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Section 1 Editors Welcome: "Opportunity Gaps"

Kristien Zenkov, Holly Glaser, Michelle Lague, Andrew Porter, and Mark Helmsing

Our organization—the Virginia Association of Colleges and Teacher Educators (VACTE)—is a state-level affiliate of the Association of Teacher Educators (ATE) and the American Association of Colleges for Teacher Education (AACTE). VACTE's relationship with our national bodies is a healthy give-and-take; we are informed by and responsive to but not ruled by these entities and their initiatives. In the first section of this special issue of *The Teacher Educators' Journal* (TTEJ), we share an example of that reciprocity, as we are pleased to publish four manuscripts related to ATE's Inquiry Initiative and its focus on "opportunity gaps." (The second section of the special issue is dedicated to "From policy to practice: Striving for inclusive excellence through personal reflection, connectivity, and the building of support systems for leaders, educators, students, and families," includes its own "Editors' Welcome," and is comprised of seven manuscripts related to this important topic.)

The latest ATE strategic plan called for the Association to "collaboratively employ a state-, national-, and partnership-driven research agenda, with implications for professional educators across career lifespans." This research agenda would occur through liaisons "with the broadest range of constituents, associations, and entities with similar missions." The Inquiry Initiative is one of the key structures developed to accomplish that plan, identify and pursue that research agenda, and establish that broader (including *beyond* ATE) community of constituents. The Initiative has been imagined as an alternative to the "drive thru" nature of most academic conferences, with opportunities for university- and school-based teacher educators, scholars, practitioners, and advocates to establish new connections and relationships.

The goal is that the Initiative might result in a deeper engagement with, a wider range of products related to, and more effective responses to the challenges of opportunity gaps, particularly those related to teacher education. The concept of an "opportunity gap" recognizes that uncontrollable life factors like one's race, language, economic circumstances, and family situations can contribute to lower educational achievement, fewer career prospects, limited access to social and economic capital, and fewer opportunities to pursue one's life aspirations—factors over which other frameworks assume that all individuals and populations have complete control. The inaugural Inquiry Initiative recognizes that teacher education structures and teacher educator roles—which serve future and new teachers and involve veteran teachers as school-based teacher educators—must explicitly address these gaps.

In the opening article in this section, "Our Journey with the ATE Inquiry Initiative: Growing into our Role as Disruptors," Gonzalez, Burgin, Oamek, Byrd, Mayhill, Hunt, and Horn use group formation theory as a framework to analyze and reflect upon the initial efforts of a "crew" of ATE members who were tasked with promoting equity in education by disrupting existing social and educational inequities. This manuscript represents one of the myriad forms of scholarship it is anticipated will be produced by Initiative participants. In "Opportunities for Equity in Writing Instruction: A Framework for Teacher Preparation," Spiker investigates opportunity gaps in writing instruction and examines how the "Three I's Framework" can help support pre-service teachers in planning and delivering equitable writing instruction. While Spiker is not a participant in the inaugural Inquiry Initiative, this article represents the hope of the Initiative to expand scholarship on the important topic of opportunity gaps.

The final two articles in this first section of the special issue further “move the needle” in this expansion and collaborative research effort, considering opportunity gaps in technology and math education contexts. Luongo examines the Teacher Educator Technology Competencies (TETCs) in “The Teacher Educator Technology Competencies and Technology Tools in Action,” offering several concrete tools, applications, and pedagogical models that can be used to support teacher candidates in developing an updated toolbox of technology tools and skills. And, finally, in their manuscript “Addressing Teacher Candidate Perceptions and Attitudes toward Mathematics through an Elementary Math Methods Course with Social Justice Pedagogy,” Carr and Riegel leverage transformative learning theory to investigate how a math methods course embedded with social justice pedagogy influenced teacher candidates’ perceptions and attitudes towards mathematics with respect to self-confidence, value, enjoyment, and motivation in mathematics.

Our Journey with the ATE Inquiry Initiative: Growing into Our Role as Disruptors

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Abstract

The Inquiry Initiative, launched by the Association of Teacher Educators (ATE) in the summer of 2022, brought together faculty experts from across the nation to collaborate on issues of equity in education. Our group was tasked with considering how we–and others in the field of education–might promote equity in education by disrupting existing social and educational inequities. Each member of our group brought a wealth of experiences, knowledge, and skills to this ambitious and daunting task. In this paper, we use group formation theory as a lens to examine and reflect on the beginning stages of our group's journey and consider what lies ahead for us as we continue on this journey together.

Keywords: Inquiry, teacher education, group formation

In the spring of 2022, members of Association of Teacher Educators (ATE) were invited to be part of ATE's inaugural "Inquiry Initiative," a three-year research collaborative aimed at examining opportunity gaps (Milner, 2012) in education. After reviewing applications, the Inquiry Initiative leadership team created multiple "crews"–groups of 8-10 ATE members who

demonstrated similar interests and perspectives on educational equity. These crews gathered at ATE's summer conference in Nashville, Tennessee for the launch of the inaugural Inquiry Initiative. At the start of this three-day gathering, our crew was tasked with considering how to address opportunity gaps in education by disrupting existing social and educational inequities. This paper captures the process through which our group approached this task and examines our early experiences with the Inquiry Initiative through the lens of group formation theory.

As the group started discussing issues related to educational inequality, which is the unequal distribution of academic resources among the recipients or students (Young & Laible, 2000), the analysis of the inequalities in education were mentioned due to their presence in schools in the form of racism. The tensions within society due to negative attitudes towards people seen as foreigners has caused racist conflicts in schools (Buchanan et al., 2020; Gattinara & Pirro 2019; Hutter & Borbáth, 2019). The presence of racism indicates exclusionary and discriminatory practices due to historical and social contexts (Balibar, 1991; Bethencourt, 2015; Goldberg, 1990). These practices can be external (e.g., systematic school segregation) and/or internal (e.g., racist opinions) challenges (Arneback & Quennerstedt, 2016). Thus, the Inquiry Initiative provided the space for this group of scholars to investigate and reflect upon systemic issues in the educational settings.

Theoretical Framework

The social and psychological aspects of group formation have long been the subject of various theoretical propositions. Group development frameworks can aid in understanding the underlying social and psychological norms that exist at different stages of group development and provide a lens through which processes of group formation can be examined and understood. Paulo Freire (1968) described his innovative theory of group dialogue and communication in *The*

Pedagogy of the Oppressed. He stated that effective learning between people must involve five steps: humility, hope, faith, love, and critical thinking. When team members use these strategies to communicate with each other, deep connections can be established and successful work can be done on the team. This theory has been applied to student-teacher relationships in education in many instances; but was not the best group formation theory for our work because we were expanding our ideas past student-teacher relationships to teacher-teacher, teacher-teacher educator, and beyond in leadership in order to understand and disrupt systemic racism.

Another group formation theory, developed by organizational theorist Dick Beckhard in 1972, is the GRPI model (as seen in Tartell, 2016). GRPI—goals, roles, processes, interpersonal relationships—was created to help teams that experience problems in communication at a specific moment of work. Beckhard advocates focusing on interpersonal relationships to help the team develop agreement about goals and processes. This is a useful model, but for our work we needed a theory that could be applied to the entire duration of work as a team.

The Thomas-Kilmann Conflict Mode Model (as seen in Shell, 2001) is used by groups to determine both the assertiveness and cooperativeness of the team members. This theory has five approaches to the work—competing, accommodating, compromising, avoiding, and collaborating. This theory is generally used to manage team conflict, so it was not the one we used to form our group as we had not encountered conflict yet.

After exploring different theories of forming successful teams, our cohort decided our work would best be served by following Tuckman's model of developmental stages (1965, 1977, 2010). This theory continues to be a prominent model of group formation and useful for examining the experiences of those who participate in collaborative professional development initiatives, such as ATE's Inquiry Initiative. This model delineates five distinct stages of group

development: 1) Forming, 2) Storming, 3) Norming, 4) Performing and 5) Adjourning. Each stage is marked by distinct observable behaviors, emotions, and needs (see Table 1).

Table 1.

Tuckman's Stages of Group Development

Stage	Description
Forming	In the initial stage, a group is convened with a specific purpose. During this stage, team members may feel ambiguous, and they may avoid conflict due to a need to feel accepted by others. Team members look to a group leader for direction and guidance.
Storming	This stage is the process of organizing the group's tasks and processes. During this stage, interpersonal conflicts tend to emerge. Group members might struggle for power over seeking consensus. Group members might become defensive, demonstrate confusion, lose interest, demonstrate resistance to tasks, or experience fluctuating attitudes toward the group. This stage is marked by uncertainty about the team's mission and purpose.
Norming	In this stage, team members begin to create new ways of doing and being together. As the group develops cohesion, leadership changes from "one" teammate in charge to shared leadership. In this stage, members experience a sense of belonging, the freedom to express their thoughts, and the ability to express criticism constructively. The team gains a new degree of confidence and a general sense of trust among members.
Performing	At this stage, interdependence becomes the norm. Individuals begin to adapt to meet the needs of other team members. This is a highly productive stage, both personally and professionally. Roles of group members become clearer, and the team is able to organize itself. Members now understand each other's strengths, weaknesses, and insights. Members demonstrate empathy for one another and bonds between group members begin to emerge.
Adjourning	Where the teams' goals have been achieved or the team has ended due to conflict. Members then go on to work in other teams and structures.

Methods

Action research (AR) was used as the methodological approach to examine the practices within the inquiry group. Carr and Kemmis (1986) defined AR as "a form of self-reflective enquiry undertaken by participants in social situations in order to improve the rationality and justice of their own practices, their understanding of these practices, and the situations in which the practices are carried out" (p. 162). Action research is a systematic approach to investigation and problem-solving that is conducted by individuals or groups within a specific context or setting (Creswell & Guetterman, 2019). It involves a cyclical process of planning, acting, observing, and reflecting in order to improve practices.

In addition to AR, the Nominal Group Technique [NGT] was utilized to leverage participants' prior knowledge, expertise, and judgment to arrive at a decision. This decision was necessary due to the nature of the work, which would have been difficult to accomplish individually (Delbecq et al., 1975; Jones & Hunter, 1995). The NGT is defined as "consensus methods used in research that is directed at problem-solving, idea-generation, or determining priorities" (McMillan et al., 2016, p.1). This technique is a structured method that encourages contributions from all participants through group brainstorming. The NGT should be used when group members need to come together to address a specific problem or when the subject is controversial, and discussion becomes strained to ensure equity of voice (Tague, 2005). The process aims to solve problems by generating ideas around a particular topic, listening to each member's ideas and points of view, collaboratively discussing the different ideas that have been surfaced, and reaching consensus on the final priorities of the group (Centers for Disease Control and Prevention [CDC], 2018; Delbecq et al., 1975; Jones & Hunter, 1995; McMillan et al., 2016;

Tague, 2005). Although the process initially seems ill-structured, it allows for specific steps to engage all participants in generating ideas, shared understanding, and collective decision making.

Our Journey

Looking back on our time just before meeting each other, we each, individually and collectively, were a mix of apprehension, enthusiasm, uncertainty, and restlessness. Although we had all signed up to be a part of ATE's Inquiry Initiative, we did not know who we would be working with for the next three years. There were also high expectations for the work we were about to engage in. In the month prior to ATE's summer conference, we were asked to promote ourselves by asking our deans and department chairs and even our universities to issue press releases announcing our acceptance into the Inquiry Initiative. And so, when we all walked toward our assigned table, the one with the sign reading *Promoting Equity by Disrupting Inequalities,* it was like the first day of school times ten. As one crew member recalled, she "was not sure what to expect" and another noted she was "hopeful that we would be able to learn and grow together." Yet another crew member put into words what we were all feeling regarding the responsibilities and challenges of not just being a part of the first-ever Inquiry Initiative, but also of being the change we wanted to see in the field we all chose to work: "I was anticipating joining a group that wanted to make a difference in the inequities of our education system." The strain was palpable and obvious.

Group formation theory helps us understand that the unevenness we have experienced is to be expected–especially in a situation like ours, where strangers from across the country have been brought together for the purpose of addressing educational inequities. While our journey may have started in the summer of 2022 around a table in Nashville, it is an on-going process. During our time together we continue to "form," "storm," and there are even some signs we've

begun to "norm." In the subsections that follow, we use Tuckman's model of developmental stages (1965, 1977, 2001, 2010) to examine and reflect on the beginning stages of our group's journey and consider what lies ahead for us. Throughout, we incorporate reflections collected from members of our group using a voluntary and anonymous survey.

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Our Forming Process

On day one of the Inquiry Initiative gathering, the Inquiry Initiative leadership team facilitated numerous activities aimed at helping the members of our crew get to know one another. To guide our work on the first day, the leadership team suggested a set of norms and some predetermined roles (e.g., discussion director, timekeeper, record keeper). We were given opportunities to introduce ourselves, talk about our current roles within the field of education, and say a little bit about our research interests and our reasons for joining the Initiative. We also participated in an activity aimed at helping us identify our own orientations to group problem-solving (i.e., paying attention to detail, looking at the big picture, making sure all voices are heard, quickly moving to action). Sharing our tendencies toward group work with one another allowed us to see diversity among our group members. Additionally, we were able to reflect on

the strengths we were each bringing to the group and become attuned to the ways that we might work differently from each other.

Typical of the forming stage of group development, members of our crew experienced feelings of anticipation and optimism. One member commented, “I was excited to meet the crew members and hopeful that we would be able to learn and grow together—leaning on each other's expertise and experiences to work toward disrupting inequities in education.” Also characteristic of the forming stage, some members were apprehensive and even nervous. One crew member recalled, “I was nervous. I didn’t know any of the people I was working with [and I] hoped I would fit in and be accepted into the group.” Another shared feelings of uncertainty, saying simply, “I was not sure what to expect out of the summer conference.” During our initial, in-person meetings, it was important for us to get to know each other and identify the skills and knowledge we were each bringing to the group. The group climate during the forming stage was indeed exhilarating, and our early encounters with others who shared our interest in educational equity allowed us to begin developing trusting relationships with each other.

Our Storming Process

Near the end of day one in Nashville, we were asked to divide our crew into two separate groups and complete an exercise that involved identifying and ranking key factors that create and maintain opportunity gaps in education (Milner, 2012). Each subgroup found the work of identifying and ranking these key factors to be daunting and, at times, overwhelming. Yet, each subgroup was able to complete the task, and each shared a sense of assuredness in their work.

When our subgroups came back together, we were then tasked with coming to a consensus—as a whole group this time–about these key factors and their role in creating and sustaining opportunity gaps. We began by having each subgroup share the factors they had

identified and the order in which they had ranked them. Despite both subgroups identifying systemic racism as a factor that produces and sustains opportunity gaps in education, we struggled to come to a consensus on other key factors and their importance.

As a result, "storm clouds" began to rumble within our group. In alignment with the second stage of group formation theory (Tuckman et al., 1965, 1977, 2001, 2010), our desires for belonging and acceptance quickly gave way to questioning, resistance, and uncertainty. As we continued with the task, tension within the group was increasingly apparent and seemed to some to impede our progress. At the end of day one, some members reported feeling disconnected and unsettled. Specifically, some group members expressed having felt uncertain about their role within the group, whether or not they should exert influence, and even whether we were approaching the task in a productive manner. One group member commented, "I was confused about the process. I was not sure what was expected after the summer conference would be over. I was not sure about the group members and the type of work to be performed." However, some group members saw the value in the dissonance we experienced on day one. One member shared,

> I know that some people were very disconcerted about how we had differing opinions after the first day. They came on the second day feeling like we were at odds and had problems. I was opposed to that idea. I think cognitive dissonance helps a group learn and grow together since we know we are not all going to agree at first.

Consistent with the storming phase, members of our group experienced fluctuating attitudes toward the process and toward each other. One simply remarked, "There were definitely highs and lows." Another said, "There were times that it was hard and frustrating but overall, I had a

sense of belonging. That these are my people. They get that this system is broken and I am not crazy or alone."

Looking back on our gathering in Nashville, we have since identified some tensions that may have contributed to our storming—among these a sense of urgency and an inclination toward individualism. Feeling a sense of urgency is common when a group is given a task to do under time constraints. This sense of urgency was indeed palpable at the end of day one. As one member shared, "Time always felt limited, and I remembered feeling rushed. I don't like feeling rushed when working with a group—particularly around social change–because urgency in decision making and process tends to reproduce the status quo." The stress of coming to a consensus under time constraints undoubtedly took a toll on all of us and stood to threaten our newly formed relationships with one another.

Additionally, deep-seated tendencies toward individualism may have contributed to our storming. Academics, often working in silos, are rarely tasked with working collectively to determine and articulate the root causes of a problem and determine collective plans for action (Newhouse & Spring, 2010). Quite the contrary: individualistic behavior within the academy is often rewarded (e.g., expectations for sole authorship, individual recognition for research contributions, etc.). Under time constraints, it is possible that our group's desire to be inclusive and to work collectively quickly gave way to deeply ingrained individualistic behaviors, such as advocating for one's individual perspectives and ideas to be represented in the group's final product. Also, it's possible that the sense of urgency we felt on that first day caused us to shift away from a more democratic participation structure and toward determining a "final answer" at the expense of meaningful discussion and deliberation.

These cultural characteristics—a continued sense of urgency and individualism–have been associated with white supremacy culture and are believed to impede democratic participation in problem solving and limit the possibilities for social change (Jones & Okun, 2001). The pace of our work has continued to be a tension within the group, with some members expressing a preference for quick action and others needing time to process and contemplate. Several members of the group have voiced a desire to focus on action (e.g., supporting in-service teachers, letter writing campaigns) over more traditional "products" (e.g., presentations, papers) for the purpose of being more intentional about how we are working towards disrupting inequities and opportunity gaps. One member stated:

> I was surprised how quickly people wanted to present [at conferences] and write about our process when I thought we hadn't done anything yet. I guess that comes from being a person of action. I understand we need to present [at conferences] and write [academic papers], but I want to do something that will make a difference. I guess that's what I hope is in our future as a group.

At times, an overwhelming sense of urgency to address opportunity gaps may have interfered with our crew's ability to collectively determine our group's purpose and direction.

Additionally, some crew members have expressed a desire to establish norms and processes that might allow for more voices to be heard and for shared understandings to be developed. One crew member noted that we "appeared to have different concepts of what disrupting inequities entailed" and that the group should have spent more time early on developing procedures that would allow for "all voices and perspectives" to be heard. Understandably, it is difficult to achieve a consensus—in both thought and action—within a capitalistic culture of busy-ness and alongside institutional pressures to produce scholarship.

However, we are coming to recognize that creating social and educational change is contingent upon building relationships with each other and developing humanizing, nonhierarchical spaces of collaboration and trust. Additionally, it remains important for our group to recognize when our work is threatened by individualism and urgency, while also recognizing the need to act quickly and purposefully to disrupt social and educational inequities.

Our Norming Process

On the second day of the Inquiry Initiative gathering, our crew came back together. Several group members voiced how unsettled they had felt at the end of day one and how they hoped that we could start fresh on day two. We began by relocating ourselves to a new space and offering every group member an opportunity to share how they were currently thinking about educational inequities and opportunity gaps in relation to their own roles and current contexts (e.g., preparing preservice teachers, supporting in-service teachers, advocating for policy change, designing educator preparation). Over the next couple of hours, we *again* came to a consensus that systemic racism shapes opportunity gaps, and this time, we came to a shared understanding that systemic racism manifests in different but equally pernicious ways to impact K-12 schooling, educator preparation, and educational leadership. We discussed many issues related to K-12 schooling, including school discipline policies which marginalize students of color and a teaching force that does not represent the racial, cultural, and linguistic diversity of the U.S. student population. Additionally, we discussed a range of issues pertaining to educator preparation–specifically the need for educator preparation that both prepares white educators for equity and antiracism *and* is inclusive of educators of color. Lastly, we considered issues of educational leadership, such as the need to prepare school leaders who have the knowledge, skill,

and desire to address persistent opportunity gaps, such as disproportionate discipline and drop-out rates for students of color and students living in poverty.

In alignment with the norming stage of group formation (Tuckman et al., 1965, 1977, 2001, 2010), on day two we took a small step toward determining our purpose as a group and developing effective communication practices, such as turn taking, active listening, asking for clarification, and giving and receiving feedback. Group members reported feeling heard on day two, and as a result, seemed newly energized to move forward with our task. One group member noted, "I feel that we did a good job at slowing things down and creating space for everyone to share their thoughts and visions for our work…how they saw their own research and professional interests intersecting." Knowing when to go fast and when to slow down will likely remain a challenge for our group as we continue in our process of clarifying our purpose and determining where to focus our energy and our efforts.

At the end of our time in Nashville, our group was well on our way toward developing a shared purpose and a vision for our work together. One group member remarked, "I left feeling energized and looking forward to seeing everyone again on Zoom." We returned to our home states and continued to meet virtually, monthly. Characteristic of the norming phase, we have continued to work toward group cohesion and to develop our interpersonal and intrapersonal goals for the group (Tuckman et al., 1965, 1977, 2001, 2010). For example, during one of our monthly meetings, we shared actions that we are taking to disrupt inequities in our current roles and within our own institutions. As a result of this, our understandings of "disruption" and the possibilities for our work together continue to evolve and grow. There is not one eventual target for our disruption; we know that it is equally important to prepare teachers to disrupt racism in their classrooms as it is to disrupt the silences above us—specifically, the silences of our deans

in response to book bans and the silences of our university presidents in the face of misconceptions about critical race theory. We recognize that speaking out is indeed a risky venture in this political climate. As such, we know that addressing opportunity gaps must be a collective, grass-roots movement that includes parents, teachers, administrators, and faculty working and disrupting together.

Determining our next steps has not been easy, but we have begun to make some headway. Currently, a subgroup of our members is working to develop a framework for "disruption" and considering the many forms of disruption that are necessary to effectively address opportunity gaps and inequities across all aspects of education. Another subgroup is focused on examining our process of group formation and sharing what we are learning from our experience, thus far. We all agree that these are good steps forward; however, we have not yet hit a stride where we are "performing."

Implications

We decided as a group that our true goal, based on our group's discussion, was to disrupt inequity caused by systemic racism in education systems. The conversations about this issue are difficult, at best. Thus, contextualizing the historical perspectives of all groups and systems impeding the advance of students were important to start recognizing race and racism and developing a critical consciousness to support all students in the educational setting (Center for Anti Racist Education, n.d.). Experience with disrupting systemic racism was one factor to discuss. Some members had not worked with disrupting systemic racism. They understood it, but felt confused on how to help students by working on this goal. On the other hand, other members have spent their whole careers working on systemic racism in education. Some members had experienced systemic racism firsthand, while others have seen its devastating

effects and have devoted themselves to disrupting inequity that is inherent in educational systems. The implication here is that when forming a new group, members will have a variety of experiences and knowledge on the topic that is the main goal of the whole. Members with more experience can help those with less experience learn what systemic racism is and guide them by sharing their experiences and possible readings for understanding and furthering the groups' work.

Working through these issues in the forming, storming, and norming phases (1965, 1977, 2001, 2010) will help all members get to the performing stage. A suggestion for those forming a new group is to allow participants to consider and express their experiences with the topic. This way all members can grow with the group. Although it should not be one member's responsibility to lead all the other members in the knowledge, it can be helpful to acknowledge the varied level of experience and validate that members will have different levels of experience. If some members of the group cannot or will not guide other members, then a group should be formed with members that have similar level of experience in the topic.

Conclusion

As one group member noted, "This journey in itself is an alternative pathway." Our group is in its infancy—in reality, we are still "storming" and "norming." But we have committed members who yearn for change and have what it takes to make it happen. Over the last seven months, the magnitude of our task has become clear. Fortunately, for our crew and for the numerous other crews, the Inquiry Initiative leadership team has been with us and supported us as we have "formed," "stormed," and begun to "norm"–at times urging us out of our comfort zones so that we can grow as a collective and begin taking action. We are confident that our shared commitment to educational equity and antiracism–paired with the supportive leadership

of the initiative–will eventually usher us into the performing stage of group development, where we will experience a unity of purpose and action.

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Opportunities for Equity in Writing Instruction: A Framework for Teacher Preparation

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Abstract

Writing instruction in schools tends to be limited in time and focused on preparing students to perform well on tests. Teachers do not feel prepared to teach writing and too often lack the confidence to stray from the packaged curriculum. This is even more of a concern in low performing schools where less skilled and less prepared teachers are not supported in professional development in writing. This article, borne from work with an Association of Teacher Educators Inquiry Initiative collaboration, proposes a framework for teacher education in writing instruction based upon research in identity, integration, and innovation. This framework can be used to plan and present content in the university methods classroom.

Keywords: teacher education, writing, improving equity

In 1976 Donald Graves wrote of his views of the state of writing instruction in schools. He saw writing in classrooms as a dependent act where students relied fully on their teachers for writing topics, audiences, and feedback. He compared this dependency to the welfare system. He argued that writing had become controlled by outside evaluation and teachers were forced to provide highly structured writing instruction that met the demands of a test. Students, in turn, were writing solely for their teacher and became reliant on their teacher's structure and guidance to produce a written product (Graves, 1976). Graves argued that writing in classrooms had become dependent on a limited system and students relied heavily on that system without breaking out of its grip.

