

Framing Justice-oriented Professional Growth for Teachers and Teacher Educators Using Nested Cycles of Acknowledgment, Action, and Accountability

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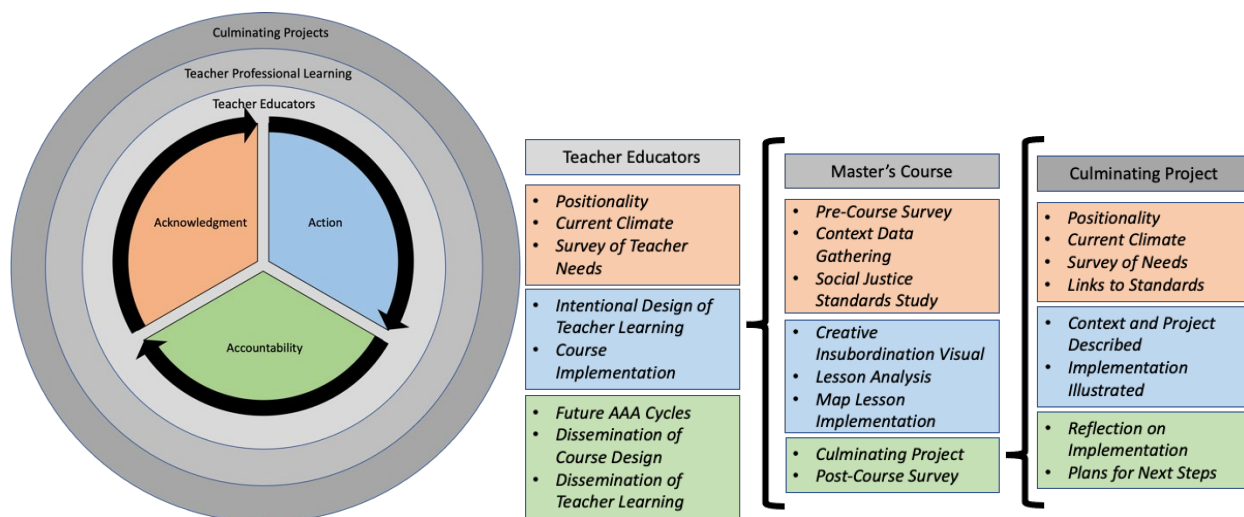
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How do mathematics teacher educators leverage their knowledge and expertise within their field to support practitioners from multiple disciplines (e.g., social studies, science, language arts)? As mathematics teacher educators, we often view our expertise as content specific, but recently we found ourselves developing a graduate course to support mathematics and non-mathematics teachers in becoming justice-oriented practitioners. In this piece, we share our work using mathematics education theories and frameworks to support and develop justice-oriented practitioners across multiple disciplines using a nested model for professional growth that leveraged the framework of Acknowledgment, Action, and Accountability (AAA) (NCSM & TODOS, 2016). We seek to add to the work done by teacher education scholars on interdisciplinary courses, where teachers from multiple disciplines learn about issues of schooling together (Anderson et al., 2021; Davis et al., 2019; Ryu et al., 2019).

Model of Professional Growth for Becoming Justice-oriented Practitioners

Teacher learning is a continuous process and as such, we see our development, and the development of the teachers we support, a process of “becoming” justice-oriented practitioners, as opposed to “being” justice-oriented practitioners (Strom & Viesca, 2020). Thus, we conceptualize teacher learning as a cyclical process. The AAA (NCSM & TODOS, 2016) cycle proposed by national mathematics education organizations requires that practitioners: (a) *acknowledge* that the current mathematics education system is unjust and grounded in a legacy of institutional discrimination based on race, ethnicity, class, and gender; (b) take multiple *actions* to create and sustain institutional structures, policies, and practices that lead to just and equitable learning opportunities, experiences, and outcomes for children; and (c) hold each other *accountable* to enable all students to thrive and fully engage in their education and society at large. We use this framework within a nested model of professional growth (illustrated in Figure 1), first applied to our development as teacher educators, then to the design of an interdisciplinary course for teacher professional learning, and finally as a pedagogical tool to develop justice-oriented practitioners through a culminating project.

