *living* it.” Neberu had counted Ms. Fisher and Ms. Royce as caring teachers. Ms. Royce’s recognition of the limits of her understanding of racism because of not having experienced it herself is consistent with how Neberu narrated his own understanding of political care with white teachers. He experienced politically clear conversations with Black teachers and felt cared for in the process, but his ambivalence towards the same conversations with white teachers is based on his understanding that they cannot speak from experience, a position Ms. Royce understands.

Lizette also felt closer to teachers of color. She talked about how a caring teacher of color, Mr. Sanders, felt more comfortable for her and how she felt closer to him than she did to white teachers. She said:

He was very close to us. He would share a lot of like his personal things, or we would share like our personal things to him. He was really comfortable to talk about because he wasn't not like, (in a nasal voice), "Alright you guys. So today we're going to be learning." He didn't act preppy. Like he actually like, embrace that he was Black. He didn't have like a persona, which made him really cool to the kids, you know, made him like more like talkable with.

For Lizette, authenticity was the most important characteristic of a caring teacher, and it was crucial to her that people of color have the same pride she had. She valued the personal connection she had with Mr. Sanders, and when she says, "He didn't have a persona," which made him more "talkable with," she was tying Mr. Sanders's authenticity to her comfort in relating to him.

Her ethnic pride and need for authenticity with caring adults connected to how she thought about political clarity with white teachers. When I asked her if she would talk with white teachers about growing up Latina in America, she said,

If the subject ever comes up about me being Latina, I'll talk about it a little bit, but I honestly prefer not to because I feel like sometimes, like, if they don't care, they won't get it. Yeah.

It's mostly like that. And I know most of the teachers don't really care for a student speaking out about their ethnicity.

When Lizette says "if they don't care, they won't get it," she is talking about the authenticity of the teacher and the authenticity of the relationship. Several times she talked about teachers saying they care but not following up with action. She called that "being fake."

As a further illustration of her stance, she realized at the end of our interview that she had been talking a lot about being Latina with a white teacher (me). To close out our conversation, she said, "Thank you. I'm actually really happy I had this talk with someone. Because like, nobody's really asked me about race." She followed this statement with a connection to why she was open to talking about race with me when she said,

You're like the first teacher who hasn't tried to fit in with the kids who are colored. [You're] like "I'm white." You know? "I'm not, I'm not one of you . . . I'm not one of you guys." You know? But like, I'm actually so glad about that because like, there's some other like, teachers will be like . . . trying to fit in with us? And we're like, "Stop, you're embarrassing yourself."

These statements give us a glimpse of how Lizette thought about politically clear conversations with white teachers. For her to engage, she would need to already feel that a teacher cared about her and did so in a way that was authentic. That would involve a personal connection and the white teacher both respecting her as a Latina and owning their own whiteness. Although she said she was glad to be asked about race, she was only glad because she felt the person asking was authentic and really cared what she had to say. Because Lizette said that teachers must authentically care to engage in politically clear conversations, she likely found Ms. Fisher's openness to Belle's and Lizette's testimony of racist policing in schools to be caring. During the December breakout sessions, Ms. Fisher authentically listened to Belle's and Lizette's political clarity and responded by rebalancing the authority of the classroom despite contrary opinions from white students. This politically clear listening is consistent with Lizette's description of the kind of political care she wants from white teachers.

In summary, the students of color at Seaview narrated feeling more comfortable and closer with teachers of color. Neberu said that straight race talk with a teacher of color contributed to his feeling that a teacher was caring, especially when that teacher spoke personally and from experience. Lizette would shy away from politically clear conversations with teachers unless they are authentic and "really care." She narrated a caring relationship as a prerequisite to politically clear conversations as opposed to political clarity contributing to a caring relationship as it did for Neberu. Both students expressed ambivalence about politically clear conversations with white teachers. For

Neberu the ambivalence was tied to the inability of white teachers to have politically clear conversations from experience. For Lizette, she doubted the ability of most white teachers to be authentic in their care for her and authentic in their desire to hear her talk about being Latina.

### Chapter Summary

Ms. Fisher's and Ms. Royce's efforts to care politically for students were informed by their own experience of race in schooling and their discomfort talking about race. They articulated their understanding of white normativity at Seaview as that which defines acceptable behavior and academic success, and they understood white normativity to cause discomfort for students of color. They did not, however, initiate politically clear talk with students. Ms. Fisher was uncomfortable talking about race and afraid to say "the wrong thing." Ms. Royce showed greater comfort talking about race but recognized her limitations to discuss it because of a lack of direct experience. Their stances were consistent with Neberu's and Lizette's desires for politically clear talk from white teachers. Neberu questioned if a white teacher could truly understand racism having not experienced it, and Lizette desired authenticity from teachers as a prerequisite to her own politically clear talk. Both students, when interviewed after December, counted Ms. Fisher and Ms. Royce as caring teachers.