Sadly, today's writing classrooms, especially those found in struggling or low performing schools, have not changed significantly (Goldstein, 2017; Johnston, 2019; Picou, 2022). Writing instruction in high needs schools is guided by what will be tested and a push to perform on tests that often determine funding and status (Applebee & Langer, 2009; Higgins, et al., 2013; NCTE,

2022; Popham, 2001). Writing is taught in formulaic approaches with the teacher as sole audience (Applebee & Langer, 2009; Collins, 1998). In low performing schools writing is taught by teachers who do not feel prepared to teach writing and who rely heavily on assessment driven writing activities in the literacy classroom (Goldstein, 2017; Harris, et al., 2013).

More than forty years later Donald Graves may as well be describing a struggling elementary school in Anytown, USA, today. Writing remains an area of literacy that is only covered deeply when tested and is then limited to teaching what will be tested (Applebee & Langer, 2009; Higgins, et al., 2013; NCTE, 2022; Popham, 2001). Writing is also often limited to a small portion of instructional time in the day or week (Graham, 2019; Picou, 2022). Teachers report feeling underprepared by their pre-service education to teach writing (Cutler & Graham, 2008; Harris, et al., 2013; Hodges, et al., 2019).

The quality of the teacher delivering instruction is a key factor in the teaching of writing, or lack thereof, in struggling schools. High poverty and/or low performing schools routinely have the least prepared, least skilled teachers teaching the students in the highest need of skilled instruction (Chiong & Oliveira, 2022; Garcia, et al., 2019). Not only are these teachers less skilled or less prepared, but they are also not supported with mentoring and professional development opportunities (Garcia, et al., 2019). Often professional development is driven by selected curricular materials and by state testing demands and rarely addresses writing as part of the daily literacy classroom or as an integrated component in other core subjects (Green & Allen, 2015). Low performing, high needs schools need well prepared teachers of writing to allow for richer writing instruction and to avoid Graves' welfare comparison.

This article, borne of work associated with the Association of Teacher Educators (ATE) Inquiry Initiative and on-going opportunity gap research in literacy, offers a suggested

framework for preparing pre-service teachers to be both writers and teachers of writing. By focusing preparation for teaching writing on the three I's; Identity, Integration, and Innovation, preservice teachers can enter classrooms ready to stretch beyond the limited writing instruction aimed at teaching to a test, a test that is likely not equitable and privileges one language and one culture above others (Inuoe, 2020). New teachers entering the classroom can be confident to teach writing, to integrate writing across the curriculum, and to encourage students to be creative and explore a variety of forms of writing as self-expression, valuing all cultures and ways of being.

An Opportunity Gap: Writing Instruction in Struggling Schools

Self-report data from a national sample of teachers in 2008 suggested that writing instruction in classrooms could be occurring for less than ten minutes per day (Cutler & Graham, 2008). This is far from the thirty to sixty minutes daily recommended (Graham, et al., 2012). Schools have still not made writing instruction a priority, Chiong and Oliveira found in 2022 that only 4% of secondary education teachers surveyed spent thirty minutes per day on writing instruction (Chiong & Oliveira, 2022). This has serious and lasting implications for students (Picou, 2022). Students need practice with writing and explicit instruction in writing to become confident and comfortable (Picou, 2022; Wright, et al., 2021). When students achieve comfort and confidence, they are more likely to become strong writers (Picou, 2022; Wright, et al., 2021).

A lack of instructional time is further problematic when it comes to addressing the needs of vulnerable populations. Black, Hispanic, low-income students and those for whom English is not their primary language perform at significantly lower rates on literacy tests that include writing components (Picou, 2022). Our lowest performing students need more time with writing

instruction and practice, and they tend to get less than students in affluent schools (Matthewson, 2022). In many urban and high-poverty schools the curriculum is narrow, and teachers are often forced to teach from a script-based program and only in areas that are heavily tested (Milner, 2018).

High stakes standardized assessments of writing lead to a limited view of the definition of writing and often results in a formulaic approach to writing, eliminating opportunities for students to make intentional decisions about product, process, and audience (Applebee & Langer, 2009; Scott, 2008; Warren, 2022). In addition, these assessments focus on specific modes of writing associated with state standards, thus valuing narrative, persuasive, and informational writing above all other modes (Chiong & Oliveira, 2022; Newkirk, 2014; Warren, 2022;). Writing instruction focused on limited modes and performance on standardized tests does not prepare a culturally diverse population of students for the demands of college and career writing tasks. It does not develop diverse communities of writers who write for their own independent purposes after they complete traditional schooling (Behizadeh, 2014; Warren, 2022).

To further complicate high stakes assessments of writing, these instruments tend to have racial and linguistic biases (Perryman-Clark, 2016). If instruction aligns with a test that has inherent bias, instruction only perpetuates further gaps and lessens equity for all students to receive quality instruction. Instruction must go beyond the test, encourage critical thinking skills, and value all cultures and ways of being to challenge current narratives in texts, media, and the world at large.

A white paper published by the National Council for Teachers of English (NCTE) sums it up in this way:

> Writing is an important form of self-expression and communication as well as a tool for thinking, reflecting, and learning. Its use as a process, a practice, and a product is essential in the classroom and beyond. However, in school settings, writing is often perceived and enacted as a gatekeeping device, which contributes to achievement gaps and other inequities. This happens when writing instruction and assessments focus on the *writing*—the products that are ultimately assessed and evaluated—rather than on the *writers* themselves. (2022, par.2)

Preparing Today's Writing Teachers

Today's teachers report a lack of confidence in teaching student writers, and this leads to reliance on prepackaged and prescriptive programs geared toward preparing students solely for the type of writing that will be tested (Achinstein & Ogawa, 2006; Cutler & Graham, 2008; Johnston, 2019; Stillman, 2011). This lack of confidence is linked to a lack of preparation in teacher education courses. Universities rarely offer writing instruction specific courses. They tend to include writing instruction embedded within reading courses (Myers, et al., 2016). Reading and writing are reciprocal processes and teaching writing within the context of a reading course is beneficial but preservice teacher candidates also need specific training in writing instruction, assessment, and strategies (Bomer, et al., 2019; Roser, et al., 2014). Student success in writing is linked to teacher preparation and confidence (Hawkins, et al. 2019; Hillocks, 2006; Johnston, 2019). Confident writing teachers create opportunities in their classrooms for writing practice and create an environment where students can explore and grow as writers.

Teacher candidates report feeling unprepared by the lack of a specific writing course. This is further complicated when they do not receive professional development geared toward delivering quality writing instruction once they enter the classroom (Calkins, et al., 2012; Carter

& Townsend, 2022). A lack of professional development hinders teachers' instructional growth. It adds to a teacher's tendency to stick to formulaic or prescriptive assignments provided by packaged curriculum materials. Teachers not supported by continued professional development are less likely to innovate and encourage creativity and self-expression in the writing classroom.

In summary, high needs schools do not always receive high quality writing instruction. Most preservice teachers are not prepared to teach writing confidently. Teachers new to the profession tend to find their first teaching positions in high needs schools. In 2022, Chiong and Oliveira found that many teachers in high needs schools do not feel they have the same access to professional development as schools with fewer needs yet they have a much larger challenge with 90% of Black, Hispanic, and low income students achieving below grade level in writing (Chiong & Oliveira, 2022). This results in a gap and presents an opportunity to improve writing teacher preparation for all pre-service teacher candidates thus improving instruction in writing in all schools equitably.

The Three I's Framework

A framework is a research informed model or structure. It provides scaffolding and support. In essence it is a guiding structure with interlocking pieces that overlap and work together (McTighe & Wiggins, 2005; Regionel, 2020).

The framework presented in this article is one that can be used to scaffold and support preservice teacher preparation in writing instruction. This framework provides a guiding structure for planning course content with interlocking and overlapping pieces. This framework is designed first and foremost to focus on closing an opportunity gap and assisting preservice teachers in developing and delivering equitable instruction to all students.

The Three I's Framework proposed is based upon research in three areas of writing and writing instruction: writing identity, integration, and innovation.

Identity

Many teachers do not describe themselves as writers. In fact, they consider themselves to be poor writers and do not identify as a "writer" (Morgan & Pytash, 2014). Teachers who do not identify as writers may avoid the teaching of writing as often as possible in their classrooms (Whitney, 2016). This can be exacerbated by poor preparation in teacher education programs (Myers, et al., 2016; Daniels & Beck, 2019). Ivanic (1994) refers to the autobiographical self in the creation of a teacher writing identity. Teachers have a personal history of successes and failures in writing that they bring with them into the classroom. Negative experiences in writing can bring with them shame and this can bring with it avoidance of personal writing and the teaching of writing (Whitney, 2018).

A lack of identity as "writer" is problematic for teachers. It influences the quality of instruction in classrooms (Morgan, 2016; Premont, 2022). Teacher enthusiasm for writing is contagious and teachers excited about writing create students excited about writing (Cremin & Oliver, 2017; Daniels & Beck, 2019). When teachers identify as writers, they model writing and share the writing process with students creating rich classroom experiences in writing (Cremin & Oliver, 2017). The converse is then true. Teachers who don't identify as writers do not model process or enthusiasm and there is an absence of rich classroom experiences.

Teachers may have a writing identity that they share with students in their classroom. However, what they choose to teach in their writing classroom often represents their own personal socialization and ways of thinking (Picower, 2021). Because of this, teachers can either reproduce racism or challenge it. Teachers must be aware of their own culture as part of their

identity and balance this with an awareness of and honoring of their students' culture when delivering writing instruction. Schools can be a place where student identity and culture is stripped away (Milner, 2017). As teachers develop a writing identity they must be challenged to look at all aspects of this identity. They must realize that what they don't teach in writing speaks loudly and may serve to strip students of aspects of their growing writing identities (Milner, 2017). When topics or writing activities are avoided by a teacher, students miss an opportunity for learning critical thinking and questioning skills and this has the potential to perpetuate the status quo (Davis, 2021; Milner, 2017). Writing is a tool for equitable and inclusive literacy instruction (Inoue, 2020). The writing classroom led by a teacher with an equitable and inclusive component to their own identity can be a place where students develop critical thinking skills that are key to challenging narratives in texts, media, and the world around them.

Identity can be developed. One of the first steps is to accept that writing is naturally a struggle, and it requires practice and effort (Whitney, 2018). Teachers can build their identity as a writer by finding a writing community that provides feedback and encouragement to build confidence (Oliveira, 2016). An inclusive and supportive pre-service teacher education classroom has the potential to provide this community and to build efficacy. When pre-service teachers experience a writing community that allows for vulnerability, they grow to appreciate what is needed for their own students in their own classroom (Premont, 2022). They develop a sense of agency and feel more confident sharing challenges they face in writing with their student in authentic ways (Daniels & Beck, 2019; Premont, 2022).

Once teachers develop a writing identity, they are better prepared to do the same for their students and to support writing instruction in a rich manner in their classrooms. Developing this identity needs to be a part of pre-service teacher education to set future teachers up for successful

writing instruction in their classroom. It is a key foundation for the work (Morgan, 2016). If teachers enjoy writing they will create conditions in their classroom to allow their students to enjoy writing as well (Daniels & Beck, 2019). If teachers challenge themselves to examine their identities and writing curriculum with an equity lens the writing classroom can be a safe space for all (Inoue, 2020).

Integration

Historically, reading and writing have been taught as separate subjects (Sawchuck, 2023). This has been true despite research indicating reading and writing are connected skills and support each other in a reciprocal manner (Graham, 2019). Balancing reading and writing instruction and connecting them instructionally creates generally positive effects on both (Graham, 2019; Sawchuck, 2023).

Writing matters in the earliest of grades as students are learning to read and continues to be important as students develop mature reading skills (Sawchuck, 2023). Students need continuous and embedded writing instruction in the literacy classroom. Writing about reading, for instance, aids deeper comprehension about text (Laminack & Wadsworth, 2015).

Writing also helps students learn content and to make sense of content across the curriculum. Writing to learn in content areas improves student learning overall (Graham, 2019; Graham, 2022). Writing about content helps transfer learning to long term memory and helps students process content at a deeper level (Sawchuck, 2023). Writing about content often involves evaluation and synthesis skills that go beyond factual recall, helping students strengthen not only their writing but their comprehension and transfer of understanding across the curriculum (Sawchuck, 2023).

In terms of bridging opportunity gaps in schools, integrating writing throughout the day and across the curriculum can create an engaged classroom community of writers. An engaged community of writers can create empowerment in individual students. Empowered students consider a variety of perspectives, collaborate with others in problem solving, and think independently with reference to relevant information (Broom, 2015). Writing in all content areas can be a tool for learning as well as a tool for empowering students to find and use their voice in the classroom and in their larger context (Childs, 2020).

Innovation

Writing instruction should be structured (Sawchuck, 2023). In order to be successful writers in school and beyond students need instruction in the writing process and writing strategies. Additionally, they need support with fluency in transcription and sentence building and modeling of quality writing (Sedita, 2022). Research also supports that students need to write frequently and for varied purposes and that they need to be engaged in a writing community (Graham, et.al, 2012; Sedita, 2022).

A common misunderstanding of structured writing instruction with a focus on skills necessary for competent writing is that this approach does not allow for student choice and voice. To the contrary, students should have relevant writing assignments that serve a real purpose and have a real audience outside of the teacher or a test (Boscolo & Gelati, 2007; Hidi & Boscolo, 2006; Sedita, 2022). Proficient writers engage in the art and craft of writing as they practice skills toward competency (Sedita, 2022). Writing about thoughts and feelings can help students learn to express their voice in a way that allows them awareness of an authentic function of the written word (Boscolo & Gelati, 2007; Premont, 2022). Sharing this writing within a literate community can assist students in building a positive attitude toward writing, motivating them to

use writing as a tool for communicating (Boscolo & Gelati, 2007; Fletcher, 2017). Ralph Fletcher (2017) refers to unstructured writing as "Greenbelt Writing." It allows students to stray from the structured path of packaged and scripted writing assignments and to be creative while they explore the craft of writing.

Innovation in writing assignments has an opportunity to increase equity across school contexts. When the teaching of writing attends to context, identity, and power students can be empowered to express themselves in meaningful ways (Kinloch, et al., 2017). Teachers have the power to create an environment in which students can experience value in the linguistic and cultural resources they bring into the classroom (Guerra, 2008). Creating these types of writing environments can move students across gaps that sometimes separate them from others (Chiong & Oliveira, 2022; Guerra, 2008). Students can believe that they are writers and that what they have to say matters (Kinloch, et al., 2017).

A Framework for Pre-Service Teacher Writing Instruction Preparation

Based upon research in the teaching of writing, the Three I's Framework is designed to support planning and delivery of equitable and inclusive content in writing methods courses and in work with pre-service teachers in writing instruction preparation. It incorporates the three key concepts of identity, integration, and innovation in an overlapping and interlocking manner. Using the framework focuses all content and instruction on the three key concepts while allowing for personalization to one's specific educational context. An overview of the framework is presented in Table 1.

Table 1

Overview of the Three I's Framework

Identity	Integration	Innovation
Supporting teacher candidates in growing their identity as a writer	Preparing teacher candidates to write across the curriculum and across contents	Supporting teacher candidates to balance structured writing activities with unstructured writing opportunities in the classroom
Supporting teacher candidates in building writing identities in their students	Preparing teacher candidates to view reading and writing as reciprocal processes	Encouraging and supporting teacher candidates to incorporate writing creatively to support and reinforce concepts in all content areas and to empower students in all contexts
Preparing teacher candidates to build a community of writers in their classrooms	Preparing teacher candidates to employ explicit instruction in writing based upon research supported best practices in all content areas	

A framework is a structure or model that provides support. The framework presented in this article and summarized in Table 1 was constructed from research on three key areas of writing instruction: Identity, Integration, and Innovation. These three areas overlap and provide a basis for developing content for preservice teacher preparation in writing instruction. One potential use of this framework is for content and curriculum development for preservice methods courses and new teacher professional development. Instruction and ongoing support for both preservice and in-service teachers can be planned using these three areas as a foundation. Each activity and learning outcome can be measured by one or more of these areas. These activities and outcomes can be challenged by considering how they address identity, integration, and/or innovation in the classroom. By utilizing the framework for planning and challenging,

instruction and on-going support can be targeted and thoughtful with a focus on equitable and inclusive education for all students.

The Three I's framework can also be used in preservice teacher education to challenge new professionals to consider their own socialization and biases. Teachers often choose to teach what represents them and their way of being and knowing (Picower, 2021). Teacher education must challenge this in developing tomorrow's teachers if classrooms are to be equitable and inclusive for all students. By considering one's own writing identity, and the identities of their students, this challenge can begin. By considering what content is selected for integration preservice teachers can begin to look at curriculum with a critical eye. By considering ways to innovate in writing instruction preservice teachers can look for ways to value students for who they are and move them forward in an inclusive manner (Laskowski, 2023).

A framework can present an overarching argument or reasons for investigating a topic (Ravitch & Riggan, 2022). The Three I's Framework has a potential use as a guide for future research in preservice teacher writing instruction and in increasing equity in writing instruction across all school and community contexts. The framework allows for new ideas and understandings about these topics to evolve and grow (Ravitch & Riggan, 2022).

Finally, this framework has the potential to serve as an analysis method for qualitative data collected on developing content for methods courses, supporting preservice teachers as teachers of writing, and exploring more about the roles of identity, integration, and innovation in preparing teachers to close an opportunity gap in schools.

Research Implications

The Three I's Framework is evolving and in its current state was guided by existing research. It poses a compelling argument for further study. Further research in the

comprehensive nature of the framework itself is warranted. Considering the need for equitable and inclusive teaching in all schools, the framework should be tested for any missing elements. Do identity, integration and innovation cover all aspects of both writing instruction and the need for questioning and challenging the status quo? It is essential that the framework serve as a culturally responsive model that values critical thinking. It is critical that teachers use students' identities and their cultural assets to move them forward and increase equity in classrooms (Laskowski, 2023).

Research around the framework's use as a tool for content development for education methods courses is also warranted. This content development must consider writing as a tool for equitable and inclusive instruction without privileging one culture or way of being over another (Inoue, 2020). This aspect of writing instruction should be explicit in all three areas of the framework.

Finally, research on the effectiveness of utilizing the framework to improve preparation of teachers for teaching writing in low performing schools is needed. Does the framework indeed hold the key to improving teacher education in writing instruction? Does using the framework to build instructional content in teacher education lead to increased equity in all classrooms?

Conclusion

Schools deemed struggling or low performing are often confined to writing instruction that is prescriptive and structured, geared toward what is tested. These schools often have new teachers who report feeling unprepared to teach writing. Students in these schools are not given opportunities for innovation in writing that has the potential to empower them and to help them build skills like communication, collaboration, and empathy. In high performing schools writing is often less structured, teachers are better prepared and supported as writers and teachers of

writing, and students have room to explore, find, and express their voices through written communication. This inequity creates an opportunity gap that can be addressed in part by improved preservice teacher preparation in writing instruction.

A framework can provide support for improving content and curriculum development in pre-service education. The framework presented in this article provides structure that attends to three key areas of overlapping importance. By supporting preservice teacher identity new teachers can grow in confidence as they begin their teaching career. Supporting integration can provide an opportunity for student content growth and improve writing while allowing for students to express their voices in authentic ways. Supporting innovation helps preservice teachers use best practices in writing instruction in creative ways that allow students to become empowered and to view writing as a tool for expression and communication of the true self.

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The Teacher Educator Technology Competencies and Technology Tools in Action

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Abstract

This article connects the Teacher Educator Technology Competencies (TETCs) to specific technology tools, applications and resources that can be employed in PK-12 and higher education classrooms. The author introduces the TETCs and suggests technology tools for active use by teacher educators and teacher candidates. The article presents various pedagogical models, such as project-based learning (PBL), the Flipped Classroom model, and game-based learning (GBL). Also, the author recommends professional development options, which include joining professional development organizations and using digital badging systems. The article offers a blueprint of how to actively begin using the TETCs as well as reasons why these competencies are important.

Keywords: competency, education, professional development, teacher educator, teacher candidate, technology

In 2018, a group of instructional technology experts within the Society for Information Technology and Teacher Education developed the Teacher Educator Technology Competencies (TETCs). These competencies describe the current skills, knowledge and attitudes necessary for teacher educators who support teacher candidates (Burrows et al., 2021; Foulger et al., 2016; Foulger et al., 2017; Graziano et al., 2017; Society for Information Technology and Teacher Education, 2018). Teacher educators are individuals who directly provide instruction or support services in PK-12 classrooms or higher education settings; teacher candidates are individuals who are engaged in the preparation process for professional education licensure or certification with an official educator preparation provider (EPP) (Council for the Accreditation of Educator Preparation, 2019). In order to provide a solid foundation, all EPPs must ensure that teacher educators are effectively using updated and current technology while educating teacher

candidates for employment in PK-12 classrooms (Hodges et al., 2022; U.S. Department of Education, Office of Educational Technology, 2017).

The Council for the Accreditation of Educator Preparation (CAEP, 2019) defines technology as the tools and techniques available through computers, the Internet, telecommunications, and multimedia employed by EPPs for instruction. This technology includes the input, storing, processing and analyzing of data in quality assurance systems. CAEP emphasizes that all PK-12 teaching candidates are responsible for using current technology effectively to support student learning. Hence, all teacher educators should be prepared to include technology-based instruction in their college-level teaching.

The TETCs were developed to guide teacher educators in the knowledge, skills and attitudes required to integrate technology throughout teacher preparation programs. Appendix A contains the full list of the current TETCs (Society for Information Technology and Teacher Education, 2018). The main objective of the competencies is their integration throughout teacher education programs. Additionally, it is important to note that teacher educators and candidates who use and apply these technology competencies can play a critical role in promoting inclusive excellence in education by fostering personal reflection, connectivity, and the building of support systems for leaders, educators, students, and families. The TETCs are based on promoting a sense of community and support that can lead to greater understanding, respect, and inclusivity. Foulger et al. (2017) stated,

> The end goal of the TETCs is to positively impact teacher candidates graduating from teacher preparation programs and teacher educators who teach within those programs, and to initiate conversations across institutions about larger reform issues surrounding the movement towards technology integration across the curriculum. Collectively, all teacher

> educators are responsible for preparing teacher candidates who enter future classrooms with the skills needed to use and integrate technology appropriately for teaching and learning. (p. 436)

The TETCs and Technology Tools

Without question, teacher educators and teacher candidates require certain technological skills necessary to teach in today's technology-literate world (Foulger et al., 2017; Hodges et al., 2022; Sprague et al., 2022; & U.S. Department of Education, Office of Educational Technology, 2017). The TETCs are not a solution-oriented approach to technology integration for teacher preparation; however, teacher educators cannot meet the competencies without exposure to new technology tools and hands-on practice with the applications. Burrows et al. (2021) suggested that there should be a two-way street of knowledge contribution to infuse technology into teacher education programs. Hodges et al. (2022) stressed that teacher preparation programs are now required to "prepare teachers for the reality that they will likely teach in different modalities during their careers" (p. 202). Hence, all teacher educators require an updated toolbox of technology tools and skills.

The TETCs present a holistic view of competencies, which when linked to specific technology tools, can be addressed in higher education programs. Carpenter et al. (2019) asserted that there are two common generalizations about teacher preparation in the literature. First, many pre-service teachers leave their EPPs with insufficient knowledge of how to use technology to facilitate PK-12 student learning. Second, this lack of knowledge on the part of novices is commonly assumed to exist at least in part because many teacher educators lack the technical knowledge and skill necessary to provide instruction. In fact, these teacher educators may not be

aware of the current TETCs. Hence, current teacher educators may not be incorporating the competencies into their work with teacher candidates.

In order to overcome these challenges, Foulger et al. (2018) presented some helpful suggestions on how teacher educators may promote the TETCs in the higher education community. First, the authors suggest using the TETCs to transform teacher educators' course goals and design. They also note that the adoption of the TETCs could guide effective, transformational pedagogical practices. Another option could be using the TETCs to develop self-assessment tools for teacher educators in colleges and schools of education. In terms of yearly performance reviews, the TETCs could be used to incentivize standards of academe and affect current promotion and tenure guidelines. Professional development programs could use the TETCs to focus on one-on-one, reciprocal mentoring as well as group workshops. Finally, teacher educators could use the TETCs to make changes in accreditation by aligning current standards with the TETCs.

This article will address each TETC that was presented by Foulger et al. (2017) along with several concrete tools and applications that can be used at the college level. The full list of TETCs can be found in Appendix A. When the technology resources and applications are used effectively by teacher educators, teacher candidates are given an opportunity to practice implementing the technology. All faculty who train future teachers are responsible for using appropriate and updated technology in the classroom.

Content-Specific Technology

Teacher educators and teacher candidates are responsible for designing instruction that utilizes content-specific technologies to enhance teaching and learning (Foulger et al., 2017). In order to provide appropriate instruction, teacher educators can evaluate content-specific

technology in areas such as reading, mathematics, language arts, science and social studies. Moreover, teacher educators can model approaches for aligning the content being taught with appropriate pedagogy and technology.

There are certain content-specific technology tools that all teacher educators can use when teaching in EPPs. Virtual field trips allow social studies and science educators to take their students to foreign and exotic locations without ever leaving the classroom (Scholastic, n.d.). In fact, more schools are choosing to take students on virtual field trips to save costs and avoid transportation issues. Additionally, in today's world, virtual field trips prove to be safe as well as efficient. The Discovery Education (2020) website offers teachers various virtual field trip options. Teachers can plan virtual excursions to traditional field trip venues, such as museums and zoos, as well as to more distant venues such as foreign countries and historic landmarks.

