

Designing a Mathematics Teacher Education Course for Equity and Antiracism

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Abstract

In this manuscript, I reflect on the redesign of my graduate elementary mathematics methods course—a redesign necessitated by the pandemic and the shift to online learning that created an opportunity to make equity and antiracism central to the course. I describe my earlier, unsuccessful attempt to add equity as a course topic—an “additive approach” to antiracist pedagogy (Kishimoto, 2018). I then reflect on my Fall 2020 iteration of the course, in which changes to course goals, content, and assessments allowed for an integrated approach to antiracism and equity, working towards TODOS’ (2020a) call to prioritize antiracism in mathematics teaching and learning.

Discussion And Reflection Enhancement (DARE) Pre-Reading Questions:

1. What do you think of as equitable and antiracist teaching practices in K-12 mathematics classes? What do you think of as equitable and antiracist teaching practices in mathematics teacher education?
2. In what ways have the teacher education courses you have experienced prepared teachers to implement antiracist teaching practices? In what ways did these courses perpetuate “Whitestream (Gutiérrez, 2018, p. 2)” practices and the status quo? In what ways are antiracist teaching practices being implemented in your classroom or at your school? In what ways are Whitestream practices and the status quo being perpetuated in your classroom or at your school?

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“The work we do in our classrooms may feel like a small drop in the ocean, but we know that what we teach our students can help turn the societal tide.”
(Torres, 2019, para. 16)

When my university shut down in-person activity in March 2020 due to the COVID-19 pandemic, I did the best I could as a first-year faculty member to move my courses online within a matter of days and to help my students make it through the semester, all while I evacuated New York City, quarantined in my family’s basement, and tried to help my family and myself survive the pandemic. Due to a failure in government leadership to adopt timely widespread public health measures to contain the virus, COVID continued to spread, so in summer 2020, I redesigned my in-person courses and buckled up for my first full semester of virtual instruction. George Floyd’s murder by police in late May 2020 and the protests that followed were a call to action to do more relating to equity and to bring antiracism into my course, something I had not explicitly done before. In this manuscript, I reflect on the redesign of my graduate elementary mathematics methods course—a redesign that was born out of the necessity of pandemic online teaching but that created an opportunity to make equity and antiracism central to the course.

I begin this manuscript by sharing my initial attempt to add equity as a course topic, and then I share my course redesign process, which involved shifting course goals, content, and assessments to integrate equity and antiracism throughout the course. In developing an understanding of antiracism as identifying inequitable power and policies, confronting racial inequities, and working towards racial equality (Kendi, 2019), I have learned that equitable mathematics teaching and learning cannot exist without antiracism. As a white woman who recently finished her fourth year (at the time of publication) as a faculty member at a predominately white institution and who is not an expert on antiracist pedagogies, I have had both “hits” and “misses” on this journey. (I note that I am not an expert because I think it is important for people new to this work to realize that

engaging in antiracist pedagogies is not only for people who specialize in this area.) It is my hope that sharing this reflection will open a feedback loop for those who wish to share insights and ideas and that others will join me on this imperfect but imperative journey towards integrating equity and antiracism into mathematics education courses.

Who I Am and How I Got Here

I grew up in Washington, DC in my childhood and in Prince George’s County, Maryland during my preteen and teen years. I attended a public elementary school in DC that was diverse in race and nationality and then attended majority Black schools (public middle school and Catholic girls high school) in Prince George’s County. I grew up around activists and was an activist myself from a young age—I campaigned for local politicians in New York City with my grandfather at 6 years old, and by 6th grade I was adamantly pro-peace and anti-war and was inspired by my grandmother, who immigrated from Italy as an adult and was actively involved in a number of social causes, to march on Washington against the Gulf War in 1990. I started noticing racial microaggressions occasionally when I was in high school, but I did not really become aware of racism as a current phenomenon or begin to develop an understanding of the systemic nature of racism in modern society until college. I also had the misconception that racism was more of a conservative problem and a southern states problem. It was not until much later that I started understanding the insidious nature of racism and its pervasiveness across systems, political ideologies, and geographic regions.

