Building Communities of Care for Equity, Justice, and Culturally Responsive Practice in Mathematics Education

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Building Communities of Care for 
Equity, Justice, and Culturally Responsive Practice 
in Mathematics Education

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Synopsis
Teaching is widely considered one of the “caring professions,” but conceptualizations of care and how care is put into practice in education are not universal. In this article, we draw from a range of perspectives on care that integrate supportive interpersonal relationships, high expectations, and culturally relevant theories of critical care, as well as Queer Theory and Disability Justice, to explore the application of these ideas in mathematics education. We identify key elements for building communities of care in mathematics education contexts: co-constructing community agreements, redefining participation, shifting traditional power structures, collaborative problem solving, and building networks of care beyond the classroom. We share our experiences implementing these elements of communities of care and propose that the integration of these elements can serve as the starting point for a framework for building communities of care for equity, justice, and culturally responsive practice in mathematics education.

1. Introduction
“I’ve learned that people will forget what you said, people will forget what you did, but people will never forget how you made them feel.”
Many educators have likely seen this quotation, by Maya Angelou, touted across educational contexts as a reminder that the content we teach should not take precedence over the social and emotional aspects of teaching and learning. The essence of the quote is profound, pointing to the need to develop caring relationships with students in our educational practice.

Throughout this article, we discuss our own journeys in attempting to create communities of care and enact pedagogies of care in mathematics teaching and learning spaces. We begin by sharing the conceptualizations of care that have been influential to our work, relying heavily upon the theories of hard caring [2], culturally responsive critical teacher care [53], and queercripistemological pedagogy of care [76]. We describe our own personal journeys that led us to creating communities of care in our work as mathematics educators. We identify five key elements for building communities of care in mathematics education contexts—co-constructing community agreements, redefining participation, shifting traditional power structures, collaborative problem solving, and building networks of care beyond the classroom—and we each share our experiences implementing these elements of communities of care in our practice. We move back and forth from author to author as we discuss our implementation of these elements to highlight our different perspectives and experiences across common themes and connections to critical theories of care. We then propose the integration of these essential elements of caring as the start of a framework for building communities of care in mathematics teaching and learning. We include resources related to each element to help teachers and teacher educators in their implementation of elements of care. Finally, we discuss the tensions we have come across in our efforts to build communities of care in mathematics education classrooms. By proposing a framework for building communities of care in mathematics teaching and learning and sharing our experiences and tensions in implementing the elements of the framework, we hope to offer teachers and teacher educators tools for making mathematics teaching and learning spaces more caring, particularly for those from marginalized groups.

2. Conceptualizing Caring in Teaching and Learning

2.1. Soft Caring Versus Hard Caring

While most teachers would likely agree that caring is an essential component of education, the meaning of care and caring is not universal. As noted by
McKamey (as quoted in [2]), “[c]aring is a symbolic concept charged with multiple political, social, and cultural meanings” (page 5). To understand these multiple meanings, Antrop-González and De Jesús [2] conceptualize the notion of caring in teaching and learning as one that exists on a continuum from soft caring to hard caring. They describe soft caring as one that advances a colorblind assumption of care, entrenched in a White feminist framework, in which teachers pity their students (especially students of color) because of their social circumstances and lower their expectations as a result of that pity. In contrast, they describe hard caring as a caring that is characterized by high expectations (academically and personally), as well as the fostering of supportive relationships built upon respect and mutual trust. Antrop-González and De Jesús write,

> Our discussion of soft vs. hard caring suggests that there exists within the social landscape of schools and teacher/student relationships a continuum of caring that may not be as binary as the soft/hard concept implies but that the most relevant forms of caring . . . recognize that students of color will not benefit from forms of caring that are not tied to the expectation of academic excellence. [2, pages 423-424]

In their research on the qualities of hard caring in two Latinx community-based schools, Antrop-González and De Jesús identify the following characteristics: critical and caring curricula, an ethos of familia y comunidad and personalismo, and creation of physical, social, and emotional safety for students. They describe how the two schools in their research, El Puente Academy for Peace and Justice (El Puente) and Dr. Pedro Albizu Campos High School (PACHS), infuse critical and caring curricula through interdisciplinary units that tap into “students’ cultural capital or funds of knowledge” [2, page 417]. For example, El Puente organizes its ninth and tenth grade interdisciplinary studies on the essential questions “Who am I? and Who are we?” with a culminating project that is linked “to students’ cultural and historical journeys as well as the history and geopolitics” of their local community (page 417). One such example is the school’s Sugar Project, inspired by a sugar factory that is a local landmark. Throughout the project, students explore the connections between the history of their local context, Caribbean history, the role of sugar and capitalistic ideals in the transatlantic slave trade, and “the cultures of resistance which grew out of [the] struggles” of those who worked on sugar plantations (page 417).
Such a curriculum embodies the notion of hard caring, in that it maintains high academic expectations, while celebrating the rich, complicated, and beautiful histories of resistance of people from the Afro-Caribbean diaspora.

Antrop-González and De Jesús [2] describe an ethos of *familia y comunidad* and *personalismo* as essential to the practice of hard caring. *Personalismo*, coined by Santiago-Rivera *et al.* [54], is a Latinx cultural value that places emphasis on interpersonal relationships that are warm and friendly and have an element of mutual dependency, much like the relationship Latinx individuals experience in their extended families. Antrop-González and De Jesús [2] discuss how students at El Puente and PACHS described their teachers as flexible (more like “co-students” than teachers), accessible, patient, and willing to support students both academically and personally. Teachers knew students’ home lives and were willing to work with them, but never allowed students’ circumstances to become an excuse for expecting less of students. In fact, many students described El Puente and PACHS as having cultures in which failure was not an option. If students fell behind or did not understand something, teachers sought them out and invested their time and energy to make sure no student fell through the cracks. For this reason, many students described the adults of the El Puente and PACHS communities with words like friend or parent, providing students with both *familia y comunidad*.

The last element described by Antrop-González and De Jesús as evidence of the hard caring present at El Puente and PACHS was the creation of physical, social, and emotional safety for students. For example, El Puente adopted the Holistic Individualized Process (HIP), as well as a framework of twelve principles of Peace and Justice, as a means to address interpersonal conflict. Similar to frameworks of restorative justice, Antrop-González and De Jesús describe HIP as “an approach that avoids a reliance on unilateral discipline policies and seeks to understand more broadly and flexibly the needs of individual students and the origins of conflicts among members of the learning community” [2, page 427]. At El Puente, this process was supported by a weekly HIP seminar, in which students work with adult mentors to create individualized goals and action plans focused on four components: “individual and collective self-help, group development, wellness, and community action and development” (page 428). These goals and action plans were utilized by students and teachers alike to support students in succeeding both academically and behaviorally and are essential touch points when there is interpersonal or community conflict.
These policies allowed El Puente faculty to foster safe environments which students describe as inspiring a sense of mutual trust and respect. The use of HIP and the twelve-principle framework of Peace and Justice create a community in which El Puente resists the long-established ‘power over’ model of education (one characterized by control, punishment, and zero-tolerance policies) to a ‘power with’ model of education that is more consistent with the development of a community of care (or community of hard caring) ([37] as cited in [2]).

3. A Culturally Responsive Theory of Critical Care

Notions of soft versus hard caring, such as those described by Antrop-González and De Jesús [2] also allow educators to conceptualize how a pedagogy of care and the ethos of care work [50] differ from ideas of kindness and charitability. Shalaby [58] identifies justice as a vital component of care work:

Because the idea of care, much like the idea of love, is too often misunderstood as apolitical, our work with children and with each other must be first to establish the relationship between care and justice. Care is not about being kind or charitable; rather, care is about being and working in ways that are fair, inclusive, and in solidarity with the most vulnerable. (page 43)

This centering of justice in a pedagogy of care (as well as a critique of the idea of “fairness,” which Shalaby mentions here) is as essential as the qualities of hard caring outlined by Antrop-González and De Jesús. Roberts [53] further illustrates how one might step outside a White feminist framing of care (i.e., soft caring), highlighting the importance of justice to a culturally responsive notion of care in her theory of culturally relevant critical teacher care, which is defined as “a theoretical construct which can account for the collision of care theory, CRT [Critical Race Theory] and the pedagogy of African American teachers” (page 454).

Justice is essential to a culturally responsive theory of critical care and is embodied through two tenants: political clarity and a “concern for student[s’] futures” [53, page 457]. According to Roberts:

Political clarity, also referred to as socio-political critique, describes conversations that may be held between student and teacher or teacher and parent in which a teacher acknowledges that race
does make a difference in the realities that are experienced in everyday life and critiques any racialised assumptions based on that difference. [53, page 458].

Roberts notes that teaching students “the art and necessity of code switching” (page 458) is an important aspect of political clarity. Roberts discusses this element of political clarity in terms of the CRT tenets of the permanence of racism in US society and interest convergence, writing “teachers, demonstrating their awareness of the prevalence of racism in society, espoused a belief that European Americans do not intend to act on behalf of African Americans” (page 459) because it is not in their best interest to do so. Roberts, however, cautions against discussions of code switching that are rooted in deficit judgements of African American culture. Roberts’s discussion here brings to mind Gutiérrez’s call to teach students to “play the game” of education in order to “change the game” [20] in ways that move away from behaviors and strategies that Thompson, who discusses the implications of Black feminist theory on theories of care, describes as “historically and politically contingent” [63, page 542] and favor White people and individuals of other dominant identity groups.

The second core element that Roberts [53] discusses in terms of a culturally responsive theory of critical care is concern for students’ futures. Roberts writes:

African American teachers are often proficient in understanding and appreciating community norms and concerned that their students master much more than the content of specific subjects; indeed, the students are to master life. Many teachers described in the literature express hope that, if complete mastery of content is not within reach, they can help students understand the personal value, collective power and political consequences of selecting or rejecting academic achievement. [53, page 460]

This concern for students’ futures cannot be accomplished without a teacher getting to know their students academically, personally, culturally, and socially, so that they might have honest conversations about race, racism, and other identities and forms of oppression that impact students presently and that will impact them as they move beyond the world of elementary, secondary, and even post-secondary education. This necessarily requires knowledge of students’ sociopolitical and sociohistorical contexts (e.g., their
neighborhoods, their cultural and religious customs, roots, and histories, etc.). The absence of such knowledge and space to hold such critical conversations runs the risk of leading Black students to lose trust in their teachers and the institution of schooling at large. Thompson also notes that such knowledge should flow in all directions because “if students are to work together productively and supportively, they too need to understand one another’s situations” [63, page 541].