Another content-specific technology application for science and mathematics educators is the website e-Missions. The website e-Missions (n.d.) offers simulated, problem-based learning adventures delivered in the classroom using online, distance learning technology. Each e-Mission is a student-centered, team-based, interactive educational experience that uses scientifically accurate data to solve problems.

Social studies educators may appreciate using Actionbound and GooseChase, which are technology applications that can be used to design real-world scavenger hunts (Actionbound, n.d.; Goosechase, n.d.). These online scavenger hunts allow students to document their learning using their mobile devices. By using these tools, teacher educators and teacher candidates can leverage gaming elements and tools like GPS locations, directions, maps, compass, pictures, videos, quizzes, missions, tournaments, and QR codes to create educational mobile app-based adventures.

Pedagogical Approaches

Today, teacher candidates and PK-12 students are connected to digital devices and live in a world of instant interpersonal communication and infinite access to information and educational resources. “Graduates of teacher education programs should be able to command high levels of performance in any teaching context, including complete changes in contexts like what happened at the onset of the pandemic” (Sprague et al., 2022, p. 183). Teaching candidates would benefit from the opportunity to undertake field experiences in online and blended environments (Hodges et al., 2022). Therefore, a re-examination and update of present pedagogy in teacher preparation programs is suggested. As Foulger et al. (2017) envisioned, teacher educators could be incorporating pedagogical approaches that prepare teacher candidates to effectively use technology in many ways and various settings. Christen (2009) asserted,

> Sitting quietly and passively while taking lecture notes does not come naturally to a student population accustomed to a virtual world of instant messaging, pervasive Internet access and online social networking. If these connected students are to excel in education, their learning environment should mirror the ways in which they engage the world. (p. 29)

Three effective approaches that implement technology and prepare teacher candidates to use technology today are: 1) project-based learning, 2) the Flipped Classroom and 3) game-based learning.

Project-Based Learning

Project-based learning (PBL) is a pedagogical model that organizes learning around hands-on and real-world projects (Thomas, 2000). PBL requires the design and implementation of projects that are complex and involve learners in design, problem-solving, decision making, or

investigative activities. Many PBL tasks require the utilization of real-world technological tools and applications. In addition, PBL allows learners the opportunity to work relatively autonomously over extended periods of time and culminates in realistic products or presentations.

Many technology applications are available to help teacher educators create these PBL assignments (TeachThought, 2020). Glogster can be used to plan and develop digital posters and other multimedia projects. Animoto can be used to present findings of a project using a realistic video platform. VoiceThread allows users to create, share and comment on interactive slideshows combining documents, presentations, images, audio files and video files.

The Flipped Classroom

The Flipped Classroom is a pedagogical approach that allows the infusion of technology into the higher education classroom. The Flipped Classroom was developed by Bergmann and Sams (2012) to reinvent the ideas of traditional lecture-based education (Hertz, 2012). Using the Flipped Classroom model, learners watch recorded lectures or online videos before attending class. Once in the face-to-face class environment, the learners are prepared to complete their assignments, group work and assessments with one-on-one assistance from the teacher.

In order to use the Flipped Classroom model, teacher educators need to choose appropriate videos. Lindahl (2019) suggested using TED-Ed (n.d.) for finding original animated videos and interactive lessons on a range of topics to support the Flipped Classroom. TED-Ed digital resources are well suited for teacher candidates as well as their PK-12 students. Another useful Flipped Classroom technology tool is Edpuzzle, which is an online application that gives teacher educators and candidates the ability to create lessons and assessments using online modules (Graham, 2016; Petty, 2018).

Game-Based Learning

Digital game-based learning (DGBL) or game-based learning (GBL) is a third pedagogical approach that teacher educators can employ in the higher education classroom (Farber, 2016; Meredith, 2016). Gee (2013) defined and developed DGBL with Prensky (2005) claiming that today's students are no longer the people our educational system was designed to teach. Therefore, current teachers need to use updated techniques to meet the needs of today's PK-12 and college students. Prensky asserted:

> Today's learners have changed in some fundamentally important ways. Growing up with digital technology, of which computer and video games are a major part, has dramatically—and, importantly, discontinuously changed the way people raised in this time think and process information. These changes have been so enormous that today's younger people have, in their intellectual style and preferences, very different minds from their parents and, in fact, all preceding generations. (p. 97)

Furthermore, Prensky coined the term "digital natives" to describe this generation. Digital natives include today's PK-12 students and most teacher candidates who are "native speakers" of the digital language of computers, video games and the internet. Conversely, individuals who were not born into the digital world but have, at some later point in life, adopted certain aspects of the new technology are called "digital immigrants".

Teacher educators can actively seek ways to meet the needs of digital natives by using various GBL technology tools (Farber, 2016). For example, Minecraft can be used to build structures and teach coding skills (Minecraft, n.d.). McColgan et al. (2018) claimed that Minecraft is a versatile educational tool related to many school subjects and content areas. Future language arts teachers may be interested in playing the Walden Game, based on Henry David

Thoreau's classic (WaldenGame, n.d.). This game is an exploratory narrative and simulation about the life of the American philosopher during his experiment in self-reliant living at Walden Pond. Other gaming sites such as iCivics and Mission US can be used in a social studies classroom to motivate and engage learners (Farber, 2020; iCivics.org., 2020; Mission US, n.d.).

Attitudes of Teacher Educators

There are issues in today's higher education that can affect teacher educators' attitudes; these issues include the digital divide, digital equity, and the lack of effective technology integration (Foulger et al., 2017; Gorski, 2009; Stanford, n.d.; Tyger, 2011). In 2017, Rowsell et al. presented two forms of digital divides: one of access to technology and the Internet, and another of implementation. Fingal (2018) explained that current issues of digital equity can be linked to a cycle called the "participation gap. . . It's more than just access to the tool, you need the participation and the learning experience" (Fingal, para. 6-7). Gorski (2009) described digital inequity as a broader, social issue, which includes a "vast, complex web of inequities, sociopolitical in nature, unsolvable merely by adding more or faster computers and Internet access to homes and schools" (p. 353).

Digital inequities and participation gaps are evident in many current teaching preparation programs. Some teacher educators and teacher candidates are skilled with using technology, but many are not comfortable with completing a technology task that is more advanced than typing a paper and emailing it. Fingal (2018) explained:

> I know that's digital literacy but it's still a part of digital equity in my mind because if we're not exposing students to these different tools and allowing them to become comfortable using them, then how do they learn it? How do they explore it? When do they have an opportunity to create if we don't bring it in? (para. 9)

In fact, this sentiment rings true in many teacher preparation programs where it takes a depth of understanding to effectively implement the use of technology in the classroom.

Without strong instruction that supports technology, teacher candidates who are not prepared for today's technologies may not be able to optimally perform in the classroom. Fingal (2018) discussed the importance of acknowledging that some teacher candidates may not be ready to use certain forms of technology. However, in today's world, there is an immediate need for all teacher educators to use and model current technology in both face-to-face and remote classrooms (Hodges et al., 2022). During the current COVID-19 pandemic and its response, many digital inequities have come to light. Teacher preparation programs can address these digital inequities and societal contexts, which will persist as critical topics for teacher development even after COVID-19 passes. "The pandemic affords unprecedented connections to the digital divide for PSTs, and teacher educators should seek to incorporate current equity issues even as students return to K-12 classrooms" (Hall et. al., 2020, p. 439).

In order to address these digital equity issues, teacher educators can encourage teacher candidates to join and support digital advocacy programs and organizations. For example, the National Digital Inclusion Alliance (NDIA) is a non-profit organization that advocates for national broadband access (NDIA, 2020). Another organization that promotes digital equity is PowerUp, which stands for "Providing Opportunities Where Everyone Rises Up". PowerUp was formed in 2010 as a response to the increasing demand for the infusion of technology in all classrooms. Recruiting highly trained teachers and providing necessary technology equipment to education institutions are additional goals of PowerUp (PowerUp, 2020).

Online Tools

In today's ever-changing technological world, there are many online tools that a teacher educator can use when instructing teacher candidates (Foulger et al., 2017). It is impossible for a teacher educator to use or model all of these tools, but there are some that stand out. Google Classroom is an online application that can help teacher educators with designing instruction, creating assignments, boosting collaboration, and promoting communication (Google, 2020). Google Classroom integrates seamlessly with the other Google applications. Teacher educators can use Google Classroom to create classes, distribute assignments, and send feedback. Since some PK-12 schools and higher education institutions are operating remotely, video conferencing is a key tool that teacher educators and candidates should be prepared to use. Video reflection, along with peer feedback, can be a critical technique that can affect preservice teachers' instructional techniques (Burrows et al., 2021). Some of these video conferencing tools include Skype, Zoom and Google Meet. In addition to being used for class lectures and meetings, these technological tools can be used for virtual field trips, guest speakers, and classroom collaborations (Hertz, 2013; Scholastic, n.d.). Moreover, Padlet is an interactive Web 2.0 application that provides a virtual wall or bulletin board that allows participants to simultaneously view, add, and rearrange content (Fisher, 2017; Padlet, n.d.).

Instruction & Diverse Learning Needs

Teacher educators should be prepared to design instruction using technology to meet the needs of diverse learners and individuals with disabilities (Foulger et al., 2017). They should also be able to prepare their teacher candidates with assistive technology tools that have been designed to help diverse learners participate fully and naturally in inclusive learning environments. Sullivan (2019) defines assistive technology (AT) as:

> Any item, piece of equipment, or product system, whether acquired commercially off the shelf, modified, or customized, that is used to increase, maintain, or improve functional capabilities of individuals with disabilities. AT includes a wide variety of no-tech, low-tech, and high-tech tools. Some assistive technology tools cost nothing, and others can be fairly inexpensive. Many teachers are using some tools that function as AT—even if they don't think of them that way. (para. 2)

Sullivan (2019) provided several useful ideas to infuse AT into the classroom. First, teacher educators can use YouTube videos that contain a closed captioning option to assist students in making connections between text and audio representations of language. Mind mapping is an AT technique that can be used to organize various forms of data for diverse learners. Technology tools such as StoryboardThat, Mindmeister and Mindomo allow teacher educators to create mind maps and differentiate instruction for all learners (Kapuler, 2020, Mindmeister, n.d., Mindomo, n.d., StoryboardThat, n.d.). Another useful AT device is an online timer, such as Online Stopwatch. This technology tool can be projected onto the class interactive whiteboard during timed class activities, such as collaborative group work, projects or tests (Online Stopwatch, n.d.).

Another useful assistive technology is speech-to-text, which "is a form of assistive technology that allows students—and teachers—to dictate into their computer and watch their words appear as text on the computer screen, without typing" (Sullivan, 2019, para. 13). Martin (n.d.) suggested the following speech-to-text or dictation software options: Dragon Dictation, Co:Writer Universal, and WordQ.

Assessment Tools

Teacher educators should be prepared to use technology to assess teacher candidates' competence and knowledge as well as show them ways to use assessment tools in the PK-12 classroom (Foulger et al., 2017). For example, Goobric is a rubric-based assessment tool that works with the Doctopus Add-on for Google Sheets (Crawford, 2016). Crawford explained that a teacher could use Goobric in conjunction with Google Classroom and Doctopus to import and organize student writing. Goobric will insert a rubric for each student's submission. Another useful assessment tool that can be used in the higher education classroom is Formative. Formative can be used to assess students as well as differentiate learning and meet the needs of the diverse learner (Kolb, 2016). Finally, a popular formative assessment tool being used by many PK-12 and college educators is Kahoot, which is an online gaming application that allows teachers to create learning activities for their students (Kahoot, 2020; Lenz, 2019). Kahoot allows a teacher to create quizzes and polls which focus questions and answers according to a certain topic (Martínez-Molina et al., 2019).

Online & Hybrid Teaching Strategies

Foulger et al. (2017) suggested that teacher educators should model online and blended learning methods and strategies as well as provide opportunities for teacher candidates to practice teaching online and in blended or hybrid learning environments. Today's teacher educator programs can be modified to include field experiences in online and blended learning. Teacher educator programs "have a long history and established practices of partnering with schools and districts to provide opportunities for their students to undertake field experiences in the brick-and-mortar or face-to-face environment" (Hodges et al., 2022, p. 209). Now, these programs need to expand these opportunities to include online and blended environments, and

partner with providers that offer online and blended clinical experiences. In order to prepare teacher candidates for these opportunities, there are some technology resources and tools offered by nationally recognized distance learning associations that can assist teacher educators as they model online and blended learning methods.

Quality Matters (QM) is a nationally recognized organization that focuses on the development of distance learning courses (Quality Matters, 2020a). QM offers various professional development options for higher education faculty (Quality Matters, 2020b). These options, which include workshops and certification programs, aim to train and empower faculty, provide guidance for improving the quality of courses, and certify the quality of online and blended courses. Similarly, the Online Learning Consortium (OLC) provides useful resources to promote online teaching and learning (Online Learning Consortium, 2020a). The OLC website contains links to best-practice publications, forms of online instruction, technology-focused conferences, practitioner-based research and empirical research. For example, the OLC's Institute for Professional Development offers online learning opportunities for individuals at all levels.

Connecting Globally

During teacher preparation, instructors can address the issue of global connectivity in various ways by using certain technology tools (Foulger et al., 2017). Teacher educators can model global engagement using technologies to connect teacher candidates with other cultures and locations. They can also introduce discussions and address strategies needed for cultures and regions with different levels of technological connectivity. Since learning and teaching are both socially constructed (Kolb, 2016), it is important for teacher educators and candidates to use technology tools that allow them to engage with others.

Moreover, the TETCs can play a significant role in connecting educators and teacher candidates to social justice pedagogy by providing them with tools and resources that can facilitate access to information, create platforms for ongoing dialogue, and enable advocacy for equity and fairness topics (Foulger et al., 2017). By using the TETCs as a framework, teacher educators can help their students gain access to information on diverse perspectives and experiences, and to gain a deeper understanding of the social and political issues that affect education in global settings. Also, the TETCs can guide students and educators how to use social media, online forums, and video conferencing to engage in meaningful conversations on issues of social justice. This use of technology can empower individuals to become agents of change and to work towards creating a more just and equitable society.

Kolb (2016) suggested using a technology application called Collabrify to design instruction in which teacher candidates use technology to collaborate with learners from a variety of backgrounds and cultures. Collabrify promotes synchronous collaboration on mindmaps, documents and other files for data collection and analysis. Another possible technology tool teacher educators can use for global collaboration is the social bookmarking tool called Diigo (Crawford, 2016). Diigo permits teacher educators to highlight, annotate and tag content found online. By recording and analyzing thoughts, learners become active researchers while they create tags and organize their notes in outline format.

Legal, Ethical, and Socially Responsible Use of Technology

Teacher educators can guide their teacher candidates' use of technology in legal, ethical, and socially responsible ways as well as provide opportunities for teacher candidates to design curriculum following legal, ethical, and socially responsible uses of technology (Foulger et al., 2017)**.** By supporting associations such as The National Association of Media Literacy

Education (NAMLE), teacher educators illustrate the importance of media literacy as a highly valued and widely practiced essential life skill (NAMLE, n.d.). By using NAMLE resources, teacher educators can provide opportunities for teacher candidates to design curriculum following legal, ethical, and socially responsible uses of technology. Additionally, Code.org is an association that advocates for the socially responsible use of technology in education. This non-profit association is dedicated to expanding access to computer science in PK-12 schools and increasing participation by women and underrepresented minorities (Code.org, 2020). Teacher candidates can use this website to guide their use of technology in legal, ethical, and socially responsible ways. Another possible way for teacher educators to raise awareness is by promoting crowdsourcing sites such as Donors Choose (Cullen, 2018).

Professional Development & Networking Options

Teacher educators and candidates need various professional development options to be successful in today's digital teaching and learning environment (Borthwick & Hansen, 2017; Dengerink et al., 2015; Foulger et al., 2017; Van der Klink et al., 2017). Additionally, clinical supervisors and cooperating teachers will need professional development to address their technology-related responsibilities (Sprague et al., 2022). By exploring various options, individuals can define goals for personal growth in using technology. Additionally, they can engage in appropriate professional development and networking activities promoting technology knowledge and skills while they support ongoing participation in these activities to increase their knowledge of technology.

The International Society for Technology in Education (ISTE) (2020b) offers various technology-driven professional development options for teacher educators and candidates. Digital Learning Pathways is a new set of online professional development resources that

provide a way for educators at any level of technology readiness to infuse technology into the classroom. The Digital Learning Pathways professional development resources include lesson plans, learning scenarios, and collaboration guides that allow teacher educators and candidates to create authentic, digital-age learning products.

As teacher educators are looking for ways to promote 21st century professional development in their courses, they can consider infusing digital badges into their teaching and assessment practices (Braxton et al., 2019). Digital badges are indicators of accomplishment, skill, quality, or interest that can be earned in various learning environments (HASTAC, n.d.). Badges can provide evidence of learning that is not available in traditional formats. For example, digital badges can report and record learning that takes place outside of traditional schools or classrooms. Some specific digital badging examples for educators can be used in the higher education classroom (Grant, 2014). For example, Carnegie Mellon University's CS2N is an online learning environment where individuals can earn badges and certifications as they explore computer science and STEM-related topics (CS-STEM). Who Built America? Badges for History Education is an online professional development learning community where teachers can practice and master the skills of effective history teaching. The aforementioned OLC Institute for Professional Development provides many professional development options. Teacher educators can explore various forms of professional development, with the opportunity to earn digital badges for completing specific technology-based workshops (Online Learning Consortium, 2020b).

Leadership & Advocacy

By sharing a vision for leadership and advocacy with technology, teacher educators can motivate their teaching candidates to do the same (Foulger et al., 2017). Teacher educators can

engage with certain local, state, and national professional organizations that advocate technology use in education as they seek to influence the opinions and decisions of others regarding technology integration. Furthermore, teacher educators can aim to support their teacher candidates in understanding local, state, and national technology policies in education. Another idea is that teacher educators can use these competencies to advocate for educational practices that promote social equity and anti-racist pedagogy. For example, they can use technological tools and social media applications to create learning opportunities that are culturally responsive and inclusive. These leadership and advocacy discussions can be ongoing in class as well as in the teacher candidates' clinical experiences, such as student teaching.

ISTE is one of the leading providers that offers various leadership and advocacy options for teacher educators and teacher candidates (The International Society for Technology in Education, 2020a). ISTE offers membership to various professional learning networks, such as: (1) Arts and Technology Network, (2) Computer Science Network, (3) Digital Citizenship Network, (4) Digital Equity Network, (5) Education Leaders Network, (6) Global Collaboration Network, (7) Interactive Videoconferencing Network, (8) Mobile Learning Network, (9) Online and Blended Learning Network, and (10) STEM Network (The International Society for Technology in Education, 2020c). Additionally, the Association for the Advancement of Computing in Education and the Society for Information Technology and Teacher Education are recognized academic associations that offer technology tools and resources to teacher educators (AACE, 2020; SITE, 2020).

Where to Begin: A Blueprint

Teacher educators and teacher candidates benefit from focusing on the TETCs, but where do they begin? The plethora of technology competencies and tools can be overwhelming. If

teacher educators are to meet the competencies set by the TETCs and the standards set by various educational accreditation groups, they must have practical, hands-on experience with technology in their teacher training (Burrows et al., 2021). This blueprint guides educators in using the TETCs and technology tools:

1. Acknowledge the need for change. The first step in using the TETCs and successfully integrating technology into instruction is recognizing the need for change. This change may need to happen inside of an individual, which can affect his or her approach to teaching (Edutopia, 2007). This gap in opportunity is evident in many current educational programs. These competencies are often overlooked. The adoption of the TETCs have the capacity to guide effective, transformational pedagogical practices (Foulger et al., 2017). By accepting the need for change, teacher educators can start focusing on the TETCs and teaching in today's technological world. When any teacher candidate or teacher educator starts using technology in the classroom, he or she will no longer be the center of attention and roles will change. This pedagogical switch can be a challenging one for many teacher educators who are used to learning and teaching the way they were taught. It is crucial to be aware that the level of refocused attention will, of course, depend on the amount and the type of technology being used in the face-to-face or remote classroom. However, this pedagogical switch does not mean that the teacher is no longer essential to the learning process. These discussions in the pre-service classroom can guide the change and help the teacher candidates accept and use the TETCs.
2. Start small. The TETCs are meant to guide teacher educators, but the amount of information can be overwhelming. So, start small by using one piece of technology or one tool. A teacher educator may want to start by holding office hours using Google Meet

or Zoom. Or, use a TED-Ed lecture in place of a traditional, face-to-face class lesson. Then, as the comfort level rises, add in new technologies that meet the needs of the teacher candidates.

3. Focus on student learning outcomes. With the end goal of positively impacting teacher candidates (Foulger et al., 2017), teacher educators can use the TETCs to frame learning outcomes in the classroom. Teacher educators can develop concrete learning outcomes that explain what they want their PK-12 teacher candidates to be able to do when they leave the pre-service education classroom. If they want them to be able to present a remote lesson using Google Classroom, set this outcome early and focus on it throughout the course.
4. Create a community of technological learners in your classroom and in the overall higher education community. By discussing the importance of the TETCs, teacher educators can start the conversation about using technology in the classroom and with administration. This conversation can create an atmosphere of technology acceptance and appreciation. In fact, Foulger et al. (2017) claimed that "the TETCs would inspire conversations among their administrators in their university surrounding new aspirations" (p. 434).
5. Keep updated with new technologies and innovations. In today's world, it is more important than ever that teacher educators are open to trying new ways of preparing teacher candidates. Since it is a challenge for teacher educators to find opportunities for preservice teachers to acquire the necessary experience in using technology and software prevalent in K–12 schools (Burrows et al., 2021), professional development is a critical factor. By participating in remote and face-to-face professional development opportunities that correlate with the TETCs, having discussions with colleagues about the

TETCs, and learning new ways to use various technology tools, teacher educators can keep abreast of new technologies. As Foulger et al. (2017) explained, "Collectively, all teacher educators are responsible for preparing teacher candidates who enter future classrooms with the skills needed to use and integrate technology appropriately for teaching and learning" (p. 437).

Conclusion

In conclusion, it is evident that teacher educators are key players in preparing teacher candidates as they ready themselves to teach in the PK-12 environment. Also, teacher educators have a unique responsibility in promoting inclusive excellence in education by nurturing personal reflection, developing community and promoting connectivity in teacher candidates. The TETCs are a set of competencies that can ensure that all teacher educators are prepared to effectively use technology in pre-service teacher preparation programs. Indeed, the TETCs give teacher educators a starting point to focus on when integrating technology into their teacher plans. Now, it is time for these professionals to explore and use the tools to assist their teacher candidates in preparing to use technology competently and confidently in the PK-12 classroom. Hopefully, by using these technology tools, teacher educators can move towards meeting the TETCs as well as all national standards for preparing teacher candidates.

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Appendix A

List of the Teacher Education Technology Competencies (TETCs)

1. Teacher educators will design instruction that utilizes content-specific technologies to enhance teaching and learning.
2. Teacher educators will incorporate pedagogical approaches that prepare teacher candidates to effectively use technology.
3. Teacher educators will support the development of the knowledge, skills, and attitudes of teacher candidates as related to teaching with technology in their content area.
4. Teacher educators will use online tools to enhance teaching and learning.
5. Teacher educators will use technology to differentiate instruction to meet diverse learning needs.
6. Teacher educators will use appropriate technology tools for assessment.
7. Teacher educators will use effective strategies for teaching online and/or blended/hybrid learning environments.
8. Teacher educators will use technology to connect globally with a variety of regions and cultures.
9. Teacher educators will address the legal, ethical, and socially-responsible use of technology in education.
10. Teacher educators will engage in ongoing professional development and networking activities to improve the integration of technology in teaching.
11. Teacher educators will engage in leadership and advocacy for using technology.
12. Teacher educators will apply basic troubleshooting skills to resolve technology issues.

Addressing Teacher Candidate Perceptions and Attitudes Toward Mathematics Through an Elementary Math Methods Course with Social Justice Pedagogy

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Abstract

Perceptions and attitudes of math teachers have an impact on students. Research has shown teachers with negative self-efficacy can build fear, anxiety, and even negatively affect students' math achievement. This research study addresses teacher candidate perceptions and attitudes (value, self-confidence, motivation, and enjoyment) toward mathematics through an elementary math methods course with social justice pedagogy. A purposive sample of 79 teacher candidates enrolled in an elementary mathematics methods course completed the Attitudes Toward Mathematics Inventory (ATMI). The quantitative data analysis revealed statistically significant differences in teacher candidates' self-confidence, value, enjoyment, and motivation toward mathematics after completion of the elementary math methods course. The inclusion of an elementary mathematics methods course with an emphasis on social justice pedagogy in educator preparation programs can better prepare teachers to teach math, enhance teacher candidates' attitudes towards math, and positively impact future generations' attitudes towards math.

