Designing for Justice: Preparing Culturally Competent Science and Mathematics Teacher Advocates for High-Need Schools

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Abstract

In a time when the United States is faced with continued racism and social unrest, it is more important than ever to prepare teachers who can advocate for marginalized students and social justice. This article describes the evolution of a seminar course called Theory and Reality: Practicum in Math and Science Teaching in High-Need Schools within the context of a predominately White teacher-preparation program. Guided by scholars of culturally relevant education and our professional and personal journeys as equity-focused teacher educators, we sought to design experiences to prepare preservice science and mathematics teachers to teach in high-poverty or underfunded schools. Specifically, the course was intended to (1) develop an understanding of pedagogical practices and educational strategies for successful teaching in a high-need school setting, especially in mathematics and science classrooms, and (2) cultivate both cultural self-awareness and cross-cultural consciousness in one's ability to adapt to the high-need environment in a culturally responsive way. We describe the evolutionary rationale for changes made to course assignments and readings to promote cultural competence and early advocacy skills for teacher candidates interested in teaching in schools facing poverty. We highlight preservice teachers' reflections that evidence their early conceptualizations of teaching in a high-need school context and how assignments promoted their relationship-building and advocacy skills for marginalized students.

Introduction

In a time when the United States is faced with continued racism and social unrest, it is more important than ever to prepare teachers who can advocate for marginalized students and social justice. The national population of students continues to diversify by race and ethnicity (U.S. Census Bureau, 2021); thus, curricula, teaching practices and assessment in science and mathematics must embrace the lived experiences of non-dominant students of color (Battey, 2013; Rodriguez & Morrison, 2019). Critical scholars have called for teachers to be prepared in equity-driven pedagogies and practices because they are essential to access to quality instruction and advancement of minoritized students in STEM (Gay, 2010; Ladson-Billings, 1994, 2014; Milner & Tenore, 2010). Preservice science and mathematics teachers

who have opportunities to critically reflect upon the opportunity gap in education and interrogate their positionality as equity-minded teachers are better equipped to advance social justice in their classrooms (Grillo & Kier, 2021).

This article describes the recent evolution of a 1-credit-hour course that has been part of a grant-funded teacher scholarship program for over a decade. This program provides monetary incentives to science and mathematics majors who seek to be teachers in high-need school contexts. High-need school (HNS) contexts are educational institutions in which at least 50% of students receive free- or reduced-price lunch, the teacher attrition rate is 15% or higher, or 34% or more of their teachers are teaching out of their certified area of specialization (Higher Education Act of 1965). The course, entitled *Theory and Reality: Practicum in Math and Science Teaching in High-Need Schools*, is intended to support students who have been selected to receive the scholarship (hereafter called scholars) to see themselves as teachers in HNSs. This course was also designed to complement the coursework required for secondary science and mathematics preservice teachers are pursuing a teaching license at both the undergraduate (33 credit) and graduate level (41 credit) programs at our university. Undergraduate students receive their primary major in their discipline (e.g., science, math) and then add a secondary major of education that leads to licensure. Undergraduates take foundational educational courses in their first-third years, and field-based courses (i.e., courses that apply learning in field through a practicum and student teaching) are taken in their senior year, whereas graduate students complete all of their coursework in one year, with additional summer coursework. In courses that include both undergraduates and graduates, instructors differentiate individual assignments accordingly. The *Theory and Reality* class is taken by both undergraduates and graduate Noyce scholars and the content and assignments are the same for all students.

The evolution of the *Theory and Reality*course has been informed by the needs of our scholars in respect to their equity journey and reflections on course activities, research on our scholarship participants in respect to key influences on accepting a job in an HNS (e.g., Grillo & Kier, 2021; Kier & Chen, 2019), and the professional learning experiences of the instructors of this course who are committed to equity and social justice for marginalized students. Each year of implementation, an external evaluation team from outside the program and university conducted focus-group discussions with scholars about the course, the scholarship program, and their teacher-preparation experience. The evaluation team recorded and analyzed the data from the focus-group discussions and submitted an evaluation report. We analyzed the anonymized focus-group data in addition to course assignment submissions, weekly and final reflections on the course, work samples, and anonymous course evaluations.