Instead of politically clear talk with students of color, the teachers initially sought to attend to equity and care politically for students using policies from their *Grading for Equity* (Feldman, 2019) book study. They took a critical stance on grading. The policy not to grade behaviors, however, conflicted with the teachers' understanding of the purpose of their classroom authority, which was to help teach students "self-control." They were uncritical about how they were defining and coaching "self-control" in their classroom. These two principles of political care created a dilemma for them. After entreaties about rules failed to catalyze student adherence to classroom rules, they

began grading behaviors showing their prioritization of teaching students “self-control” over their use of equity-oriented policies. In discussing this change, they admitted the contradiction.

When grading behaviors also proved ineffective, the teachers agreed to my suggestion to create breakout sessions to learn from the students about their experiences in mathematics education. During those sessions and after, the teachers engaged in politically clear listening. Their listening included hearing students of color talk about their experience being subject to racist policing in schools, believing them, and prioritizing that testimony over the opinions of white students who wanted more policing of behaviors in their classes at Seaview. Teachers also responded to the testimony of students of color by reconsidering the power balance between themselves and the students and positioning students more as partners in the co-construction of the learning environment and learning experiences. They changed the rules in their classroom to focus on helping students avoid distraction as opposed to helping students learn to follow rules.

Vitaly, their politically clear listening catalyzed shifts in their academic and social care too. The teachers incorporated student suggestions for grading policies, increased movement, and socializing breaks. They also increased the complexity and groupworthiness of mathematical tasks to respond to students’ testimony that mathematics class was too easy and therefore boring. These changes resulted in greater cooperation with teacher entreaties, greater ease for teachers in garnering student attention for instruction, and a feeling of greater mutual trust between the teachers and students. All of these results constituted the type of response that indicates caring relations.

## Chapter 8 - Discussion

In this study I provided an analysis of how two white teachers cared for their students in their racially diverse Algebra 1 classes. I showed how the teachers' theories of care were tied to their understandings of mathematics, teaching, and equity. I provided a detailed account of how they cared for students along academic, social, and political dimensions; how their care shifted over time; and how students understood caring teaching in general and the teachers' care specifically.

Below, I discuss this study's contributions to Care Theory in mathematics education and its implications for teacher education. I begin by outlining this study's contributions to the field's understanding of academic, social, and political care. I highlight the importance of understanding teachers' theories of care to understanding why they teach mathematics as they do. I also pay special attention to how white teachers can enact political care for students in racially diverse mathematics classes, which includes *politically clear listening*. I define politically clear listening and discuss the context in which it occurred in this study and its complexities. I then discuss dilemmas of care and why the three dimensions of care should be understood together to investigate teaching as a relational practice. I suggest future research foci, and I conclude this discussion with commentary on the implications of this study for teacher education.

This study provides an analysis of the academic, social, and political care of white teachers for racially diverse high school students from both the teacher and the student perspective. No prior research has investigated all three dimensions from both perspectives or included a detailed analysis of how teachers' theories of care shaped the mathematical tasks that students enact. This study also provides an analysis of how white teachers enacted political care for racially diverse students and how their political care influenced their academic and social care.

### Contributions to Theories of Academic Care

In this study, I used the concept of an *academic dimension* of care, which was informed by prior research in the field. Scholars have theorized academic care (Jansen & Bartell, 2013) to include high expectations for student learning (Antrop-González & De Jesús, 2006; Averill, 2012; Jansen & Bartell, 2013; Maloney & Matthews, 2020); individual attention (Averill, 2012; Jansen & Bartell, 2013; Maloney & Matthews, 2020); engaging, scaffolded, and differentiated lessons (Averill, 2012; Jansen & Bartell, 2013); and working to understand student thinking (Averill, 2012; Hackenberg, 2005; Jansen & Bartell, 2013). Furthermore, scholars have argued that a caring response to student thinking includes a rigorous press for deeper thinking (Maloney & Matthews, 2020); timely, clear, and specific feedback (Averill, 2012; Matthews, 2020); and explanations that do not supersede student thinking (Hackenberg, 2005). This study adds to the valuable contributions by these scholars to tie teachers' theories of care to how they set up and implement tasks with students and how they support collaborative learning.

Ms. Fisher's theory of academic care included bolstering student comfort and identity while helping students achieve good grades in Algebra 1 and the courses that followed. Her understanding of mathematics and teaching, and her experiences as a mathematics learner shaped her understanding of academic care. She thought caring for students meant making them feel socially comfortable, bolstering their identity narratives, and getting good grades, which mirrored her own experience in schooling. Her theory of academic care translated into certain pedagogical priorities and choices. For example, Ms. Fisher set up and implemented tasks with students that centered mathematical procedures. She seldom explicitly taught mathematical concepts and mathematical vocabulary, nor did she typically demand explanations of mathematical concepts from students. In her conferrals with students, Ms. Fisher was likely to highlight students' thinking and praise them to boost their confidence and comfort, usually telling them clearly when they were right and when they

were wrong but often not explaining why. When she did explain mathematics to students, she primarily discussed steps of procedures with students in ways most students said they appreciated.