Keywords: math perceptions, teacher education, value, motivation, self-confidence, enjoyment

Education can be considered the "great equalizer for leveling the playing field in our society" (Jacobs & Perez, 2023, p. 1). With that said, it can also play a role in the marginalization of students. Specifically, if a teacher's perceptions and personal attitude toward mathematics are negative, this can hamper not only their students' dispositions but also their mathematical achievement (Bandura, 1993; Jackson & Leffingwell, 1999; Looney et al., 2017). This can result in an opportunity gap for marginalized students, when they are assigned to learn math from a teacher whose implicit bias against math lowers the rate of success in educational achievement. Therefore, it is critical for teacher educators to help teacher candidates formulate positive attitudes toward mathematics during their preparation programs. This research study addresses teacher candidate perceptions and attitudes (value, self-confidence, motivation, and

enjoyment) toward mathematics through an elementary math methods course that employed a social justice pedagogy. It sought to answer research questions related to the extent an elementary math methods course with a social justice pedagogy changes teacher candidates' attitudes toward mathematics and develops teacher candidates' self-confidence, value, enjoyment, and motivation in mathematics.

Literature Review

Negative attitudes toward mathematics are widespread in the United States and stem from various factors that persist across different demographics. With the potential to lead to opportunity gaps for marginalized populations it is vital that teacher candidates' preconceived notions about math are addressed during pre-service training. Experiences during their education programs can reinforce teacher candidates' math content understanding, enhance pedagogy, and foster appreciation for math. With the inclusion of social justice math pedagogy, an approach to teaching mathematics that aims to address and challenge social inequalities and injustices through mathematical education and includes "using mathematics as a tool to empower [students] and critique the status quo" (Leonard & Moore, 2014, p. 80), teacher educators can promote equal access to math content and highlight its relevance and practical applications. It is through this social justice lens that factors influencing students' attitudes and perceptions toward mathematics may be directly impacted by teacher candidates' who have value, self-confidence, motivation, and enjoyment in the subject (Leonard & Moore, 2014).

Attitudes Toward Mathematics

In the United States, having a traditionally negative disposition toward mathematics is common for adults and children (Beilock & Willingham, 2014). Negative attitudes toward math originate from a variety of sources such as parental figures, poor instruction, low mathematical

achievement, fear of failure, lack of enjoyment, and low confidence (Goodykoontz, 2009; Gutbezahl, 1995; Legg & Locker, 2009; Liew et al., 2014; Marsh, 2002). There have been many attempts over the years to identify and reduce negative feelings toward mathematics, such as strengthening math instruction, alleviating outside pressures, building classroom community, and promoting problem solving. However, negativity towards the subject persists at all age levels, genders, and ethnicities (Aydoğdu & Ayaz, 2008; Boaler, 2015; Murayama et al., 2016; Zrike & Connolly, 2015). Deficit views of mathematics are common in historically marginalized students (Valencia, 2010). Negative attitudes and perceptions start as early as elementary school and can be perpetuated throughout schooling by teachers (Beilock & Willingham, 2014). Teachers with negative self-efficacy can build fear, anxiety, and even negatively affect students' math achievement, which can be exacerbated amongst marginalized populations (Beilock et al., 2010; Gunderson et. al, 2012). A negative attitude toward mathematics has been widely documented as a growing barrier for marginalized populations and poses a potential opportunity gap for all students (Geist, 2010).

Teacher candidates enter teacher education programs with lofty beliefs about school and their own personal experiences (Öçal, 2021). Öçal (2021) found teacher candidates' beliefs can change based on experiences during their Educator Preparation Program (EPP); however, Azjen (1985) and Fitzsimmons (1999) warn about the difficulties of changing teacher candidates' preconceived notions specifically about math. To begin to build positive perceptions of math, teacher candidates should have experiences throughout their EPP that reinforce their understanding of math content, strengthen their math pedagogy, and enhance their overall appreciation of math. Social justice pedagogy serves as the perfect bridge to build this

foundation, enabling equal access to the content so that mathematics knowledge can benefit all children rather than a select few (Bryk & Treismanm, 2010).

Value

For the purpose of this study, value is defined as something of importance, worth, or useful to an individual in the field of mathematics. Over three decades ago, the National Council of Teachers of Mathematics (1989) sought to prioritize teachers' and students' value of mathematics education due to its effect on perceptions and attitudes toward mathematics. Several research studies have explored and found the construct of value impacts teachers' perceptions toward mathematics (Atweh et al., 1998; Bishop, 2008), teacher candidates (Dede, 2009; Michaluk et al., 2018) and students (Fennema & Sherman, 1976; Tapia & Marsh, 2004). In order to effectively support public school students, especially marginalized students, in their understanding of the value of math education, it is essential for teacher candidates and educators to integrate pedagogy from a social justice lens to "help children investigate, identify, and react to social injustices in their community" (Easley, 2020; Gutstein & Peterson, 2005; Leonard & Moore, 2014, p. 80). This will allow students to better appreciate the value, relevance, and practical applications of math in their personal lives and communities (Gewertz, 2020).

Often policies and reform efforts in public schools see marginalized students from a deficit perspective (Stein, 2004). Similarly, elementary teachers have difficulty recognizing the value of mathematics and prefer to prioritize the socio-emotional development of students, thus further perpetuating negative attitudes toward mathematics (Blömeke, 2016; Kowalski, 2001; Lee & Ginsburg, 2007; Varol, 2013). It is important to note teacher candidates can better identify the value and importance of mathematics when they themselves personally succeed mathematically (Midgley et al., 1989; Zerpa et al., 2009). EPPs can foster a learning

environment where teacher candidates have the opportunity to make choices about their learning journey that they believe will help them to be more successful (Dell'Angelo et al., 2014; Metzger et al., 2019; Tomlinson, 2017).

Self-Confidence

Self-confidence is defined as one's confidence in their ability to learn and perform well on mathematical tasks (Fennema & Sherman, 1976). In addition to value, the National Council of Teachers of Mathematics (1989) also prioritized student's mathematical self-confidence due to its effect on student perceptions and attitudes toward mathematics. Several research studies have explored and found the construct of self-confidence impacts a teachers' perceptions toward mathematics (Kuru, 2018), teacher candidates (Norton, 2018) and students (Baird, 2019; Fennema & Sherman, 1976; Öçal, 2020; Tapia & Marsh, 2004). It is important to study the relevance of self-confidence as it is often connected to math content knowledge. Like value, teacher candidates who have more content knowledge in mathematics tend to be more self-confident (Norton, 2019). A teacher may have strong knowledge of elementary mathematics content, yet they may not have the same confidence in how to teach and communicate that concept effectively to their students.

In order to communicate mathematics content to others effectively, teachers should have a higher degree of self-confidence (Kuru, 2018; Norton, 2018). Some teachers of historically marginalized populations have lower self-confidence in mathematics (Baird, 2019). It is during educator preparation that a teacher candidate builds the foundation of self-confidence (Flores, 2015). It is necessary for teacher educators to effectively model social justice pedagogies and engage in reflective discourse regarding pedagogical decision making during elementary math methods coursework for teacher candidates. This will allow teacher candidates to utilize the

modeled social justice pedogeological approaches to “engage students in contextually rich and meaningful mathematics tasks that empower students to think critically and take action in their school or community” (Leonard & Moore, 2014, p. 89; Loughran, 2006).

Motivation

Many high-quality teachers are internally motivated to excel in their teaching craft. Some teacher candidates are motivated to teach mathematics simply because they are passionate or enthusiastic about the subject matter (Bastian et al., 2022). These teachers value mathematics and desire to pass their positive attitudes and perceptions onto their students (Bastian et al., 2022). Several research studies have explored and found motivation impacts perceptions towards mathematics for teachers (Bastian et al., 2022), teacher candidates (Yildiz, 2020) and students (Fennema & Sherman, 1976 & Tapia & Marsh, 2004). One’s intrinsic motivation and enthusiasm toward teaching mathematics are positively related to a teacher’s instructional quality (Baier et al., 2019). Yildiz (2020) found motivation can also impact attitude, perceptions, behavior and recommends EPPs integrate authentic learning experiences and resources to improve teacher candidates' intrinsic motivation. Motivation and engagement can improve when teacher educators and educators utilize social justice pedagogies such as inviting students to be involved in their academic journey by including students in real-world applicable stories or word problems (Metzger et al., 2019). Additionally, when marginalized students see themselves in the content, the content becomes more relevant to them and their motivation to learn increases (Gewertz, 2020).

Enjoyment

Enjoyment, in the context of mathematics, refers to the level of pleasure or satisfaction an individual experiences when engaging with mathematical content. As previously stated, having a

traditionally negative disposition toward mathematics is common for adults and children (Beilock & Willingham, 2014). Several research studies have explored and found the construct of enjoyment can impact a teachers' perceptions toward mathematics (Blömeke, et al., 2017), teacher candidates (Michaluk et al., 2018; Peker, 2009) and students (Dowker et al., 2016; Fennema & Sherman, 1976; Panthi, 2017; Polly & Colonnese, 2021; Tapia & Marsh, 2004). Students in high poverty schools have less experienced teachers and less access to high quality resources (Duncombe, 2017). When all students have equal access to mathematics content, they have equal opportunity to enjoy and make the most of their learning experience (Panthi, 2017). The negative perceptions of teachers who do not enjoy mathematics often transfer to their interactions with children when teaching and learning mathematics (Blömeke et. al, 2017).

This dislike of mathematics has caused a crippling epidemic of math anxiety impacting nearly 60% of school-age students (Dowker et al., 2016) and even math teaching anxiety negatively impacting teacher candidates and teachers (Hadley & Dorward, 2011; Unlu et al., 2017). Lack of content knowledge, anxiety, and fear are all documented reasons as to why teacher candidates do not enjoy math, avoid higher levels of mathematics, and prefer teaching early childhood mathematical content (Lake & Kelly, 2014). A higher level of content knowledge can increase an individual's confidence in mathematics and thus make teaching and learning mathematics more enjoyable (Bastian et al., 2022). Students report finding more enjoyment in the activities selected by their teachers than the mathematical content itself (Polly & Colonnese, 2021).

Math Methods Course

Given EPPs play a pivotal role in the development of teacher candidates, there is a need to integrate an intentional focus on social justice to improve the teaching and learning for all

students (Cochran-Smith, 2010; Easley, 2020). Teachers often perpetuate inequities instead of advancing social justice and equality for all students, resulting in an implicit opportunity gap (Jacobs & Perez, 2023). It is vital in this time and space that educators see themselves as change makers who are confident enough to incorporate social justice pedagogy to create transformative teaching and learning experiences for students (Cochran-Smith; 2010; Jacobs & Perez, 2023; Easley, 2020). A teacher's beliefs, attitudes, and perceptions about mathematics impact how they see themselves as a teacher (Bandura, 1993; Cohrssen & Tayler; 2016; Gonzalez-DeHass et al., 2021; Jackson & Leffingwell, 1999; Lake & Kelly; 2014; Looney et al., 2017). Unfortunately, elementary teacher candidates have indicated higher levels of math anxiety, lower content knowledge, and lower confidence to teach mathematics than other content disciplines across the field of education (Novak & Tassel, 2017; Kelly & Timhave, 1985; Rech et al., 1993). This is problematic as negative dispositions toward mathematics can transfer to students.

According to Gay (2002) "culture is deeply embedded in any teaching" (p. 112). Teacher educators must model authentic instructional techniques that connect curriculum to students' lives and communities. (Easley, 2020). Before teacher candidates can understand others' cultural backgrounds and communities, they themselves need the opportunity to self-reflect on how value, self-confidence, encouragement, and motivation can impact teacher candidates' perceptions and attitudes toward mathematics (Martinez, 2015). In elementary mathematics methods classes with an emphasis on social justice pedagogy, teacher educators and teacher candidates can investigate personal and deep-rooted feelings towards mathematics. This opportunity can have a ripple effect by altering teacher candidates' perceptions and attitudes about mathematics, and later their elementary school students.

Theoretical Framework

This study is guided by Mezirow's (1994, 1997, 2000, 2003) transformative learning theory. Mezirow (2003) defines transformative learning for adult learners as "learning that transforms problematic frames of reference…to make them more inclusive, discriminating, open, reflective, and emotionally able to change" (p. 58). This study works to transform teacher candidates' frames of reference (i.e., perceptions) of mathematics before they become problematic when passed down to future generations of students. This is done through integrating social justice into the elementary math methods course, which involves ensuring equal access to math content for all students and "includes the pedagogical strategies and methods teachers use, but also involves what they believe…" (Enterline, et al., 2008, p. 270). This study is grounded by the hypothesis that, through a course focused on both social justice pedagogy and frames of reference, adult learners (i.e., teacher candidates) self-confidence, value, enjoyment, and motivation toward mathematics can shift. Given "paradigms in science and mathematics" are specifically mentioned as a frame of reference that is specifically susceptible to change through transformative learning, it follows that this theory was used as a theoretical framework for this study (Mezirow, 2003, p. 59).

Methods

This research study addresses teacher candidate perceptions and attitudes (value, self-confidence, motivation, and enjoyment) toward mathematics through an elementary math methods course with social justice pedagogy. The following research questions were addressed:

To what extent, if any, does an elementary mathematics methods course with social justice pedagogy change teacher candidates' attitudes toward mathematics?

To what extent, if any, does an elementary mathematics methods course with social justice pedagogy develop teacher candidates' self-confidence, value, enjoyment, and motivation in mathematics?

Participants

Purposive sampling was used to recruit participants from a population of teacher candidates at a small private liberal arts college in the Mid-Atlantic region of the United States. Specifically, 84 students who were enrolled in an elementary math methods class over seven consecutive spring and fall semesters were contacted and invited to participate in the study. A sample of 79 participants was recorded, including first year (8.86%), second year (69.62%), third year (18.99%), and fourth year (2.53%) students. These teacher candidates consented to be participants in the study and fully completed the pre- and post-assessment evaluating their attitude toward mathematics.

Design and Data Collection

The elementary math methods course selected for this research study intentionally focused on positively building teacher candidates' perceptions and attitudes toward mathematics in the areas of value, self-confidence, motivation, and enjoyment through social justice pedagogy. The integration of social justice math pedagogy took the form of the teacher educator taking significant time to build relationships with teacher candidates. During the first week of the course, one of the first course assignments is a 1:1 meeting with the teacher educator. The goal of the meeting is to get to know the teacher candidate on a personal level, to better understand their background, goals, interests, experiences, learning preferences, and concerns. This self-awareness helps the teacher educator to integrate students' interests and preferences throughout the course (Tomlinson, 2017). For example, if there are teacher candidates who love football, the teacher educator can integrate recent NFL scores into computation-based word problems or if a

teacher educator is aware their student recently lost their favorite grandmother, they may be able to provide alternative assignments while the student attends the funeral.

Additionally, instead of waiting until the end of the semester on the course evaluation, the teacher educator included modified electronic course evaluations and check-ins throughout the course at week three and the midterm point to offer teacher candidates the opportunity to share any concerns or successes. This also gave the teacher educator the chance to make adjustments to better meet the individual needs of each student.

During class, the teacher educator strived to create a positive classroom community with a safe learning environment for all teacher candidates where they could be honest, take academic and emotional risks and engage in critical discussions (Brown, 2004; Capper et al., 2006; Dell'Angelo, 2014; Martinez, 2015; Young et al., 2006). The teacher educator collaboratively developed positive classroom norms and regularly practiced productive math talks, which have been shown to provide a "prioritization of sense making, engaged learners, and create a safe space for mathematical discourse" (Boaler, 2015; Saylor & Walton, 2018, p. 348). Teacher candidates were given the opportunity to self-reflect on the value, self-confidence, encouragement, and motivation of their own perceptions and attitudes toward mathematics in an effort to gain self-awareness (Martinez, 2015). Using social justice pedagogical strategies, the teacher educator worked to reduce student math anxiety throughout the elementary math methods course by incorporating regular group work, promoting communication amongst teacher candidates, displaying a positive and growth mindset about math amongst students by building on mistakes, incorporating problem solving and exploring mathematics through interactive games, concrete and virtual manipulatives (Boaler, 2015).

The integration of social justice math pedagogy also took the form of the teacher educator integrating real-world problems, manipulatives, and multiple methods for solving from various cultural backgrounds (Dell'Angelo, 2014; Ruppert et al., 2022; Yu et al., 2021). The teacher educator was explicit about how the modeled instructional strategies and methods could be applied in real teaching and learning scenarios (Cite et al., 2017). Teacher candidates debriefed regularly about their value and effectiveness (Loughran, 2006).

Although there is an overall decline in college enrollment, various racial/ethnic groups continue to be represented in higher education population (National Center for Education Statistics, 2023), suggesting the traditional one-size-fits-all lecture and summative exam may not be appropriate (Smith & Chesnutt, 2021). To support the learning needs of all teacher candidates, every course assignment in the math methods course was differentiated, creating a personalized learner-centered experience for each teacher candidate. Teacher candidates had the opportunity to choose the assignment option that best met their learning needs or propose an alternative assignment further creating agency and independence (Hagerman & Porath, 2018; Tomlinson, 2017).

It is important to develop authentic meaningful assessments where teacher candidates have the opportunity to apply their knowledge for real audiences outside the classroom (Dell'Angelo, 2014). The signature course assignment was a blended math mentorship experience in which teacher candidates provided virtual and in-person tutoring to second graders in a 1:1 or 1:2 setting (Carr & May, 2021). Teacher candidates read scholarly articles related to building relationships, math anxiety, self-esteem, motivation, and encouragement throughout the semester to prepare for their mentoring experiences. Mentoring elementary students offers teacher candidates unique perspectives and experiences with teaching math, including assessing

learning, analyzing student work, differentiating instruction, and providing remedial support. Additionally, the mentorship provides an opportunity for teacher candidates' to work on aspects of their classroom management, communication, and relationship building. analyzed student performance and utilized instructional research-based strategies weekly with their mentee. This authentic mentorship experience allowed for the teacher candidates to practice and implement what they learned throughout the course. At the end of the course, as part of the capstone experience, teacher candidates designed a differentiated interest-based mathematics lesson focused on one math skill for their mentee (Tomlinson, 2017). Teacher candidates were motivated to integrate concrete manipulatives in their lesson plans based on personally seeing their value. Students who have participated in mentorship programs with teacher candidates in EPPs have documented increased achievement (Elburn et al, 2017), deeper critical thinking skills (Nelson et al., 2017), strengthen relationship building through improved communication (Ferguson et al, 2021) motivation, self-efficacy, and self-confidence (Fogg-Rogers et al., 2017; Hollingsworth & Knight-McKenna, 2018), changed attitudes (Coller & Kou, 2014; Hastings et al., 2015), and reduced anxiety (Page-Gould et al., 2008).

Data Analysis

This research study addressed teacher candidate perceptions and attitudes (value, self-confidence, motivation, and enjoyment) toward mathematics through an elementary math methods course with social justice pedagogy. This study sought to answer research questions related to the extent an elementary math methods course with social justice pedagogy changes teacher candidates' attitudes toward mathematics and develop teacher candidates' self-confidence, value, enjoyment, and motivation in mathematics.

Likert-type scales are frequently utilized to measure attitudes toward mathematics (Code et al., 2016; Femmen & Sherman, 1976). The Attitudes Towards Mathematics Inventory (ATMI), demonstrated to be a valid and reliable inventory used with both K-12 and collegiate populations, was selected as the data collection instrument for this quantitative study (Afari, 2013; Majeed et al., 2013; Tapia, & Marsh, 2000, 2002, 2004). The ATMI is a 40-question self-assessment with five-point Likert scale positive and negative items ranging from 1 (strongly disagree) to 5 (strongly agree) (see Figure 1). The ATMI contains four subcomponents, including self-confidence (15 questions), value (10 questions), enjoyment (10 questions), and motivation (5 questions).

Figure 1

ATMI Sample Items

Mathematics is a very worthwhile and necessary subject.
I want to develop my mathematical skills.
I get a great deal of satisfaction out of solving a mathematics problem.
Mathematics helps develop the mind and teaches a person to think.
Mathematics is important in everyday life.

Participating teacher candidates completed the ATMI during the first week of classes (pre-assessment). Following a 15-week elementary mathematics methods course designed in part to develop appropriate mathematics attitudes, students were asked to complete the ATMI again (post-assessment). Multiple paired sample t-tests were conducted comparing the means for the four subscales and the total score for the ATMI. Significant differences were evaluated to determine if an elementary mathematics methods course changed teacher candidates' overall attitude toward mathematics, and if so, in what way (e.g., self-confidence, value, enjoyment, and/or motivation). For the second research question, descriptive statistics were employed using Likert scale item responses from the ATMI post-assessment. Specifically, the average scores for

individual items within each of the four subscales were calculated. Given the inventory included both positive and negative items, reverse scoring was applied where appropriate before analysis.

Findings

In an effort to answer the first research question, multiple paired sample t-tests were conducted comparing the means for self-confidence, value, enjoyment, motivation, and total scores on the ATMI. A significant difference was found in each construct of the ATMI, as well as on the total score. Regardless of what year participants were in during their undergraduate program, results indicated a significant difference in overall attitude toward mathematics before and after taking an elementary mathematics methods course, with teacher candidates expressing higher self-confidence, value, enjoyment, and motivation in mathematics after taking the course (see Table 1).

A significant difference in self-confidence was found ($t(78) = -4.179$, $p < .001$). The mean on the pre-assessment was significantly lower ($m = 46.41$, $sd = 14.16$) than the mean on the post-assessment ($m = 50.49$, $sd = 12.31$). A significant difference in value was also found ($t(78) = -3.656$, $p < .001$). The mean on the pre-assessment was significantly lower ($m = 39.05$, $sd = 4.66$) than the mean on the post-assessment ($m = 41.37$, $sd = 5.23$). A significant difference in enjoyment was found ($t(78) = -4.375$, $p < .001$). The mean on the pre-assessment was significantly lower ($m = 31.71$, $sd = 8.17$) than the mean on the post-assessment ($m = 33.90$, $sd = 7.75$). Additionally, a significant difference in motivation was found ($t(78) = -3.105$, $p < .001$). The mean on the pre-assessment was significantly lower ($m = 13.87$, $sd = 3.99$) than the mean on the post-assessment ($m = 14.86$, $sd = 3.92$). It follows that a significant difference in total score on ATMI was found ($t(78) = -5.079$, $p < .001$). The mean on the pre-assessment was significantly lower ($m = 131.04$, $sd = 27.22$) than the mean on the post-assessment ($m = 140.62$,

sd = 25.37). These results suggest that an elementary math methods course delivered with social justice pedagogy has the potential to improve teacher candidates' attitudes and perceptions towards mathematics.

Table 1

Paired Sample t-test of Pre and Post scores for Self-confidence, Value, Enjoyment, Motivation, and Total on ATMI

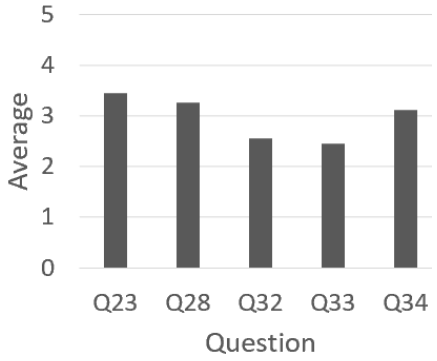
Score	Variable	n	Mean	Std. Dev.	t-values	df	*p*
Self-confidence	Pre	158	46.41	14.16	-4.179	78	**
	Post	158	50.49	12.31			
Value	Pre	158	39.05	4.66	-3.656	78	**
	Post	158	41.37	5.23			
Enjoyment	Pre	158	31.71	8.17	-4.375	78	**
	Post	158	33.90	7.75			
Motivation	Pre	158	13.87	3.99	-3.105	78	**
	Post	158	14.86	3.92			
Total	Pre	158	131.04	27.22	-5.079	78	**
	Post	158	140.62	25.37			

***p < .001*

Although the course demonstrated potential to change teacher candidates' attitudes towards mathematics, the question remains to what extent the course *developed* self-confidence, value, enjoyment, and motivation in mathematics. Figures 2-5 suggest that the largest area for growth for elementary mathematics methods courses was in developing a motivation for mathematics within teacher candidates (see Figure 2). All questions addressing the subscale of motivation averaged below a 4, with 40% of the questions averaging below a 3 in agreement. The math methods course facilitated transformative learning (see Table 1), however there is still room to improve upon the motivation to learn mathematics so that future generations of students gain the motivation required to continually practice and grasp mathematical concepts (e.g., problem solving, critical thinking, relationships, etc.).

Figure 2

Average for Motivation ATMI Questions



Both the subscales of developing self-confidence in mathematics (see Figure 3) and developing an enjoyment for mathematics (see Figure 4) within teacher candidates indicated room for growth as well. All questions addressing self-confidence averaged below a 4 and all but one enjoyment question averaged below a 4. Self-confidence questions (13.33%) and enjoyment questions (10%) each had a small percentage of their questions averaging below a 3 in agreement. Much like with teacher candidates' motivation to learn math, transformative learning

within math methods can continue to enhance a teacher candidates' willingness to change their perceptions towards their own ability to learn math and enjoyment for the subject in an effort to pass these positive perceptions down to future generations.