This article describes the evolution of key assignments in the past 2 years from the original conceptualization and implementation of the course. Specifically, we show how key assignments have been adapted over time to encourage scholars to interrogate their positionalities toward working with diverse others and advocate for marginalized youth as

preservice teachers. These changes were derived from an emphasis on equity literacy (Gorski, 2016) and social justice, refocusing our teaching so that our scholars would be able to identify injustices and advocate effectively for their students. In our most recently awarded grant proposal, we explicitly emphasized these tenets and specified that all scholars would conduct their long-term student teaching experience within an HNS setting. The objectives of this course are to (1) develop an understanding of pedagogical practices and educational strategies for successful teaching in a high-need setting, especially in mathematics and science classrooms, and (2) cultivate both cultural self-awareness and cross-cultural consciousness in one's ability to adapt to a high-need environment in a culturally responsive way. This course aims to introduce culturally relevant education through broadening the cultural competence and deepening the critical reflection skills of scholars (Aronson & Laughter, 2016).

Participants

Both the authors and scholars serve as participants that have influenced the evolution of course decisions. The first author has served as the recruiter, mentor, and project coordinator for the program since 2018 and has taught the *Theory and Reality* course for the past 2 years. The second author is a co-Principal-Investigator of the grant-funded program and teaches and advises the secondary science scholars who participate in the program. Both authors are White women who have extensive experience teaching and working with students and teachers in HNSs. In research and practice, the authors position themselves to counter deficit discourse and stereotypes associated with these spaces and advocate for social justice. In the past 4 years, 36 scholars have completed the program, all of whom were pursuing their master's degree in education. The demographics of scholars can be found in Table 1. We selected the past 4 years of scholars to demonstrate the perceptions of those who participated in the course as originally conceptualized and those who experienced coursework in the past 2 years with the first author.

Table 1

Demographics of Scholars in the Past 4 Years (N = 36)

Characteristic	Number of Scholars (%)
Subject area	
Math	11 (30.6%)
Science	25 (69.4%)
Race	
Black	3 (8.3%)
Latinx	2 (5.6%)
White	31 (86.1%)
Gender	
Female	23 (63.9%)
Male	13 (36.1%)

Version 1.0: Conceptual and Methodological Framing of the Course

To inform the *Theory and Reality* course, we drew from the notions within *culturally relevant education* identified in Aronson and Laughter's (2016) definition that broadly encompasses the mindsets, dispositions, and practices of an equity-driven practitioner. It was our intent to develop educators who can recognize stereotypes and misconceptions, connect students' cultures to science and mathematics content, and advocate for social justice in their schools through the knowledge gained from the readings and assignments. In this section, we outline the major experiences and assignments in the course, descriptions, and culturally relevant mindsets and practices being addressed.

Key Texts 1.0

The instructor utilized three texts for seminar discussions (see Table 2) so scholars would consider their cultural competence and how excellence and equity can be simultaneously achieved in mathematics and science classrooms. Instructors discussed readings and observations with scholars during class and frequently assured scholars that developing awareness of inequities and advocating for social justice in classrooms is an ongoing, difficult, and essential life-long process for all individuals, including scholars.

Table 2

Key Texts for Seminar Discussions in Version 1.0 and 2.0

Citation	Rationale
Gorski, P. C. (2018). *Reaching and teaching students in poverty: Strategies for erasing the opportunity gap* (2nd ed.). Teachers College Press.	This text was the anchor text guiding scholars to critically examine the opportunity gap in education and consider practices that educators can use to act against inequity.
Larkin, D. B. (2013). *Deep knowledge: Learning to teach science for understanding and equity*. Teachers College Press.	This text was used as a reference for scholars in science education to consider curriculum and pedagogies to promote rigor and equity opportunities in science teaching.
Gutstein, E., & Peterson, B. (Eds.). (2013). *Rethinking mathematics: Teaching social justice by the numbers* (2nd ed.). Rethinking Schools.	This text was used as a reference for scholars in mathematics education to consider curriculum and pedagogies to promote rigor and equity opportunities in mathematics teaching.