The need for political clarity and concern for students’ futures resonates with the sociopolitical turn in mathematics that Gutiérrez [18] and others [1, 42, 67, 78] have urged mathematics educators at all levels (elementary, secondary, and postsecondary) to take—a call that has led to further development of materials for teaching mathematics for social justice (TMSJ), as well as discussions such as those described in Yeh et al.’s framework of five ethea of ethnic studies in mathematics education [77]. At the same time, we must make sure these curricula do not take a deficit orientation (i.e., a White feminist framing or soft caring), but instead employ an orientation that “assumes the beauty, power, and intrinsic value of Blackness” [63, page 542]. This call is in line with the inclusion of what some mathematics educators have discussed as an assets-based TMSJ curriculum [70, 77].

4. Queer Theory and Disability Justice to Inform a Pedagogy of Care

Scholars have also turned to the fields of Queer Theory and Disability Justice to further conceptualize what a pedagogy of care might entail. Woolley [76] discusses infusing these two theories into what she refers to as a queercripistemological pedagogy of care during the height of the COVID-19 pandemic. One core element Woolley describes in her queercripistemological pedagogy of care is the refusal to ignore open conversations about mental health struggles and disability that both she and students were experiencing as a direct result of the pandemic. Such conversations required Woolley to model this behavior herself and to be vulnerable with her students about how she was doing. She opens her discussion with one example of this modeling of vulnerability in which she shares an email she wrote with her students. That email begins,

I need to be honest with you. I am not okay today, and I need to take a mental health day. I honestly don’t know if I can show up and facilitate a conversation without crying constantly today.
And yet, Eli Clare’s book is one of the most powerful autobiographical pieces I have ever read, and I don’t want us to pass over this text. But I also don’t want to ask you to perform on a moodle forum or show me yet another conversation on a google doc to demonstrate your engagement... because I cannot even deal with that today, and asking you to perform when I cannot does not seem fair. So, in the interest of radical transparency and vulnerability, I am going to reflect here and invite you to spend today and Wednesday’s class time reflecting on what Eli Clare prompts us to consider. I struggle with anxiety and depression as well as various forms of disability. I live and operate in crip time. The thought of not extending crip time and radical notions of access to my students has never seemed right...

In this email, Woolley mentions a second notion of a queercripistemological pedagogy of care, the notion of adopting crip time, a disability justice concept that holds that time should bend to the needs of disabled bodies, rather than the other way around [29]. For Woolley, this meant adopting rolling due dates for students on most assignments, as well as allowing them to “show up” in ways that took care of their psychological, physical, and social emotional needs. For example, on her syllabus, she included the following statement:

For synchronous meetings on zoom, I ask that you have your video camera on to be present in our discussions, but I also understand that sometimes you need to go to the bathroom, or eat, or do other things or be in places that you don’t want on video, and that is okay. I trust that you are adults and can manage how you need to be present in class through zoom... I ask that you try to be attentive and present during our zoom meetings, but I don’t care what you are wearing or how you are positioned in your body, and netiquette regulations strike me as potentially sexist, classist, racist, and ableist. Show up ready to engage and learn in whatever form that takes for you in the moment. [76, page 4]

Woolley discusses an additional element that influenced her queercripistemological pedagogy of care: greater utilization of Universal Design for Learning. Universal Design for Learning (UDL) is a framework, shown in Figure 1, that has been developed “to improve and optimize teaching and learning for all people based on scientific insights into how humans learn” [9, paragraph 1].
As seen in Figure 1, the framework encourages teachers to provide multiple pathways for students to access, build upon, and internalize the “what, why, and how” of learning. The framework emphasizes the importance of providing access by offering students choice in how they engage, opportunities to engage with information through various representations, as well as choice and variety in how they convey their knowledge. For Woolley (2022), the adoption of UDL principles meant not only offering “a variety of ways for students to demonstrate their knowledge, growth and critical thinking through modalities of engagement and assessment” (p. 4), but also the implementation of social-emotional group check-ins at the start of every class.

Figure 1: Universal design for learning guidelines version 2.2 [graphic organizer] CAST 2018 [9]. Available at http://udlguidelines.cast.org, last accessed on July 28, 2024.
5. Our Journeys to Creating Communities of Care

In this section, we describe our personal journeys that led us to prioritize the building of communities of care in our mathematics education contexts. The care we have experienced in some contexts, and the lack of care we have experienced in others, helped us each to understand the necessity of integrating critical care into mathematics education.

5.1. Nicole

I am a White woman who grew up in Washington, DC, and Maryland, and who now lives in New York City. I previously worked as a classroom teacher and now work as a teacher educator at a medium-sized, private, predominantly White university in Connecticut. Though I was unaware of the term “community of care” until B introduced it to me in early discussions of this collaborative manuscript, my desire to create a community of care was what led me to become an early childhood teacher and eventually to become a mathematics educator. When I started my career as a teacher—first as an assistant nursery teacher in an independent school in NYC and later as a special education teacher in kindergarten and first grade in public schools in NYC—I wanted to make a joyful, nurturing classroom community, and I wanted to be a firm but loving teacher. Through taking coursework in early childhood education, I learned that providing young children with caring, stable relationships is essential for development and can reduce or prevent the detrimental effects of early adverse experiences [10]. In my early teaching experiences, I witnessed teaching practices that were decidedly uncaring and even harmful to the young children in those classrooms. I wanted to be the teacher that provided my students with a secure attachment and the nurturing, responsive classroom environment that I know children need and that I had once needed but had not always had myself. My understanding of critical care was not yet developed at this time. Though I believed I had high expectations for all of my students, my pedagogy did not always reflect this in my early years as a teacher. My efforts to reflect students’ identities in the curriculum focused on holidays and celebrations, and I had not yet developed an understanding of culturally relevant pedagogy [39] and justice as central to critical care in education [53].

Professors in graduate school such as Herbert P. Ginsburg and Erica N. Walker were a major influence on the development of my understanding of
critical care in education. In Ginsburg’s course “Development of Mathematical Thinking,” Ginsburg’s analyses of videos of children engaging in math tasks were firmly grounded in an asset-orientation of children’s mathematical capabilities. Ginsburg introduced us to the world of children’s mathematical thinking and showed us that it was up to us to learn how to recognize the sophisticated understandings embedded in children’s mathematical talk and play. In Erica Walker’s “Mathematics and Multicultural Education” course, we explored through an intersectional lens the roles of students’ backgrounds, teacher and school characteristics, and cultural context on access and achievement in mathematics education and learned about interventions and policies created to improve equity in mathematics education. Through taking this course and working as Walker’s research assistant on her project “Documenting Mathematical Moments: Video Narratives of Black Mathematicians and Their Impact on High School Teachers and Students” (stemming from her work documented in [71]), I learned that actively working towards equity and justice were vital to critical care in mathematics education.

I started my career as a teacher educator in fall 2019, and the COVID-19 pandemic spread to the United States in my second semester as an assistant professor. The personal and professional challenges of the early pandemic were incredibly difficult. Throughout this time, I observed that institutions seemed to expect everyone to operate as if everything were normal—and nothing was normal. I started to become angry as I saw systems and organizations put the health and safety of employees at risk, and it seemed to me as if organizations of all types were valuing profits over people. I saw how COVID highlighted and exacerbated inequities. I felt like the extreme level of trauma and the gravity of the toll COVID was taking on mental health was largely ignored on both a macro and micro level. I was saddened thinking about all the ways my students were struggling, so in my position of power as a professor, I acknowledged the realities of COVID during my classes and tried to extend the empathy, care, concern, and flexibility to my students that I knew they needed.

The murder of George Floyd brought more sadness, pain, and anger that yet another Black person had been killed senselessly by police. Many White people finally seemed to pay attention to and talk about systemic racism and police brutality (which Black people and other People of Color had been working against for a long time), and our country rose up in collective action in a magnitude we had not seen in my lifetime. Though I had spoken out
against racism and anti-Black violence in my personal life for years prior to 2020, and though I had been involved in equity work in my professional life, I had not addressed racism and anti-Blackness directly in my teaching before. I watched as many organizations put out statements that were not followed by any real actions, while other organizations said and did nothing at all, and I could no longer cosign this inaction. I was angered once again by systems that were harming rather than helping people, so I decided to use my position of power as a professor and as a White woman teacher educator to move away from soft caring and towards hard caring [2] by making antiracism and equity key components of the communities of care I try to develop in my classes. B’s support as a “critical friend” [12] by listening and offering ideas and critique from a place of friendship and care were critical to my course redesign process [15]. The “twin pandemics of racism and COVID-19” [61, page 2] have sparked in me a deep desire to give my students a different school experience—where caring, learning in community, and developing skills needed to work against systemic inequities and towards a more just future are central—in the hopes that the future teachers in my classes will one day work to create communities of care that value the brilliance of all children in their own classrooms [15].

5.2. B
Growing up in my White, Latinx household, I was taught the importance of community from a young age through the Latinx cultural value of familismo. Familismo, somewhat similar to personalismo, is often described as “the importance of strong family loyalty, closeness, and getting along with and contributing to the well-being of the nuclear family, extended family, and kinship networks” [4, page 3]. High levels of healthy familismo in Latinx individuals has been found to help to protect Latinx individuals from negative mental health outcomes associated with discrimination and other hardships. Familismo, however, can become toxic [49] when the loyalty to and well-being of the family takes priority over the well-being of individual family members, as was the case for me when I came out as queer to my family. Nevertheless, in many ways, the familismo of my youth positioned me away from the traditional Western ideal of individualism, toward seeking to understand the needs of those around me and ways that I might contribute to the overall well-being of our community.