Figure 1
Model of Professional Growth for Becoming Justice-Oriented Practitioners



A key element of our *action* phase as teacher educators was the intentional design and implementation of a master’s level course for PK-12 practicing teachers, who are represented by the teacher professional learning layer of the nested model (see Figure 1). We first designed and taught the course, *Advanced Teaching Models for Diverse Learners*, in the Fall of 2021, with eight teachers enrolled in a Curriculum and Instruction Master’s program. The teachers focused on varying disciplines, taught at the preschool through high school level, and had from 2 to more than 20 years of experience.

The course was split into thirds, with each portion concentrated on one phase of the AAA model, thus the first third concentrated on *acknowledgement* activities, then *action* activities for the second third, and finally *accountability* activities for the final third of the course (see Figure 1, “Master’s Course”). Some *accountability* and *action* activities (see Figure 1 for examples) used in the course were particularly drawn from mathematics education literature. We briefly explain three. For example, the teachers applied Gutiérrez’s (2016) *Strategies for Creative Insubordination in Mathematics Teaching* to other disciplines. After studying this work, each teacher reimagined each area (e.g., “Counter with Evidence” or “Press for Explanation”) to situations they have been in or their teaching context specifically. The teachers also assembled *Creative Insubordination Visuals*, which “advertised” ideas to their peers and highlighted examples of creative insubordination strategies that could be carried out.

The teachers also experienced and analyzed a middle school mathematics for social justice lesson (Skultety et al., 2022). This particular lesson about maps was used with this diverse group of teachers because maps are explored in multiple disciplines from varying perspectives. As the teachers experienced this lesson as students, we found that the mathematics content was accessible to all. Teachers became familiar with the TEACH MATH (2012) *Culturally Responsive Mathematics Teaching Lesson*

Analysis Tool as they analyzed this map lesson. In a related activity, teachers adapted this tool to analyze a lesson from their discipline. To support transfer across disciplines, teachers engaged in conversation and drafts of their work with their course peers and their professional learning communities in their schools. Additionally, we offered many activities in the class that drew from outside mathematics specifically, utilizing Learning for Justice (<https://www.learningforjustice.org/>) and other resources.

As a culminating learning experience (and the *accountability* phase of the teacher professional learning layer of the nested model), teachers enacted their own AAA projects. These culminating projects were the final layer within the nested model of professional growth for becoming justice-oriented practitioners (see Figure 1 “Culminating Project” column).

Examples of Teachers’ AAA Projects

To demonstrate how the teachers took up the social justice mathematics coursework in their own context, we describe the culminating projects for three teachers: Amy, Holly, and John. Amy and Holly developed projects to address needs they observed in their classrooms. John developed a project with an intention to have an impact within the school and district. We briefly describe the issues the teachers **acknowledged** they needed to address, the **actions** they took or theorized, and explicit measures of **accountability** they shared. We also note some connections between the teacher’s projects and course activities.

Amy, a high school geometry teacher, **acknowledged** a need to address Learning for Justice’s Diversity Justice Standard 6 in her classroom: “Students will express comfort with people who are both similar to and different from them and engage respectfully with all people” (2018, p. 3). She took **action** by developing a social justice lesson (drawing from the Skultety et al., 2022, social justice mathematics lesson as a model) to the topic of conditional statements and their relationships to converse and contrapositive statements. Amy’s lesson targeted learning objectives were mathematical (e.g. “Create a Conditional Statement from an original statement.”) and justice-oriented (e.g., “Create a conditional statement related to their culture or identity.”). Students developed conditional statements to highlight various cultural backgrounds and histories (examples in Figure 2), and then created a short story using “if-then” statements, inspired by the children’s book by Laura Numeroff, *If You Give a Mouse a Cookie* (1985). The students’ books either addressed historic or personal social justice events or how they would change a historic event. Amy planned for students to share and discuss their stories with other classes. To hold herself **accountable**, Amy developed a student survey to assess the impact of the lesson to be used to further refine the activity (with questions like, “Do you feel you have a better understanding of another student’s culture? Explain why or why not.”)

Figure 2

Examples of Culturally relevant Statements from Amy's Conditional Statements Lesson.