Guided Observations of HNSs and Reflections 1.0

Scholars participated in guided observations of science and mathematics classrooms within HNSs for three days, including visits to elementary, middle, and high schools. The instructor coordinated experiences with district administrators as well as alumni scholars. Schools were selected in rural, urban, and suburban school districts with diverse student demographics

and classroom structures. Following scholars' observations of classrooms, they engaged in conversations with teachers and administrators to learn about philosophies, structures, and resources within schools. The intention of this activity was to provide an experience that broadened scholars' awareness of diverse students and contexts, supporting their ability to see themselves as teachers in an HNS (Bandura, 1997; Kier & Chen, 2019). The scholars submitted reflections on their observations and interpretations of the readings. The reflection prompts were designed to connect observations to theory more explicitly. For example, scholars were asked to analyze key strategies promoted within the text *Reaching and Teaching Students in Poverty* (Gorski, 2018) during their observations. Specifically, scholars reflected upon how they observed culturally responsive classroom management, data-informed decision-making by teachers, and equitable and inequitable resources within the school. An example reflection prompt from one site visit was:

> Gorski discusses a structural view of poverty and education. When visiting [name omitted] High School, what equitable and inequitable resources (e.g., knowledge, content, time) did you notice? Did you notice any responsive policy or practice helping mitigate barriers?

The reflections supported scholars to make sense of new experiences in relation to themselves and imagine a future role as someone who may have to navigate similar experiences (Ryan, 2013). At the end of the semester, scholars submitted a reflection paper that integrated lessons learned in readings and school visits and how these informed their future goals of teaching within an HNS. Additionally, scholars created a collage of images, photos, quotes, and objects to represent the evolution of their thinking about teaching in HNSs.

Interview of a Past Scholar 1.0

Scholars designed and interviewed former program scholars who teach within HNSs. These interviews were held toward the end of the course and included key questions derived from observations of HNSs and ideas put forth in the required text (see Appendix A). This assignment intended to provide scholars with a role model who had similar experiences to them (i.e., had experienced the same university program). Bjorklund et al. (2020) found that community networks and role models shape preservice mathematics and science teachers' ability to see themselves in similar contexts.

Lessons Learned From Scholars 1.0

We highlight our scholars' voices to show how specific assignments contributed to their future thoughts and actions in HNSs. By and large, site visits were most effective for scholars to begin seeing how they could work in HNSs. Scholars noted the benefit of seeing the

different HNSs, speaking with administrators, and observing teachers connecting content to students' interests and different teaching practices to meet the needs of students. As one scholar noted,

> I have gained the most from the four school visits. I was able to see how teachers in HNSs incorporate what we discuss in our class into their teaching. I have learned building rapport with my students is one of the most important factors in creating a positive and accessible learning environment. (White Math Scholar, Final Course Reflection, 2017)

This reflection illustrates a common sentiment discussed by scholars that effective classrooms in HNSs were built on strong student–teacher relationships. Scholars drew upon these observational experiences when considering jobs in HNSs. As a first-year teacher, one of our scholars shared that these site observations helped her understand that administrators and teachers shaped school culture. This awareness supported her when interviewing with schools because she specifically looked for places to work where science faculty members spoke highly of administrators and demonstrated positive relationships. Specifically, she described the strong working and familial-like relationships between teachers, administrators, and students that felt welcoming and supportive to her as a new teacher.