I became involved in equity work early in my professional career, moving from teaching in a general education nursery classroom at a private school to working as a special education teacher in kindergarten and first grade in New York City Public Schools. My interest in equity eventually brought me to mathematics education—I saw firsthand that young children were not being given access to high-quality mathematics teaching and that teachers were ill-equipped to provide that

teaching, and I wanted to help change that. I started learning about the role of race in equity and mathematics education when I took Dr. Erica Walker’s Mathematics and Multicultural Education course in graduate school. Gutiérrez’s (2009) conception of equity as having four dimensions—access, achievement, identity, and power—has been influential to my work along with the idea of “rehumanizing mathematics” (Gutiérrez, 2018), moving beyond “simply supporting students who are Indigenous, Black, and Latinx to do well by Whitestream standards” and towards “developing practices and measures that feel humane to those specific communities” (p. 2). Learning about the ways that school systems, by design, have maintained racial inequities throughout history, teaching within these systems, and seeing these inequities in action, have motivated me to work towards creating more equitable schooling opportunities for children.

I now work as a teacher educator at a predominantly white, private university in a wealthy area of Connecticut with preservice elementary teachers, 90% or more of whom are white women who are local to our geographic region. All of our preservice teachers take a service-learning course based in an elementary school in a nearby city that serves primarily Latinx and Black children, and some of our students go on to work in schools with many students of color. It is in this context, during the “twin pandemics of racism and COVID-19” (TODOS, 2020a, p. 2), that I’ve come to understand the meaning of Kendi’s (2020) statement “There are only two choices: racist or anti-racist.” These two choices, and Kendi’s (2019) argument that “there is no neutrality in the racism struggle” (p. 9), have helped me to understand that if I am not actively working against racism, in all spheres of my life, then I am complicit in allowing racism to continue—that silence and inaction work in support of racism. (And I believe that white people need to stop expecting “DEI” [diversity, equity, and inclusion] work to be taken on solely by Black, Indigenous, and People of Color [BIPOC], often with little or no compensation. I believe that white people need to do our share of antiracism work and reflect on the ways our engagement in DEI or antiracism work is often centered around our comfortability.) I have learned that for white people to be antiracist, “they must acknowledge and understand their privilege, work to change their internalized racism, and interrupt racism when they see it” (National Museum of African American History and Culture, n.d). I have been

speaking out in my personal life against anti-Black violence for a long time, but I had not brought that same energy for addressing racism directly into my professional life. I knew that my teaching needed to become explicitly antiracist and that my course needed to work towards “dismantl[ing] systems and structures that maintain racism within teaching and learning mathematics” (TODOS, 2020a, p. 2). And I realized that as a white woman mathematics teacher educator, I needed to model and facilitate the work of becoming an antiracist mathematics teacher for my students.

Attempt One—Adding Equity as a Course Topic

I started teaching my elementary mathematics methods course, a required course for our elementary education master’s program, in fall 2019 (an in-person course in the “before times” prior to COVID). At that time, I added equity and culturally relevant pedagogy as a self-contained topic to the existing list of course topics (see Table 1)—what I now recognize to be an “additive approach” to antiracist pedagogy (Kishimoto, 2018). All of the existing topics seemed important, and addressing equity in the course was certainly important too, so I tried to squeeze it all into my first iteration of the course.

Unsurprisingly, it was a dizzying 14-week semester. We covered so much ground that nothing could be explored in-depth. I had not identified clear goals relating to equity, but I knew I wanted students to come away from the course knowing that all students are capable of learning mathematics, that many traditional teaching practices contribute to inequitable mathematics outcomes, and that mathematics needs to be relevant to students’ lives. I added two equity-focused readings to the syllabus, but during discussions of these readings and how they might integrate ideas from the readings into their mathematics teaching, students’ ideas were limited to surface-level changes such as using names representing various cultures in word problems. It felt like class discussions about the equity-focused readings never moved beyond a superficial level. Despite my attempts to use the readings to frame discussion of the importance of an asset-based orientation towards children, students continued referring to children as “strugglers” and “high flyers,” and the mathematics lessons students designed continued to use traditional mathematics teaching methods that perpetuate existing structures and inequities.

Table 1

List of Topics for the Fall 2019 Iteration of My Elementary Mathematics Methods Course

- | | |
|---|---|
| <ul style="list-style-type: none"> • Counting and early number • Place value • Addition and subtraction • Equality • Multiplication and division • Fractions • Decimals • Percents • Ratios • Algebra | <ul style="list-style-type: none"> • Geometry • Measurement • Formative assessment • edTPA (teacher certification assessment portfolio) math task • Classroom discourse • Standards for mathematical practice • Equity • Culturally relevant teaching |
|---|---|

My assessment of this first attempt to bring equity into the course was that it felt slapped on top, superfluous, and not integrated into the course in a meaningful way.