Figure 3

Average for Self-confidence ATMI Questions

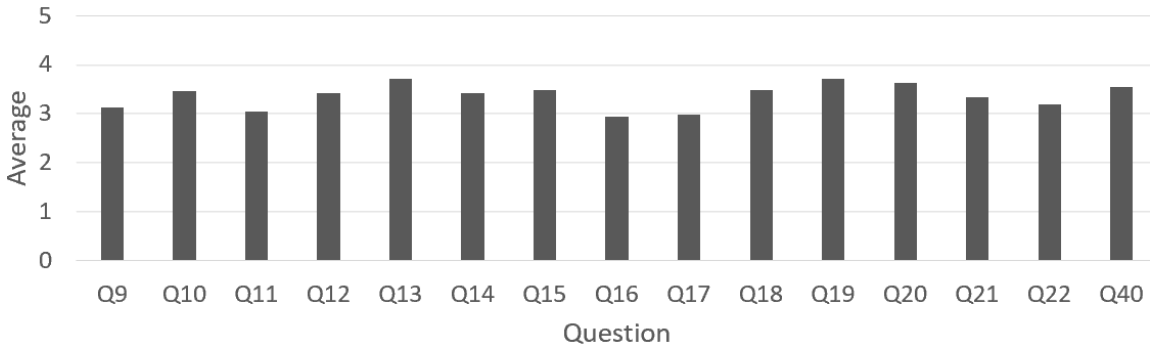
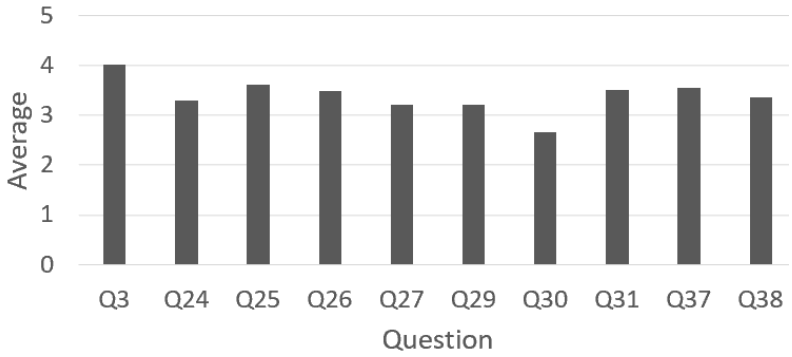


Figure 4

Average for Enjoyment ATMI Questions

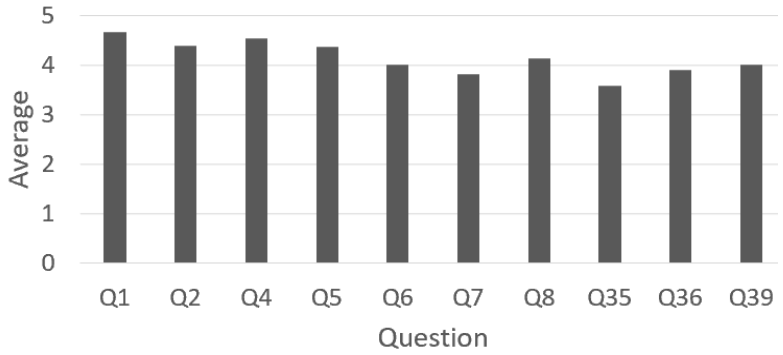


The area in which elementary mathematics methods courses seem to excel is in developing a value for mathematics within teacher candidates (see Figure 5). The majority of questions addressing the subscale of value averaged above a 4, with only 30% of the questions averaging below a 4, but still above a 3 in agreement. Although many may argue against the value of mathematics (e.g., $a^2 + b^2 = c^2$) in everyday life, it appears elementary mathematics methods courses promote an attitude towards mathematics that includes seeing the value within building

critical thinking, logical reasoning, problem-solving ability, etc. Results suggest transformative learning is occurring successfully within the math methods course, allowing teacher candidates to increase their value towards mathematics.

Figure 5

Average for Value ATMI Questions



Results suggest that elementary math methods courses impact teacher candidates' attitudes towards mathematics. Specifically, results indicate a difference in overall attitude toward mathematics before and after taking an elementary mathematics methods course with social justice pedagogy, with teacher candidates expressing higher self-confidence, value, enjoyment, and motivation in mathematics after taking the course. These results provide a lens to understand the extent to which such an elementary mathematics methods course can positively impact teacher candidates' perceptions and attitudes towards math and can be used to better inform the role of teacher educators in fostering positive attitudes towards mathematics.

Discussion

EPPs are designed to provide teacher candidates with a wealth of comprehensive experiences to prepare them for their future students. This preparation regularly includes content coursework, pedagogy course work, and clinical experiences (Walsh et al., 2022). Content courses heavily focus on learning the content (e.g., number sense, computation and estimation,

etc.), while pedagogy courses focus on methods, strategies, and approaches used in teaching (Cochran-Smith, 2010). The combination of these courses is meant to ensure that teacher candidates have both the knowledge base to teach the subject(s) as well as the knowledge base for teaching to the learning standards. An element not often covered within EPP coursework is the perceptions and attitudes toward the content they will be teaching.

This study works to transform teacher candidates' frame of reference (i.e., perceptions) of mathematics before they become problematic when passed down to future generations of students (Mezirow, 2003). Although teacher candidate perceptions and attitudes toward math have received attention in the past, this is the first study to address concerns through social justice pedagogy in a math methods course, which "includes the pedagogical strategies and methods teachers use, but also involves what they believe…" (Enterline, et al., 2008, p. 270; Fachrudin et al., 2019; Hourigan et al., 2016; Jong & Hodges, 2015; Kesicioglu, 2015; Russo et al., 2021). Using social justice pedagogy in a math methods course can help teacher candidates see the value in connecting students, content, and pedagogy and foster equitable learning environments to support all students (Creasey et al., 2016; Gorski, 2017). Teacher educators must be self-aware of not only the mathematics content, but their own implicit perceptions and the way these may marginalize students and/or impact their opportunity to learn and experience success within the content (D'Urso et al., 2023; Lee et al., 2017).

The teacher educator of the math methodology course strived to engage learners by creating a learner-centered safe learning environment, where students felt a strong community and belonging (Brown, 2004; Capper et al., 2006; Dell'Angelo, 2014; Hagerman & Porath, 2018; Martinez, 2015; Ruppert et al., 2022); a space where learners could take risks, develop individual agency and voice (Yu et al., 2021) through differentiation (Tomlinson, 2017). Teacher

candidates had exposure to use a variety of math physical and virtual manipulatives in class to solve elementary mathematics standards-based problems. Teacher candidates appeared to enjoy exploring the manipulatives as many of them self-reported never utilizing rekenreks, base 10 blocks, geoboards, ten frames, fraction bars, or number mats in their academic career: an unfortunate commonality in teacher candidates' year-to-year. Through these intentional choices, teacher candidates were able to self-reflect on their own perceptions and attitudes including self-confidence, value, enjoyment, and motivation toward mathematics.

EPPs have the opportunity to support teacher candidates providing evidence-based mathematics instruction through social justice pedagogy (Cochran-Smith, 2010; Jacobs & Perez, 2023). If math methodology classes are only about math content, ways of instruction, and demo lessons, we are missing an opportunity to build a support system for teacher candidates and close an opportunity gap related to math education. If methodology courses utilize social justice pedagogical connections, they will naturally provide an intentional focus on perceptions and attitudes of math. This could assist teacher candidates to be more self-aware of not only their value, self-confidence, motivation, and enjoyment of mathematics but how they will impact the perceptions and attitudes of their future students (Bandura, 1993; Jackson & Leffingwell, 1999; Looney et al., 2017). Understanding and incorporating students' attitudes, perceptions, experiences, and views can inform a teacher's efforts to increase instructional and learning opportunities for all students (Rittle-Johnson, 2020). The research study results suggest that the inclusion of a math methods course with social justice pedagogy can help bridge the opportunity gap to enhance teacher candidate's self-confidence, value, enjoyment, and motivation in the field of mathematics.

Implications

The field of mathematics is plagued by perpetuated cultural and societal beliefs, including assumptions of difficulty and inherited bias that the content is too hard, too boring, and/or not practical to learn. These often result in students harboring negative dispositions toward mathematics, as well as a lack of interest in-demand science technology engineering and mathematics careers (Leyva et al., 2022). Teacher candidates are preparing to teach students who may hold these negative attitudes and are not exempt from harboring these attitudes themselves. Negative attitudes and perception toward mathematics may be heightened among historically marginalized populations. Teachers often perpetuate inequities intentionally or unintentionally (Jacobs & Perez, 2023). Teachers serving historically marginalized children are "often teaching against the grain because of institutionalized racism, inadequate resources, punitive accountability, and prescriptive curricula" (Roegman, 2020, p. 161).

It is vital in this time and space that educators see themselves as change makers who are confident to incorporate social justice pedagogy to create transformative teaching and learning experiences for all students (Cochran-Smith; 2010; Easley, 2020; Jacobs & Perez, 2023). EPPs can assist teacher candidates to identify negative attitudes and offer equitable opportunities for all their students by focusing on building relationships, creating a safe classroom community, and implementing real-world assessments. Creating an environment where teacher candidates feel safe to take academic risks can help to improve their self-confidence in mathematics. Encouraging agency and independence through allowing candidates to choose between differentiated assessments that still meet the learning outcomes (Hagerman & Porath, 2018; Tomlinson, 2017). Providing students with a choice and a voice in their academic journey can help them to see the value, increase their motivation and enjoyment in mathematics. The results

of this study suggest that the inclusion of an elementary mathematics methods course with social justice pedagogy can provide a support system that fosters teaching and learning experiences for teacher candidates to develop and strengthen self-confidence, value, enjoyment, and motivation in mathematics. This may not only change teacher candidates' attitudes towards mathematics but may also positively impact future generations of students who will learn from these prospective educators.

Limitations and Future Research

There is a need for additional research studies which focus on teacher candidates' attitudes toward mathematics. Negative attitudes, such as low self-confidence, lack of value, enjoyment, and motivation toward mathematics needs to be minimized amongst educators and all students, especially those marginalized populations. Teacher candidates' quickly transition into educators in the classroom whose perceptions and attitudes toward mathematics can directly influence their future public school students' attitudes toward mathematics (Bandura, 1993; Jackson & Leffingwell, 1999; Looney et al., 2017). This study has a very low n, meaning it is difficult to draw conclusions from the data with a small sample size. A clear weakness of this design is its minimal internal validity, controlling only for selection of subject and experimental mortality and lack of external validity. The findings raise several questions that could be addressed in future research. Future research could focus specifically on which elementary mathematics course objectives or social justice pedagogies including topical lectures, activities, or assignments that impact self-confidence, value, motivation, and enjoyment. Additionally, future researchers could follow the candidates into their student teaching experiences or even their first year of teaching to see what experiences during candidates' EPP left a lasting impact on their perceptions and attitudes toward mathematics.

Conclusion

The results of this study suggest that including social justice pedagogy in elementary math methods courses may create a supportive environment which enhances the teaching and learning experiences of teacher candidates, leading to improved value, motivation, self-confidence, and enjoyment toward mathematics. After teacher candidates graduate and acquire their own students, their perceptions and attitudes toward mathematics can directly influence their future students' attitudes toward mathematics (Bandura, 1993; Jackson & Leffingwell, 1999; Looney et al., 2017). It is necessary for EPPs to actively allocate time to improve teacher candidates' dispositions in an effort to address perpetuated cultural and society beliefs about mathematics for teacher candidates turned educators and their students.

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Section 2 Editors Welcome: "From Policy to Practice: Striving for Inclusive Excellence through Personal Reflection, Connectivity, and the Building of Support Systems for Leaders, Educators, Students, and Families"

Regina D. Biggs, Elizabeth K. DeMulder, Stacia M. Stribling and Jenice L. View

The events of the years 2020 to 2023 cast in stark relief the continuing inequities in public schools nationwide. A collaborative research effort by George Mason and William and Mary Universities attempted to capture the stories in the Commonwealth of Virginia regarding statewide efforts to modernize Virginia's public education system and to address these inequities. State officials, program directors, teacher educators, school administrators, teachers, and parents offered insights and recommendations for how to align systems more closely and how to revise the various Profiles (of a Graduate, an Educator, an Educational Leader) in light of the lived experience of practitioners. The research outcomes bumped into the changing state education politics, the challenges of returning to "normal" schooling practices and procedures, and severe shortages of professional educators and administrators at every level. Yet, the special issue of TTEJ offered an opportunity to continue to learn from the people most impacted by schooling and to offer hope regarding the persistent call for educational equity.

The sub-theme for this section is "From Policy to Practice: Striving for Inclusive Excellence through Personal Reflection, Connectivity, and the Building of Support Systems for Leaders, Educators, Students, and Families." We sought to hear from practitioners, scholars, and parents about how and whether the various Virginia Profiles resonated, especially in light of three years of a global pandemic and the racial reckoning that began in 2020. We invited authors to paint a picture of practice, policy, and processes regarding how they have made changes to the educational landscape by asking:

- What are the conditions that needed/need to be actualized?
- What were/are the capacities?
- How was I prepared or not prepared?
- What did I/do I have to change?
- What is the promise and/or the peril involved in efforts to make change happen?

The resulting submissions reveal a range of efforts that offer a great deal of promise for creating inclusive excellence in schools. The most vulnerable children are those who require more resources and attention to achieve educational equity. In the opening article in this section, "Every Second is a Fresh Start": Building Collaborative Relationships to Support a Student with Fetal Alcohol Spectrum Disorder (FASD)" Boisvert, Hess, Martin, Mullins, Warter and Stribling describe a partnership between a parent and the entire grade level teaching team to offer tools and resources to a child who requires more than Social-Emotional Learning (SEL) activities or traditional behavior modification approaches such as sticker charts, positive consequences, and punishments to stay connected to schooling and to realize the child's potential.

Vulnerable students were also shown to struggle with virtual instruction, creating fears of profound learning loss. In, "We Wove the Rope: Culturally Relevant Pedagogy in a Virtual English Learners Classroom," Miner, a high school classroom teacher, describes online instruction during the pandemic and her teacher action research project on the influence of culturally relevant pedagogy efforts on the motivation of English Language students to engage virtually.

Despite the great demand for mathematics teachers, interests in diversifying the educator workforce, and the positive impacts of Black teachers, Black mathematics teachers were most vulnerable to leaving the profession due to hostile work environments prior to the pandemic, and

even more so in the aftermath. The creation of a supportive community for Black Algebra I educators is described by Grace, Southwell, Taylor and Monroe-White in "'I like that we are allowed a space to be vulnerable about our experiences, given space to heal': Black Algebra I Educators' Perceptions of a Liberatory Algebra I Professional Learning Community."

In addition to a nurturing professional environment, in-service classroom teachers also need professional development to achieve the equity goals of a school or district. Aimed at teacher educators, "The Potential of Collaborative Inquiry for Teachers' Equity-oriented Development in Complex Sociopolitical Contexts" by Dodman, Hiltabidel and Brusseau explores the impact of a collaborative inquiry professional development project at a Title 1 suburban school, one year after the fact. Through the lens of the sole participant of color, the article explores how data use tools, rich dialogue, and reflection can support educators in their equity practices.

In "Teacher Candidates Dismantling Racism, One Book Study at a Time," teacher education faculty Correia and Boivin seek to make anti-racist practices the norm for the teaching profession. The article describes a book study with teacher candidates intended to foster confidence with anti-racism and cultural responsiveness in their impending student teaching practice.

The authors of "Advancing Equity Through Collaborative Partnerships: Developing an Emergent Literacy Open Educational Resource (OER)", La Croix, Miller, Austin, Schull and Kidd, describe an effort to address the shortages of early education teachers due to financial barriers to higher education. The article details a cross-institutional collaboration to create a high-quality OER to enhance the professional knowledge of early educators in language and literacy practices for young children, birth to age five.

In the final article in this section, “The Commonwealth Learning Partnership: How Virginia’s Education Vanguard Came Together in a Pandemic to Equip Teachers, Modernize Public Education, and Spur Educational Change”,Krauss and Keller describe an effort of nearly 40 state education organizations and university members, plus national partners and supporters to actualize the Profile of a Virginia graduate and to address the concerns described by the other authors.

Despite Horace Mann’s ideas for universal, secular public education with well-trained professional teachers (e.g., Cremin, n.d.), access to U.S. public educational opportunity has always been unequal. Since the late 18th century, Thomas Jefferson’s “A Bill for the More General Diffusion of Knowledge” and his “Notes on the State of Virginia” called for a two-track system for "the laboring and the learned" that would allow a very few of the laboring class to advance, such that “twenty of the best geniusses will be raked from the rubbish annually, and be instructed, at the public expence” (Jefferson, 1784). In the 21st century, educators, parents, and especially students are pushing back against more than 200 years of beliefs about their capabilities, wisdom, and talents. The modernization of Virginia’s (and the U.S.) public schools requires a rejection of these ancient prejudices, and concerted investment in educational equity.

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"Every Second is a Fresh Start": Building Collaborative Relationships to Support a Student with Fetal Alcohol Spectrum Disorder (FASD)

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Abstract

This paper tells the story of how one school leveraged the expertise of a family to build an equitable collaboration that transformed the educational experiences of Jake, a fifth-grade student with Fetal Alcohol Spectrum Disorder (FASD). Personal accounts from 3 teachers, 2 administrators, and a parent illustrate the power of leaning into relationships to gain knowledge and compassion for reaching some of our most vulnerable students. The major themes that emerge across their reflections include: the power of families and educators working together, the need for FASD training, and the need to re-evaluate the systemic structures that are in place. Their insights illustrate the importance of nurturing teachers to collaborate with families, to take pedagogical risks, and to advocate for their neurodiverse students.

Keywords: FASD, home-school collaboration, special education

> *Jake is working on an art project when he's told to clean up. He complains that he is not finished and is unhappy with what he produced so far. The teacher tries to assuage his concerns telling him that he will have time to complete the project later. Jake continues to argue back about his disappointment in his project declaring that he does not want his work to be in the art show. The teacher reminds him that she is the one who chooses the pieces for the art show. At this point, Jake devolves into yelling insults at the teacher and disrupting the class, which results in his removal from the classroom.*

This scenario likely sounds familiar to many classroom teachers. Reports indicate an increase in challenging classroom behaviors since the pandemic and the resulting disruptions to school experiences (NCES, 2022). Schools have responded by infusing more Social-Emotional Learning (SEL) activities and, when in doubt, falling back on traditional behavior modification approaches such as sticker charts, positive consequences, and punishments. Unfortunately, many of these tactics will not work for a student like Jake because he is diagnosed with Fetal Alcohol Spectrum Disorder (FASD). FASD is

> a *lifelong disability* that affects the brain and body of people who were exposed to alcohol in the womb. Each person with FASD has *both strengths and challenges* and will need *special supports* to help them succeed with many different parts of their daily lives (CanFASD, n.d.). [*Emphasis added*]

Fetal Alcohol Syndrome (FAS) was first identified in the US in 1973 (Jones & Smith, 1973). Since then, researchers have documented the impacts of alcohol on a growing fetus along a spectrum of symptoms to include facial dysmorphology, growth deficiency, structural brain difference and/or neurobehavioral impairment (Hoyme et al., 2016). FASD, therefore, is the umbrella term that encompasses several diagnostic categories (e.g., FAS, pFAS, ARND) which continue to evolve as new information is gathered (Warren et al., 2011). Because it is a spectrum disorder, there is wide variability in presentation across individuals. The timing and the amount of alcohol exposure, coupled with other factors such as genetics, nutrition, exposure to other legal and illegal substances, and stress results in a diverse presentation of impairments (May & Gossage, 2011; Petrelli et al., 2018).

Wherever they fall on the spectrum, neurobehavioral impairment is the most consistent characteristic of individuals with FASD and has the most impact on an individual's ability to

function in academic and social situations (Hoyme et al., 2016). Spiller (2020) maps out the brain domains that are potentially impacted by alcohol exposure: adaptive functioning, executive functioning, affect and emotional regulation, attention, memory, language, cognition, academic performance, motor skills, brain structure, and sensory. Some potential symptoms of damage to these domains include, but are not limited to, deficits in working memory and processing speed, struggles with abstract concepts and predicting, difficulty regulating emotions, confabulation, difficulty with cause and effect, developmental dysmaturity, sensory processing issues, learning difficulties, issues with attention, and difficulty evaluating and making decisions (Noble & Soucie, 2015; Spiller, 2020). The neurobehavioral model proposed by Malbin (2017) posits that these behaviors associated with FASD are a result of brain injuries and changes due to alcohol exposure; therefore, we must view behaviors as *symptoms* of the disability rather than as *willful behaviors*, changing our mindset from punishment to support for these individuals (FASD Success, 2023). Rather than trying to "fix" and modify the behavior of individuals with FASD, we must focus our efforts on modifying the environment, our expectations, and how we use strategies to create supportive spaces in which these individuals can succeed (Spiller, 2022). In other words, we need to shift from a medical model of disability where the patient is the "problem" to a social model of disability where the environment needs to change (Cleveland, 2023).

A major challenge for school systems is that one in 20 children meet the criteria for an FASD, but less than 1% get a diagnosis (May et al., 2018). This means that there are many students who are not being viewed through this neurobehavioral lens and are not getting the supports they need to succeed. When primary characteristics of FASD are not accommodated appropriately, this can lead to some of the secondary and tertiary characteristics associated with

this population including mental health diagnoses, aggression, frustration, anxiety, elopement from home and school, homelessness, substance abuse, and incarceration (Noble & Soucie, 2015; Rodger & Goswell, 2014). Research indicates that this problem will only get worse as we recover from a global pandemic. An NIAAA Surveillance Report (2022) shows that alcohol sales increased by 35% during the COVID pandemic. At the same time there were 1.4 million unintended pregnancies in 2021 (UNFPA). All of this indicates that we will continue to encounter, perhaps to an even larger extent, students in our school systems who are on the FASD spectrum, whether diagnosed or not. More research is currently underway that will shed light on the specific challenges that teachers face when teaching students with FASD and the extent to which they are prepared to meet those challenges (Kautz-Turnbull, 2023). Clearly, schools need to be better prepared to successfully reach and teach this population.

In the absence of teacher training, Ishimaru's (2020) research on building equitable collaborations with disenfranchised families can serve as a framework for how schools might transform educational experiences for children with FASD. While she speaks specifically to racial and cultural inequities, there are many parallels in the world of special education where students experience marginalization due to their disabilities. In fact, these collaborations are a vital part of the special education process, where parents are considered part of the team tasked with creating and implementing a student's Individualized Education Plan (IEP). While many parents report feeling unwelcome in this process and uncomfortable participating at this level (Fish, 2006), research shows that their collaboration is essential for their child's academic, behavioral, and social development (Turnbull et al., 2011). Furthermore, the *quality* of the relationship developed between parents and teachers is crucial (Reiman et al., 2010). Griffiths et al. (2020) note that relationship building, shared values, and active engagement are the building

blocks of collaboration. Their analysis of the literature uncovered eight key constructs that lead to collaboration: 1) open communication, 2) trust, 3) mutual respect, 4) shared goals, 5) common understanding, 6) shared responsibility, 7) active participation, and 8) shared decision making (Griffiths et al., 2020). This paper tells the story of how one school leveraged the expertise of a family to build an equitable collaboration grounded in these constructs that transformed the educational experiences of Jake, a fifth-grade student with FASD. Personal accounts from MaryPat and Mollie, the school administrators, Dawn, the special education case manager, Rebecca and Leah, the fifth-grade general education teachers, and Stacia, Jake's mom, illustrate the power of leaning into relationships to gain knowledge and compassion for reaching some of our most vulnerable students.

Background

Jake is a curious, smart, thoughtful 11-year-old who loves to learn. Because of his trauma background, however, these characteristics are not always the ones that shine through, particularly in a school setting. Jake was placed in foster care at 16 months old and was adopted by his foster placement family at age 3. From the beginning, he was a verbal and precocious child, constantly narrating his world, testing limits, and figuring out how things worked. He started play therapy when he was three to process the major life change of being adopted and to be proactive in building attachments and healthy identity development. Much of Jake's development was typical for his age at that time; however, over time he did not seem to "outgrow" certain behaviors, and he would have daily intense anger outbursts over minor incidents that would last upwards of an hour. He struggled at age 4 in his first pre-school classroom earning daily notes home regarding his difficulty with following rules, listening to directions, staying in his space, controlling his impulses, and getting along with teachers and

peers. Jake attended a Montessori school the following year, where he met with moderate success, though he avoided reading and writing activities, was sensory seeking, and continued to struggle with directions and expectations. The next year Jake attended a public-school Kindergarten in the hopes that he would have the advantage of additional learning resources. He worked so hard to fit into the class culture, but his behaviors continued to challenge the teacher and to alienate him from his peers. All this time, his behavior was attributed to trauma, and his parents engaged in additional therapies to help Jake including an adoption specialist therapist, family therapy, and neurofeedback. Jake's mother, Stacia, was also concerned with signs of learning disabilities. Therefore, a full neuropsychological exam was done to get a more complete picture of Jake's academic and emotional struggles.

Jake was diagnosed with Mild Neurocognitive Disorder due to Probable Medical Condition (Substance Exposure In-Utero) [FASD], Disruptive Mood Dysregulation Disorder (Biochemically Based and Related to Drug Exposure In-Utero) [DMDD], Unspecified Attention Deficit Hyperactivity Disorder [ADHD], and Post-Traumatic Stress Disorder [PTSD]. At the time, everyone gravitated towards the diagnoses they understood and were most familiar with – ADHD and PTSD. While an Individualized Education Plan (IEP) was not developed at this point, agreed upon supports were put in place. First grade got off to a good start, however, as the academic demands increased, so did Jake's challenging behavior. He resisted any activity where writing was involved, so received private Occupational Therapy (OT) services to work on pencil grip, fine motor strength, and letter formation. He also learned to use the Zones of Regulation to recognize when he was getting frustrated and to use appropriate tools to re-regulate. At this point an official IEP was put in place. Unfortunately, Jake's challenges continued into second grade,

and the school zeroed in on the Mood Dysregulation diagnosis recommending placement in a self-contained classroom (in another building) for children with Emotional Disturbances (ED).