Ms. Royce on the other hand understood academic care for students to encompass catalyzing their sense of independence and their ability to use mathematics as a set of tools to solve problems that they care about. Her theory of academic care stemmed from her own experience learning mathematics and her understanding of the subject as a tool for real-world, relevant problems that bolster independence. She thought caring academically for students included helping students to learn to think functionally (linearly, exponentially, quadratically, etc.) even if they did not use mathematical vocabulary to express it. This theory of care translated into pedagogical priorities that shaped her practice. For example, she was more conceptual in the tasks she set up, and she sought conceptual explanations from students. She did not press them to use mathematical vocabulary. She was more likely than Ms. Fisher to ask students to explain their thinking so she could understand it. She was also more likely to ask students conceptual questions to press them to think more deeply about their own questions to her. Ms. Royce primarily supported students to think for themselves and answer their own questions so they could be independent.

Despite having multiple teachers in one room, Ms. Royce and Ms. Fisher were always busy helping students. They often remarked about how little they talked during the 100-minute classes. I do not think they knew how different their teaching was. One was more procedural. One was more conceptual. They had different ways of asking students questions and explaining mathematics, and these differences were tied to their different theories on what it meant to care academically for students. Their theories of care strongly undergirded how they taught mathematics. Understanding teachers' theories of academic care is vital to understanding why teachers set up the tasks they do and support them as they do. That in turn creates different opportunities to learn for different students.

The Seaview students' descriptions of caring teaching also add to the field's understanding of academic care in mathematics education. Some of their statements echoed findings in prior literature. For example, they said that they found engaging lesson planning and individualized attention to be important parts of caring teaching (Averill, 2012; Jansen & Bartell, 2013). However, this study adds to our understanding of how students think about academic care. The Seaview students emphasized the need for patient, varied, and clear explanations from their teachers. Although some students wanted to understand the *why* of mathematics by learning concepts and how they are connected, most sought procedural explanations because they were motivated to get good grades in ninth grade pointing again to the need to understand academic care within the context of students' narratives of schooling. The students' desire for engaging lessons and their desire to get good grades meant that they thought caring teachers should pace the learning appropriately for each student. If the pacing was too slow, it was hard for them to feel engaged in the lesson. If the pacing was too fast, it was hard for them to gain mastery, confidence, and the academic success they were hoping to achieve. Students also said that pacing the material appropriately required teachers to learn about the students' learning needs reinforcing how vital teachers' learning about students is to their enactments of academic care.

### **Contributions to Theories of Social Care**

In this study I defined the concept of a *social dimension* of care, which combined Jansen and Bartell's (2013) concept of interpersonal care with Ellerbrock and Vomvvoridi-Ivanovic's (2022) concept of relational care. Interpersonal care is focused primarily on the teacher-student relationship; relational care involves helping students build relationships with each other. Social care includes teachers' efforts to get to know students and "interact personably and respectfully" (Averill, 2012, p. 115) and teachers' efforts to build a classroom community, which is integral to culturally relevant care (Hunter & Stinson, 2019; Watson et al., 2016).

In addition to theorizing social care as incorporating both interpersonal care and relational care, this study adds to the literature base by showing how teachers can enact social care through pedagogy. Ms. Fisher and Ms. Royce both narrated social learning as central to their own mathematical learning experiences and their understanding of social care for students. Therefore, they planned lessons that incorporated collaboration and groupwork as central features even though it made classroom management more difficult for them than individual tasks did. They cared for students socially by giving them feedback on groupwork norms, which they generated with students, especially working on the same problem at the same time and asking each other questions. They also supported interdependence in their groupwork through routines that made students accountable for each other's understanding.

Students said that social care should help them capitalize on the helpfulness of friends and manage their social distractibility, and that a caring teacher would do this by creating thoughtful groups that had the right balance of familiarity and friendship. Groupings with no friends meant students would not talk about mathematics or anything else. Groupings with too many friends made it difficult for students to manage their social distractibility. As the term went on, Ms. Fisher and Ms. Royce were increasingly thoughtful about how they built groupings for students, and of course their groupings grew more balanced and productive as they learned about the students and their relationships with each other. Other mathematics education research has shown how valuable thoughtfully designed groupwork is to students' learning and equity (Boaler & Staples, 2008). This research shows that teachers' understandings of social care undergird their use of thoughtfully designed groups, classroom norms, roles, and feedback structures that support opportunities for students to learn mathematics collaboratively.