Attempt Two—Redesigning the Course With a Focus on Equity and Antiracism

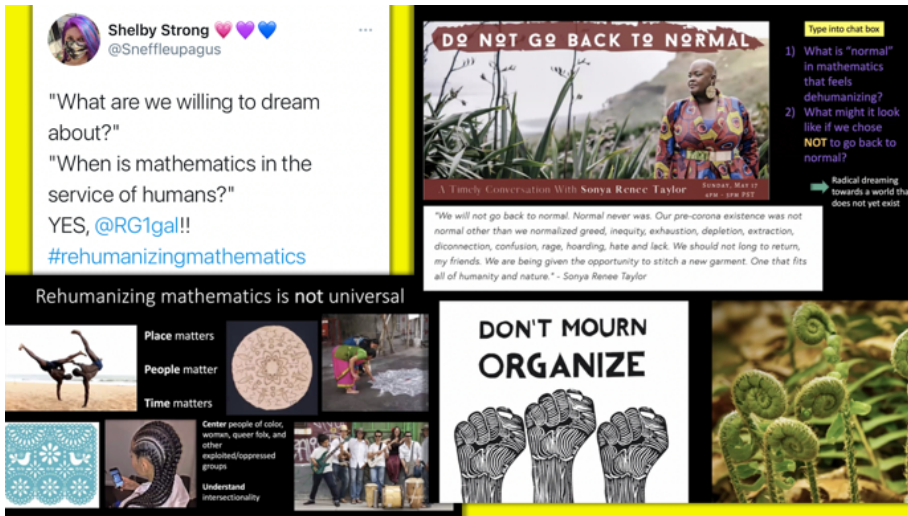
When I knew I needed to redesign my classes for online instruction, I used the opportunity to overhaul my elementary mathematics methods course. In addition to the inequities made visible by COVID and online learning, I saw George Floyd’s murder and the subsequent protests as a call to action, reminding me of Deborah Ball’s (2016) poignant question: “How can we teach mathematics so people stop killing each other?” Though I had engaged in equity and racial justice issues personally and professionally prior to 2020, I knew I needed to do more, and for me, that “more” was making antiracism and equity central to my teaching.

Dr. Brandie Waid, a friend from graduate school who is an independent mathematics education scholar and co-founder of the Radical Pedagogy Institute (<https://bit.ly/3HaOBIZ>; <https://bit.ly/3V22tLm>), served as a “critical friend” throughout my course design process. [A “critical friend” is someone who “asks provocative questions, ... offers critique of a person’s work as a friend,” and who “takes the time to fully understand the context of the work presented and the outcomes that the person or group is working toward” (Costa & Kallick, 1993, p. 50).] I sought Brandie’s input and advice when redesigning my course because of her experience designing a range of teacher education

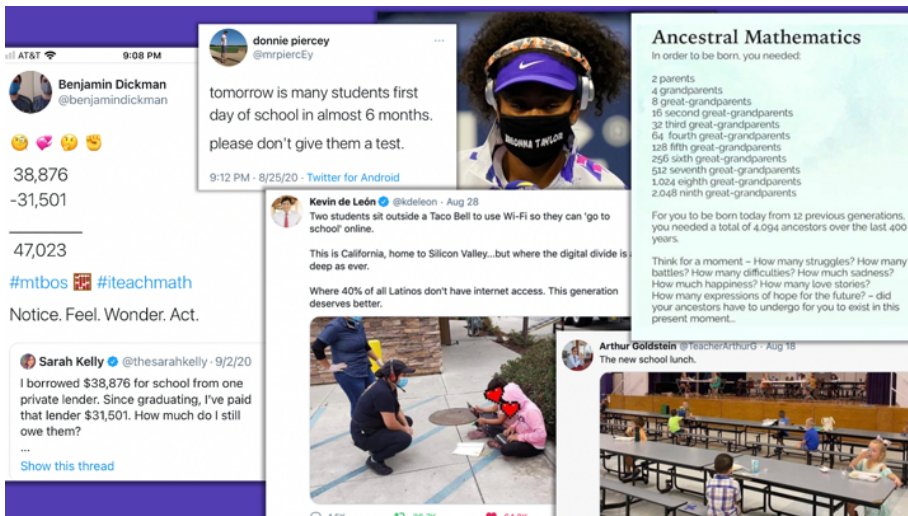
courses, including a mathematics methods for elementary preservice teachers and Diversity in Families, Schools, and Communities. Brandie shared a number of course design ideas, and as I began sharing initial ideas for my class, Brandie asked me an essential question: “What is your goal for the course?” My reply: “Equity is *IT*.” I no longer wanted equity to be one of many topics added to an overcrowded syllabus. I wanted the course to focus on preparing preservice teachers to look for, see, and build upon the mathematical ideas, understandings, and possibilities of all children in their classrooms.