Although the disciplinary texts (i.e., Gutstein & Peterson, 2013; Larkin, 2013) were not explicitly referenced in scholars' weekly reflections or focus-group responses, all scholars found the Gorski (2013) text to be relevant to their growth as a social justice-focused educator, in respect to their evolving beliefs and understanding of students. Following the course, scholars evidenced strength-based perspectives of people experiencing poverty and demonstrated agency in effectively teaching and advocating for social justice. One scholar describes the impact of this text in her final reflection on the course:

> I came into the program with my own beliefs and attitudes of what low-income students and families looked like because I grew up in one. Like Gorski, I had to "[']unlearn['] many of the popular stereotypes and misconceptions about poor people" (Gorski [*sic*; Banks], 2013, [p.] ix). I believed [. . .] that anyone could be anything they wanted to be if they simply worked hard. However, those beliefs were challenged when I learned low-income people are extremely diverse, work the hardest, and despite the skills and determination they may possess [. . .], the odds are heavily stacked against them. (Latinx Biology Scholar, Final Reflection, 2017)

This scholar describes how the text promoted a shift in her deficit views of students who lived in poverty and challenged her to begin considering the assets that students bring to the classroom.

The scholars viewed the alumni interviews as powerful assignments that influenced their practical understanding of the opportunities and challenges for teachers in HNSs. Scholars asked alumni questions on lesson planning, teaching, identifying students' needs, questions that they should ask administrators during interviews, and philosophies of behavior management. A key theme in scholars' reflections on their alumni scholar interviews was that of inspiration. One White physics scholar in 2017 was inspired by the teacher's authenticity with her students and her ability to initiate difficult conversations in the physics classroom. He describes this in the following quote:

> A few qualities that I deeply admire in [name omitted]: she is not afraid to have serious conversations with her students about current-day events. I want my students to be aware of the moral dilemmas facing their society—both in and out of school. I want them to be aware that the issues they face every day with stereotype threat and marginalization are issues in which they have a say. I want to help provide my students with the power to enact change. [Name omitted] definitely encourages this sort of thinking in her students.

Several scholars reflected that they were inspired to apply to the same district as the alumni teachers they interviewed. Between 2017-2019, eleven of 21 scholars took jobs at a high needs school; the other ten scholars all took jobs within school districts that were characterized as high-need by the National Science Foundation, though did not work within an individual school that was deemed high-need. All the scholars fulfilled their obligation to the Noyce Scholarship grant. The *Theory and Reality* course was influential to scholars' understanding of equity issues in education, as evidenced by their reflections on observations, readings, and experiences with prior alumni. The assignments in the course predominately promoted scholars' introspection and reflection on how they might position themselves to address inequities in HNSs. We sought to build upon this in future iterations of the program and course to move beyond introspection to active participation in advocating for students within HNSs.

Lessons Learned by Authors 1.0

The first author agreed to teach this course 2 years ago and considered ways in which the course could help scholars see themselves teaching in an HNS. The first step was to closely review scholars' reflections on this course and the program. To do so, the external evaluation team conducted focus-group interviews with the scholars. The evaluation report stated that "several scholars noted the need for more practical, applied strategies for teaching in high-need schools, specifically related to classroom management." One anonymous scholar specifically shared with the evaluator, "I got a lot of feedback [during student teaching] saying, 'Hey, you should do better with your classroom management.' What does that mean? What does 'do better' mean?" Despite extensive coursework in supporting positive student behaviors in class, scholars did not feel adequately prepared for addressing disruptive student behaviors in their future classrooms.

Therefore, the first author sought to find texts for scholars to draw upon that promoted culturally responsive classroom management (Weinstein et al., 2004) and the importance of building strong student relationships to cultivate a positive classroom climate for students (Milner & Tenore, 2010). The first author specifically wanted scholars to see how teachers' dispositions and small actions could establish a positive climate of trust. Drawing from Pianta et al. (2012), the first author conceptualized explicit instruction to guide scholars to "smile," "use a warm, calm voice," "use student names," and consider appropriate use of vulnerability to establish trust with students. Although site visits allowed scholars to broaden their understanding of how other teachers managed classrooms, the first author believed that scholars would benefit from practicing a critical early skill of building relationships with secondary students, particularly across lines of socioeconomic, cultural, and racial differences.