CONDITIONAL STATEMENT	CONVERSE <small>(with hypothesis and conclusion)</small>
<p>hypothesis</p> <p>If you are Rosa Parks, then you refuse to move from your seat.</p> <p>conclusion</p> <p>TRUE</p>	<p>If you refuse to move from your seat, then you are Rosa Parks.</p> <p>FALSE</p> <p>Counterexamples: Bayard & Irene Rustin & Morgan</p>
<p>INVERSE <small>(negate hypothesis and conclusion)</small></p> <p>If you are not Rosa Park, then you do not refuse to move from your seat.</p> <p>FALSE</p> <p>Counterexamples: Bayard Rustin & Irene Morgan</p>	<p>CONTRAPOSITIVE <small>(with negate hypothesis & conclusion)</small></p> <p>If you do not refuse to move from your seat, then you are not Rosa Parks.</p> <p>TRUE</p>

Rosa Parks refused to move from her seat.

List of statements that can be used for conditional statements notes

- Martin Luther King Jr. was a civil rights activist.
- Establishments featured in the green book were safe for African Americans.
- Harriet Tubman helped move escaped slaves using the underground railroad.
- DACA protects immigrant youths from deportation.
- For Ramadan you fast from dawn to sunset.

Holly, a secondary Reading and Language Arts (RLA) teacher, **acknowledged** many of the classically-assigned texts in RLA classes have the potential to harm students of color in the ways they depict racism or do not properly condemn it. To take **action**, she developed a presentation intended to be used as a professional development resource for fellow RLA teachers to explain why an auditing of potentially problematic classic texts is necessary. The resource included guiding questions for how to identify problematic texts (e.g., “Put yourself in the shoes of your students of color. Ask yourself: Would this make me think twice about how others see me?”), ways to replace or supplement the curriculum with new texts, acknowledgement of the emotional and time labor for teachers doing this work, and additional pragmatic resources. Amy’s resource elaborated strategies of creative insubordination (Gutiérrez, 2016), specifically “Use the Master’s Tools” and “Seek Allies.” Holly envisioned sharing the content of the presentation in a professional development and working with teachers to examine texts and develop accompanying curriculum resources. In a self-reflection, specifically related to **accountability**, Holly identified a tension requiring further reflection and refinement of her presentation: her materials advocated for this work on behalf of students of color, but she wanted to communicate that this work is necessary for all students.

John, a social studies teacher, **acknowledged** that teachers and administrators may need support in finding meaningful ways to examine aspects related to diversity in classrooms. He wanted to create a tool to structure ways for teachers and administrators to gauge whether their actions or plans adequately take diversity into consideration. John’s **action** centered on developing a “Diversity Checklist,” which included questions for teachers to consider their curricular materials (e.g., “Are women, ethnic minorities, and people of diverse socioeconomic classes and religions portrayed in a non-stereotypical manner?”) and self-practice (e.g., “Do I respectfully accommodate differently abled students in my classroom?”). These checklist items drew from class resources, especially the TEACH MATH (2012) *Culturally Responsive Mathematics Teaching Lesson Analysis Tool*. He planned to implement the checklist as a school-wide initiative. John had taken steps towards **accountability** by meeting with five

assistant principals in the district about the checklist and was making plans for a summer professional development with a cadre of interested teachers and administrators.

Concluding Thoughts

In drawing upon our expertise as mathematics teacher educators, we set out to design and implement a graduate-level course to support practicing teachers from multiple disciplines in becoming justice-oriented practitioners. It must be noted that the teachers' work in this course was limited by the time constraints of a semester. This work within the AAA cycle was time-intensive and as such, some teachers did not have the opportunity to enact their project to the extent that they had envisioned. However, the AAA cycle provided a flexible framework for us to conceptualize our own growth, the progress of the teachers, and the impact on their broader context through the course project.

We chose to ground the course in the literature and work that we were familiar with in mathematics education, and support those in other disciplines in imagining and creating ways to use these frames in their own classrooms and spheres of influence. As demonstrated in the stories of Amy, Holly, and John, the teachers took up their own understanding of social justice in their context and developed projects to address the injustices they saw, even outside of the mathematics classroom. Such examples of using the work and literature around social justice mathematics may be of interest to other mathematics teacher educators who may find themselves teaching in similar general educational situations. As we illustrated, the teachers saw clear connections between their disciplines and the course materials, and used these connections as a basis for taking, or planning, action within their schools, as they worked at becoming justice-oriented practitioners.

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