### Contributions to Theories of Political Care

In this study, I build on prior research to define the *political dimension* of care to include a teachers' critical attention to race in schooling and interactions with students and the moral use of their own institutional authority. I build on Pennington and colleague's (2012) work that argues for white teachers developing a critical understanding of the inequities of schooling, interrogating their role in those inequities, interrogating their assumptions about students of color and their communities. I also included political clarity as a part of political care (Bartell, 2011; Beauboeuf-Lafontant, 2002; McKinney de Royston et al., 2017). Political clarity includes colortalk, race talk, listening to students' counternarratives, and standing in solidarity with them (Bartell, 2011; Thompson, 1998). I also theorized political care to include an ethical use of power as teachers enact moral authority in the classroom, treating students with fairness and respect while negotiating the ethical use of institutional authority (Amit & Fried, 2005; Noblit, 1993).

The political focus of this study is particularly important. Bartell (2011) developed the concept of "caring with awareness." She emphasized the political work of caring mathematics teaching, which includes politically clear conversations with students of color. Many scholars outside of mathematics education have developed theories of critical and culturally relevant teacher care that speak to the importance of community (McKinney de Royston et al., 2017; Watson et al., 2016) and political clarity (Antrop-González & De Jesús, 2006; Beauboeuf-Lafontant, 2002; McKinney de Royston et al., 2017; Rolón-Dow, 2005; Thompson, 1998) to caring for students of color. However, these studies were outside of mathematics education and situated in environments that were predominantly Black or Latine. In the United States, classrooms are increasingly racially diverse (National Center for Education Statistics, 2023), yet almost 80% of mathematics teachers are white (National Center of Education Statistics, 2019). This means students of color can go their entire K-12 career without having a mathematics teacher with whom they share race or ethnicity. As such,

understanding the political work of white mathematics teachers as they care for diverse students of color is vital. This study provides one example of that political work and its influence on mathematics pedagogy.

This study contributes to the field's understanding of political care by theorizing what political care can mean for white mathematics teachers teaching racially diverse students. Just as narratives of schooling are key to understanding why teachers enact academic and social care, political narratives help us understand teachers' theories of political care. Ms. Fisher and Ms. Royce were quite similar in their political backgrounds. Both were white and grew up in majority white, rural towns. Both had limited experience talking about race and expressed worry about saying "the wrong thing" during their equity-focused professional development. Both described the professional development as valuable and recognized the white normativity of Seaview and the probable discomfort of students of color in that white normativity. Both talked about race in terms of socioeconomic status and understood white students as having greater financial and academic support at home. Both sought to act to improve education for their students of color, and both wanted concrete ways to do so.

It is unsurprising, then, that they understood political care similarly. Neither sought to have politically clear conversations with students, and both said that their primary mechanism for caring politically for their students was through the use of policy, especially grading policy. Both also said that a caring use of their institutional authority was to teach students "self-control" in ways consistent with a trusting teacher-student relationship. Without understanding Ms. Fisher's and Ms. Royce's political narratives, it would be difficult to comprehend why they sought to care for students as they did, and where their political dilemmas of care came from.

Part of political care is criticality (Pennington et al., 2012). An important finding of this study is that Ms. Fisher and Ms. Royce held conflicting principles of political care, as a part of their

*developing* criticality, that presented them with instructional dilemmas (Lampert, 1985). The teachers were critical about parts of their practice and not others. For example, Ms. Fisher and Ms. Royce articulated some deficit narratives of families of color. Adopting the language of Ms. Martinez, their former principal, the teachers affixed a student's race to their socioeconomic status. "Less houses, more apartments is kind of what I always think of," Ms. Fisher said, and Ms. Royce questioned whether students of color would have the support at home necessary to complete homework, unlike white students who "all push each other," and "know how to do school." Previous studies have demonstrated how teachers equating race to class leads to assumptions about students' families that contribute to inequitable schooling (Lewis & Diamond, 2015). An uncritical association of race and class, therefore, serves as an impediment to standing in solidarity with students as an element of political care.

Ms. Fisher and Ms. Royce believed in teaching students "self-control" as part of their caring use of their institutional authority (Amit & Fried, 2005), but they did not fully interrogate their focus on "self-control." Ms. Royce began to interrogate it when she discussed the difference between Black and white church cultures and questioned her own white normativity by saying, "who I am, like, I don't know, constantly nagging or on, because they're doing the wrong thing? And is it wrong? Probably not necessarily. It's just different, you know?" However, Ms. Royce's criticality about her notions of self-control had not, at the time of that interview, connected to the teachers' classroom policies and use of institutional authority. Her criticality was still developing.

The teachers did, however, believe in interrogating and working to abate the white normativity of Seaview. Ms. Fisher was working to reform the entry criteria to the National Honors Society so its membership would be more representative of the demographics of Seaview. Ms. Royce was working on hiring committees to reform the hiring process to make it more equitable. They had also learned in the quarterly race and equity professional development that many students

of color would feel uncomfortable in the white normativity of Seaview, and they were worried about their role in perpetuating that harm. Both teachers agreed to change grading and homework policies to reduce the advantages of those most historically served by schooling while providing supports for those most underserved.