Version 2.0: Building Relationships

The first author taught the course for the first time in 2019 and emphasized the importance of building student relationships. The nature of the school observations and reflections remained similar to earlier iterations of the course, and Gorski's (2018) *Reaching and Teaching Students in Poverty* was still used. Weinstein et al.'s (2004) article "Toward a Conception of Culturally Responsive Classroom Management" was included to encourage their noticing skills in classrooms. Additionally, the assignment on interviewing alumni scholars remained.

Revisions

The key change to Version 2 included the Building Relationships assignment that supported scholars to build connections with secondary students who have a different lived experience from them and who have experienced poverty. The instructor guided scholars to do a closed-eyed exercise in which they imagined a strong relationship with a former teacher and described what this looked like and sounded like. This was compared to a second visualization exercise on a negative relationship with a former teacher. Scholars drew upon the prior relationships with teachers who were warm, caring, and invested time in their socioemotional well-being and future goals to guide interactions with students in this assignment. The instructor encouraged scholars to find these opportunities in their practicum sites or organizations close to their homes or campus. Scholars reflected on how they selected students and what facts or assumptions they used to determine high-need status. This was an intentional exercise in examining their personal bias and learning about the confidentiality of such information in schools to protect students' privacy. Scholars chose community-based preschools, tutoring opportunities, and informal education spaces to volunteer directly and build relationships with individual students. Scholars reflected on this experience through weekly check-ins in person during the seminar and in a culminating video summarizing the salient points of their final reflection.

Lessons Learned From Scholars 2.0

Scholars provided feedback on the course texts through the anonymous course evaluation suggesting that “the readings selected for this course were meaningful and appropriate,” but “adhering to the principals and attitude of only one author, Gorski, is a weakness of the course.” Although the scholars did not explicitly describe lessons learned about culturally responsive classroom management, they did voice their need for more examples relative to their practicum placements during a seminar discussion following the assigned reading. As preservice educators, the Building Relationships assignment placed some of them “outside of their comfort zone,” but the early experience of finding “their [own] areas of strength and weakness” when “developing one solid relationship” with a student provided them with the confidence to move forward in student teaching. Another scholar wrote, “It was also a focal point for all of the transformative thinking I have had this semester; concepts covered in this class and others were applicable in my work with my student, and that added value to the program as a whole” (Anonymous Student, 2019, Course Evaluation). Due to this assignment, scholars interrogated their understanding of the role and value of mathematics or science education to individuals experiencing poverty (see Appendix B).

Lessons Learned by Authors 2.0

Following the implementation of Version 2.0 of the Theory and Reality course, the first author attended several professional development workshops on promoting equity in science and mathematics education to identify ways to diversify the course curriculum further and engage scholars in early activism actions within HNSs. First, she attended the Annual Southeastern Regional Noyce Conference in Mobile, Alabama, where Richard Milner IV was a keynote speaker. Following this, she read Milner’s book *Start Where You Are but Don’t Stay There*:*Understanding Diversity, Opportunity Gaps, and Teaching in Today’s Classrooms* (2010). Milner’s book shares narratives of teachers who hold diverse racial identities and their experiences in various school districts. As she read his book, she realized the potential for scholars to see themselves in several of these narratives.

The first author also attended two lectures by Claude Steele given on our university campus. Steele’s (2010) work on combating stereotypes aligned well with the course’s goals and our scholars’ needs. The notion of stereotype threat was accessible to our scholars, many of whom were women in science and mathematics. We also perceived that Steele’s work was relevant to our scholars of color situated within a predominantly White university. Further, the scholars could apply stereotype threat to their practice in schools because students in poverty contend with stereotype threat every day in their science and mathematics classrooms. Additionally, the first author participated in personal and professional development to understand how novice teachers can be social justice advocates and change agents for schools and communities through critical reflection (Hall, 2020). One concept that emerged through professional learning was the idea that reflections become more than just a discussion of events and responses from the individual. This idea of critical reflection (Gorski

& Dalton, 2020) was a means by which scholars could examine issues of inequity and directly act upon the injustice rather than turning in a written assignment that stops with the professor.