Given that ED classrooms are not effective learning spaces for children with FASD (Dubovsky, 2022), Jake's parents decided to homeschool him. During this time, he received another neuropsychological exam at age 8, uncovering significant learning disabilities in reading, writing, and math. Jake's mother also researched more on his FASD diagnosis by reading books, attending virtual conferences, enrolling in webinars, and joining support groups. It became clear that the FASD diagnosis was the most accurate in explaining his symptoms and challenges. When schools returned to in-person classes for the 2021-2022 school year, Jake was enrolled in yet another public school in the hopes that he would have a fresh start in a new setting and would receive more appropriate services for his newly identified learning disabilities.

The Collaboration

Given the experiences of the past, more needed to be done to support Jake as he ventured into his fifth school setting in 9 years. At the start of the school year, Stacia met with Mollie, Dawn, and the fourth-grade classroom teacher to develop Jake's IEP and to provide some background information. Stacia placed more emphasis on the FASD diagnosis in helping the team brainstorm ways they could support Jake as he transitioned to this new setting. While his fourth-grade year was not without bumps it was, all-in-all, a successful year. Jake maintained A's and B's in all subject areas with the support of Dawn and made some growth socially. But it became clear that teaching a child with FASD required more training and understanding for educators to unlearn approaches that are ingrained to work for neurotypical children and to learn approaches that are more effective for children with a brain-based disability. Therefore, Dawn asked Stacia to meet with Rebecca and Leah, the fifth-grade grade team, to share about FASD

prior to the start of the following school year. Mollie and Mary Pat, having been part of many conversations regarding Jake over the past year, were also on board with being part of these continued conversations.

We met for two three-hour sessions in the beginning of August. An arrangement was made with central office for the teachers to receive professional development points for their time. In the first session Stacia focused on defining and understanding FASD and trauma, which segued into a discussion of strategies that do and do not work for children like Jake. The second session included Jake's father and continued the conversation getting into the details of the structure and supports teachers could put in place from the start to foster success. As Lieberman and Miller (2014) argue, however, the workshop approach to professional development is not as effective for lasting pedagogical change as engaging in "professional learning," which is

> …steady, intellectual work that promotes meaningful engagement with ideas and with colleagues over time … involves teachers in knowledge creation through collaborative inquiry into practice … relies on both inside teacher knowledge and outside expert knowledge … focuses on specific problems of practice and takes into account the experience and knowledge of teachers … and assumes that teachers will actively engage in reflection, analysis, and critique. (p. 9)

With this framework in mind, these two sessions served as the groundwork for building a relationship between educators and parents. We connected through honest conversations that allowed all of us to express fears, struggles, humor, triumphs, and our commitment to a path forward that we acknowledged would not be neat and linear. At this point we were all on more equal footing in our understanding of FASD and trusted that everyone was committed to supporting Jake's success. Toward that end, we engaged in daily reciprocal communication

throughout the ensuing school year. We used several platforms including the Class Dojo app, text, email, Google Meet and in-person conversations. While Jake's challenges were still at the center of that communication, the focus was no longer on venting and claiming defeat but rather on collaborative analysis to understand the behavioral symptoms more deeply and to develop ways forward. These communications were also peppered with wins and anecdotes of Jake's endearing strengths.

Following are our reflections on what it has meant to build collaborative relationships that support Jake and his learning. Each one of us came to the table with assumptions, experiences, and expectations. And each one of us committed to being in community with each other so that we could examine those assumptions, share and learn from those experiences, and co-create more appropriate expectations for Jake and for ourselves. We learned so much over the past year – lessons that could help others transform the ways in which teachers and families work together to support the development of children as whole, worthy, imperfect, unique beings.

Mary Pat's story (Principal)

"I want you to write down everything you already *know* about Fetal Alcohol Syndrome Disorder (FASD) before we begin this workshop." It was a simple request from Stacia that I was more than willing to do as I had significant confidence on the subject. Having been an educator for more than 2 decades, I had worked with students exposed to alcohol in-utero and their families. I was confident in my answers, so was ready to comply.

What I realized shortly after the workshop began, however, was that I knew very little; my understanding represented just "the tip of the iceberg." What I thought was a deep understanding of this disorder, was a scaled down outline of generalized beliefs. I knew about the range of cognitive deficits, behavioral problems, learning and developmental delays, but I

was lacking the “bottom of the iceberg” which included the underlying reasons, affects (physical and psychological), true causes, and quite frankly what FASD really stood for.

As Stacia continued the interactive workshop, flashes of Jake as well as other students began to surface. Specifically, their behaviors and how we systematically dealt with them using what we “believed” about their processes. The neurological damage from alcohol exposure creates a brain that does not respond to the typical strategies we use for students who display similar behaviors and in fact, can even make things worse. I began to feel bad that we didn’t know more but was excited to learn so that we could understand the research and support these children more efficiently. I learned so much that day and was happy that several of my staff were in attendance, specifically the ones that would be working directly with Jake.

Being pro-active as much as possible is always our first step so in preparation for the upcoming school year, we placed Jake with a teacher who shared some common life experiences (adoption). This was important because Jake needed someone to have an immediate connection with so that he could rely on her to help “regulate” when he became “dysregulated”. This year we have been able to react to Jake’s behaviors more effectively, though we don’t always get it right. It has been a learning curve for everyone that includes ups and downs, good days, and bad days, as we struggle to work our way through the world of FASD. With Stacia by our side, we have cut through tears and misconceptions to better support Jake (and others).

We don’t always succeed and know that we have so much more to learn about this disorder. What I do know is that Jake must have a system that supports his specific needs as he navigates through this neurotypical world. To do this, we (the education system) need to have a better awareness of FASD that includes the “bottom of the iceberg” or students like Jake will be served under the scaled down outline of generalized beliefs we have carried around up until now.

Mollie's story (Assistant Principal)

When I first met Stacia, we had a very honest conversation about Jake's needs and concluded that within our county, the public school system unfortunately did not have a program that was an appropriate placement…but we were determined to make the best of what our inclusion-based program could offer. A few weeks later I was giving this smart and thoughtful boy a tour of the building. He was teaching me things about our school garden, and I was excited about welcoming him into our school family.

Jake started as a 4th grader with us after two challenging years in public school, then two years of homeschooling during a pandemic that presented so many additional obstacles. Given that, we had no idea how he would acclimate back to a public-school environment. Considering the unknowns, we were intentional in what we shared about Jake's previous school experiences as we did not want to put expectations of negative behaviors in the minds of those working with Jake before he stepped into the building. In retrospect it would have been to everyone's benefit to give all the adults who interacted with him training in working with students diagnosed with FASD. Being proactive and intentional in responding to Jake is so key to avoiding and de-escalating situations that can intensify so quickly.

From day one Jake had the support of knowledgeable and caring parents, a determined and passionate special education case manager, and an experienced classroom teacher. This partnership flourished over time and was critical in supporting Jake. Systemic challenges emerged quickly during his first year with us. Jake needs an adult who can co-regulate in the moment by his side throughout the entire school day. Every teacher working with him needed to hear, acknowledge, and respond with the understanding that Jake's perceived negative behaviors and responses were not his choice but functions of FASD. Limited staffing and large class sizes

were constant and frustrating challenges we continue to face every day with no feasible fix in sight.

We were fortunate that Jake's mom was willing and able to offer invaluable professional development for 5th grade teachers moving into the next school year. Given busy summer schedules not all teachers were able to attend the sessions; in hindsight we would restructure this to ensure it was attended by or accessible to all. The year got off to a much smoother start with teachers understanding that Jake needs additional time to process outside of the heat of the moment, and that typical positive reinforcements and consequences would not necessarily be effective in modifying Jake's behaviors.

As administrators, we walk a tightrope of supporting teachers and supporting Jake. While teachers knew that Jake was not going to respond like a neurotypical child - or even like the child with a disability that they were accustomed to working with - they also felt that he had to have consequences for his actions, especially if they were observed by his peers. With every conversation we grew to understand Jake a little bit better and were able to be more effective in helping him process through big emotions and return to class.

While we are still far from perfect, our second year thus far has overall been a smoother ride and the insights we have gotten from Jake and Stacia have reshaped how we work with other students who share similar challenges. A strong team of parents, general education teachers, special education teachers, specialists, and administrators has evolved over time, which has been instrumental in meeting Jake where he is every day. We may not always feel or be completely successful in our efforts, but in working together as a team Jake has grown so much as a student despite the challenges a traditional school environment presents for him. It has been an invaluable experience to get to know Jake and to work with his family in understanding how

FASD impacts children. This experience will have a long-term impact on our understanding of and interactions with our students.

Dawn's story (Special Education Teacher)

I first met Jake at Meet the Teacher a few days before he returned to public school for his fourth-grade year. It felt different than any other initial meeting I have had with a student. The extensive time I spent with Stacia discussing FASD helped me understand how this brain-based disability is different from other disabilities on my caseload such as ADHD, ED, and Autism. She was openly honest and informative as she filled me in on his complicated history, the trauma he had experienced, and how his past experiences continue to impact and challenge his everyday behaviors. I was familiar with FASD as a disability and knew that drugs and alcohol impacted children in-utero but was completely uneducated regarding the full effects on the brain and the resulting unique needs of children with FASD.

Jake and I started off his fourth-grade year feeling many of the same emotions - a little nervous and fearful of the unknown. He had had so many unpleasant educational experiences and wasn't sure if his new school was going to mirror his old, and I wondered how I was going to be able to support a complex child with a complicated profile. I worried about the large classroom sizes, the multiple teachers he would be exposed to, and the various learning environments he would be navigating on a typical school day. Fourth grade is fast paced, packed with academics, and very little free time, and it was unknown how he could react to this big change from his past two years of homeschooling.

We made it through, but not without some bumps in the road. Our school setting wasn't always ideal for Jake, but we all wanted him to thrive and so we worked collaboratively toward that end. The knowledge Stacia shared, along with hands-on experiences with Jake, taught me so

much about FASD and allowed me to better support him. We were open to suggestions from his parents, who had much more experience and knowledge about managing a child with FASD. We accepted that there would be hard days. I learned to give myself and others grace during more difficult times, which allowed me to remain resilient in my goal to help Jake be successful.

In my second school year supporting Jake, I continue to witness the impact of prenatal alcohol exposure. Jake is unlike any other student I have ever worked alongside. I purposefully chose the word *alongside* because my relationship with him is more collaborative than my relationships with other students on my caseload. We work together as I serve as his co-regulator while at school, though this role did not come easily. It took time for me to build his trust. Trust is hard to build and easily broken so it is extremely important to keep *my* expectations for Jake in check, making sure they align with *his* expectations. Additionally, it is important that I reflect on how I perceive Jake's behaviors, respond to them, and interact with him because that careful reflection determines his outcome, especially in challenging situations where Jake needs co-regulating. This is NOT easy to do because humans are reactive by nature and being reactive can backfire with students like Jake.

Specifically, I learned that traditional approaches for managing Jake's responses to situations do not work. He is not a neurotypical child, and thus cannot be treated as such; this is easier said than done. Physical rewards do not work as they have no value to him due to his trauma background, and logical explanations or natural consequences have little impact particularly in the moment. I learned that Jake must feel heard and respected. It isn't that Jake doesn't want to do the right thing or be successful, he just isn't always able to get there on his own. A major realization was that I needed to change myself. Once I realized that I could help

him manage his reactions and emotions better by first regulating *my* feelings and how *I* was responding to him, our relationship became healthier.

I have learned much about how to appropriately respond to Jake's symptoms. Raising your voice escalates things as does talking too much; it is important to keep directions short, and to ask open-ended questions. Acknowledging Jake's feelings using calm words is helpful and providing a distraction or redirection is also effective. It is critical to choose your battles, and to always remain calm. You cannot take anything Jake says or does personally. I've learned that he doesn't mean what he is saying when he is unable to regulate his emotions. Tough skin from raising two of my own children has really come in handy. A symptom that surprised me and that continues to catch me off guard, is how quickly and, seemingly for no apparent reason, Jake will revert to behaviors developmentally below his age – known as dysmaturity. When this happens, his language, voice, behaviors, reactions, reasoning, all regress in age. This can look like rolling on the floor, crawling around, whining, and so forth. In these situations, co-regulation is essential.

Jake is an amazing young man with a mild, gentle spirit, who can be incredibly thoughtful, kindhearted, and generous. Through my experiences with him, I realized the importance of educating others on the impact FASD. I learned to see Jake through a different lens, and I recognize how important it is that all people interacting with Jake throughout the school day learn to see him through a different lens as well.

Rebecca's & Leah's story (Fifth Grade Teaching Team)

We started the school year with 22 years of teaching experience between us and 4 years as a fifth-grade teaching team. Neither one of us had ever taught a student with an official FASD diagnosis, nor had we learned anything specific about this disability in our pre-service training.

One of the most important experiences was the opportunity to get to know Jake before meeting him and gaining knowledge about FASD from Stacia. Time to learn about a child in such depth from a parent is an opportunity we wish we had with every student who enters our classrooms. The knowledge shared about Jake made such an impact on how we started our year together. After our summer professional development with Stacia, we knew more about how his brain worked, why certain approaches didn't work and what strategies were effective. We were aware of his struggle to stay on task and get through a whole school day last year, and the fact that this year he has held it together all day without having to go home says something about the relationship we were able to create at the beginning. We were not trying to learn all this while also teaching him; having all that information ahead of time was a game changer.

We are intentional about creating a family feel in our fifth-grade classes, and part of this includes sharing stories about our own families outside of school. We use this approach to make connections with students and to help them realize that we are human, and we get tired. They learn by our modeling as we offer each other grace in our learning space. As an adoptee herself, Rebecca felt particularly fortunate to make this connection with Jake. In the fall, Rebecca shared her feelings with Jake about meeting her birth father for the first time; Jake was even included in their apple picking adventure at Jake's family's orchard and posed in one of their family photos!

Because of the working relationship we built with Stacia and subsequently with Jake, we now view his behaviors as symptoms of his disability. We better understand his needs and can offer appropriate supports in the classroom. Jake must feel that he's in control, that he's heard, and that he is respected. We know that real life connections are critical for Jake. He is a smart individual who has a lot of life experiences to draw on, particularly in understanding science and social studies concepts. As a result, the quickest way for him to shut down is when he thinks he

knows something, but he doesn't know it, and we correct him. We have learned, therefore, that we must pick our battles. We recognize that consequences we use for our neurotypical students will not be successful with Jake. For example, the class was in the hallway one day when a student said something that got on Jake's nerves, so he gave him a little push. Leah went into the hallway and informed Jake that he owed her classroom money, the designated consequence for getting in other people's space. His response was, "I don't even need my money anyway." Leah said in that case, she would take some more away. Again, Jake seemed unfazed by this consequence, and Leah quickly realized how futile this approach was. With trauma, there is nothing worse than the things that he's experienced. Taking classroom money from him could never compare with the losses he endured and would not result in the desired outcome of curbing that type of response from him in the future. Engaging in the argument with him only escalates his anger and his determination to come out the "winner" of the argument, the one with the last word.

It is complicated when the rule is "if you do this, you lose this, or this is the consequence." Everybody appears to understand that except for Jake. As teachers we worry about the other students' reactions to Jake receiving different consequences for similar actions. Leah addressed this issue in a lesson she did with her class early in the school year. She gave the example of a student who fell off a skateboard and scraped her knee requiring a band aid. Another student fell off a skateboard and broke an arm, so Leah gives him a band aid to put on his knee. Another student fell and cracked her head open. Leah, again, provides a band aid to place on her knee. The point of the lesson is that providing the same treatment is not fair because we all need different things. Sometimes you need to go to the hospital and sometimes you just need a wet paper towel. She explained that she is not going to give everybody the same thing but

rather what each person needs in that moment. Students really connected with this lesson and understood that equity is not the same as equal. At the same time, we realize how challenging it is to always apply this lesson. Schools tend toward efficiency, and meeting diverse needs is not always efficient.

Another assumption we had as teachers was that student engagement could be measured through eye contact. So, when Jake would engage in various other activities during a lesson (e.g. reading a book, coloring, fidgeting), we assumed that he was disengaged and was not participating in the learning. What became clear, however, was that just because it doesn't “look like” Jake is listening doesn’t mean he is not listening. We would periodically ask him questions about the lesson, and he would have the answer.

In addition to the accommodations necessary for his success, Jake brings many strong qualities to our relationship. He is extremely forgiving when we get things wrong. There was one instance when Leah was helping students organize their social studies interactive notebooks and Jake told her that she was incorrect with her numbering. He was the only one brave enough to point out the mistake, and he was right. After class, Jake graciously accepted Leah’s apology. He understood her frustration and loved her despite her mistake. He understands big feelings and allows others to have them because he knows he has them too and wants to be loved despite them as well. With a student like Jake, you must recognize that every second is a fresh start.

Along the way, there have also been insights we have gained about ourselves. We bring our own personal experiences to the classroom, and we set up expectations based on those. We have had to learn that the way we do things isn't the only way. For example, Rebecca never learned how to highlight notes and how to study, so she is vigilant about giving students everything they need to have a visual to go with their notes. While this has been powerful for

neurotypical students, it has not been as helpful for Jake who needs the hands-on experiences for information to stick. And Leah has found that as she encounters students with other needs and abilities, she can offer more modifications and choices for them to demonstrate their understanding of a skill. It has also proven to be a benefit that Jake has two different teachers during the day. He gets to move to different rooms and experience a change in teaching style and get a break. We work as a team with Jake.

Given our experiences, we believe that FASD training should be mandatory for anyone encountering a student like Jake in a school setting. If you have a child with diabetes or with epilepsy, everyone who works with that child must receive training on what to look out for and how to react. FASD is no different than these medical diagnoses. There have been some incidences this year that could have been handled better if others knew about FASD. We're all human, we all make mistakes, but you need to know better to do better.

Stacia's Story (Parent)

As an educator by trade, I embraced parenthood with a certain level of confidence that I had the knowledge and experiences to handle the challenges that might come with raising a child through foster/adoption. I studied child development and how to best support that development, and I certainly knew my way around the education system. I taught for 8 years in a public elementary school after which I completed a doctoral degree in early childhood education with a minor in literacy. I went on to become an assistant professor, teaching in both pre-service and in-service teacher education programs across two public universities. Parenting Jake, however, caused me to question everything I ever thought I knew about parenting, teaching, and learning. It has been an extremely humbling experience.

From preschool through second grade, I spent an inordinate amount of time meeting with teachers to discuss Jake's challenges. (Note: the focus was on his challenges…. rarely his strengths.) Each one of these exchanges chipped away at my confidence as a parent. His behavior was viewed as willful, a choice he was making, and the underlying message was that I was responsible for not teaching him to be respectful, to stay in his space, to act appropriately, or to _____ (fill in the blank with any number of other deficits). It did not seem to matter that he had a trauma history, that we were accessing all the services possible to help him work through that trauma, or that we were spending hours researching all we could do at home to support his development. From the behaviorist lens of school, Jake should have eventually been "fixed" if given the proper consequences. However, Jake remained predictably unpredictable, a hallmark characteristic of his FASD diagnosis. Advocating for him felt like running uphill through Jell-O. On a weekly, sometimes daily, basis his seemingly endless list of transgressions was placed in my arms, crushing me under the weight and dragging me back down the slimy hill. I did not need more examples of his struggles. In fact, I knew exactly what they were as we lived them every day in our own home. I needed someone to listen, someone to believe that I was not making excuses for my son, someone to connect with him and dig deeper into the sadness and frustration that his anger was fiercely protecting, someone who was willing to learn more about FASD and to climb that advocacy hill WITH me.

While I was excited to embark on building a collaboration with the fifth-grade team, I was also nervous. I knew that I came to this relationship not only wearing the hat of "parent," but also that of "former elementary school teacher" and "teacher educator." How would I juggle all those hats in ways that would build trust and lay the groundwork for a true partnership? I knew that I was the expert on FASD as it impacted my child, but I also respected the teachers for their

expertise in content and pedagogy. Humility and honesty ended up being the foundation on which our partnership was built.

In addition to being open to learning about FASD, these educators embraced the theories and strategies needed to provide appropriate accommodations for Jake. They never allowed Jake's most challenging moments to define him, something that frequently happened to him in the past. Teachers would get frustrated with him because he wasn't producing or because his symptoms became disruptive to others, and that frustration would carry over into their future interactions with him. This team of educators recognizes the behaviors for what they are – symptoms of the disability – an indication of a brain that is overwhelmed and needs more support, not more punishments.

While I am grateful for the collaborative partnership we have developed and the growth that Jake has made in the hands of these dedicated educators, there continue to be challenges. Most of these are rooted in systemic issues, namely limited resources, and state instructional expectations. The amount of material that needs to be "covered" coupled with large class sizes makes it very difficult to provide the pedagogical approaches that work best for students like Jake – hands-on, exploratory, and experiential. Budget restraints also make it difficult to have enough people in the room; Jake, and others with FASD, need small group or one-on-one instruction to be academically successful. These are battles that teachers cannot fight on their own. When parents and teachers provide a united front, change stands more of a chance.

Implications

Much can be learned from the experiences and perspectives we shared. The major themes that emerge across our reflections include: the power of families and educators working together, the need for FASD training, and the need to re-evaluate the systemic structures that are in place.

First, even within the current cultural climate that pits families against teachers, there are compelling examples of what it looks like to shift that paradigm and to focus on using our unique funds of knowledge to learn from each other (Gonzalez et al., 2005). Teacher training programs and professional development opportunities need to share these examples and flip the script on public education to include strong family and community collaborations. Beyond sharing examples, we must ensure that classroom teachers have the necessary skills to engage in effective collaborative relationships that can sometimes be emotional and messy. We recognize that not every parent will have the time or the resources to take an active role in building collaborations and offering professional development opportunities as Stacia did, which speaks to our request for more educator training.

The second theme relates to the lack of FASD training for educators. In our story we created "non-traditional" spaces for parents to train the educators; however, we argue that education courses and professional development opportunities must include more detailed and nuanced information about students with FASD in the classroom. Given the statistics shared earlier, it is highly likely that every single classroom teacher will encounter a student with FASD, and knowledge really is power. In addition, leaders in school districts must be knowledgeable about this disability to offer appropriate supports to the classroom teachers who work with these students. We cannot continue to misunderstand and therefore fail these students with inappropriate approaches such as behavior modification techniques and setting expectations for independence rather than *interdependence.*

It is important to note that students with an FASD might also have overlapping identity markers that contribute further to their marginalization in a system created without their unique needs in mind. Teachers should not only have training in FASD, but they should understand how

students' race, class, gender, language, etc. create ways of knowing and being that intersect with neurodiversity in complex ways. Teacher preparation and professional development training grounded in antiracist, antibias, culturally relevant pedagogy would further enhance the relationships educators can build with students and families, allowing them to fully tap into those additional funds of knowledge.

More broadly, we should be considering how to create school systems that work for students like Jake. Class sizes are currently too big, and the curriculum emphasizes copious amounts of discrete skills; therefore, there is not enough time to do the hands-on learning that many students need. Jake needs to build the electrical circuit or immerse himself in a historical time-period first and then "hang" the necessary concepts onto these experiences. The experiential activities cannot serve as the reward for "getting through" the content on time…the "fun" that comes after the learning. It needs to BE the learning. While Jake was fortunate to have teachers who value and make space for this way of teaching, when possible, not every teacher in every classroom feels able to operate in this way. We need to nurture teachers to take pedagogical risks and to advocate for their students who learn differently. An individualized approach, one that encourages a process of learning about and responding to students and their learning needs through collaboration with parents, can support all children to be free to learn and to grow.

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We Wove the Rope: Culturally Relevant Pedagogy in a Virtual English Learners Classroom

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Abstract

Culturally Relevant Pedagogy (CRP) as a teaching framework uses the strengths of ethnically diverse students' funds of knowledge to enhance their academic learning. This framework can potentially increase students' success, but little is known about its use in a virtual setting. Due to the Covid-19 school closure, the first seven months of the academic year 2020/2021 were virtual. In this setting, I conducted a teacher action research study on the efficacy of using a CRP approach in two high school English Learners (ELs) classes focusing on the influence of CRP efforts on EL students' motivation to engage virtually and in their learning during the socially challenging time of a pandemic. Results suggest that daily active engagement and learning in an online platform requires intentional and innovative efforts to build student-teacher relationships while redefining engagement, maintaining a consistent daily routine, and offering a curriculum grounded in the CRP framework.

Keywords: culturally relevant pedagogy, English learners' engagement and motivation, and virtual classroom.

I Wove Them a Rope

Hearing their helpless cry,
as we were trapped in our own existence;
I wove them a rope in the warm summer light.

As fall came, I held my breath;
it was their time to climb the jagged cliff.
I saw them from above;
their fingers sank deep into the earth, hungry to reach up.
They swayed, sliding, pushing themselves up.
I screamed; wait, wait!
I have woven you a rope in the warm summer light.

I stretched my body to the edge,
flung the rope far into the ravine.
Desperately lifting their arms,
reaching, hoping,
almost there

The rope on the tip of their desire
and I have woven them a rope that was just
not long enough….

During the summer of 2020, with thousands of other educators, I logged on to webinar after webinar to increase my instructional technology skills in preparation for helping my students access their education during the Covid-19 pandemic. I had to find instructional tools to help my EL students climb the educational mountain that had grown steeper during the pandemic. When the 2020/2021 school year started, I desperately hoped my new online teaching knowledge would keep my students engaged. Nevertheless, as I expressed in my poem, I realized that my students and I needed more than just technology to ensure their success in a pandemic-era virtual classroom.