The inconsistency of their developing criticality resulted in a contradiction in their theories of care between an uncritical view of teaching “self-control” and their critical desire to make policies to fight the white normativity of Seaview. The contradiction of principles led to a dilemma of practice around grading behaviors. This dilemma was only managed when they listened to students, became more critical of their own use of power, and altered power dynamics in the classroom accordingly. Ms. Fisher’s and Ms. Royce’s actions to reform their teaching of self-control came after they engaged in *politically clear listening*, which I more fully theorize in the next section. Through their politically clear listening, Ms. Fisher and Ms. Royce learned about the racism some of their students of color had experienced in schooling and how the students felt under-challenged in class. When white students lobbied for them to be stricter with classroom rules, Ms. Fisher and Ms. Royce prioritized care for the students of color. They intentionally changed the power dynamic between themselves and the students. They shared authority with them by allowing students to help set classroom policy, and students responded positively showing evidence of a caring relations. So, the listening and sharing of power helped the teachers manage their dilemma of how to care politically for their students as their criticality evolved. Their understanding of race as a dynamic in their classroom grew, and instead of policing students to conform with classroom rules, they co-constructed policy with students to teach them mathematics and academic productivity.

Importantly, the teachers’ improving political care also improved their academic and social care. Their politically clear listening changed their pedagogical priorities and choices as they provided more challenging and groupworthy lessons to the students. They set up several complex tasks and

asked students to represent their understanding in multiple ways like equations, tables, graphs, and drawings. They also changed their conferrals with students as they had fewer discussions about adherence to rules and more discussions about mathematics. They changed grading structures to stop grading behaviors and start grading mathematical understanding as the students requested, which improved the value of their grading as a mechanism for feedback on learning. Ms. Fisher and Ms. Royce also changed some of their approach to social care. They provided a greater amount of designated time in the 100-minute classes for students to socialize and connect. Finally, as they continued to learn about the students, they began making collaborative groupings based on students' relational assets and connections.

### **Political Clarity for White Teachers**

Another contribution of this study to the field's understanding of political care is to theorize political clarity for white teachers and the concept of *politically clear listening*. As outlined in Chapter 2, prior studies of care outside mathematics education have shown how students of color felt cared for when teachers of color were politically clear with them (Antrop-González & De Jesús, 2006; Beauboeuf-Lafontant, 2002; McKinney de Royston et al., 2017; Roberts, 2010; Rolón-Dow, 2005; Thompson, 1998; Watson et al., 2016). These studies theorized political clarity as an important element of critical and culturally relevant care. According to these scholars, political clarity involves color talk, or the clear recognition that teachers and students are white, Black, or Brown (Thompson, 1998) and race talk, which are conversations with students about race and racism to help them process and understand their experiences of racism and craft positive identity narratives (Beauboeuf-Lafontant, 2002; Thompson, 1998).

Within the field of mathematics education, Bartell (2011) developed a theory of *caring with awareness* of which political clarity is a part. Black mathematics students, for example, found the politically clear speech from their Black teachers to be caring, and fictive kinship between Black

students and their teachers contributed to students' understandings of political clarity as an important element of teacher care (Hunter & Stinson, 2019). What is missing from the prior research is an understanding of white teachers' political clarity with students of color. This study shows one possibility for what that might entail.

White teachers' discomfort discussing race and whiteness is not uncommon (DiAngelo, 2018). What this study showed is a way for white teachers to cultivate political clarity as an element of their caring relationships with students of color. Through their politically clear listening, Ms. Fisher and Ms. Royce were able to better understand the perspectives of their students of color. They learned about them. Although they had an empathetic understanding of how uncomfortable it might be for students of color to be immersed in the white normativity of Seaview, they did not fully grasp that students had been subjected to racist teaching and racist policing in schools. Hearing student accounts was a powerful experience that helped them shift their classroom practices to respond to students' needs and care for them.

*Politically clear listening* involves first inviting students of color to share their experience of schooling. It then involves listening to students of color if and when they describe their experiences of racism in schools, believing them, and then changing classroom policy and pedagogy to respond to their concerns. Politically clear listening also involves prioritizing the concerns of students of color even when white students have differing opinions. Politically clear listening involves interrogating and changing the power dynamics in the classroom to share authority with the students. By co-constructing policy with students, teachers reduce the institutional power differential between the students and themselves and "stand in solidarity with students" (Bartell, 2011, p. 62). Bolstering and elevating student authority is a vital outcome of politically clear listening and is consistent with research on critical and culturally responsive care (Antrop-González & De Jesús, 2006; McKinney de Royston et al., 2017; Rolón-Dow, 2005) and anti-racism (Kendi, 2019).