Version 3.0: Social Justice Teacher Advocates

The most recent iteration of this course occurred in the context of COVID-19 when all the surrounding school districts were entirely online. This caused the first author to make changes to how scholars collaborated with teachers and students and make modifications to assignments to meet the scholars' socioemotional needs at the time of implementation.

Guided Observation of HNSs and Reflections 3.0

The first author carefully selected veteran alumni who had continued to teach in HNSs after the stipulated time commitment articulated in the grant. Despite the stress associated with the pandemic and teaching entirely online, four alumni agreed to facilitate virtual observations of their classrooms for current scholars. It is important to note that these alumni were highly committed to their schools and supported children's socioemotional development as much as their academic development. Further, our former scholars were individuals who prioritized building relationships with students and used asset-focused learning approaches, small-scale action research, and community-driven teaching with their students, all elements that were especially important for our current scholars to emulate (Grillo & Kier, 2021). Our alumni brought their colleagues together to provide learning opportunities for our scholars in an entirely synchronous online environment for each site visit. Although unable to physically observe students, our scholars virtually visited science, mathematics, and non-STEM-related classrooms and engaged in conversations with teachers following instruction. All teachers graciously welcomed them to "hop in and out of Zoom rooms," and our scholars observed physical education classes, art classes, and traditional academic classes.

Critical Reflections

The instructor called scholars into action following each site visit by asking them to (a) write an opinion editorial following the first site visit (see Appendix C), (b) draft a 3-minute public comment to the school board following the second site visit (see Appendix D), (c) write a mini-grant to support a lesson they observed on the third site visit. For the instructor, the skill of writing critical reflections was not as much of a priority as getting scholars to position themselves as advocates., The instructor intentionally used the class time before each site visit to interrogate site-visit school data and consider how inequities may later be leveraged in the critical reflection assignments. Specifically, the instructor guided scholars to accurately read school report cards, review grant templates provided by local school districts, practice scripts for addressing a school board (e.g., Albemarle County Public Schools, 2021;

California Alliance for Arts Education, n.d.), and familiarize themselves with templates of opinion editorials about a district or school (e.g., National Association for the Education of Young Children, n.d.).

Positive Parent Phone Calls

The positive feedback from the scholars encouraged the first author to further extend the act of building relationships in Version 3.0 of the course. Due to COVID-19 logistics, the Building Relationships assignment had to be eliminated midway through the semester and was replaced with the Positive Parent Phone Call assignment. Gorski (2018) discusses the importance of recognizing that parents or guardians of children living in poverty care very much about their academic experience. Much like the Building Relationships assignment, scholars were asked to identify a child they believed to be experiencing poverty (reflecting upon their own biases and assumptions) and reach out to their parent or guardian by phone. Also, the first author modeled how to conduct warm and friendly conversations with parents over the phone. It is important to note that she encouraged scholars not to share any negative experiences; scholars were asked to complement students and show appreciation for the opportunity to work with them. Scholars worked under their cooperating teacher's supervision to make one positive phone call per week to a parent or guardian of a student experiencing poverty. During these phone calls, scholars shared their positive experiences regarding the student and thanked the guardian for the opportunity to work with the student.

Key Texts 3.0

In addition to Gorski (2018), the scholars read the texts listed in Table 3. Like prior iterations, the scholars were asked to reference the texts when submitting reflections on virtual visits to HNSs.