Moving into adulthood, I attempted to weave some of these ideals into the classroom but struggled to understand how to reconcile a community ori
tation with the traditional structure of schooling I had experienced in my own PK-16 education. It took the tragic death of one of my students for me to sincerely reflect on the ways my classroom was not fostering kinship and communal well-being, and what shifts would need to occur to support students in our collective grieving. The death of this student pushed me to begin looking for ways to provide space to honor student emotion, rather than centering content and the upcoming state assessments. I began providing options for the ways in which students might engage, especially in the days and weeks immediately following their classmate’s death. This resulted in a swift and noticeable shift in classroom climate. Students that I had struggled to keep on task and motivated became more engaged, students became more willing to collaborate with peers outside of their friend groups and began referring to all peers in their classroom as their “math family,” and the overall academic achievement of the class began to improve.

Not long after this incident, I moved to New York City to pursue my PhD. Having grown up in a working-class family, the opportunity to study at Columbia as a first-generation college student was one I felt I could not pass up. I saved up what money I could and determined I would need to find work at the university or elsewhere to support myself after completing my first year of the program. Due to some unforeseen familial circumstances, the money that was intended to last me the first academic year was mostly gone within a few months. As a result, I began experiencing food insecurity, often only eating one meal a day, and began questioning my ability to remain in the program. During this time, one member of my newly developed community, Nicole, my coauthor for this article, took notice that I was not eating regularly and began bringing me extra food. This small act sustained me until I was able to find work and provided me with the kinship needed to continue my doctoral studies.

Around this time, I also began accepting something I had always known, but had suppressed most of my early life—I was queer. As I grappled with the repercussions of coming out to my family (as well as eventual estrangement) and navigating a new cultural scene, I was again provided with the conditions to thrive from community members who welcomed me with open arms, while also willing to convey hard truths. One community member enveloped me into her established queer family, my roommates provided me space to be my full self, no strings attached, and two others pushed me to begin expanding my understanding of intersectionality and how oppressive ideologies were
showing up in ways that prevented me from radically accepting and loving myself, as well as others.

Several years later, I experienced a brain injury that would alter my life in significant ways, as would the COVID-19 pandemic that followed. Throughout these events, I continued to experience communities of kinship—from my wife, stepping up and caring for me in ways that often stretched her beyond capacity, to the new kinship networks I began fostering over Twitter throughout the pandemic, as we collectively mourned and engaged in direct action to address the ongoing oppressions we were experiencing in the field of mathematics, as well as in the world at large. Each of these experiences helped me to begin asking how I was prioritizing the needs of those in my community (including my students) and pushed me to consider how intersectional considerations of identity are essential to creating communities where collective thriving was possible. This led to my adoption of the intentional community-oriented practices I describe throughout this article.

The examples I provide span a large array of settings, including my work at a predominantly White, all-girls private middle and high school in New York City, a rural/suburban, racially and ethnically diverse public school in Central Florida, a predominantly White, teacher preparation program at a private university in Northern New Jersey, a highly racially and ethnically diverse teacher preparation program at a private university in New York City, and a racially and ethnically diverse mathematics enrichment program for 2SLGBTQIA+ teens, which is offered virtually and free to all who participate.

6. Positionality on Enacting Critical Pedagogies in Our Contexts

We, the authors, have found that the building of communities of care and the enactment of critical, culturally responsive, and queercripistemological pedagogies in each of our contexts to be crucial in the work of dismantling White supremacy, heterosexism, cissexism, and ableism. In our work with preservice teachers, this work has been vital in that it provides a model for how we can create communities that foster the conditions for all learners, especially those who are most impacted by systemic oppression, to thrive in and beyond mathematics. How can we expect preservice teachers to create such conditions in their future classrooms without having experienced it themselves?
Similarly, in B’s work in public and private schools in NYC and Central Florida, as well as their work with 2SLGBTQIA+ populations, the use of critical, culturally responsive, and queercrtpistemological pedagogies has provided youth with a framework to challenge Western and White supremacist notions of individualism, capitalism, professionalism, productivity, and even concepts of time, in ways that allow them to realize that there are other, more humanizing ways to exist in this world. B has also found that building communities of care has been especially helpful in their current work with 2SLGBTQIA+ youth, given the hostilities 2SLGBTQIA+ people are experiencing in our current political climate. In the context of our current political climate, communities of acceptance and support (i.e., care) have been found to severely reduce the risk of suicide among 2SLGBTQIA+ youth [64].

7. Implementing Elements of Care in Mathematics Teaching and Learning

In discussions of our efforts to develop caring teaching and learning environments, the authors identified key elements for building communities of care in mathematics education that were common across our teaching practices. These key elements are co-constructing community agreements, redefining participation, shifting traditional power structures, collaborative problem solving, and building networks of care beyond the classroom. In the following sections, the authors take turns describing our experiences implementing each of the elements of communities of care in our roles as mathematics educators, the importance of each element for cultivating a caring learning community, and connections to critical theories of care. Following this discussion, we present our starting point for a framework integrating these elements to build communities of care for equity, justice, and culturally responsive practice in mathematics education contexts. Finally, we discuss the tensions we have encountered while attempting to build communities of care.

7.1. Co-constructing Community Agreements (Nicole)

In working to develop a community of care in my mathematics methods course, I made intentional efforts to build classroom community and shift activities and assignments from independent to collaborative. An important element of community building that I brought into my mathematics methods course was co-constructing community agreements.
I knew in Fall 2019 that establishing community norms or agreements was important for building classroom community, and I knew that there would be more buy-in if students created the community norms rather than having them imposed by me, but I did not know how to facilitate this. Early in the semester, I asked students to generate classroom norms and recorded their ideas on chart paper, but I never revisited the norms with the class, and after a few weeks students were not really following them.

In our conversations about my course redesign for Fall 2020, B shared with me a community agreements protocol from the School Reform Initiative [74] that they had used in their work with preservice teachers prior to 2020, which I used on the first day of the Fall 2020 semester to facilitate the co-construction of community agreements with the class. Everyone in the class writes down what they need from one another to learn and work productively in a group. Each person then shares one thing from their list without repeating what others have said but adding to or adjusting previous contributions as needed. This circuit is repeated until everyone’s list is exhausted, and then the class list is condensed to approximately ten community agreements. This list is then referred to during and after group work for reflection on group process [74]. B also shared prompts they developed for a community agreements check-in, asking students to reflect on which agreements they had done well with and which they needed to improve upon, both individually and as a group. Several weeks into the course, I asked students to submit their responses to these reflection questions via an anonymous Google form, and I shared the results of the check-in the following week so we could reflect on our progress as a class and consider whether any adjustments to the community agreements were needed.

Kishimoto states in her article on antiracist pedagogy that “a community based on trust must be developed before having challenging discussions where everyone can become vulnerable” [32, page 548]. Community agreements that are co-constructed and used as a mechanism for reflection are an important part of developing a community based on trust [74], which is crucial for engaging in course content on equity, justice, and culturally responsive pedagogy effectively and for creating an environment in which all members can feel cared for. I am still working on my facilitation of co-constructing community agreements. I have challenged myself to gently push back on ideas such as assuming good intentions, playing “devil’s advocate,” or respecting everyone’s opinions—ideas that have been used as tools to maintain
the status quo, silence People of Color and other marginalized groups, and
derail critical conversations [57]. Challenging these ideas on the first day of
the course while trying to foster the development of a learning community in
which everyone’s contributions are valued is a delicate balance and a work
in progress.

7.2. Co-constructing Community Agreements (B)

Similar to Nicole, I begin each new course or program by providing students
with an opportunity to co-construct community agreements, but my process
for doing so has evolved from the Wentworth protocol [74] over the years.
Figure 2 illustrates my most current implementation of this process of co-
constructed community agreements, based on one of my Spring 2023 classes
of preservice teachers in NYC.

Essentially, the process boils down to students responding to various prompts
that ask them to reflect on the things they need from their peers and them-
selves to be successful in the course, as well as what terms such as collabora-
tion, engagement, loving accountability, respect, and effective feedback look
like to them. In my experience, these prompts are essential in creating a
community of care that is responsive to each student’s needs, not just the
needs and understandings of the dominant group. For example, in response
to these prompts I often find that some students do not define participation
in terms of individual contributions to whole class discussions or completion
of individual assignments, but instead, value participation that is more group
oriented and tied to a sense of collaborative and shared ownership, partic-
ularly in small groups, where the setting is more intimate. Though these
individual responses get refined into broader community agreements in steps
2-4, the final step, where students must clearly articulate or illustrate what
each of the broadly adopted community agreements would look like, sound
like, and feel like, brings back the importance of these individual, nuanced
understandings of various ways to be in community.

The simple act of creating community agreements, however, is not enough
to foster a true community of care (see [68]). To build a true community
of care, we must prioritize community in ways that authentically honor the
evolving needs of our community. In my own practice, I prioritize commu-
nity by building in opportunities for students to reflect on how well they
are keeping to the co-constructed community agreements and whether those
agreements are, in fact, still meeting our community needs or need revision.
PROCESS OF SETTING COMMUNITY AGREEMENTS

QUESTION PROMPTS
Students work in small groups, rotating through 6 stations where they answer pre-determined questions, such as:
1. What do you need from yourself to be successful in this course?
2. What do you need from your peers to be successful in this course?
3. What does effective collaboration look like to you?
4. What does engagement or participation look like to you?
5. What does respect and loving accountability look like to you?
6. What does effective peer feedback look like to you?

As they move through the final stations, groups may not have much more to add than what has already been identified by previous groups at that station.

REFINEMENT ROUND 1
Students work in small groups to identify any commonalities they see between the responses for a given station question (or two), working to narrow down the items to 5 broad themes that encompass all responses.

REFINEMENT ROUND 2
Each group from Step 1 pairs up with another group and repeated the process of looking for commonalities between their response items and narrowing down their list to 5 broad themes that encompass all responses. For larger classes, this process may need to be repeated in another round of refinement.

REFINEMENT ROUND 3
The entire class comes together to repeat the process of looking for commonalities between their response items and narrowing down to a final list of 5-10 broad community agreements, based on the identified themes.

LOOKS, SOUNDS, & FEELS LIKE
Students are assigned one of the final community agreements (meaning that multiple students will be assigned to a single agreement) and instructed to create a tri-fold that illustrates, either in drawings or words (or both), what it would look like, sound like, and feel like to keep to this community agreement. During this process, students are more formally introduced to the idea of political clarity and encouraged to look back through the various rounds of refinement to ensure they capture all the ways this agreement might be met.