Politically clear listening provides an avenue for white teachers to learn how to improve their political care, which can then improve academic and social care.

As with the other dimensions of care, politically clear listening is not without its complexity. In contemplating how politically clear listening may be enacted, it is important to consider the conditions under which Ms. Fisher's and Ms. Royce's politically clear listening came about. The teachers' equity orientation and empathetic disposition, their learning stance, their establishment of trust with the students, and the presence of a critical partner facilitated the teachers' politically clear listening.

Ms. Fisher and Ms. Royce were equity-oriented from the start. Their criticality was developing partially through Seaview's equity-focused professional development. Of all their professional development, they said the race and equity sessions were the "best" they had experienced. Ms. Fisher and Ms. Royce were also looking for the good in students. Ms. Royce said that she thought the students wanted to cooperate as a default, and Ms. Fisher, when giving feedback to students, always highlighted positive behaviors first. This contributed a foundation of trust upon which many students felt comfortable sharing their experiences in the breakout sessions. Lizette said she would not talk about race with a white teacher unless she knew they authentically cared about her. Apparently, she felt Ms. Fisher did because she was one of the students that discuss race in Ms. Fisher's breakout session. We also had the good fortune of having four teachers for about thirty students making groups of about eight. Because we had four teachers, we were largely able to find students who would feel comfortable with each one of us. Structuring and facilitating the breakout sessions when the student:teacher ratios are higher would pose a significant challenge.

Both teachers credited their development of mathematical perseverance to the help of others, which Matthews (2020) found associated with more empathetic dispositions towards care. An empathetic disposition includes an understanding of students as "co-producers of mathematical

knowledge and classroom culture” (Maloney & Matthews, 2020, p. 425). Ms. Fisher’s and Ms. Royce’s empathetic dispositions towards care was foundational to their politically clear listening.

The teachers also exhibited a learning mindset about teaching and welcomed me as a partner in developing criticality. Each teacher emphasized at the beginning of our time together that they wanted to grow in their teaching practice, and each said that learning about students and their relationships with students was their primary professional learning objective. Their learning stance created an opening for me to be a helpful critical partner. We analyzed equity patterns of participation together, discussed whiteness together, and discussed the inequities of Seaview together as a part of the research design. These conversations contributed to their developing criticality and mine as well. So, when they felt stuck about how to engage the students and build a constructive classroom, they were open to my suggestion to take designated time to ask the students about their experience of schooling. Vital elements of the context of their politically clear listening included their learning stance and the presence of a critical partner.

### **Dilemmas of Care**

Ms. Fisher and Ms. Royce are likely not alone in having dilemmas of care. Caring is a complex business, and teachers’ principles of care can conflict. For example, regarding politically clear listening, it must be said that Lizette and Belle were educating white teachers about injustices perpetrated against them in schools. The teachers did not ask the students about their experience of race or racism in schools but about their experience of school mathematics. The students’ race talk was evoked by that indirect prompt from a teacher they trusted, and their testimony was impactful for Ms. Fisher and Ms. Royce. It prompted their own criticality about the ethical use of institutional authority and resulted in improvements to class for many students. However, it is unfair to put students in the position to have to recount racism against them to be cared for. This represents a tension in politically clear listening, which could result in dilemmas of care.

White teachers should educate themselves about race and racism in education, in their school, and in their community. However, part of caring for individual students is learning about their experiences to understand how they think about teacher care. For students of color, the experience of racism in and out of schools is all too often part of their experience. It informs their notions of political care. How teachers can learn justly about their students' experiences of racism without placing those students in an unjust position to recount it is worthy of additional thought and research. It represents a dilemma of political care.

Other dilemmas of care may stem from the sheer variability in how students understand caring teaching, and the likelihood of such dilemmas increase with class size. For example, Kofi and Sheila responded with greater engagement when the teachers increased the cognitive demand and groupworthiness of mathematical tasks showing evidence of caring relations, but the opposite held true for Fiona. How are teachers to care for so many different people?

Many of the students in this study remarked how lucky they felt to have four teachers in the classroom. As Baelee and Bonnie pointed out, the low student:teacher ratio meant they could get much individual attention and a wide variety of explanations to help them learn. In other words, there was a teacher available to care for them in the way *they* need to be cared for. Fiona commented on the student:teacher ratio as well. She said, "How are you supposed to pay attention to all 30 kids? Like, that just doesn't make sense. One adult? 30 kids? How's that supposed to work?" As the number of students to attend to increases, the complexity of caring for each student in a way that feels caring to them also increases as does the difficulty of learning what each student finds caring. This is especially true in secondary schools wherein teachers are only with students for one period each day. Even when teachers understand what teaching would seem caring to their students, caring for one may come at the cost of caring for another prompting dilemmas of care.