Literature Review and Methodology

When Covid-19 arrived in the United States, I participated in a two-year in-service professional development master's degree program emphasizing critical reflection and CRP. This experience included embedded opportunities to develop my praxis – the translation of theory into practice - by learning about and using teacher action research as a tool in classroom practice. Through the critical reflection process (Brookfield, 2000), I identified student needs, grappled with new theories, and then innovated by integrating a CRP approach to address those needs and assess the impact of those efforts.

With the arrival of Covid-19, rent and food uncertainties and other personal hardships associated with layoffs, poverty, and immigration issues were exacerbated for low-income immigrant families (Gelatt, 2020), so the ravines and chasms of inequity deepened for my students. I saw a significant decrease in engagement in our EL student population. Online learning isolated our most vulnerable students, who were already experiencing increased food insecurity and instability at home, affecting their sense of safety, connectedness, and hope (Hough 2020). It was more important than ever for EL students "to have social-emotional

learning spaces, personal connection, opportunities to ask questions about what is happening, and a semblance of continuity and community" (Skibbins, 2020). However, EL students were left to scramble independently without the usual level of access to educators. With remote learning, EL students had few direct interactions with their teachers, which could make assignments "feel more overwhelming and daunting" (Learning for Justice Staff, 2020). The situation pushed EL students with limited English comprehension to grapple alone to understand the content. Such frustrations led some of my students to "log out" of school, which harmed their chances of success. Despite their struggles, I wanted my students to be fully engaged in their learning. I needed to find a way to meet my EL students' emotional, physical, and educational needs and close the gap in educational engagement. I had to find a way to motivate them to learn and push themselves to reach academic success.

Since motivation leads to engagement (Irvin & Meltzer, 2007), I had to start with how to motivate my students to engage with the new, unfamiliar learning platform. One way to increase motivation and engagement was to use the framework of CRP, a teaching framework that uses the strengths of ethnically diverse students' funds of knowledge to enhance their academic learning. Five significant themes are included in the conceptual framework: Identity and Achievement, Equity and Excellence, Developmental Appropriateness, Teaching the Whole Child, and Student-Teacher Relationships (Brown-Jeffy & Cooper, 2011). Research related to these CRP themes has demonstrated the importance of developing students' identities and affirming the power of diversity, incorporating multicultural curriculum content with equal access and high expectations for all, developing cultural appropriateness in learning and teaching styles, teaching to the whole child by empowering students, and cultivating the student-teacher relationship to build a caring classroom community (Brown-Jeffy & Cooper, 2011). The need for

CRP is important in all classrooms but is crucial for immigrant students living in low-income and low-literacy families and communities. Wlodkowski and Ginsberg (1995) assert that engagement in learning requires intrinsic motivation, especially for culturally different students. They suggest that intrinsic motivation is cultivated by culturally responsive teaching that includes four motivational conditions: establishing inclusion, developing attitude, enhancing learning, and engendering competence (Wlodkowski & Ginsberg, 1995). Kumar et al. (2018) found that achievement motivation in inclusive classrooms is encouraged by culturally sensitive teachers who create learning environments where cultural differences are appreciated and valued. An internal belief influences students' success in their valued ability to achieve rather than an external expectation of passing. This distinction is important because research suggests that externally motivated students are at a greater risk of low academic performance than intrinsically motivated students (Vero & Puka, 2018). The challenge for me was cultivating intrinsic motivation in my students by weaving the five strands of CRP into the core of my lessons in a virtual setting.

By late September 2020, I was ready to strengthen and expand my EL virtual learning approach. I relied on the core strength of CRP to help me guide my students upward in their educational journey. As I lowered the rope of CRP into my curriculum, I put on the lens of a teacher-researcher asking the question: As English Learner students face the challenges of a pandemic, what happens to their motivation and engagement when Culturally Relevant Pedagogy is implemented in a virtual classroom?

Participants and Contexts

I teach ELs in a large high school in the Northern Virginia area. I focused my research on two smaller self-contained EL English classes designed for students at the third English

proficiency level. Though still at the elementary level of English proficiency, these students had enough English language skills to communicate in an online setting.

The morning class consisted of 15 students – seven identified as female and eight identified as male. Similarly, the afternoon class had 15 students – nine identified as female and six identified as male. All the students were born in Central America or Asia. They all had a level 3 World-Class Instructional Design and Assessment (WIDA) testing score for English proficiency, but their written and reading abilities varied.

Culturally Relevant Pedagogy Strands to Support the Virtual Classroom

There are two strands of strategies that helped me implement CRP in my classroom. These strategies helped me to assess students' levels of motivation and engagement in learning.

The Strand to Reach the Depth of Students' Motivation

At the start of the academic year, none of my students used their cameras during virtual lessons, and only one or two used their microphones during class. To counter the low engagement, I wanted a routine where students could communicate their learning motivation to me. I decided to implement Marvin Marshall's Classroom Management routine (Marshall et al., 2007), a daily routine involving students rating their motivation on a four-point scale. I explicitly taught them the difference between the levels of motivation and how to reflect on these at the beginning of each class. The levels were: Democracy – intrinsic motivation where students are ready to engage in their learning due to their belief that learning positively affects their future; Cooperation – an extrinsic motivation when students are in class due to family pressure or grades; Bossy or Bully – low motivation, so the teacher has to boss the student around to learn; and Anarchy – when there is chaos in the classroom, and the student sees no reason to learn

(Marshall et al., 2007). I attached the scale with their attendance form for every class so that students could note their attendance and motivation levels.

The Strand to Reach the Depth of Students' Engagement

I also wanted students to communicate their level of understanding of my instructions and new content. Without the physical cues that I relied on to check students' understanding in the in-person classroom, I felt lost when I gave students directions and asked for feedback; usually, it would be the same three out of fifteen students responding. Engagement with classwork was minimal, and I had no idea if students' disengagement was caused by confusion about the directions or content or whether other issues deterred them. Therefore, I taught students to use my adaptations of Marzano's Levels of Understanding rubric (Guerrero, 2020) to communicate their understanding of instructions and content easily. Levels were: 0 - I don't understand; 1 – I'm still confused; 2 – I think I get it, but I need an example/help; 3 – I get it; and 4 – I can teach it. I incorporated the rubric on my lesson slides, and I used the poll tool in the virtual platform to quickly "read the room" for understanding and level of engagement, which provided input on where I needed to go with my teaching.

Anchoring Culturally Responsive Pedagogy in the Virtual Classroom Routine

Souto-Manning (2018) suggests that "Teachers who are committed to culturally relevant teaching must identify resources that enhance access" (p. 58). The tools described above highlight ways to increase student access to opportunities for reflection and to communicate their motivation and understanding despite the challenges of limited language and the virtual setting. I implemented two additional strategies to support engagement in a synchronous class: polling and the use of a breakout room for one-on-one instruction.

I decided to incorporate the polling tool in my transitions within lessons. The polls were created quickly with yes or no answers, such as, "Are you ready to move on to the next part of our lesson?" Alternatively, "Do you have any questions before we move on?" The poll was a quick refocusing strategy for my students as if I had walked up to their desks and tapped them to pay attention. I could quickly call students who had yet to respond or send them a private message to check if they were alright. Though I did not see them on camera nor hear their voices on the microphones, students were virtually engaged when they answered the polls.

When I found out through the polls that a few students had questions or were not ready to move on, I used breakout rooms to talk to them, either to give them more detailed instructions or check in on them. Whether one-on-one or in a small group, these breakout room sessions created a safe place for students to express themselves. Some students were more willing to use their microphones and be honest about their needs in a private space.

Recognizing this need for a private space to connect, I used the 20 minutes when my students worked on an online literacy program to pull students into a breakout room for check-ins. I worked individually with two to four students in each class. This gave students the privacy needed to share their academic and personal concerns with me and allowed me to address those concerns.

I implemented the check-ins in November, and a student told me I was the first adult she had spoken to since school started in August. Another student said, “You are the only one that asked why I was absent, Miss; nobody cares.” This student’s perception was that nobody else cared, and I cared because I had asked her. The routine and space I built in the classroom allowed us to connect. The lack of interactions with teachers hurt students’ engagement in their classes, especially for EL students who need to practice their English to improve their language

acquisition. Since I could get to know my students personally through these sessions, I could detect anomalies in their virtual classroom behavior more quickly and thoroughly.

Through the check-ins, I supported students' home life struggles during a pandemic, including rent and food insecurities, illnesses, pregnancy, immigration, and work issues. My daily data-gathering journal was filled with concerns about students' hardships. For example, in November, I wrote,

> During my time with P in the breakout room today, he shared that his father had just returned from the hospital. However, Covid left him with some complications, so P is the one in charge of figuring out which medicine to take at what time: "It's confusing, Miss." My heart breaks. He has the most English in his house, so of course, he's in charge of his father. I asked if his family was Ok with rent and food. He hesitated and mentioned that his father is out of work, so his mom is starting a new second job this week. I told him I would email the counselor and social worker to help his family further. He was appreciative.

Another example, written in February,

> It's a crazy day today! First, I called B into the breakout room and asked her why she had not been doing the schoolwork when she usually turned things in on time. She told me that a family member died last week. As the eldest, she had to help with the funeral. Ugh, I felt terrible for starting the conversation with schoolwork instead of "How are you?" Like I usually do…Then, R told me that he had to go into surgery again. I guess there were still problems that the doctor had to fix. In another class, I finally got the answer to why W had not been engaged all year round. I asked her if she would be in person, and she said she would not because it was her due date. She had been pregnant this whole

time, and I didn't know! It took her almost all year to trust me to share that information. When I spoke to the counselor, she filled me in, and everything made sense now with her low engagement.

These examples illustrate students' hardships during virtual school and how their realities affected their academic engagement. These experiences were relayed to me because I gave them a safe space to share their experiences during virtual learning. These strong connections we built during the sessions allowed me to direct students to resources and call on the counselor when needed. I also responded to their academic needs and included meaningful connections in curricula (e.g., including students' hometowns in lessons). When I addressed them during these sessions, it was always grounded on my expectation that they push themselves to pass my class and learn English. I made it clear to my students that I saw them as successes and trusted them to do the work to achieve it. Most importantly, evidence suggests that they understood this. Their responses on the tools I used to assess their level of motivation and understanding and their increased engagement and positive interactions with me indicated that their levels of motivation, engagement, and understanding were increasing over time. I knew that strong relationships with my students, cultivated during the one-on-one sessions, were an important foundation for designing successful CRP lessons.

I collected data continually in a variety of ways. The polls and breakout room activities became part of a routine I noted on my daily data recorder in my journal. I journaled on my students' engagement, and I noted that my increased use of polls and one-on-one breakout rooms was followed by increased attendance and engagement. Even without oral participation, it was evident that students were engaged in the lessons because they participated by answering the polls to either move on from the lesson or pause for content or direction clarifications.

Ensuring daily engagement in an online platform required redefining engagement and maintaining an intentional daily routine grounded in the CRP framework that gave students a virtual voice. Though none of the students turned on their microphones and cameras most of the time, my evidence suggests they were engaged in the lessons. In an in-person classroom, I could know precisely, even before an assessment, who understood the learning target, who needed more help, and who was utterly lost. In a virtual environment, only when the students were engaged could they communicate with me where they were in their level of understanding of that lesson. In the survey at the end of the year, 75% of my students indicated that the one-on-one sessions helped them learn and participate more in class. When asked what their favorite activity was this year, the twenty-minute session activity was their favorite because they could "talk to the teacher" and "ask questions."

A Culturally Responsive Pedagogy Curriculum Project, “The Hamilton Project”

After implementing and solidifying the class routine using tools for reflection, engagement, and communication, I was ready to continue to weave the rope with my students by adding the curriculum strand of the CRP framework into our virtual classroom. The Hamilton Project was my first attempt to immerse my students in CRP during a curriculum unit. I created the unit using the CRP framework. I assessed students' motivation and engagement daily with the Level of Understanding and Level of Behavior tools while I used comprehension and skill-based assessments before and after the unit. These lessons were designed to push me to teach the whole student, honor all voices, and build relationships while maintaining high academic standards.

I created the Hamilton Project for two purposes: to review content and to build community. The project was based on Lin-Manuel Miranda's musical "Hamilton" (Miranda, 2015). Though there is some controversy regarding the musical, I built the project because I was

inspired by how Miranda re-envisioned American revolutionaries as a multicultural cast of characters. I hoped my students would be inspired to see their own identities as part of the American fabric. As I formed each activity, I had my students' lives and futures in mind. I knew that the only way I could successfully inspire them to believe in their education was to adhere to the tenets of CRP. Along with the lessons, our daily routines mentioned above were woven into every activity in the unit. The project description below highlights how each strand of the CRP rope strengthened the unit to support students' academic, social, and emotional needs.

Identity and Achievement

The project focused on the introductory song of "Alexander Hamilton," where the audience is introduced to Hamilton's early life hardships. It tells his story of poverty and trauma to the point where he came to America as an immigrant at the age of 19. Simultaneously, the song has an undercurrent that foreshadows his great legacy. At the song's end, the chorus asks, "What's your name, man?" Hamilton answers, "Alexander Hamilton" (Miranda, 2015). There is such power in the note of that name. It is the power of his identity and what he would become.

After my students paraphrased and understood the lines and viewed the performance, I asked them: "What's your name?" With their names, they wrote out their stories, highlighting what made them who they are now. The writing allowed them to embrace their past and push forward to their new future in The United States. I highlighted the power that each of them brought with them to my classroom, our school, our society, and our nation.

Equity and Excellence

The musical "Hamilton" is a rap musical that would last close to six hours if performed as a regular musical without the quick rap tempo. The songs are fast and filled with colloquialisms, idioms, and slang words that make it challenging for me to catch every word, let alone for EL

students to comprehend the songs. So, I scaffolded the songs to bring proper understanding to my students.

First, it was essential to teach them paraphrasing, a skill we usually taught in the second semester that students often struggled with during the research unit. I thought it would be best to introduce it to them now as the lines were short, and they could have an idea of what "write it in your own words" really means. Second, the rap lines have few proper punctuations and sentence forms. Since we reviewed punctuation and simple sentences, I asked students to turn these lines into formal sentences. It was not to discredit the form of the song but to scaffold my students' meaning-making. The song is filled with irony, metaphors, similes, and other higher-level literary expressions that I had to strip into simple sentences to harvest each line's real meaning. By combining the review with paraphrasing, I challenged students to use tools such as the dictionary and thesaurus, as Google Translate would not capture the song's slang and idioms.

Using Google Slides, each student was assigned one slide with a half stanza or one whole stanza to ensure that everyone could understand the song at the end. They worked together to break down the lines of "Alexander Hamilton" in class before watching the taped performance. The process of paraphrasing and forming correct formal sentences allowed all students to understand the song, even before they heard it for the first time.

Developmental Appropriateness

The project highlighted engagement, morale, and motivation. Hamilton was a poor immigrant when he first started in America; his father left him, his mother died, and his cousin committed suicide, among other minor challenges. The struggles and traumas that Hamilton went through were not unfamiliar to many of my students. I hoped learning about Hamilton’s

challenges before becoming one of our Founding Fathers would inspire my students to believe in their potential.

Students collaborated to understand the song using their newly acquired English language in their own words. They were exposed to songs and videos, and at the end, they wrote their own life stories and thought about where they would go and what they would do with all that potential. My students were at the prime age where they could easily doubt their strength and power, and this project became a pathway for them to let the world hear their voices.

The Whole Child

The project celebrated the whole child. Though we were using Alexander Hamilton as the focus of the activity, the students were the center of this project. It would not have been successful without the students expressing their names and telling their stories. The project would empower them by seeing the connections of how our pasts shape us but do not define our futures.

Student-Teacher Relationship

From the beginning of the year, I focused on building trusting relationships with my students. The Hamilton Project reinforced and built on those relationships as we created a safe space to share their stories. It was an honor to see part of their past and to glimpse their dreams. Their trust in me to read and honor their stories became a base for our bond; a sense of community that says, I know your name, and I hear you.

Findings

Several forms of data were collected to assess whether and in what ways CRP-infused lessons in the Hamilton unit motivated and engaged students in a virtual setting. One form was my research journal, in which I recorded the highs and lows of students' engagement during each

CRP lesson. The journaling showed which lessons engaged students most and led me to pedagogical questions. For example, "Are students most engaged when more CRP elements exist in the lesson?", "Does engagement decrease when the content is too difficult, regardless of CRP elements?" or "With increased motivation due to CRP teaching, can students sustain engagement even when the content is challenging?" These questions led to better lesson planning for subsequent lessons.

Another source of data was my students' writing. The pieces they wrote during the unit were inspiring to read. Their writings gave insight into their lives and dreams and their ability to connect and apply the lessons. Grading their writing was challenging, as I did not want to reduce their stories to a number, so I created a rubric with categories that separated the power of their voices (focus and development) from the technical issues in their written English language use (punctuation and grammar). Again, I relied on CRP tenets to highlight academic issues without diminishing my students' voices.

The writing assignment allowed students to reflect on their journey before coming to the United States. Then, with content expectations in mind, they wrote a paragraph declaring their own goals in a summative format. The students' tone mimicked Hamilton's determination to make it to the "mainland," as he was an immigrant from the Caribbean. Their responses illustrate their belief in reaching their dreams. One student wrote:

> My name is [AB] I was born in a small city in Central America. I came to the US finding a better life for me and be able to help my siblings in the future. I'm an orphan and I think it’s the worst thing that happened to me. I came here with a lot of fear, fear that something bad would happen to me, fear of dying trying because the trip was hard and intense and I didn’t even know anyone, I came alone with no one who could defend me.

> However, bigger than fear was my desire to achieve my goals and fulfill my dreams. My strength is facing difficult situations, don't give up never and trusting myself to fulfill my objectives.

Another student wrote:

> My name is [CD] I was born in Central America and coming to this country was not an option that I had in mind, but unfortunately in countries like mine, not everyone has the same opportunities. So I came to this country with the dream of being able to become someone professional, because it was what I always wanted and so far every day, I achieve a little more. I get up in the morning and I always try to do my best at school, after that I go to my work and as long as little by little I will achieve my dreams. My strengths are that I am very proud of everything I have done, I am also proud of having qualities such as being bilingual, knowing that I come from a low place and that I can do much more. My name is [CD], and I'm going to work hard to achieve my goals.

Another student wrote:

> My strength is that I trust who I am, and what I will become, since I want to finish my bachelor's degree and study medicine to become a doctor, and make myself and my family proud. My name is [EF], and only just wait and see, I will change the world.

These students' stories demonstrate how curriculum can engage students by connecting and affirming their identities and experiences and can open possibilities for their futures. Analyzing Hamilton's story, students related to one of our Founding Fathers. The connection reinforced the belief that they, too, can have a powerful influence to make significant global contributions. I explicitly told them, "I see no difference between you and Hamilton." In their final assessment at the end of the CRP project, all the students wrote that they were inspired by

either Hamilton's story or Lin-Manuel Miranda himself. Their reactions and comments, such as declaring their names and saying, "You just wait, I will reach my dreams," prove that a CRP approach can help empower students and deepen their commitment to learning.

Students also met content expectations. As can be seen in the examples shared above, students fulfilled the level 3 WIDA academic objective of writing with a “range of sentence patterns and grammatical structure” that use proper capitalizations and periods, paragraphs that show “an organized expression of ideas with emerging cohesion,” and vocabulary usage that “fulfills the writing purpose” (Wisconsin, 2020).

Students’ ratings over time indicated that the CRP Hamilton Project boosted their motivation to engage and learn. Their daily ratings on the motivation scale increased during and after the Hamilton Project, with most of the students rating their motivation to learn at the highest level by the end of the unit, as compared to only a few feeling motivated when the adapted Marshall levels were first introduced (Marshall et al., 2007). There was a sustained effect, with most students maintaining this high level of engagement beyond the completion of the Hamilton Project. In addition, students increasingly used the chat function during class, with private comments to the whole class and to me. These private chats helped me better understand my students' needs and strengthened our bond.

Weaving a Strong Culturally Relevant Pedagogy Framework in a Virtual Classroom

While a CRP approach has clear benefits in all classrooms (Brown-Jeffy & Cooper, 2011), this research illustrates that it is critical in a classroom of diverse learners, especially in a virtual environment. The relationships I built with my students gave us the trustworthy grounding needed to advance. CRP gave me a blueprint for weaving a solid rope with my students to ascend from their home base to the learning they wanted to reach. I needed strong

content knowledge to build a support system. I then had to tap into students' home foundations to connect that content for them to climb up the rope of success. If I did not start with students' home knowledge and empower their experiences, those who reached their intended destinations might need to learn how to return to their core values. That home knowledge made them who they are. The CRP approach did not deny students' identities and experiences and ask them to assimilate; instead, it empowered and assured students of who they were and how they could enrich society (Emdin, 2021).

For teachers to tune in to students' personal stories and their compassionate, helpful responses, intentional classroom daily routines that honor those experiences must be in place. In my research, these interactions and dedicated routines were essential for sustaining students' motivation and engagement in the virtual learning environment. When students faced hardships due to the pandemic or otherwise, they had a safe space to ask for guidance and help, whether for personal or academic concerns. The evidence of the benefits of this CRP approach in an online learning environment has implications for future online efforts as well as for considering how teachers can weave learning ropes with their students in face-to-face classrooms.

Summary of Lessons Learned Relevant to Teacher Professional Development

It is not enough for pre-service and in-service professional development programs to teach only the tools of CRP – frameworks and theories only exist as ropes hanging in the air. Student-teachers and practicing teachers need to experience the strands of these ropes and learn how to weave them with content and curriculum. This research was focused on EL students in a virtual environment, but lessons learned have broader implications for educating all children. The research suggests that to authentically reach students and empower them to learn, their teachers need to learn to:

1. Build strong, compassionate relationships that support engagement and learning.
2. Reflect on their work and examine their assumptions, exploring and refining their pedagogy according to their students' needs.
3. Find and use tools and strategies that connect with students and their lives to encourage learning through authentic access to the curriculum.
4. Become courageous and active advocates for their students, willing to dive deep into the chasm of inequity to provide the resources and support that give every child solid footing and a strong rope for the long climb.

By the end of the year, my students and I were no longer lost in the virtual learning abyss. We were partners in making virtual learning a success. Students were no longer teetering in and out of sight, losing their way, and I was no longer desperately reaching for them in the darkness. Through CRP, I realized that the relationships we built and the tools we used were like carabiners in climbing, linking the rope and our harnesses together as we made our steady way upward. My students knew I was there with them, listening to their struggles and guiding their way. At the start of the year, I wove them a rope that was not long enough. With the infusion of a CRP approach, my students and I lengthened and strengthened that rope and did the climb together.

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"I like that we are allowed a space to be vulnerable about our experiences, given space to heal": Black Algebra I Educators' Perceptions of a Liberatory Algebra I Professional Learning Community

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Abstract

This paper examines Black Algebra I educators' perceptions of their experiences in a professional learning community, *Algebra I Academy*, designed specifically to equip Black Algebra I educators with liberatory pedagogical practices for their instruction with Black students taking Algebra I. Utilizing survey and focus group data from Black Algebra I educators who participated in the Algebra I Academy, findings from this study indicate that the Algebra I Academy had a positive effect on Black Algebra I educators by creating a sense of community with fellow Black Algebra I educators, providing a space for Black Algebra I educators to re-imagine who they are as Black math educators, and by offering a collaborative space for Black Algebra I educators to learn and apply new, more liberatory, Algebra I pedagogical practices. More universally, this study highlights the need and value-add of educator learning communities that are racially affinity-based, professional learning spaces that are responsive to the historical and contemporary socio-racial contexts of educators' lives in and outside of schooling, and attentive to the social and emotional, as well as pedagogical, needs of educators.

Keywords: Black algebra I educators, Black liberatory pedagogy, racial affinity-based professional learning

Despite the documented positive impact that Black mathematics teachers have on Black students' mathematics achievement (Dee, 2004), and on disrupting Black students' negative perceptions of their ability to do math (Marshall et al., 2022), there has been limited direct effort to retain and support Black mathematics teachers in K-12 education. While discourse and efforts

to promote Black students' learning in core mathematics areas such as Algebra I typically center on issues of access to rigorous mathematics coursework and teachers' pedagogical strategies (Sparks, 2020), the specific role and promise of Black educators in the mathematical lives of Black students warrant greater attention and exploration.