Figure 2: B’s process of setting community agreements.
I do this through the use of a class poll, which I administer every 4-6 sessions in classes that meet less regularly and every other week in classes that meet daily or several times a week. The results of the poll, which students complete anonymously, determine the community agreement the class will focus on for improvement until the next community poll.

To center our focus on the selected community agreement, we begin every class by viewing the “looks like, sounds like, feels like” tri-folds (see Figure 2) and discussing if any adaptations to the tri-folds need to be made, based on our evolving community needs. Then this tri-fold serves as a rubric, of sorts, which is used by community members to provide feedback to one another, feedback that flows in all directions—student to student, teacher to student, and student to teacher. This process of selecting a community agreement to use as the basis for feedback and improvement is similar to aspects of the HIP curriculum described by Antrop-González and De Jesús [2], especially through the collaborative setting of and working towards community goals. This practice of revisiting community agreements allows us to continually assess our progress toward creating our desired community and to reassess and adjust, as our evolving needs begin to unfold throughout the course.

7.3. Redefining Participation (B)

In my work as a teacher educator and with 2SLGBTQIA+ teens, I have begun to shift my perspective on what it means to participate and be engaged in classroom settings. This shift has resulted in my paying greater attention to the following two ideas: 1) my understandings of what it means to be engaged or to participate are not universal, especially in a cultural sense, and 2) engagement and participation is not solely the responsibility of the student, but also requires thoughtful design of activities that provide multiple means for students to access the “what, why, and how” of learning.

The first idea, that my understanding of the terms engagement and participation are not universal, led to a number of shifts in my own teaching. First and foremost, I ask students what these terms mean to them when we begin crafting community agreements. While I also communicate with my students what these terms mean in my understanding (contributing to whole group and small group conversations, staying on task, taking notes, etc.), I also make it clear that I understand that there may be times when students are engaged but behaving in ways that are not consistent with my own ideas of engagement or participation. Similarly, we all have days when participation
and engagement simply are not an option. I communicate to students that I expect such days to occur, but the key is being in communication with me and their peers about what they need if their engagement is not possible on a given day or misaligns with our collective views of engagement, especially as outlined in our community agreements. This practice became particularly important in the midst of the COVID-19 pandemic and in my work with 2SLGBTQIA+ teens, when all learning was required to take place online. In relation to my work with 2SLGBTQIA+ teens, I understood that some students might not want us to see the inside of their homes or might not be comfortable on camera or audio for some other reason, such as having an unaccepting relative visiting on a given day. So, while communicating my preference for cameras on and coming “off mute” to participate, I also adopted an “engage as you wish” policy (cameras on, off, chat, etc.), similar to that of Woolley [76], that allowed students to show up in ways that felt good to their bodies and minds.

To emphasize the importance of communication that works in cooperation with this “engage as you wish” policy, I also have adopted a practice of having students respond to the following reflection question at the end of every class, “What are you thinking or feeling in relation to what we learned or did today?” When I introduce this reflection activity, I inform students that the phrasing of the question is intentionally vague because I believe the content of the reflection should be left to them. I also provide them with examples of the types of reflections that I have received in the past or anticipate receiving from them, which I have discussed elsewhere [69].

To further encourage authentic reflection, I also explain that while students must complete a reflection, they should only submit it to me if they are comfortable with me reading the reflection, and possibly (though not often) responding to the reflection. If students are not comfortable sharing a given reflection, they simply submit an assignment that says, “I have completed my reflection.” This adds an element of rapport and in their end of course evaluations/reflections, students often reflect on the ways this single practice helped them to feel seen and valued not just as students, but as humans with evolving, dynamic, and unique needs.

The second idea, providing multiple access points to the “what, why, and how” of learning, is consistent with the CAST framework of UDL shown in Figure 1. As we can see from the framework, providing access entails provid-
ing students with choice in how they engage, opportunities to engage with information through various representations, as well as choice and variety in how they convey their knowledge. This idea of creating more opportunities for choice provided me with the shift I needed to understand my role in creating classroom opportunities that provided students with access to content and authentic ways to illustrate their knowledge of said content. In my own teaching, this means varying how I engage students in mathematical discourse, sometimes through the use of think-pair-shares, small group activities that relied on Smith and Stein’s five practices of mathematical discourse [59], free write assignments, visual proofs, and routines such as Which One Doesn’t Belong [13], slow reveal graphs [40], and open middle tasks [30].

Additionally, I provided students with opportunities to choose how they engage. While there are some instances in which working collaboratively was necessary, if my goal is not to assess mathematical collaboration or individual understanding in some way, shape, or form, I allow students to choose if they work collaboratively or independently. I also have begun providing choice in the product students submit to me, whether that be in the form of written, audio, video, or other format, then provide them with feedback on how to transfer their understanding into a more standard format, thus supporting their mathematical fluency so they are able to “play the game” [20] when they leave my classroom. This is one example of how I try to embody a care for students’ future, a tenet of what Roberts [53] discusses as a culturally relevant theory of critical care.

Finally, in my work with my preservice teachers in particular, I’ve adopted a practice of forming their participation grades from their own self-reflection, based on how well they have kept to the community agreements we outlined at the start of the year. For example, in the spring of 2023, one of my teacher preparation courses (the same one discussed previously) identified the community agreements shown in Figure 3.

At the end of the semester, I instructed students to use the community agreements, in conjunction with their “looks like, sounds like, feels like” tri-folds, to rate themselves from 1 to 5, with 5 indicating they did an excellent job in keeping to the indicated agreement and 1 indicating they needed significant improvement in keeping to the indicated agreement. I also explained to students that their ratings would be the basis of their participation grade for the course, but that the participation grade would be out of 35 instead
Figure 3: Community agreements co-constructed in B’s Spring 2023 Mathematical Proof and Proving course. Students rate their participation in the course based on the community agreements co-constructed by the class, and this rating is used as the basis for their course participation grade.

of 40, because we all have days in which full participation is not possible. During the final weeks of class, I scheduled one on one conferences with each student, where they shared their ratings, as well as their reasoning and we
collaboratively identified their overall participation grade for the course. In many cases, the students were overly harsh and I was the one to argue their ratings up for a higher participation score.

7.4. Redefining Participation (Nicole)

Because I worked as a kindergarten and first grade special education teacher, I was well versed in the tenets of Universal Design for Learning [9] and gained extensive experience implementing options for seating, assignments, and tools for learning that may support specific needs or accommodations but that benefited the whole class. I also knew from my training and experience as a special education teacher that participation looks different for every student. In some ways, my background as a special education teacher has been helpful in my work teaching college students. I am comfortable communicating with the Office of Accessibility and with students about their accommodations and how to best implement them in my classes to meet students’ needs. In other ways, my experience designing UDL classroom environments and learning activities for young children did not automatically translate to my work with young adults in their late teens and early twenties, particularly when it came to class participation.

When I first started my job as a teacher educator, I had very “traditional” expectations of participation based on the expectations I had experienced during my 16+ years of experience as a student in U.S. schools. These expectations focused primarily on student talk, and I was not yet considering other, less verbal means of participation outside of student talk [45]. I initially had these “traditional” expectations of student participation—which I now understand to be based on White American cultural norms and values [26, 75]—despite having taught English for a year and a half in Shanghai, China, where the modes and expectations for student participation were completely different than in the United States and were not focused on frequency of student talk. (I have learned that it takes a long time to recognize that values and expectations one may hold and have been taught to accept as “the right way” to do things are actually “a way” to do things according to a White American worldview [in my case], and that even when one understands this intellectually, it takes even more time for actions to match understandings.) I used a laundry list of participation expectations outlined for each grade level (A through F) given to me by a colleague that I made minor changes to, and I learned in my first semester that despite having the promise or threat of a
particular grade, some students spoke in class frequently and others not so much, and it was impossible to assess in any sort of objective way whether students met these participation expectations.

It took for COVID to hit for me to finally throw this list out the window. I knew that the weight of the collective trauma we were all experiencing was too much for many of us to bear. Indeed, research has found a high level of teacher burnout due to COVID [52], and the prevalence of “clinically meaningful anxiety and depressive symptoms” among a sample of school system employees was found to be widespread and higher than the rates found in general population samples [25]. Similarly to Woolley’s queercripistemological pedagogy of care [76] implemented during the height of the COVID-19 pandemic, in the midst of mass sickness and death, and with such vast differences in pandemic experiences, I could not and did not expect students to be participating in the same way. I wanted my students to know that my class was a space where they could show up and I would acknowledge, care for, and value them in whatever way they were able to show up.

Martínez Hinestroza defines participation as “an evolving social experience of engaging in meaningful shared activity that combines doing, talking, thinking, feeling, and belonging” [45, page 619]. Prompted by COVID to develop new understandings of class participation that acknowledged our collective external reality and incorporated care for students’ well-being, I shifted from focusing primarily on student talk to incorporating these other equally valuable means of participation identified by Martínez Hinestroza [45]. As we moved out of initial pandemic shock and from “build the plane as you fly it” emergency remote teaching to “we’re gonna be in lock down for a minute so let’s plan accordingly” online teaching, I shifted to a major focus on connection in my classes. Online teaching and learning during COVID was incredibly isolating, and I felt deeply that my college and graduate students were missing out on the important opportunity to develop friendships and professional relationships with classmates. I gained life-long friendships and an incredible professional network from the relationships I made in college and graduate school, and it pained me to know that my students were missing this opportunity, so I worked hard to bring sustained opportunities for connection to my classes.