Throughout summer 2020, I collected screenshots of tweets, slides from workshops, and other images that were both depicting and informing the ideas and “vibes” that were percolating in my head for the course. This collection of images and screenshots came to be what I call a “course mood board” (see Figure 1). A mood board is a tool commonly used in fashion and interior design to convey a concept, vision, style, or other visual idea (Pierrus, 2015). Many of the images depicted some of the problems and inequities that plague mathematics teaching and learning—ways that mathematics education has been dehumanizing (Gutiérrez, 2018)—while other images pointed to the possibilities of mathematics education to be rehumanizing (Gutiérrez, 2018), particularly for those who have been marginalized by mathematics. One tweet in particular said it all: “You have to change teacher beliefs not just behaviors. If you really believe that Black kids can’t achieve, no ‘best practice’ is gonna help you teach them” (Elie, 2020). This tweet spoke to me: Without addressing race directly in class, no amount of elementary mathematics teaching methods would prepare my

Figure 1
Course Mood Boards



(Top and bottom right and bottom left images in course mood board 2 are from Gutiérrez, [2020])



preservice teachers to teach their BIPOC students effectively. Addressing equity in class was no longer enough (not that it ever was); antiracism had to become an explicit component of the course. I have come to understand antiracism as Kendi (2019) defines it: endorsing racial equality, “locat[ing] the roots of problems in power and policies,” and confronting racial inequities (p. 9). Changing essential, overarching elements of the class allowed us to explore the four dimensions of equity (access, achievement, identity, and power [Gutiérrez, 2009]) while also bringing antiracism to our work—locating mathematics education problems in systems rather than in groups of people and thinking about ways to challenge racial inequities and work toward racial equality through our mathematics teaching practices.

In the following sections, I describe changes I made to make equity and antiracism central to the course. I begin with a description of new course goals to guide our learning about elementary mathematics teaching methods through a lens of equity and antiracism. I then describe changes to course content to integrate equity and antiracism with elementary mathematics topics. Finally, I describe changes I made to assessments to make my assessment practices more equitable, to reflect the changes made to course goals and content, and to engage my students in thinking about how to integrate equity and antiracism into their future teaching.

Shifting Course Goals

The first major change to reflect the new course’s focus was to the overarching course goals. The previous goals that were in place when I started teaching the course were as follows:

During each class session students will spend time reviewing and discussing elementary mathematics concepts. In addition, we will explore various methods for teaching the concept across grade levels, focusing on the development of the concepts as students move from one grade level to the next. (Course Syllabus, Fall 2019)

While these course goals reflect typical content for an elementary mathematics methods course, they make no mention of equity, antiracism, or related ideas, and it is easy to imagine how a course with these goals could be taught without bringing these critical ideas into the

curriculum. To address elementary mathematics teaching methods *and* equity and antiracism, I crafted new course goals to replace the old goals:

1. To understand some of the ways that mathematics teaching and school contexts have been dehumanizing and have underestimated the mathematical potential of many students, particularly those from marginalized groups, and
2. To explore how we as teachers can implement mathematical practices in our classrooms that lead to access, equity, and empowerment and that reveal/recognize the mathematical brilliance of our students. (Course Syllabus, Fall 2020).

With this shift, we would still explore elementary mathematics content and teaching methods, but we would do so through a lens of equitable, antiracist mathematics teaching, heeding TODOS’ (2020a) call to “engage the sociopolitical turn in all aspects of education, including mathematics” and to “stay committed to the role that mathematics teaching and learning plays in our current Black Lives Matter mo(ve)ment and an antiracist society” (p. 9).