Table 3

Key Texts for Seminar Discussions in Version 3.0

Citation	Rationale
Gorski, P. C. (2018). *Reaching and teaching students in poverty: Strategies for erasing the opportunity gap* (2nd ed.). Teachers College Press.	This text was the anchor text guiding scholars to critically examine the opportunity gap in education and consider practices that educators can use to act against inequity.
Milner, R. H., IV. (2010). *Start where you are, but don't stay there: Understanding diversity, opportunity gaps, and teaching in today's classrooms*. Harvard Education Press.	Selected readings on the Opportunity Gap Framework, the importance of relationships, expectations, and race; addressing cultural conflict; and asset-based thinking.
Steele, C. M. (2010). *Whistling Vivaldi: And other clues to how stereotypes affect us*. Norton.	Selected readings on the root of identity, its relationship to intellectual performance, stereotype threat, and how to reduce stereotype threat.
Larkin, D. B. (2013). *Deep knowledge: Learning to teach science for understanding and equity*. Teachers College Press.	This text was not required but was listed as a recommended reference for scholars in science education to consider curriculum and pedagogies to promote rigor and equity opportunities in science teaching.
Gutstein, E., & Peterson, B. (Eds.). (2013). *Rethinking mathematics: Teaching social justice by the numbers* (2nd ed.). Rethinking Schools.	This text was not required but was listed as a recommended reference for scholars in mathematics education to consider curriculum and pedagogies to promote rigor and equity opportunities in mathematics teaching.

Interview of a Past Scholar 3.0

This iteration of the alumni interviews retained many components of prior years. The instructor drew upon Hall's (2019) notion of critical reflection to guide scholars in writing a theory-application paper. According to Hall (2019), in a theory-application paper, "students select a major theory covered in the course and analyze its application to the experience in the community" (p. 40). This exercise is also a major tenet of equity literacy, preparing our scholars to be able to recognize oppression or injustice within larger systems such as public education. Applying Gorski's (2018) framework for equity literacy, scholars were assigned to examine specific theoretical concepts (e.g., common stereotypes of individuals living in poverty) and apply them to a real-world issue identified in the interview.

Lessons Learned From Scholars 3.0

Our scholars quickly identified that social justice advocacy began with “the importance of relationships in the classroom” (White biology scholar, 2019) and connecting with parents through phone calls. One scholar reflected on the Milner (2010) text, describing how he hoped to cultivate familial-like relationships with students:

> *Just Can’t Let Them Fail* resonated with me on a different level. Mr. Hall, much like myself, valued connections so much, he considered his students his family. This outlook of the family strongly aligns with what I define as family and family practice. In schools, we should develop this rapport and community within both our schools and districts alike. (Black mathematics scholar, Weekly Reflection, 2020)

In the most recent iteration of the course during the COVID-19 pandemic, scholars hoped to build relationships with students in person in their future job. Reflecting on their experiences considering COVID-19 restrictions, one scholar said:

> We might build relationships online by sharing things about ourselves and having the students share things back, but true conversation and interaction are far more difficult. It strikes me that this is just another dimension where online learning can be a source of inequity. (White chemistry scholar, Weekly Reflection, 2020)

The nature of the seminar discussions provided scholars with a trusting space where they could reflect together. One scholar noted, “Just like relationship building is learned through practice, advocacy is a process that needs to be nurtured, reflected upon, and practiced” (White biology scholar, Final Reflection, 2020). The instructor formatted most seminar sessions so that scholars could check in about ongoing assignments. Scholars reported a range of experiences when calling parents, from disconnected phone lines and full voice mail boxes to leaving positive voicemails and speaking with guardians. Notably, the scholars reported surprise that parents at times thanked them just for calling because “no one ever just called home to say something good.” These experiences were pivotal for our scholars in dispelling stereotypes about parents and students experiencing poverty and evidenced the investment that parents placed in their children’s experiences in school.

Despite the virtual nature of visiting classrooms and observing teachers and students, the experiences were surprisingly satisfactory. The new critical reflection assignments were appropriately situated within the COVID-19 educational context in which equity issues were exacerbated for students. Students saw themselves as advocates who were equipped with new tools for processing their experiences. Feeling this call to action, one scholar replied to peer feedback on her Letter to the Editor assignment, “Yeah, I might actually try to find somewhere to send this because I can’t believe it’s an actual issue, especially compared to the other districts in the area” (White chemistry scholar, Letter to the Editor, 2020).