One of the ways I incorporated opportunities for students to connect with one another into my classes was through the use of community building activities.
I called these activities “corny icebreakers” in my class because I wanted to acknowledge that students may find these activities to be somewhat banal, but I also wanted to create time and space within class for students to come to know each other, see each other’s humanness, and feel connected to one another. In her description of teachers who combine personal warmth and active demandingness, a type of teacher she calls “warm demanders,” Kleinfeld [33] notes the emphasis these teachers place on building relationships in the classroom:

In contrast to other teachers who plunged immediately into academic work, these teachers spend a substantial amount of time at the beginning of the year establishing positive interpersonal relationships, not only between teacher and students, but also within the student group. [33, page 336]

In addition to wanting students to feel connected to one another, I am also a firm believer in trying to develop mathematics learning environments where people can feel free to be their full selves—that you can love fashion or football or Beyoncé or Bad Bunny and love math at the same time—so I tried to use my “corny icebreakers” as an opportunity for students to share elements of their lives and identities outside of being students and preservice teachers. I used questions from the New York Times article “36 Questions that Lead to Love” [28] as my source for most of my “corny icebreaker” conversation prompts. This may sound like an odd choice, but I wanted my students to not only know one another, but also love one another, so that they could trust each other enough to embark on the vulnerable journey of learning and doing math with one another and unlearning the “Whitestream standards” [21, page 2] my students and I grew up with. The positive impact of using “corny icebreakers” in class was demonstrated on anonymous feedback my students provided at the end of the semester:

“I really liked the community building activities and getting to work with my classmates so much.”

“Learning about and with others as well as hearing about their perspectives made the class very good, in my opinion. I’ve met many people through this class alone and I hope that we will remain friends long beyond this semester.”

I believe that developing lasting social connections and friendships is an important part of the college and graduate school experience, and I believe
that these types of relationships provide the necessary foundation for students to engage in challenging, critical work with one another.

I initially used prompts from [28] in all of my courses, but because the students who enroll in my mathematics methods course usually also take Educational Psychology with me, to avoid repetition for my students, I transitioned to another introductions and community building activity I learned through participating in the TODOS Virtual Leadership Institute in 2022 and in the Workshop for Rehumanizing Mathematics led by Rochelle Gutiérrez in 2023. For this activity, each member of the learning community creates a slide in a web-based shared slide deck (e.g., Google slides) with their name, pronouns if they are comfortable sharing this information, a bit about their work, and anything else about themselves they would like to share. (I learned from B that requiring pronouns can force someone to out themselves, so it is best to model sharing of pronouns but make it optional for students.) For learning communities that are short in duration, the slide deck can be reviewed by participants before meeting together to get to know their new colleagues. In the context of my course where we met together weekly for a semester, I had students get into new small groups every week for the first five weeks of the semester to share their slides with one another.

Another way I have shifted class participation is varying the structure and means of participating in activities and discussions in my classes. Early on in my work as a full-time teacher educator, my classes consisted of lectures with whole group discussions and partner or small group “turn and talks” mixed in. When classes went online due to COVID, I knew that I needed to vary activity structures and participation opportunities further to keep students engaged. (Who wants to sit through a two-hour zoom lecture?? I knew I didn’t, and I knew my students wouldn’t either!) My first change early in the pandemic was to make my courses hybrid synchronous and asynchronous. For the asynchronous portion of class, students were given short videos to watch and discussions or activities to complete with a small group at a time of their choosing, and then we would meet together for shorter synchronous class meetings focused on discussions and activities. As my classes transitioned back to in-person (or out of emergency pandemic mode for classes that remained online), I have incorporated the small group activities and discussions into our regular class meeting times, which has helped my class to become better aligned with the principles of Universal Design for Learning [9]. I ask students to assign themselves roles for the small group activities
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(facilitator, time keeper, reporter, note taker), and I tell them that they are not required to rotate roles regularly as people have varying skill sets and abilities and may be better suited for some roles than others. Zoom chat and poll features created great ways to offer varied modes of participation to students in online classes, allowing everyone to participate simultaneously without the pressure of speaking in front of the class. In my classes that transitioned back to in-person meetings, I have continued offering similar modes of participation with digital tools such as Google Docs and Padlet. Using digital tools has also enabled me to monitor student progress in real time without hovering over students as they work, allowing me to efficiently identify students who may need help with an activity or ask students if they would be willing to share their contribution in whole group discussions. Through building a wide variety of opportunities for participation into the course, students no longer have to rely on making comments during whole group discussions and have multiple means for demonstrating engagement and learning.

7.5. Shifting Traditional Power Structures (Nicole)

I have worked with pre- and inservice teachers in several different contexts: in teacher education courses, professional development workshops, and professional learning communities. Something that struck me in my experiences working in these different contexts is that engagement and motivation seemed to differ greatly between courses and workshops. In the elementary mathematics teacher education courses I taught in the past, it seemed that students were focused on what they needed to do to get an A and less focused on learning course content. At times it felt almost like students viewed course requirements as an obstacle between themselves and their goal of becoming certified teachers rather than opportunities for learning the skills needed to teach elementary mathematics. On the other hand, in my experiences facilitating elementary mathematics professional development workshops and professional learning communities, many participating teachers have been very engaged and have demonstrated a high level of intrinsic motivation for learning. (I have noticed this especially with teachers participating in the workshop by choice or those who love math.)

It occurred to me that even though the content of my workshops and courses was often similar, a key difference was the presence of grades. In his extensive reviews of research conducted by educational psychologists on the effects
of grades, Kohn found that grades “tend to diminish students’ interest in whatever they’re learning, ... create a preference for the easiest possible task, ... and ... reduce the quality of students’ thinking” [36, paragraphs 6-8]. These characteristics seemed to be true for the students in my elementary mathematics courses, especially in comparison to the teachers I worked with in workshops and professional learning communities. These characteristics were in direct contrast to what I hoped to accomplish in the course. Instead, I wanted to create a learning environment where students were interested in what we were learning, would take on the challenge of improving their math and math teaching skills, and would think deeply about course content, and I realized that a traditional grading system was not helping me to accomplish this goal.

Tchudi argues that traditional grades “stereotype, pigeonhole, and rank order students ... and ... fail to provide descriptive information of any significance” [62, page xv]. Because preservice teachers’ experiences, skills, and relationships with mathematics will vary considerably, their learning in an elementary mathematics methods course will vary as much and cannot be communicated accurately by traditional grades. I also realized that a traditional grading system was likely exacerbating my students’ anxiety. Kohn argued that prescribing what students have to do and using extrinsic motivators such as grades to get students to comply can add to anxiety and helplessness, which can diminish the quality of performance [35]. Researchers have found that students majoring in early childhood and elementary education have particularly high levels of math anxiety (e.g., [17, 24, 31, 55]). I wanted to help my students change their relationship with mathematics and relieve some of their math anxiety, so I decided to abandon my traditional grading system and replace it with a labor-based contract grading system.

In early 2021, a small group of mathematics education faculty members from various universities around the country and I began meeting about contract grading and sharing resources, ideas, and experiences with alternative grading systems. I began to pilot a labor-based contract grading system in my elementary mathematics methods course in Fall 2021. In a traditional grading system, the teacher evaluates students’ work, assigns grades, and calculates weighted averages for final grades. In the contract grading system I implemented, grades are determined instead by the amount of work students put into the course as measured by students’ completion of course projects and assignments. Grading contracts shift the focus of assessment away from
attempts to measure quality of work and toward an emphasis on “activities
and behaviors that will lead to learning” [14, page 133]. This does not mean
that quality of students’ work is not important in a contract grading sys-
tem. Instead, by removing concerns about “what’s on the test” or writing
what teachers want to hear, labor-based grading contracts can create an at-
mosphere in which students feel free to take risks, try new things, pursue
interests, and make mistakes.

In the labor-based grading contract for my course, students select the grade
they wish to earn in the course and complete the assignments designated for
that grade. All assignments that are completed thoughtfully and meet all
the specified requirements earn full credit, and any assignments that do not
meet specified requirements or do not appear to be completed thoughtfully
are returned for revision.

As I state in my course syllabus from the Fall 2023 version of EDUC 5447:
Learning Mathematics in the Elementary Classroom, a course I teach at Fair-
field University, my goals for implementing a labor-based grading contract
are as follows:

• Make grading transparent for students
• Shift much of the grading power from teacher to students
• Shift students’ focus from grade-centered to learning, collaboration,
and creativity-centered
• Put compassion and flexibility at the forefront of the course
• Alleviate some of the anxiety that can be associated with taking a
mathematics course
• Recognize and value the labor students put into their own professional
development.

My hope is that by creating a grading system that allows students to choose
how many assignments they complete for the course and moves from a “power
over” to a “power with” model [2], students will be empowered to make de-
cisions about how to focus their time and attention while juggling multiple
obligations and responsibilities in ways that feel healthy and humanizing. At
the same time, when I see that students have decided to opt out of a ma-

or assignment, I have one-on-one conversations with students to understand
why they have chosen not to complete the assignment, and when appropri-
ate, take a “warm demanding” [72] approach and encourage the student not to sell themselves short on their grade. I hope that by giving students choice in which assignments they complete, offering opportunities to revise assignments, and allowing students to engage in learning without fear of earning a low grade, students will be motivated to explore new ideas and interests in a subject in which they may have previously experienced trauma.

7.6. Shifting Traditional Power Structures (B)

An essential element of building communities of care is shifting traditional power structures to a shared power structure, rather than that of an authoritarian teacher. Antrop-Gonzále and De Jesús discuss this in terms of shifting from a “power over” model towards one of “power with” students [2]. In my own teaching, this practice is exemplified in the way I allow students to co-construct their learning experiences alongside me. For example, in my mathematical proof and proving course with NYC preservice teachers, I designed the course with the following three goals in mind:

1. Using the language of mathematics to construct formal proofs.
2. Using mathematics to engage in argumentation and make sense of our world.
3. Highlighting the role of problem solving and problem posing in mathematical proof.

Goal 2, in particular, was achieved first by having students respond to a beginning of year survey to determine what social issues they were most interested in exploring mathematically. In this survey, the majority of students indicated that they were interested in exploring wealth inequality and food insecurity/food deserts. These two topics became the main focus of our overarching real world argumentation units in the course. The wealth inequality unit culminated in students constructing a mathematical argument as to whether the NYC Baby Bonds initiative would achieve its stated goals in allowing more students to pursue higher education and thus obtain higher paying jobs that would help to lessen the wealth gap we see in terms of race, ethnicity, gender identity, ability, and sexual orientation. The food desert unit culminated in students identifying an area in their selected NYC zip code that would be a good candidate for the NYC FRESH program, and crafting a mathematical argument to support their choice.
In each of these units, students also were provided with options as to how they wanted to convey their arguments. While I gave them a number of choices as examples of how to convey their argument, I also allowed students to propose other formats to convey their arguments, thus furthering the co-constructed, “power with” experience of the class. As a result, the final products students created were vastly different in format (but not in quality). These final products included infographics for social media information campaigns, video submissions, presentation slides outlining their argument, letters written to representatives, and more.