Another dilemma of care is that students may want to be cared for in ways that are not good for them. For example, students may be intolerant of probing questions or conceptual discussion because their narratives of schooling, anxieties, and desires shape a vision of teacher care that excludes such instruction. In such cases, the principle to care for students by understanding their motivations and helping them achieve their goals may conflict with sound pedagogical principles. This conflict in principles is then likely to create dilemmas of care.

### **How the Three-Dimensions of Care Should be Understood Together for Analysis**

This study shows how researchers might use the academic, social, and political dimensions of care together as an analytical tool for understanding mathematics teaching as a relational practice (Franke et al., 2007). Teaching and learning are inherently social (Lave & Wenger, 1991; Vygotsky, 1978). Social learning involves power and is therefore political (Esmonde, 2016; Hand, 2012; Hand et al., 2013). So, the academic, social, and political always coexist and can be used to understand classroom interactions (see Figure 1). When understood from both the teacher's and student's perspective, the academic, social, and political dimensions of care provide a tool for understanding why teachers teach as they do, and why students may interpret teachers' actions as they do.

Any classroom event can be analyzed along all three dimensions to understand the relational foundation of the interaction. For example, when Ms. Royce was conferring with students as they attempted her Smaug-the-dragon task (see Figure 7), she prompted students to ask each other questions during their problem solving. This interaction can be understood along the academic care dimension by first understanding Ms. Royce's theory of academic care. If you know that she believes academic care for students means helping them become independent problem solvers, then you can interpret the interaction as an effort to help students find resources (peers) to answer their own questions. The interaction may be understood along the social care dimension if you understand her theory of social care. If you know that she believes social care for students means helping them

listen to each other and turn to each other for assistance, you can understand the interaction as an effort to encourage collaboration so students can build peer relationships through mathematical activity. The interaction can also be understood along the political care dimension by understanding Ms. Royce's theories of political care. Such an analysis may require some additional understanding of context. For example, what are the races and genders of the teachers and students involved? How did Ms. Royce use her institutional authority in the interaction? Was she grading collaboration and therefore suggesting a grade consequence for not doing so? Was she inviting collaboration without demanding it? How did she use her power, and how did she understand the function of her own whiteness in relation to the students and what she was asking them to do? A comprehensive understanding of Ms. Royce's relational teaching practice in that moment can be understood through all three dimensions of care at once. By understanding Ms. Royce's theories of academic, social, and political care, researchers and teacher educators can gain vital insight into her pedagogical priorities and choices, *and* her reasons for them. By accompanying an analysis of a teachers' efforts to care with an understanding of the student's theories of academic, social, and political care, researchers and teacher educators can also understand why students may respond the way they do in any given interaction.

### **Possibilities for Future Research**

This study showed how teachers' understandings of mathematics, teaching, and equity undergirded their theories of care and therefore their pedagogy. This connection provides fertile ground for future research to understand why teachers care as they do and therefore teach as they do. For example, mathematical knowledge for teaching has long been associated with the quality of mathematics instruction (e.g. Hill et al., 2008). Is teachers' knowledge of mathematics also associated with how they understand and enact academic care for their students? A teacher with greater mathematical knowledge for teaching and pedagogical content knowledge (Shulman, 1986) may have

greater facility enacting mathematical caring relations (Hackenberg, 2005) as they more readily anticipate and understand students' mathematical thinking. In this study Ms. Fisher understood mathematics primarily as a scholastic subject while Ms. Royce understood it as a set of tools for real world application. Their theories of care and pedagogy followed those understandings. Teacher care varied based on whether a teacher prioritized a procedural or conceptual approach to mathematics. More research about how teachers' understandings of mathematics tie to their theories of care and therefore their pedagogy is warranted.

Research is also required to broaden our understanding of how teachers' theories of care connect not only to their understandings of teaching but of the purposes of schooling. This study showed just two examples of teachers' understanding of teaching and how it shaped their care for students, but I did not explore teachers' understanding of the purposes of schooling. That may be a useful connection future research could make. For example, how do teachers' dispositions towards care and theories of care change if they believe the purpose of schooling is to prepare students for college? For life? For citizenship? For employment? How might differences in teachers' theory of schooling impact how they think about building caring relationships and therefore how they choose to teach? Then how do students' understandings of the purposes of schooling shape their vision of caring teaching?

This study connected two white teachers' understanding of equity and whiteness to their theories of political care and their enactment of political care. Given how vital culturally relevant and critical care is to culturally relevant pedagogy, we need more research into how teachers think about equity, how they think about the white normativity of their schools, and how they think about students, families, and communities of color to connect their understandings to how they care. We also require research that investigates teachers' understandings of gender and their care for students of different genders. In this study, a dilemma arose for the teachers as principles of their political

care conflicted. A greater understanding of how contradictions in teachers' political principles create instructional dilemmas for them and difficulties for students could help build reflective, critical tools for teachers to productively engage such dilemmas.