Shifting Course Content

The next major change I made to the course was adjusting the course content. The original list of course topics (see Table 1) was so packed that it went beyond ambitious. It was simply not possible to cover that many topics in one semester, and trying to teach them all meant that students likely left my course inadequately prepared to teach any of them—further contributing to inequities in mathematics education. I made difficult decisions about paring down the course content to investigate each topic in greater depth and to create space dedicated to the exploration of equity and antiracism. I focused the mathematics topics in the course on those that make up the bulk of what my students will teach in their future classrooms—early number concepts, place value and base ten, addition and subtraction, multiplication and division, fractions, early algebra, and geometry (Conference Board of the Mathematical Sciences, 2012).

As Brandie helped me think through my course redesign, she suggested cycling course topics between mathematics content and equity topics throughout the semester. This structure allowed for the course to move from an additive approach to an integrated approach to antiracism in course content (Kishimoto, 2018). I

designed class sessions focused on exploring an equity-focused, antiracist approach to teaching mathematics and facilitated these sessions throughout the semester. (See appendix for a list of course readings that guide these sessions.) We then integrated these ideas into our learning of teaching methods during the content-focused class sessions, enabling us to work towards the course goals. Early in the semester, we discussed mathematics teaching practices we had experienced or observed that were dehumanizing, an activity I learned from Rochelle Gutiérrez's (2020) webinar *Subversive Teaching to Rehumanize Mathematics*. Then throughout the semester, we learned about teaching methods that build on students' mathematical and other resources, center students' thinking, support development of deep understanding of mathematics, and contribute to students' mathematical agency (Aguirre, Mayfield-Ingram, & Martin, 2013). In addition, building the work of scholars of color into the foundation of the course ensures a greater variety of voices are guiding our work in the class and helps us to recognize the significant contributions to the field made by scholars of color.

Shifting Course Assessments

Moving the course away from an additive approach and toward an integrated approach to equity and antiracism meant that the shifts made to course goals and content needed to be reflected in my course assessments. In exploring alternative weekly assignments throughout summer 2020, I learned about the "one-pager" assignment through my participation in a Facebook group for higher education faculty members to communicate and share ideas. A one-pager combines text and images to present thinking about the ideas in a text in a visually interesting way (e.g., Potash, 2019). I provided prompts for components to be included for the two types of readings in the course (broad topics in mathematics education and the teaching of mathematics content). Within those requirements, students were free to use combinations of words, phrases, or sentences along with drawings or digital images to express their ideas about the readings. Kishimoto (2018) argues that antiracist teaching encourages students to "make connections to, and see themselves as part of, the topics being discussed" (p. 547), and making connections is an important part of the one-pager assignment. For readings about broad topics in

mathematics education, in addition to including main ideas, quotations, and questions, students were asked to include connections they made to their classroom experiences or to a broader cultural context and applications to their future classroom practice or a critique of the reading. For readings about the teaching of mathematics content, students were asked to include important concepts for the content area, visual models used to help children build conceptual understanding in the content area, teaching considerations or activities they might implement in their future classrooms, common solution strategies or developing conceptions (i.e., (mis)conceptions), and questions about the reading.

I had used weekly written reading responses in previous courses, but I wanted to move away from an overreliance on written assessments and did so through the one-pager assignment (see Figure 2). The combination of text and images in the one-pager assignment allows for the processing of ideas from the text through both verbal and visual representations of concepts, which can aid in learning (Paivio, 1971). The one-pager also created a more inclusive assessment opportunity. In her work on aural and multimodal composing, Cynthia Selfe (2009) suggests that the "dominance of print literacy works against the interest of individuals whose cultures and communities have managed to maintain a value on multiple modalities of expression, multiple and hybrid ways of knowing, communicating, and establishing identity" (p. 618). Using a multimodal assessment format aligned with Universal Design for Learning guidelines (CAST, 2018) allows students to make sense of the readings and express their ideas outside of typical "academic writing," creating a more inclusive assessment opportunity in general, and in particular for multilingual students, students with disabilities, and students from cultures that value multiple means of expression (see Figure 2).