In addition to the above shift in power dynamics, like Woolley [76], I also have begun a practice of shifting power structures by adopting the notion of crip time. This notion of crip time is evidenced in my adoption of rolling due dates for my students. As noted in my discussion on participation in §§7.3, I introduce this notion of crip time by sharing my preferred due dates with students (both so they do not become overwhelmed with the workload and so I do not become overwhelmed with providing them with feedback and/or grades), but explain that these due dates are flexible, as long as they communicate their needs to me, so that we may collectively brainstorm ways to keep them from becoming overwhelmed by the course workload. For the most part, students honor these suggested due dates, but express gratitude for the comfort they feel in knowing there is flexibility, should they need it.

Flexible due dates are also a way in which I am able to show hard caring (in the sense of [2]) to my students. When students do not meet my suggested due dates, I reach out to them to schedule check-ins so that we can co-construct realistic goals so they do not fall behind. For students who continue to miss suggested due dates, I begin having them join me for “accountability sessions,” in which they come to my office hours (or after school hours, in secondary school contexts), and they sit with me and ask questions as they work toward completing or resubmitting their assignments.

A final way I shift power structures is through the disruption of who is considered an expert in my classroom. This shift takes place through the use of collaborative problem-solving activities (described in the next section), the emphasis on community feedback that flows in all directions (as discussed in the previous section), as well as regularly modifying my teaching strategies or policies, as a result of feedback students provide on their “What are you thinking or feeling” reflections (also discussed in the previous section).
For example, in my in-person classes I do not assign seats because I feel this undermines student autonomy and the ethos of a community of care. In one of the preservice classes I taught at the Northern New Jersey university, a student mentioned in their “What are you thinking or feeling” reflection that they liked working with students outside of their friend group when I assigned small groups and they were frustrated with themself for always sitting with the same people every class, outside of the assigned small groups I had them work in. At the start of the next class, I asked students if they were familiar with Learning for Justice’s Mix It Up at Lunch campaign [41]. Many were not, so we reviewed the campaign on the Learning for Justice website, which states “Students consistently identify the cafeteria as a place in their school where divisions are clearly—and harshly—drawn. So we ask students to move out of their comfort zones and connect with someone new over lunch” [41, paragraph 2]. I explain that, based on a recommendation received from a student in the previous day’s reflection, we would be having a “Mix It Up In Class” day, where they were encouraged to sit with someone they had not yet had much opportunity to interact with. In that day’s reflection, the student who expressed discontent with sitting with the same people wrote, “I was really excited that you used my reflection as an opportunity to try something new. It pushed me out of my comfort zone, and I appreciated being able to sit with someone new, without my friends feeling like I abandoned them.”

7.7. Collaborative Problem Solving (B)

Another element of building communities of care that I have adopted is a shift toward providing opportunities for collaborative problem solving. This journey began when I was teaching at an independent all-girls middle and high school in New York City. In my undergraduate and masters level studies, I had attended education programs that were more focused on general theories of curriculum and instruction. While these programs fostered the development of my pedagogical knowledge and ability to think creatively and infuse interdisciplinary opportunities into my mathematics classrooms, they left my pedagogical content knowledge underdeveloped in ways that made it difficult for me to create truly rich mathematical opportunities for my students, much less rich collaborative mathematical opportunities. Throughout my PhD studies, I began filling in these gaps and learning pedagogical methods and curricular design features that fostered rich mathematical exploration and collaboration. This led to the implementation of a series of
collaborative problem sets in my middle and high school classrooms. These problem sets were designed with Stein et al.’s Mathematical Task Analysis Guide [60] (shown in Table 1) in mind, with problems that required “higher level demands.” These problems were obtained from sources such as Exeter’s Math Curriculum [51], Park School of Baltimore’s math curriculum [3], and NRICH mathematics [65].

To encourage collaboration, I blocked off specific days for students to work on these problem sets collaboratively. For my middle school students, students would receive a problem set on Monday, which would be due in two weeks. That Friday they would be given the entire class period to work in pairs or groups of three to collaboratively solve the problems on their problem set. Students were encouraged to use the huge white boards in the classroom and any available chart paper (i.e., vertical non-permanent surfaces [43]) to facilitate their collaborative thinking and problem solving. The next Friday, each group (or individual if they chose to work individually) would be assigned a problem to present to the class. After this presentation, their peers were encouraged to ask questions to the presenters about their solution method and provide constructive feedback to improve their arguments. The students would then use the weekend to make final revisions to their problem sets before submitting on Monday and repeating the process with the next assigned problem set. In my high school classes, I implemented a similar practice, but problem sets were assigned for every mathematical unit, rather than every other week, with collaborative workdays dispersed throughout the unit and presentations taking place at the end of each unit.

While the practice of using the previously described problem sets was impactful in my classroom, the problem sets themselves tended to consist of abstract problems, devoid of any real context. Presenting mathematics in this way runs the risk of perpetuating the myth of a neutral mathematics. So while the opportunities to collaborate, provide and receive feedback, and engage in revisions worked in some ways to create a pedagogy of care, it lacked certain elements of a culturally relevant theory of critical care [53] because it did not encourage my students to engage in political talk that used mathematics to critique their worlds, or “read the world with mathematics” [16] and “write the world with mathematics” [22]. In recent years, this has shifted my emphasis of the use of problem sets to include authentic mathematics tasks that are a balance of abstract and culturally responsive, social justice-oriented tasks.
LOWER-LEVEL DEMANDS

Memorization Tasks
- Involves either producing previously learned facts, rules, formulae, or definitions, or committing facts, rules, formulae, or definitions to memory.
- Cannot be solved using procedures because a procedure does not exist or because the time frame in which the task is being completed is too short to use a procedure.
- Are not ambiguous — such tasks involve exact reproduction of previously seen material and what is to be reproduced is clearly and directly stated.
- Have no connection to the concepts or meaning that underlie the facts, rules, formulae, or definitions being learned or reproduced.

Procedures Without Connections Tasks
- Are algorithmic. Use of the procedure is either specifically called for or its use is evident based on prior instruction, experience, or placement of the task.
- Require limited cognitive demand for successful completion. There is little ambiguity about what needs to be done and how to do it.
- Have no connection to the concepts or meaning that underlie the procedure being used.
- Are focused on producing correct answers rather than developing mathematical understanding.
- Require no explanations, or explanations that focus solely on describing the procedure that was used.

HIGHER-LEVEL DEMANDS

Procedures With Connections Tasks
- Focus students’ attention on the use of procedures for the purpose of developing deeper levels of understanding of mathematical concepts and ideas.
- Suggest pathways to follow (explicitly or implicitly) that are broad general procedures that have close connections to underlying conceptual ideas as opposed to narrow algorithms that are opaque with respect to underlying concepts.
- Usually are represented in multiple ways (e.g., visual diagrams, manipulatives, symbols, problem situations). Making connections among multiple representations helps to develop meaning.
- Require some degree of cognitive effort. Although general procedures may be followed they cannot be followed mindlessly. Students need to engage with the conceptual ideas that underlie the procedures in order to successfully complete the task and develop understanding.

Doing Mathematics Tasks
- Requires complex and non-algorithmic thinking (i.e., there is not a predictable, well-rehearsed approach or pathway explicitly suggested by the task, task instructions, or a worked-out example).
- Requires students to explore and to understand the nature of mathematical concepts, processes, or relationships.
- Demands self-monitoring or self-regulation of one’s own cognitive processes.
- Requires students to access relevant knowledge and experiences and make appropriate use of them in working through the task.
- Requires students to analyze the task and actively examine task constraints that may limit possible solution strategies and solutions.
- Requires considerable cognitive effort and may involve some level of anxiety for the student due to the unpredictable nature of the solution process required.

Table 1: The Mathematical Task Analysis Guide (TAG) from [60].

For example, in a mathematics camp I created for 2SLGBTQIA+ youth, I often use tasks that allow students to explore the sociohistorical and sociopolitical implications of queer and trans identity and culture in tandem
with other elements of identity, such as race / ethnicity and disability. One such task begins by having students explore the history of 2SLGBTQIA+ Community Centers (how they began, the role they served in community healing and resistance during the AIDS / HIV outbreak of the 1980s / 1990s, the services they continue to provide today, etc.) and discussing centers as being community assets. Students are then introduced to a map of New Jersey, superimposed onto a coordinate grid (using Desmos), with coordinate points marking the locations of all 2SLGBTQIA+ community centers in the state, as well as those in close proximity to the state [70]. Using coordinate geometry and state demographics, students construct a definition of what it would mean for all New Jersey residents to have equitable access to a 2SLGBTQIA+ community center, with attention to intersectionality in the services and spaces provided by that community center. Using that definition, they create a proposal for Garden State Equality, the leading 2SLGBTQIA+ advocacy group in the state, using mathematics to argue for the opening of a new 2SLGBTQIA+ community center in a location they have specified will maximize equitable access to New Jersey Residents.

This task, as well as the wealth inequality and food desert units discussed previously, is an example of what Antrop-González and De Jesús discuss as critical and caring, interdisciplinary curricula that “incorporates students’ cultural capital or funds of knowledge” [2, page 417]. The task also provides students with opportunities to engage in the political talk (in terms of intersectional equity and access and the history of 2SLGBTQIA+ resistance and resilience) that Roberts discusses as an essential component of culturally relevant theory of critical care [53].