More research is also required on politically clear listening. This study provides but one example of politically clear listening in one context. More research is required to understand, for example, the teacher mindsets that support their politically clear listening. Also, this context had a student-teacher ratio of about 8:1. How can teachers enact politically clear listening when they have far more students to attend to? It is also likely that Black and Brown teachers incorporate politically clear listening into their political clarity with Black and Brown students. It would be useful to understand their politically clear listening as exemplars of relational practice, and it would be useful to understand students' experiences of politically clear listening. Also as mentioned, white teachers need ways to enact politically clear listening that do not place a burden on students of color to educate them or relive racist experiences. How teachers can learn about their students' experiences of race and racism is important to their political care. How that learning might be designed without an unfair burden on students of color is worth more thought and further research.

### **Implications for Teacher Education**

This study also has implications for teacher education. Teachers' theories of care constitute a vital lever for improving practice. A major finding of this research is just how strongly theories of care are tied to the instructional core. Ms. Fisher's and Ms. Royce's understandings of caring for their students informed their choices about what mathematics tasks to set up and enact with students and their facilitation of students' interaction with mathematics and each other. Teachers can be introduced to new materials, new techniques, and new pedagogical concepts, but what if they are inconsistent with teachers' theories of care? Without attending to how teachers think about caring for their students, we are unlikely to understand why teachers teach as they do and know how

to craft professional learning that shifts practice. In the professional development of both in-service and pre-service teachers, how might teacher educators help teachers to deconstruct their theories of care so teachers might reconstitute them towards more equitable and ambitious teaching?

This study also showed the importance of a caring critical partner to helping teachers improve their teaching and the equity in their classroom. Although Ms. Fisher and Ms. Royce had regular professional development sessions focused on equity, the sessions were not focused on mathematics education. They helped Ms. Fisher and Ms. Royce reconsider policies in their classroom to make them more equitable, which is important, but they did not help them critically investigate their own teaching practice. Our relationship, on the other hand did help them improve their practice to care for their students more responsively. Each day after class, we reflected together on what we noticed about students that day. Through the interviews, Ms. Fisher, Ms. Royce, and I discussed whiteness at Seaview, their orientation towards whiteness and equity, and whether patterns of participation and interaction in their classroom were equitable. This enabled them to engage in critical inquiry about their own practice in new ways. We were also witnesses to each other's practice. As a participant-observer in their classroom. I could observe them teach, but they also observed me. We regularly discussed our impressions of each other's teachings forming an informal professional learning community that met every day and discussed the smallest details of teaching.

This groundwork put me in the position to be a trusted voice when I urged them to have the breakout sessions in which they enacted politically clear listening. Our own caring relationship was the basis from which I could ask questions about how they were thinking about their own policies and interactions and make suggestions to contribute to their criticality and improvement. Their openness and desire to keep learning and improving as teachers was crucial. This shows some qualities of a productive coaching relationship to help equity-oriented and empathetic teachers develop criticality towards their work and grow their teaching practice. How might coaches help

teachers develop the criticality necessary for improving their political care, and by extension their academic and social care? Further research on how critical coaching can help teachers relate to their students more critically and equitably can contribute to the development of relational resources for coaches. If instructional coaches have tools to help teachers critically investigate their own narratives of schooling and care, they may be more able to help teachers shift and improve practice towards more ambitious and equitable instruction.

### **Conclusion**

This research stemmed from decades of my own wondering. What did it mean in those opening faculty meetings when my principals and colleagues proclaimed our caring teacher-student relationships to be *the* defining element of our school? We never delved into what we meant by that. We never investigated what made a relationship caring, how it grew, how it might be different for different students, and how it might inform and be informed by classroom activity. We never discussed how we cared through instruction or how care may be interpreted differently by different students. With this study, I have made some headway on this inquiry.

Caring teaching involves caring academically, socially, and politically for students. To enact it, teachers must learn a great deal about their own schooling narratives because it shapes how they understand care, which in turn shapes teaching practice. They must engage in critical reflective inquiry to cultivate political care and must learn a great deal about and from students throughout the school year.

Not only did I learn much about teacher care during this study, but I learned about improving my own care for students. Ms. Fisher and Ms. Royce were not the only ones developing criticality during this research. I was as well. Despite a dozen years teaching many Native American and Mexican students in New Mexico, I had few politically clear conversations with them. In this research, I learned how to have more politically clear conversations with students of color. The

students' openness and generosity in the interviews helped me understand better the role of race in schooling and in their identity narratives. Such an understanding helped me develop greater criticality that can improve my political care for students and thereby my academic and social care for them. I set out to understand what we mean by "care," but what I grew to understand is the complexities, dilemmas, and deep critical learning a white teacher faces when caring for racially diverse classes of students.

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