The one-pager assignment also helped me to take a step away from my own hyper-focus on written academic language. Kress (1999) argues that "the single, exclusive and intensive focus on written language has dampened the full development of all kinds of human potentials, through all the sensorial possibilities of human bodies" (p. 85), and the one-pager assignment allowed me to see the "sensorial possibilities" in my students. I have been amazed by the outcome of this assignment, which has tapped into students' skill sets I had not seen previously

Figure 2
Examples of Students' One-Pagers

Essential characteristic of the teacher

to promote learning climate are: Enthusiasm

positive expectations, warmth and empathy

model

Teaching can include social justice goals related to the teacher, student and their own privileges. (or lack thereof)

Application

...Yet, students don't have misconceptions. They have conceptions. And those conceptions make sense for them, until they encounter something that no longer works. "They are only misconceptions" when we begin with the expectation that others need to come to our way of thinking or viewing the world" (Gutierrez, 2018, p. 2)

Q. How can these values be communicated to families who may have their own battles with conceptions of mathematics that may contradict their child's education?

ReHumanizing Mathematics

Connection

Women all over the world, and in my ancestry, are creative mathematicians within the realm of textiles. I use math to design my own quilt patterns, which takes a drawing on graph paper, usually, and aids me in creating a full size cuddle quilt. This is the first example I could relate to that actually humanizing math. Second, clothing design and pattern making are another example of how math is humanized. Universally, textiles are an integral part of any culture, and persevere through the labor of women and children. Historically, enslaved people used quilts, and therefore, math, to communicate in secrecy.

"When students view mathematics as something one does for oneself, not just for others, there is greater likelihood for play, invention, or expressing oneself through mathematics." (Gutierrez, 2018, p.5)

Q. What are concrete lessons or big ideas that may invite students to express themselves through play and invention?

Knowledge and power are interconnected

What and How students Learn About Numbers Early On (0-20+)

Important ideas and concepts

Number sense
8 is 1 more than 7 and 1 less than 9
+ magnitude
20 20

Cardinality
1, 2, 3, 4

Subitizing
5!

Counting on
4, 5, 6

Number 0

Dot cards

Hundreds chart

Graphs

Comparing quantities
0 < 10

Numeral writing and recognition
3 → 00

Part-part-whole relationship
1, 2, 3

Visual models

Dice

Paper plates with dots

Five frames

Ten frames

Teaching considerations & activities

7.7: "Line Them Up!" (van de Walle et al., 2019, p. 132)

7.11: "Make Sets of More/Less/same" (van de Walle et al., 2019, p. 135)

7.28: "Add a Unit to Your Number" (van de Walle et al., 2019, p. 148)

Problem-solving strategies and challenges for developing conceptions

Counting with a one-to-one correspondence
1 2 3 4 5 → 0 0 0 0 0
X 0 0 0 0 → 0 0 0 0 0
pointer
matching cards

Counting on
4 + 2 → 4, 5, 6
1, 2, 3, 4, 5, 6
0 0 0 0 0 0
cover

cardinality
How many?
1 2 3 (recounts) → 3
Board game
3
say, 1, 2, 3, we have

Questions

- Since 0 is an important number, should hundreds charts start at 0 or 1?
- How can teachers explain the importance of estimating to students who quickly look for the answer?
- How can teachers work on part-part-whole relationships and tens and ones as units at the same time?

Chapter 7: Developing Early Number Concepts and Number Sense

when assignments focused on writing, including their artistic skills and creativity with visual representations.

For evaluating students' work on this assignment, I implemented "specifications grading," a grading system I learned about through a higher education faculty Facebook group. Specifications grading moves away from letters or points and instead evaluates student work based on whether it meets the goals of the assignment based on clearly defined criteria (Bayraktar, 2020), which in this case was the use of words and images to express ideas about the prompts provided for the the one-pager components. In an effort to set students up for success and rehumanize my assessment practices, I gave full credit to all one-pagers in week one regardless of whether they contained the specified components, I provided feedback throughout the semester and implemented a peer feedback activity after the first week's one-pagers were submitted, I dropped a specified number of one-pager grades, and I created and shared a folder of exemplar one-pagers, templates, and a video overview of the assignment.