7.8. Collaborative Problem Solving (Nicole)
An important shift I made in my effort to build a community of care in my mathematics methods course was decreasing independent work and building more collaborative assignments and activities into the course. Antiracist teaching, according to Kishimoto, “attempts to create a sense of community in the classroom through decentering authority and encouraging collaborative learning rather than individualistic, competitive learning styles” [32, page 549]. Individualism and competition are particularly emphasized in mathematics education through practices such as timed fact practice, standardized tests, tracking, and expectations of independent homework completion and problem solving. This forced individualism in mathematics became height-
ened during the pandemic as some schools used web cameras and even eye tracking programs to police students as they took quizzes and tests at home (e.g., [5, 56]). I sought to give my students a mathematical experience outside of these common “Whitestream” (e.g., [19]) practices. Starting in my Fall 2020 iteration of the course, we engaged in collaborative problem solving as an ungraded in-class activity during each class meeting. Not attaching grades to correctness or quantity of problems solved helped to shift away from a “power over” model and toward a “power with” model [2] by decentering of authority and allowing students to engage in mathematics without fear of being penalized for speed, mistakes, or gaps in knowledge. Working together with peers through open-ended problems provided students with new mathematics experiences that were very different from their prior experiences with mathematics in school, creating an opportunity for students to develop a new relationship with mathematics while modeling an instructional approach that preservice teachers can bring to their future classrooms.

My initial motivation for bringing collaborative problem solving into the course was my own positive experience working on problem sets and studying for exams with others in graduate school—I learned so much from my peers and felt I was able to accomplish more with others than I was ever able to accomplish on my own. As I learn more about antiracist pedagogy, I see that a focus on the “problem solving/utilitarian aspect of reciprocity” [19, page 10] may itself be a Whitestream view. Instead, collaborative problem solving makes space for reciprocity in the sense described by Gutiérrez: “I see reciprocity . . . as related to experiencing connections and joy—knowing that one’s actions are positively affecting oneself and others” [19, page 10]. Mathematics has not been a source of connection and joy for many of the students in my course in the past, so I hope that the experience of collaborative problem solving can contribute to these feelings for my students, and that they can create these experiences for their students in the future—though facilitating collaborative problem solving in a way that sparks joy for people who have previously experienced mathematics as dehumanizing is very much still a work in progress.

7.9. Building Networks of Care Beyond the Classroom

A final aspect of building communities of care in our classrooms takes place beyond our teaching spaces. We have found that if we, ourselves, do not feel cared for, it is difficult to extend relationships of care to our pedagog-
Nicole Fletcher and B Waid

For this reason, we have spent extensive time and effort into building our own networks of care, surrounding ourselves with the care that we are hoping to provide our students. We have found the work of building classroom communities of care to be complex and difficult, such as when we receive feedback like the examples shared by Nicole in §§9.1, and at times painful and unsafe, such as when B receives hateful communications from right-wing extremists for the 2SLGBTQIA+, disability, and racial justice work they do. This is where our own care networks have been invaluable.

Those in our networks remind us of who we are, what we care about, and surround us with love, grace, protection, support, and accountability. They hold us close when our hearts have been broken, but also push us to do better when we need to be held accountable. Our networks of care allow us to continue to develop our political clarity (e.g., [53]) while experiencing an ethos of familia y comunidad and personalismo, identified by Antrop-González and De Jesús [2] as essential to hard caring. Our networks have also allowed us to experience elements of Woolley’s queercripistemological pedagogy of care [76] as we have supported and been supported by critical friends and loved ones through conversations about mental health challenges and disability.

Our own networks of care have been developed organically over time in spaces both within and outside of mathematics education. We developed relationships with people from personal and social settings such as a local women’s coming out group, social networking apps that allow you to search for new friends, neighbors or roommates, volunteer opportunities, and friends of friends, to professional settings such as college, graduate school (where we met one another), our places of employment, conferences and fellowships, and Twitter (through hashtags such as #MTBoS, #iTeachMath, #DisruptTexts, #ClearTheAir, #PlaceValue, #RadPedagogyChat, and #AcademicTwitter). In some cases, we have even worked individually or with others to create informal educational communities of care for others, such as the work B and their dear friend, Leah Z. Owens, are doing with Radical Pedagogy Institute (see [48]) and the camp they have created for 2SLGBTQIA+ youth. All of these opportunities have supported us through our efforts to create classroom communities of care, as well as in navigating the precarity of everyday life.
8. Towards A Framework for Building Communities of Care for Equity, Justice, and Culturally Responsive Practice in Mathematics Education

Through reflecting on our practices, we identified key elements for building communities of care in mathematics education contexts: co-constructing community agreements, redefining participation, shifting traditional power structures, collaborative problem solving, and building networks of care beyond the classroom. We propose that the integration of these elements can serve as the starting point for a framework for building communities of care for equity, justice, and culturally responsive practice in mathematics education contexts (see Table 2). In the framework, we include brief descriptions of each element and resources related to each element to guide teachers and teacher educators in their implementation of elements of care.

To co-construct community agreements, teachers facilitate the development of guidelines for engagement based on students’ needs, lead the class in reflecting on the agreements over time, and work with the class to revise the agreements as needed. In redefining participation, teachers should work to replace traditional participation expectations with engagement opportunities that are based on Universal Design for Learning [9] principles and that prioritize interpersonal relationships and connection. To shift traditional power structures, it is necessary to shift away from an authoritarian, “power over” model of teaching and towards a “power with” model of teaching [2] that gives students choice and autonomy. By incorporating collaborative problem solving, teachers can resist “Whitestream standards” [21, page 2] emphasizing individualism, competitiveness, and product over process and create opportunities for students to work together to use mathematics to critique their worlds. Lastly, teachers should develop a network of care beyond the classroom so that we can be supported as we engage in this complex work. This network of care should consist of colleagues, mentors, and loved ones with whom teachers can engage in critical conversations and who can support our professional and personal development as we work to build communities of care for our students.

9. Navigating Tensions in Building Communities of Care

In building communities of care in and out of classrooms in mathematics education, we both have experienced a number of tensions. Some of these tensions are unique to our practices and contexts, and other tensions will likely
Table 2: Framework for Building Communities of Care for Equity, Justice, and Culturally Responsive Practice in Mathematics Education Contexts.

<table>
<thead>
<tr>
<th>Element of Communities of Care in Mathematics Education</th>
<th>Description</th>
<th>Related Resources for Implementing Elements of Communities of Care</th>
</tr>
</thead>
<tbody>
<tr>
<td>Co-Constructing Community Agreements</td>
<td>Facilitating the development of guidelines for engagement based on students’ needs, reflecting on the agreements over time, and revising as needed</td>
<td>Marylyn Wentworth’s protocol Forming Ground Rules (Creating Norms) Figure 3 of this article.</td>
</tr>
<tr>
<td>Redefining Participation</td>
<td>Replacing “traditional” participation expectations (many of which are based on White American, ableist values) with engagement opportunities based on Universal Design for Learning (CAST, 2018) principles that foster connection and caring</td>
<td>Universal Design for Learning Guidelines Version 2.2 (CAST, 2018) 36 questions that lead to love (Jones, 2015)</td>
</tr>
<tr>
<td>Shifting Traditional Power Structures</td>
<td>Moving away from an authoritarian, “power over” model of teaching and towards “power with” students (Antrop-González and De Jesús, 2006)</td>
<td>Alternatives to Grading Student Writing (Tchudi, 1997)—this resource focuses on writing but can be applied to math Learning for Justice (n.d.) Mix it Up at Lunch Day guide</td>
</tr>
<tr>
<td>Collaborative Problem Solving</td>
<td>Resisting the values of individualism, competitiveness, and product over process by creating opportunities for students to engage in problem solving in community with one another and work collectively to use mathematics to critique their worlds</td>
<td>Mathematical Task Analysis Guide (Stein et al., 2009) Mathematics Lessons to Explore, Understand, and Respond to Social Injustice book series: Early Elementary (Koestler et al., 2022) Upper Elementary (Bartell et al., 2022) Middle School (Conway et al., 2022) High School (Berry III et al., 2020)</td>
</tr>
<tr>
<td>Building Networks of Care Beyond the Classroom</td>
<td>Developing a network of colleagues, mentors, and loved ones with whom we can engage in critical conversations and who can support our professional and personal development as we work to build communities of care for our students</td>
<td>We offer here some digital spaces where you can connect with critical mathematics educators: TODO Live! Webinars and Radical Pedagogy Institute virtual professional development sessions On Twitter: #MTBoS (math twitter blogosphere) #RadPedagogyChat #iTeachMath #DisruptTexts #ClearTheAir #AcademicTwitter #PlaceValue</td>
</tr>
</tbody>
</table>
be shared by others building communities of care in mathematics education spaces. Themes that emerged in these tensions include student engagement, student perceptions of caring, time and energy costs of caring work, and self-assessed readiness for facilitating and engaging in political talk.

9.1. Nicole

A tension I have experienced in building communities of care in my mathematics methods course is implementing practices and structures to support students and whether students choose to engage in these practices and structures. An example of this happened a few years ago when I was notified by my university’s Office of Accessibility that a student in my class had an accommodation of a note taker. For this accommodation, the university hires a student enrolled in the course to be the designated note taker. This structure works well for lecture courses, but I knew this would not work as well in my mathematics methods course, an active learning class that incorporates small group discussions and activities each week with flexible groups. After talking with a staff member from the Office of Accessibility about how to implement this accommodation in my class structure, I developed a template for “open-source” shared notes for the course. My idea was that students could volunteer to copy and paste notes they had taken in class into the shared notes document that was accessible to everyone in the class. By utilizing the principles of Universal Design for Learning [9] in implementing this accommodation, I hoped that the shared class notes would meet the needs of the student with the officially designated accommodation while also benefiting all students in the class. Unfortunately, no students contributed to the shared notes, likely because this was an optional opportunity and not integrated into the class structure. Formalizing the open-source notes by having two or three designated note takers each week may help students begin to engage with this support.