These scholars perceived that the alumni interviews connected them with a supportive teacher and mentor to whom they could continue to reach out. Many scholars and alumni exchanged phone numbers as a result of connecting so strongly on a personal and professional level. One of the scholars, who participated in the latest iteration of the course, evidenced this deep connection with the alumnus he interviewed:

> My Alumni Interview was with [name omitted]. [Name omitted], much like myself, is an African American male mathematics educator. To hear another person who identified with a lot of the same things I did growing up and understanding the complex issues and experiences we discuss in [program name omitted] made me overjoyed and elated. Our interview was close to three hours, but it was priceless. The number of valuable connections I could see between the theories we are learning and actual practicum made everything click (Black mathematics scholar, Interview Reflection, 2020).

Lessons Learned by Authors 3.0

In the future, the authors hope to reinstitute the Building Relationships assignment because, as Weinstein et al. (2004) note, the skill is central to successful culturally responsive classroom management. The instructor is committed to diversifying course scholarship; however, due to workload and cost to scholars, more peer-reviewed articles (instead of whole books) will be incorporated on stereotype threat, implicit bias, and teaching for social justice. Shining light on the voices of our experts of color is central to modeling best practices for our scholars. One way we hope to further scholars' leadership and advocacy development is to read and discuss research on the overrepresentation of students experiencing poverty who are placed into special education. The instructor continues to reflect upon ways to further the scholars' understanding of issues in special education to prepare them for work in inclusive HNSs.

In future iterations of the course, the instructor will revert to the previous version of the past scholar interview assignment (i.e. reverting the theory-application paper to an open and less structured reflection) to focus on the assignment's objective. This assignment aims for current scholars to see themselves in a HNS through the social support of vicarious experiences shared by program alumni scholars. For example, current scholars might see themselves as similar to the alumni scholars they are interviewing and even receive encouragement from those alumni scholars in the course of the interview, leading them to develop confidence and self-efficacy in teaching in a high-need school. The quality of the scholars' reflections was improved from an academic or the analytic lens applied in Version 3.0; however, the scholars were much less reflective on their self-efficacy. Reflections of that nature were notably absent from the revised theory-application paper in Version 3.0. One possible reason is that the structure and formality imposed in this iteration led scholars to reflect in a highly formalized way, deterring them from using the first person and a more informal narrative of their own internal dialogue.

Conclusion

The predominant themes that emerged from course and assignment reflections were scholars' increased awareness of how they might "fit" and be successful within an HNS, a more thorough understanding of the inequities in schools and classrooms, and a clearer vision for how they can advocate for students and a more socially-just school system as an early career teacher. The voices of our scholars iteratively guided our revisions to the course, alongside our personal growth and professional development as social justice teacher educators. As we move forward and continue our own equity journey, we will iteratively reflect and improve course content, texts, and assignments to support our scholars' cultural competency and advocacy skills (Aronson & Laughter, 2016). We seek to continue to centralize the texts of scholars of color, support our scholars to build relationships through phone calls and direct interactions with individual students across lines of difference, and advocate for students through critical reflections (Gorski & Dalton, 2020). Given that the course has traditionally been 1 credit hour, we also recognize gaps and missed opportunities. With the focus of the coursework centering on poverty, we had not incorporated content and analysis of other students who face injustice, even if they were evident throughout the site visits and the Building Relationships assignment. For example, we did not provide scholars with opportunities to critically reflect on the intersectionality of race, socioeconomic status, gender identity, and students' abilities in schools.

Next year, this course will be increased to 3 credit hours for all mathematics and science scholars who are part of the grant program and those who are not. There will now be sufficient time to interrogate the school-to-prison pipeline and develop informed arguments through the scholars' critical reflections. We see great promise in having additional credit hours to incorporate literature and experiences that broaden scholars' awareness of how intersectional attributes such as poverty, race, gender, and identification of special education services contribute to complex systems of inequity. During our site visits, we hope to incorporate observations in rooms labeled "special education," interrogating segregation and celebrating inclusive communities. We are excited to build upon this opportunity by more thoughtfully connecting our scholars to diverse populations and community activism.

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Supplemental Files

Appendices-Grillo-and-Kier-2022.docx

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