Later in my course design process, Brandie made an important observation—she noted that I wanted equity to be the focus of the course, but none of my major course assessments focused on equity. We are all familiar with the ubiquitous question, "Will this be on the test?" and when students hear a "no," the untested information goes right out the window—or at least that was my reaction as a student. To address this issue and elevate the importance of equity and antiracism in the course, I created a project called "Forging Your Own Path to Equity and Access for All Students in Mathematics Education." I envisioned this project like a "choose your own adventure" book. Students chose a topic related to equity and access in mathematics education that interests them (see Table 2) and explored two resources on their topic. (Other "critical friends" have shared great resources that students have explored for this project, including Dr. Kari Kokka's (2020) compilation of Social Justice Mathematics and Science Curricular Resources for K-12 Teachers, the TODOS (2020b) website, and the Global Math Department (2020) newsletter and website.) Some of the suggested project topics focus specifically on race, and others related to other identities and experiences that intersect with racial identity. Students created a Flipgrid video to share their learning on their selected topic and their ideas for integrating their learning into their future teaching practice with the class and then responded to one

Table 2

Topic Ideas for the "Forging Your Own Path to Equity and Access for All Students in Mathematics Education" Project

- Equity of online mathematics learning
- Social justice/activism and mathematics
- Mathematics experiences for students of color
- Mathematics experiences for emergent bilingual students
- Mathematics experiences related to gender identity
- Mathematics experiences for LGBTQ+ students
- Mathematics experiences for students with disabilities
- Mathematics experiences for students who are immigrants or undocumented
- Mathematics experiences for students of varying religious backgrounds
- Trauma-informed mathematics teaching practices
- Another topic of your choosing related to equity and access in mathematics education

another's Flipgrid videos with comments, ideas, and questions. Though not focused solely on race, the assignment created a space for students to extend their learning of ideas that had come up in the course or to explore new topics related to race and other equity issues in mathematics education, an opportunity which had not existed previously in the course. By changing the format and the content of my assessments, students were now working directly towards the new course goals by engaging with elementary mathematics teaching methods that work towards equity and antiracism and planning for their implementation of the course content in their future teaching practice.

Where I Fall Short and Future Directions

Reflecting on my course redesign and sharing my practice with others for feedback has helped me to identify areas where I fall short that can be improved upon in future iterations of the course. Though I added a number of readings by scholars of color to the course, an opportunity I missed was sharing the racial (or gender, sexuality, or

other) identity of authors with students. Because people often assume that authors of scholarly works are white and male (e.g., Perez, 2019), sharing the identity of authors may help students to better recognize the role that scholars of color have played in building and shaping the field of mathematics and mathematics education. I added the “Forging Your Own Path to Equity and Access” project to the course, but quite honestly, I have no idea how to assess the project. Because students are in such different points in their journeys of awareness and understanding of racism and other injustices, both broadly speaking and in mathematics education, I am unsure of how to assess their learning or their plans for putting their learning into action. Through reflecting on my course redesign, I also realized that I lack clarity about the constructs of *equity*, *antiracism*, *de/re/humanizing*, *culturally relevant teaching*, *social justice*, and related topics. If I lack clarity on these constructs, I will not be able to teach about them in a way that is clear to students (or advocate for these issues effectively at my university and beyond), so I need to continue to evolve my thinking and understanding of these concepts. I also need to continue to develop my skills for facilitating difficult conversations about race and students’ reflections on their own biases—a role I find particularly challenging with students who are thinking about these issues for the first time, which is often the case in my teaching context. Ongoing engagement with “critical friends” through syllabus and assignment reviews, class observations, and reflections on class activities and interactions can help me to continue to identify unseen areas in need of improvement in my work towards antiracist teaching and learning.

Antiracism in Your Course and Beyond

Students never expressed divergent opinions or disagreement during class discussions on antiracism and equity. Nevertheless, comments on my end-of-semester course evaluations (which are anonymous) such as the following indicated that these sentiments were certainly there: “The professor used class time to push [a] political agenda and talk about our ‘cultural context.’” Despite comments such as this indicating that some students were not engaging with ideas of antiracist, equitable mathematics teaching as I had hoped, comments from end-of-semester reflections on TODOS’ (2016) position

statement *Mathematics Education Through the Lens of Social Justice* and course learning related to antiracism and equity (which were not anonymous) showed that other students experienced the course’s focus quite differently.

“I want to support students’ identities and approach math teaching from a very inclusive standpoint. By this I also mean including students’ worlds in math teaching so they see the relevancy and humanity in the subject.”

“I think the biggest thing I will take away from [TODOS’ (2016) position statement *Mathematics Education Through the Lens of Social Justice*] is to not assume. As a teacher it is unjust to assume a students’ [*sic*] capabilities based on their background, culture and/or race.”

“One of the things that I took away from this course that will help me implement [*Mathematics Education Through the Lens of Social Justice*] is that you have to be the one who takes action and holds others accountable. Throughout my time in this class I have seen Dr. Fletcher take her own action in making sure what needs to be said is said, whether it was easy or hard to say. It showed me that as a teacher you have to be brave and bold if you want to see the changes you know need to happen.”