At times, practices that I have intended to be caring have not always been received as caring by my students. I implemented labor-based grading in my mathematics methods course in an effort to humanize my assessment practices, focus my grading on engagement in behaviors for learning [14], give students autonomy over their grade, and reduce students’ mathematics anxiety. Although the labor-based grading system has seemed to be effective in accomplishing these goals for many students, some students have expressed that the system has increased rather than reduced their anxiety.
Students have been enculturated in a traditional grading system throughout their entire schooling experience. In this system, the teacher assesses the “quality” of students’ work (an assessment which is highly subjective and heavily influenced by bias) and assigns a number or letter grade based on this assessment, but in my grading system, students’ assignments were only given feedback without letter or number grades. Traditional grades are often summative and fixed, and students are often not granted opportunities to revise work that has received a low grade. In my implementation of labor-based grading, I ask students to revise and resubmit major assignments if they are incomplete, directions have not been followed, or the work does not appear to be completed thoughtfully. In courses utilizing traditional grading systems, teachers usually present all assignments as “required,” though students always have the choice of whether to complete an assignment, with the consequence of earning a 0 for assignments not completed. My grading system makes this choice transparent and explicit. I identify the core assignments required to earn a B in the course (the minimum grade needed for the course to count towards teacher certification) and offer opportunities to complete additional assignments to earn higher grades; however, many students still view all of the assignments as “required” and have a difficult time making choices to not complete all of the assignments when this may best meet their needs and constraints (time, health, mental health, or other). And for some students who dislike the labor-based grading system, it may be the case that the “myth of meritocracy” (e.g., [44]) is influencing this dislike; these students may be grappling with the discomfort that comes with challenging the status quo for those that have benefitted from the status quo throughout their lives [8, 39]. To address this tension in the future, I plan to revisit the rationale for the labor-based grading system later in the semester (the rationale is included on the syllabus and reviewed the first week of class), support students in making decisions about assignment completion that meet their needs and time constraints (and support students in feeling okay with choosing a grade other than A), and engage students in a conversation about “meritocracy,” who it benefits, and how this relates to grading.

Another challenge I have experienced in developing a community of care is that distinguishing between soft caring and hard caring is not always clear to me. Though Antrop-González and De Jesús argue that caring is on a continuum and not necessarily a binary of soft versus hard caring [2],
I am not always clear about where on the continuum my practices lie and sometimes worry that some of my practices may veer too far towards the soft side of the spectrum. I am a firm believer that grades are subjective, often arbitrary, and can erode students’ interest in and quality of learning [36, 62], which is why I have implemented labor-based grading in my elementary mathematics methods course. However, because students receive credit for assignment completion, I am concerned that this causes some students to spend less time and effort on their work for my course. This is most certainly related to their time being stretched too thin—most of my students work as school-based interns full time while taking three graduate courses at night, and they may feel pressure to allot a greater portion of their limited time to assignments for other courses, which all use traditional grading systems. I am not sure I fully understand yet how to implement labor-based grading in a way that is both caring and conveying high expectations.

Additionally, it can be challenging to continue to work towards implementing critical care [53] when I receive pushback from students each semester in my course evaluations. It is well documented that course evaluations are invalid and unreliable: course evaluations have been found to demonstrate gender and race bias (e.g., [27, 38]); faculty teaching quantitative subjects tend to be scored lower than those teaching qualitative subjects [66]; and a relationship has been found between students’ demographics and biases and course evaluation scores [23]. Furthermore, Nast has argued that integrating race or sexuality issues into course content has a negative impact on course evaluations:

“incorporating issues of feminism, lesbianism, or [B]lack-white racism (in particular) into almost any class—outside of ones properly encased and embalmed in the rhetoric of womens studies, [queer] studies or some version of [B]lack studies—is a kind of kiss of death for any instructor, students invariably complaining on course evaluations” [47, page 105].

Since making equity, antiracism, and related constructs central to the course, I have received comments in my end of semester course evaluations such as these:

“Topics that are not related to mathematics should NOT be discussed in a mathematics course.”
“The professor used class time to push [a] political agenda and talk about our ‘cultural context.’”

[In response to a prompt for suggested changes to help the student learn more] “Less emphasis on number talks and math for minority students.”

“I really wish she didn’t focus so much on social justice . . . I am still having trouble seeing why social justice is needed for teaching mathematics.”

I strive to be a teacher who “value[s] interpersonal relationships between everyone within a community, demand[s] high performance, and grapple[s] with cultural issues” [73, page 984]. But when the tenure system incentivizes receiving high scores on course evaluations, and when course evaluation scores could be improved by avoiding critical conversations or implementing soft caring rather than hard caring and high expectations, it can be tough to continue to do the challenging work of building a community of care. Nevertheless, remembering the importance of preparing my teachers to implement culturally relevant mathematics pedagogy, knowing who this work will benefit (the children in their future classrooms), and leaning on my network of care for support has helped to keep me motivated.

9.2. B

One tension I have found in the practices I have adopted to create a community of care has stemmed from my “engage as you wish” policy. For example, last summer in my online math enrichment with 2SLGBTQIA+ teens, I had one student who consistently would have their camera off (I only saw what they looked like the very first session), and they would not say much in the chat either. This always proved challenging for me when I was thinking about groups because the student also did not participate in small groups as much as the other group members, which led to a weird dynamic, particularly when other students would ask “what do you think, [student’s name]?” and be met with silence or a one-word response to the query. For this learning enrichment in particular, I have tried to think about this challenge in terms of it being a voluntary enrichment for queer kids, one where they do not have to be “out” to their parents to be involved. In that context, there are a lot of things I do not know about this student’s situation and their comfort level.
An added, and maybe more pertinent, factor is that this student was the only Black student that signed up last summer, which to me provides additional reflection points on how I need to work to diversify where I am recruiting 2SLGBTQIA+ students for the program to make sure that I am not mainly advertising the opportunity in 2SLGBTQIA+ spaces that Black kids and families do not frequent. It also shows me that I have further reflection to do in relation to the Whiteness (or anti-Blackness) in the space I’m creating and how I might have done a better job of reaching this student. I reached out to them a few times via email to check in, but I might have made a more concerted effort to have them Zoom with me one on one and check in more often to see how they were feeling about the space. At this point, I can only guess, and they were absent for the exit interview for the enrichment, so I do not have that data for them either.

Another tension I have experienced in building communities of care is time. Doing all of this work takes time, both in and outside of class. In class, the time spent on building communities of care does take away from time spent on content. And that leads me to having to make difficult decisions as to what content is “most important” and what can be left out. When I first started implementing these policies, this really stressed me out. I had to retrain my brain to start thinking about content in terms of giving students depth in certain areas, rather than breadth, that would be transferable to other areas we might not have time to explore before state assessments or the end of our time together. Learning to make these decisions was a difficult process and led to a significant level of trial by error during my first few semesters / years of reframing my mindset from emphasizing depth, not breath. While this trial-by-error period was difficult, I pushed onward, and I am glad I did, because now I have a better sense of how to infuse and emphasize meaningful critical thinking and problem-solving skills that students can tap into when they are tackling something unfamiliar. I give students in-class opportunities to engage in tasks that require critical thinking and problem solving so that when they encounter that struggle with something unfamiliar in the future, outside of my class, they will experience greater levels of success.

In terms of time spent outside of class, sometimes the time it takes to build communities of care and to extend grace and flexibility to students comes at the cost of my own self-care. Balancing my own self-care needs with those of the classroom community and individual students has been difficult to navigate. I do not claim to know the best answer to this, but ever since I’ve
adopted the preferred due date approach and the discussion of why those due dates are preferred (both for me and for them to stay on track), I find that students have begun to be a little more mindful of that in terms of load. I also offload a lot of the drafting and feedback onto students, which again takes time during class and requires me to make choices about content and time, but I also find that it improves the quality of student work, it contributes to a “power with” model [2], and it makes the additional workload created by revision opportunities more feasible to manage.

Finally, placing value on political talk and sharing vulnerabilities as part of the fabric of building communities of care was a little scary at first, presenting another tension. “What if I say the wrong thing? What if I don’t have the answers?” I’ve found that the more I practice engaging in political talk and being vulnerable with students, the easier it gets both to talk about and to point out the areas that I still need to work on in my own journey of unlearning harmful dominant ideologies. That does not mean I no longer have any hesitations or that I do not put my entire foot in my mouth from time to time, but I’m learning how to be a better human and to take these things less as a reflection of my personal character and more as opportunities for growth.

10. Conclusion

In this article, we shared personal narratives to illustrate our building of communities of care for equity, justice, and culturally responsive practice in mathematics education contexts. Our personal journeys that led us to communities of care are unique, but they share a common theme: we have each experienced environments that were decidedly not caring and at times even harmful, and we have each experienced other contexts in which others’ caring has supported us and allowed us to flourish. Our desire to build communities of care for our students stemmed from both sets of experiences.

The communities of care we have cultivated in our work in mathematics education in and out of formal classroom settings have been designed with several key elements. Co-constructing community agreements has allowed us to develop learning communities in which all members have input and ownership of the ways in which we engage and learn with one another, which is essential to taking a sociopolitical turn in mathematics [1, 18, 42, 67, 78]. By redefining participation expectations and practices, we have worked towards
developing an ethos of *familia y comunidad* and *personalismo* [2] while better aligning our practice with Universal Design for Learning [9] and Woolley’s queercripistemological pedagogy of care [76]. We have shifted traditional power structures by rethinking grading, interactions, vulnerability, and expertise, moving away from the traditional “power over” model of teaching and towards a “power with” model [2] and engaging in the “decentering authority” that is characteristic of antiracist teaching [32]. Engaging students in collaborative problem solving has created new mathematical experiences outside of the common “Whitestream” (e.g., [19]) norms of individualism and competition [32], which may help to change students’ relationships with mathematics. Drawing on the work of Frankenstein [16] and Gutstein [22], collaborative problem solving can also create opportunities for students to “read and write the world with mathematics” as students work together on culturally responsive, social justice-oriented tasks.

Through this process, we have learned that it is necessary to create course structures that are humanizing for students without being dehumanizing for ourselves. Building our own networks of care beyond the classroom with friends, colleagues, mentors, and loved ones who support and care for us and who we can learn from and with has been essential in navigating all areas of our existence—hardships, mundanity, accountability, growth, successes, and joy—allowing us to experience an ethos of *familia y comunidad* and *personalismo* [2] as we strive to create this for our students. We propose the integration of these elements—co-constructing community agreements, redefining participation, shifting traditional power structures, collaborative problem solving, and building networks of care beyond the classroom—as the starting point of a framework for building communities of care in mathematics education, helping to move mathematics towards equity, justice, culturally responsive practice, and caring for all students, especially those from historically oppressed yet resilient identity groups.

References


[41] Learning for Justice, *Mix it up!,* online resource at https://www.learningforjustice.org/classroom-resources/mix-it-up.