Comments such as these demonstrated that some students were engaging with ideas about antiracism and equity in mathematics education in powerful ways, and that teaching mathematics methods through a lens of antiracism and equity has the potential to transform preservice teachers’ future classroom practices and, in turn, have a positive impact on their future students.

For those that are new to this work, overhauling a course can seem like a daunting task. But the current climate of book bans, anti-Critical Race Theory protests at school board meetings, and laws censoring teaching about race and racism, as well as the ways race intersects with other issues such as anti-trans laws and reproductive justice, highlights the urgency of preparing preservice teachers to engage in antiracist mathematics teaching practices. If you are looking to bring antiracist practices into your course, you may consider reframing your course goals with a focus on equitable and antiracist teaching methods as a starting point. From there, you can begin to integrate connections between course content and antiracism and embed antiracist practices into your pedagogy and assessments to work towards an integrated

approach to antiracism in course design (Kishimoto, 2018). As you integrate equity and antiracism into your teaching practice, it is important to build your community of “critical friends” within and beyond your institution. Sharing ideas with friends and colleagues, attending workshops, participating in teaching circles and professional learning opportunities, and interacting with fellow educators on social media platforms have all been critical to my learning and growth and have been sources of inspiration and support throughout this journey.

But to implement antiracist teaching practices authentically and effectively, you must also be engaging in antiracist work beyond the courses you teach. It is imperative that you embark on a journey of self-reflection to examine your own biases and gaps in knowledge and awareness and then take action to change your biases, particularly related to anti-Blackness and other forms of racism. Without reflecting on our own biases and the ways racial trauma impacts all of us, attempting to implement antiracist activities in our courses may not be beneficial for preservice teachers or their future K-12 students (TODOS, 2020a). And remember that the work of pushing towards an antiracist future is never finished, whether personally or in your classes. Antiracism is an unending journey, not a destination. You may identify as antiracist, you may incorporate antiracist practices into your classes, but “it is more realistic to conceptualize antiracist teaching as an ongoing practice one must continue to develop and expand over the course of a career” (Shah & Coles, 2020, p. 596). Become an advocate for antiracism in all arenas of your professional life—on committees, through research, in hiring decisions, in your support of and advocacy for students, faculty, staff, and community—as well as in your personal life. And seek allies and “critical friends” who can challenge, guide, support, and encourage you on this imperfect but imperative journey towards antiracism.

NOTE: The article builds on a previous contribution to the Global Math Department newsletter in June 2021.

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Discussion And Reflection Enhancement (DARE) Post-Reading Questions

1. Have you observed tensions between stated support of antiracist pedagogy and practices that maintain Whiteman standards in mathematics teacher education? Describe these tensions.
2. In the discussion of a class project in which students explore a topic of interest related to equity and access in mathematics education, the author states, “Because students are in such different points in their journeys of awareness and understanding of racism and other injustices, both broadly speaking and in mathematics education, I am unsure of how to assess their learning or their plans for putting their learning into action.” How would you assess student work related to antiracism? What challenges might arise in assessing student work related to antiracism?
3. The author described a number of ways that equity and antiracism can be incorporated into course design:
 - a. reframe your course goals with a focus on antiracist, equitable mathematics teaching practices
 - b. integrate connections between course content and equity and antiracism
 - c. embed antiracist practices into your pedagogy or assessments.What would you add to this list to bring antiracism to the center of course design in mathematics education?
4. Try this: Look at your current mathematics education syllabus. Which of the practices described in this article for incorporating equity and antiracism into mathematics education course design are already present in your course? Would you assess your current approach to equity and antiracism in your course as “additive” or “integrated” (Kishimoto, 2018)? What are 1-2 things you can change/add/do differently in your courses (or within yourself) next semester to move towards a more integrated approach to antiracism in your course? How will you reflect on the effectiveness of your change at the end of the semester? You may choose to do this activity independently, or you may choose to do this activity with a colleague who can serve as a “critical friend” and accountability partner.

Appendix

Course readings that guided our sessions on equity and antiracism

- Djonko-Moore, C. (2020). Culture in early childhood mathematics. *Mathematics Teacher: Learning and Teaching PK-12*, 113(9), 702-707.
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“DARE to Reach ALL Students!”