It is well-documented that Black educators across K-12 education and subject areas endure myriad forms of bias and racism (e.g., microaggressions, under-resourced schools, etc.) in their everyday teaching lives (Krull & Robichea, 2020; Pizarro & Kohli, 2018). While this should readily betray the need and urgency for intentional spaces and strategies to support Black teachers in particular ways, there remains a lack of imagination and will in developing Black teachers in ways that would allow them to flourish and thrive as educators. One example of this lack of imagination and sociopolitical will is in the seeming unwillingness of schools and districts to create professional learning communities with the specific positioning and experiences of Black teachers in mind. For example, many districts and schools in the U.S. do not promote racial affinity-based teacher development despite their positive impact on Black teachers (Mosely, 2018), as well as Black workers in other industries (Bethea, 2020). Employee Resource Groups (ERG) are key retention tools for corporations, citing the sense of belongingness and connection these groups provide, particularly for historically underrepresented groups who have faced identity-based oppression (Miller, 2022). Affinity-based professional development in school systems holds the promise of yielding similar benefits, but, due to criticism from external groups, schools and districts might dismiss such professional development spaces as segregation (Pendharkar, 2022). As such, schools and districts miss the opportunity to identify and support the unique needs of marginalized groups of educators such as Black educators. This study aims to illuminate the potential impact(s) of racial affinity-based

professional development by taking advantage of the opportunity to learn about Black Algebra I teachers' perceptions of the impact of a unique and innovative teacher development program geared specifically towards Black Algebra I teachers, and anchored and responsive to the racial and sociopolitical contexts of their lives as Black educators and Black people. Additionally, as a team comprised of both practitioner-researchers and researcher-practitioners, all of whom committed to situating practice-based knowledge as critical to understanding and addressing urgent contemporary educational problems, our study expressly aims to disrupt the researcher-practitioner aperture that too often prevents the identification and implementation of relevant and practical solutions within education.

Literature Review

Nationwide, 6% of certified secondary mathematics teachers are Black (Digest of Education Statistics, n.d., 2020; Neil, 2016). Despite what we know to be the impact of Black math teachers on Black students' learning (Chazan et al., 2013), literature on these teachers', and specifically, Black Algebra I teachers', professional learning desires and needs is non-existent. As such, the authors of this study adopted an epistemological and empirical orientation grounded in listening to Black teachers themselves articulate what they value and why to contribute to this scholarship.

For Black mathematics teachers, teaching math in K-12 education, or 'teaching math while Black' (Frank et al., 2021), is a highly racialized experience. For example, recent research on the attrition of Black math teachers shows that anti-Black microaggressions (e.g., repeated questions about their mathematics training) are a significant factor explaining why these educators leave the mathematics teaching profession (Frank et al., 2021). Specifically, Black teachers shared stories of their mathematics expertise being devalued within the academic space.

For many K-12 Black mathematics teachers, these racial biases about their intellectual ability to learn and teach math started during their pre-service years and followed them into the profession. For example, in her study of advanced Black pre-service teachers, McGee (2014) found that these students experienced racial stereotypes about their mathematics abilities and non-affirming mathematics professors. In their study of Black mathematics and engineering college students, McGee and Martin (2011) found that these students endured constant assaults on their intelligence and presence within these programs. These findings paint a portrait of a mathematical journey for Black math educators - from pre-service teacher to classroom teacher - of resilience in the face of racially hostile learning and teaching environments. Resilience requires a deep level of mental and emotional stamina that can feel like oppression without the proper support.

This toxic racialized teaching context and its impact on Black mathematics teachers are concerning in their own right. However, when situated at the interplay of the high turnover rate of Black mathematics teachers (Frank et al., 2021), the impact that Black mathematics teachers can have on Black students' mathematics learning (Klopfenstein, 2005), and the academic challenges and limiting beliefs in their math identity that Black students continue to face in mathematics (Gonzalez et al., 2020; Martin, 2012), the need to provide specific and targeted support for Black mathematics educators becomes critical.

One area in which we can support Black mathematics teachers is in professional learning. However, teacher development and support in K-16 education has traditionally taken colorblind and apolitical approaches (Pour-Khorshid, 2018) despite the very racialized and political contexts of teaching and learning historically and today, particularly for Black educators (Givens, 2021). Not only has this colorblind and apolitical approach to teacher development and

support resulted in few racial affinity-based teacher development and professional learning spaces, but it has also resulted in professional learning spaces that do not support teachers in educating through the very material political forces that influence not just their teaching, but their lives.

Within teacher education and professional learning, Black educators across content areas lack affinity spaces (Blackwell, 2018). Some Black educators have noted that this lack of affinity spaces within K-12 education can make them feel isolated (Pour-Khorshid, 2018) and can be a contributing factor to the turnover rate of Black educators (Miller, 2019). Research shows that affinity-based and culturally relevant professional development might be especially important for Black teachers (Mosely, 2018).

Unsurprisingly, professional learning communities for Black mathematics educators specifically, and for Black Algebra I educators in particular, are virtually non-existent. As a vehicle for understanding and responding to the needs of Black teachers, a professional learning community geared towards the specific experiences and needs of Black Algebra I teachers holds promise to provide Black Algebra I teachers with the affinity and learning space they need that not only can strengthen their practice but also contribute to their desires to stay in the profession. This study is animated by the following question: what are Black Algebra I educators' perceptions of the value of the professional learning community designed uniquely for Black Algebra I teachers and anchored in Black liberatory educational approaches?

Conceptual Framework: Black Liberatory Algebra I Pedagogical Practices

The professional learning experience (Algebra I Academy) examined in this paper was born out of a grant-funded project aimed at supporting Black Algebra I students' learning via Black Algebra I educators' adoption and utility of more liberatory Algebra I teaching practices.

National educational statistics on Black students and Algebra I suggest that Black students need a more affirming Algebra I teaching and learning environment. For example, Black students are less likely to pass Algebra I than White and Asian students (Department of Education, Office of Civil Rights, 2016). Considering access to Algebra I, Black students make up 17% of all eighth grade students but only 11% of eighth grade Algebra 1 students (Department of Education, Office of Civil Rights, 2016).

While the ultimate aim of that body of work is to understand the impact of the Algebra I Academy on Black students' Algebra I learning, the aim of this paper is to understand if and how the academy creates value for Black Algebra I educators. This is a worthy empirical endeavor on its own, given how little is known regarding the experiences and needs of Black Algebra I teachers and professional learning spaces that aim to meet those needs.

The Algebra I Academy is anchored in the Black Teacher Collaborative's (BTC) Black Liberatory Pedagogical (BLP) framework (Black Teacher Collaborative, n.d.). Underpinned by a systematic literature review of theoretical and empirical research on Black educators' pedagogical practices with Black students, the BLP framework outlines teacher mindsets, knowledge, instructional strategies, and classroom practices anchored in eight elements: positive racial identity; sociopolitical consciousness; love of learning and intellectual excellence; healing; collective responsibility; high expectations; cultural connectedness; and critical care and love (Black Teacher Collaborative, n.d.). Critically, Black Liberatory Pedagogy (BLP) rearranges power in K-12 education by centering Black educators' historical and contemporary ways of being and knowing, often referred to as The Black Teaching Tradition (Givens, 2021), as the foundation of pedagogical praxis with Black children (Black Teacher Collaborative, n.d.). As such, the logic underpinning the Algebra I Academy is that, if Black Algebra I educators learn to

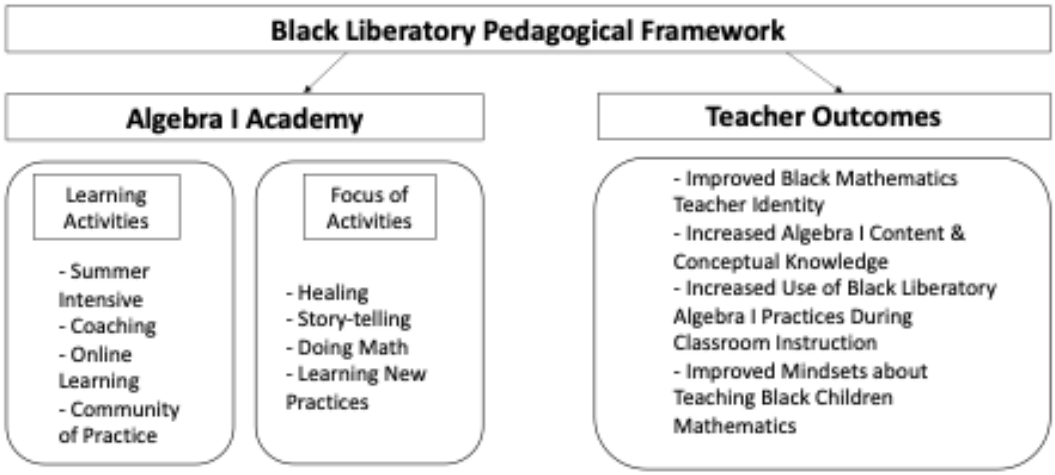
teach Algebra I aligned to the Black Teaching Tradition, they will expand their view of themselves as Black Algebra I educators, and Black students will have a more liberatory learning experience in Algebra I. Applied within a professional learning experience for Black Algebra I educators, BLP Algebra I equips Black Algebra I educators with the pedagogical tools they need to make Algebra I a site of learning and liberation for themselves, their fellow Black Algebra I teachers, Black students and their communities.

The Algebra I Academy is designed to achieve four teacher outcomes (Figure 1). While it is out of the scope of this paper to examine the direct impact of the Algebra I Academy on those outcomes, it is helpful to understand the aims of this academy in order to contextualize participants' perceptions of value. All aspects of the Algebra I Academy were designed to center the aforementioned elements (see Appendix A) that would respond to the immediate needs of Black Algebra I educators and humanize and provide a more liberating experience for them.

With these elements, and drawing on learnings at the intersection of adult learning theory (e.g., adult learning should be experiential and build off of prior knowledge; Aguilar, 2013; Aguilar, 2016;) and the Black teaching and learning tradition (e.g., Black educators engaging in liberatory pedagogical and curricular activities to ignite Black students' learning; Givens, 2021), the Algebra I Academy is anchored in core learning activities (Figure 1) and focus areas of those activities (Figure 1) that the BTC believes provide Black Algebra I educators with a liberating, innovative, and rigorous learning experience (see Appendix B).

Figure 1

Black Liberatory Pedagogical Framework



Methods

The central question guiding this study is: what impact did the Algebra I Academy have on Black Algebra I educators? To address this question, we implemented a mixed methods approach that capitalized on available information to inform the organization of the 1) progress of the intervention and 2) necessary adjustments to ensure that future activities are effective. Mixed methods is inherently a pragmatic and solutions-focused paradigm that depends upon the interplay between text and numeric data (Creswell & Clark, 2017; Teddlie & Tashakkori, 2020).

Data Collection and Procedures

In October 2022, data were collected from Algebra I Academy participants (e.g., teachers, math instructional coaches and district Algebra I leads) during a half-day in-person workshop facilitated by BTC Algebra I Academy coaching and program staff. At the time of the workshop, participating educators had experienced four months of engagement with the Algebra I Academy's professional development activities (e.g., coaching and observations, online learning, and whole-group learning). In order to assess the efficacy of the Algebra I Academy

and participant experiences in the academy up to that point, a retrospective pre-post feedback survey was administered to all attendees during the workshop to collect data on Algebra I Academy participants' self-assessments of their skills, mindsets and knowledge related to Black liberatory Algebra I pedagogical practices. Following their completion of the survey, math teachers were invited to participate in a focus group about their experiences implementing Black Liberatory Algebra I practices in their classrooms.

Participants and Context

The population of interest for this study consists of Algebra I educators from a large district outside of a large metropolitan area in Georgia. The participants of this study experienced the Algebra I Academy and were available to participate in the survey and/or focus group. Black Algebra I teachers, math instructional coaches and district math leads worked in districts where the majority of teachers, students and district office staff are Black. All educators volunteered for the Algebra I Academy.

Surveys and Structured Interviews

Participants completed a five-item Demographic Survey in which they were asked to report their age, gender, race, ethnicity, and highest level of higher education. They also completed an eight-item Workshop Perception Survey in which they were asked questions regarding participants' satisfaction with the workshop's format, execution, and usefulness across eight areas - relevance, needs, utility, organization, materials, time, leadership, and clarity & guidance (see Appendix E). Finally, participants completed an 18-item Pedagogical Growth (PG) survey in which they were asked a variety of questions regarding their level of confidence and comfort in utilizing BLP frameworks successfully in their classroom instruction (see Appendix E). These items were presented on a 5-point Likert scale (from strongly disagree to strongly

agree). Survey items were averaged to compute sub-constructs of pedagogical growth (i.e., positive racial identity; critical care and love; sociopolitical consciousness; high expectations; and cultural connectedness). To facilitate dialogue among participants in the focus group, nine interview questions were used to gauge participants' perceptions of the usefulness of the intervention, how they were going about implementing Black Liberatory Algebra I teaching practices in their classroom, and the ways the intervention impacted their professional identity as Black math teachers.

Sampling Technique

For both the qualitative and quantitative aspects of this study, a purposive sampling technique (Creswell & Clark, 2017) was applied to garner responses specifically from educators who had experienced the professional development activities (quantitative) and from educators who were directly in charge of instructional decisions being made in Algebra I classrooms (qualitative). Twenty-four educators completed the demographic and PG surveys. Five Black teachers participated in the focus group.

Research Design

The current study employed a parallel mixed methodology (Parallel MM) design to address 1) the effectiveness of an intervention focused on Black educators' professional growth using BLP to frame math instruction and 2) Black teachers' experiences implementing what they learned from BTC's intervention into their pedagogical practices (Tashakkori, Johnson & Teddlie, 2020). Parallel MM describes research designs in which the data collection for two or more components of the study occurs concurrently or with a small-time delay in between. Parallel MM is best used when each program component (e.g., coaching, community of practice)

addresses a related aspect of the overarching research question(s) and is best executed when the findings from each are integrated to suit this purpose (Tashakkori et al., 2020).

Quantitative Analysis

This study used a paired samples T-test to determine the extent to which engagement with a Black Liberatory professional development workshop impacted educators' beliefs about their pedagogical growth across five subdomains: racial identity, critical care and love, high expectations, sociopolitical consciousness, and Black Liberatory Praxis (see Appendix A). The paired samples t-test is an appropriate analysis whenever two sample means are related and the researcher is interested in observing whether any differences between these two means are due to chance (Agresti & Finlay, 2009). Cohen's d analysis was included to help gauge whether similar improvements could be expected further along in the execution of the professional development for this group (Cohen, 1998). Due to the timing of data collection at an early stage in the professional development calendar, this current study focused on the following sub-elements of the Black Liberatory Framework only: Positive Racial Identity; Critical Care and Love; Sociopolitical Consciousness; High Expectations; and Cultural Connectedness (see Appendix A).

Qualitative Analysis

Narrative data collected from Black teachers were analyzed using thematic analysis (Corbin & Strauss, 2014). When applied to focus group data, thematic analysis allowed us to identify patterns of agreement between participants as they exchanged their experiences with implementation with each other. Within the broader framework of the Parallel MM research design, thematic analysis allowed us to provide depth to aid a rich understanding of the insights gleaned from the quantitative analysis (Braun & Clarke, 2006).

Results and Findings

Participants of this study experienced the Algebra I Academy as a valuable professional learning community. The vast majority of participants felt that by building stronger personal and professional relationships with fellow Black Algebra I educators, by reflecting on their identities as Black math educators, and by learning new instructional practices, the professional learning experience was ultimately relevant and meaningful.

Workshop Perceptions

On average, most participants agreed that the workshop's content was relevant (96%), met their needs as educators (96%), could positively impact their teaching (92%), was well organized (96%), included learning materials that enhanced their understanding (100%), was efficiently run (91%), featured knowledgeable/helpful leaders (100%) and had clear goals and objectives (96%; see Appendix D). When asked to rate the overall quality of the workshop, the average response on a five-point Likert scale (1, Poor to 5, Excellent) was 4.57 (see Appendix D). This suggests that the workshop performed optimally in terms of meeting participants' needs.

BLP Pedagogical Growth

As shown in Table 1, across all subdomains of BLP pedagogical growth, there was a significant increase between the pretest and the posttest, suggesting that the intervention was effective in bolstering participants' ability to integrate BLP into their lesson plans and curriculum.

Table 1

Paired t-test Results Across BLP Sub-Constructs

Domain	Sub-Constructs	Items	*n*	Pre-survey		*n*	Post-Survey		Difference	Cohen's d	95% CI for Cohen's d	
				M	SD		M	SD			Lower	Upper
Pedagogical Growth	Racial Identity	4	22	2.63	0.83	22	4.04	0.55	1.41**	0.82	1.066	2.367
	Critical Care & Love	3	22	3.59	0.85	22	4.41	0.67	0.82**	0.73	0.573	1.645
	High Expectations	4	23	3.9	0.68	23	4.41	0.48	0.51**	0.39	0.745	1.869
	Sociopolitical Consciousness	4	22	2.46	0.93	22	3.57	0.79	1.11**	0.72	0.919	2.135
	Cultural Connectedness	3	23	2.38	0.95	23	3.87	0.73	1.49**	0.99	0.897	2.102

Note: M, SD and **are used to represent mean, standard deviation, and P<.01, respectively. For Cohen's d, effect size thresholds include the following: small = 0.2, medium = 0.5, and large = 0.8.

For racial identity, average scores increased from 2.63 to 4.04 (t=8.27, p<.001) and the effect size was large (d = 0.82). For Critical Care & Love, average scores increased from 3.59 to 4.41(t=5.24, p<.001) and the effect size was medium (d = 0.73). For High Expectations, average scores increased from 3.90 to 4.41(t=6.31, p<.001) and the effect size was small (d = 0.39). For Sociopolitical Consciousness, average scores increased from 2.46 to 3.57 (t=7.36, p<.001) and the effect size was medium (d = 0.72). For Cultural Connectedness, average scores increased from 2.38 to 3.87 (t=7.23, p<.001) and the effect size was large (d = 0.99).

Participants showed the largest pre to post change in their ability to use cultural connectedness as a praxis technique in their instructional practices and build upon the Black Liberatory pedagogical traditions in Mathematics. However, Table 1 also indicates that there is still room for continued growth in relation to high expectations. Participants may need further

support in designing lesson plans based on the belief that Black children can meet rigorous and challenging standards.

Building A Sense of Community

A prominent theme that emerged from the data is the sense of community participants feel within the Algebra I Academy. From the survey results (see Appendix D), most participants strongly agreed that the opportunity to connect and collaborate with fellow Black Algebra teachers was a value-added feature of the Algebra I Academy. This nuances the results associated with cultural connectedness from the paired samples t-test and suggests that the benefits of the intervention extended beyond connection to the material being taught to encompass interpersonal connection between Black Algebra I teachers.

This theme sheds light not just on the sense of community participants feel they are building amongst each other and why this might be valuable to them, but also on the extent to which building such a community was important to their self-perceptions as Black math teachers. For example, one participant stated: “I enjoy exploring and collaborating with intelligent Black teachers on how we can be change agents to support and liberate our Black students from racial sociological beliefs.” This community was also positioned as a site to reflect and find support in healing from the racial traumas they experience as Black people and Black educators. For example, one participant stated: “I like that we are allowed a space to be vulnerable about our experiences, given space to heal.” Collaboration and collective learning were also described as important functions of the community the teachers developed. For example, one educator stated: “The collaborative conversations between teachers and math instructional coaches’ were much-needed aspects.” Additionally, another teacher shared that they value “really connecting with

fellow Black Algebra I teachers and building and brainstorming ideas that support and protect ourselves and our students."

For the educators participating in this professional learning experience, building and being in community with other Black Algebra I educators in their district was an important site for them developing readiness to transform what they had learned of BLP and Black Liberatory Algebra I into curricular and instructional changes in their classrooms. For participants, they valued the space not just for the sake of coming together but for the opportunity to be in community for the purpose of reflecting on who they are as Black educators and how to show up for students.

Building Teachers' Black (Math) Identity

Reflecting on the value of the Algebra I Academy for them, educators find that this professional learning community is providing them with the space to cultivate a more expansive idea of their racial and professional identity as Black math teachers. As in the case of cultural connectedness' relevance exceeding the scope of their classroom practices, the teachers' dialogue around their initial ideological growth as Black and math teachers suggests that the professional development helped them deepen and expand their own racial math identity, not merely plan for their students.

From this theme, we can better understand how this opportunity was used by teachers to further their personal and professional growth. One participant talked about the connections to Blackness that the academy allowed them to make. They stated: "The information is always valuable, and I always feel I am walking away with more connection to my Black culture and how we are integrating it into mathematics." In reflecting on how the Algebra I Academy helped teachers understand themselves as Black math teachers, one participant stated:

> Whereas before I may have embraced my Blackness and everything like that, and at some point, in time it [my Blackness] may have been shut down, it [the Algebra I Academy] makes me now be okay to be more expressive about it, to be more vocal about it, to say things, to do things.

For teachers, this professional learning experience pushed them to think about the role that (their) Blackness plays in their lives beyond/within the classroom and its usefulness as a site of professional and personal liberation and positivity.

Building and Applying Liberatory Pedagogical Practices in their Algebra I Instruction

As previously mentioned, Black Algebra I teachers' building their knowledge and application of more liberatory pedagogical practices is a primary aim of this professional learning community. Much like the themes above, this theme nuances one of the sub-constructs of pedagogical growth - namely, high expectations. What is interesting is that high expectations had the lowest practical value (d = 0.39), suggesting that the intervention may not produce meaningful changes among educators that resemble those in our sample - namely those that start off with high expectations for Black students' learning, which is typically the case for Black educators (Givens, 2021).

Concerning the extension of high expectations into the perceived benefits of professional development, teachers expressed appreciation for the feedback they received from their peers and the opportunity to strengthen their mathematical practice. This theme sheds light on how this dynamic facilitated their adoption of new liberatory Algebra I instructional practices. One educator shared: "I enjoyed the strengthening teacher practice session. I enjoyed the honest discussion about our practices and the work that is ahead of us." While another educator noted

the value of "seeing how to incorporate Black Mathematics in the classroom and the use of manipulatives."

Participants also felt that the Algebra I Academy is helping them shape Black students' mathematics identities. For example, one educator stated: "I think that it is imperative for black students to see themselves in mathematics. I like that and were provided strategies to improve mathematics through a lens in which our students can relate." Overall, teachers felt that the program is helping them develop work for their Black students by allowing them to gather more intentionally and openly. One teacher shared that:

> We can have in an open forum and be effective and strategic about doing something about it [Black students' learning in Algebra I]. Whereas having that conversation there [in school] when someone walks in, that we have to stop, now we can focus on really doing something about the things that we complained and try to think about.

This teacher's sentiment illuminates Black teachers' value, need for, and propensity to create fugitive spaces (Walker, 2013) wherein they might strategize about the best ways to think about supporting Black students in this space. For this teacher, the Algebra I Academy is not just a space to learn new instructional strategies. Rather, it is the space to assess the potential of these strategies in community and in "safety."

Discussion

By centering Black Algebra I educators' voices, this study sought to understand the perceived value of a professional learning community designed specifically for Black Algebra I educators and anchored in Black liberatory educational approaches. Overall, the Black Algebra I educators that participated in the Algebra I Academy garnered value from this professional

learning community. Building community with fellow Black Algebra I educators; having the healing space to expand their view of themselves as Black math educators; and, collectively learning innovative, liberatory instructional practices to pilot in their classrooms all amounted to a deeply resonate professional learning experience. To Black Algebra I educators, the Algebra I Academy has provided them with the space to re-imagine who they are as Black math educators, reflect on and have their unique needs as Black math educators met, and lean, unapologetically, into their desire to play a lead role in supporting Black students' Algebra I learning.

Teaching math while Black (Frank et al., 2021), and successfully to Black students, involves working through past and current traumas to the mind, heart and psyche, collective re-imagining, and collective learning. Through sharing stories of their own math histories (storytelling and healing), discussing how and why centering Blackness in mathematics is crucial for them and for Black students (storytelling, healing, and doing math together), and learning new knowledge and strategies to make Algebra I more liberating for Black students (doing math together, strengthening teacher practice), the Algebra I Academy added value to Black Algebra I educators as a space to heal, re-imagine and learn. Critically, this study shows that, even within a predominately Black school district, Black Algebra I educators are not insulated from the broader racial and sociocultural contexts of teaching while black. As such, to the extent that the Black Algebra I educators in the Algebra I Academy experience teaching math as a racialized experience, the Algebra I Academy helped them begin to unpack it and bring a more liberatory perspective to reflecting on this experience generally, and how it informs their practice, particularly with Black students in Algebra. To this end, the affinity space – e.g., a space just for Black Algebra I educators – that grounded the Algebra I Academy was viewed as something they knew they needed but, due to a complex interplay of factors (e.g., time, money, racial

context, etc.), an affinity space within professional development that they did not have. Findings from this study confirm what (Mosely, 2018) and other scholars have found, that affinity-based professional development for Black educators is not only beneficial for their praxis; such spaces within a professional development context help sustain them mentally, emotionally, and psychically as Black educators.

While evidence from Parallel MM design employed in this study illuminated the value-add of the Algebra I Academy, there are important limitations and gaps in our current understanding of its value for Black Algebra I educators. Perhaps the most important limitation is that, from the data, it remains unclear which aspects of the Algebra I academy are more valued or impactful than others, and to what extent. For example, the current data do not yet shed light on the extent of individual, additive or comparative value of the summer institute, coaching, and community of practice (see Appendix B) on fostering a sense of community amongst teachers. Data suggest that Black Algebra I educators experience a sense of community while engaging in doing math together, but whether this has more, less, or the same impact on building a sense of community as the coaching circles (e.g., group coaching) remains unclear. Similarly, while Algebra I Academy participants' Black math teacher identity is more directly targeted at the Summer Intensive and Communities of Practice than in other aspects of the academy, the cultivation of Black math teachers' racial identity is a throughline throughout the academy. That is, there are aspects of the academy, such as Coaching and the Online Learning Modules, that might also directly impact their racial mathematics identity or reinforce it. Our data do not allow us to engage in crucial analyses yet. More research is needed in this area to both understand the value and efficacy of the Algebra I Academy and to inform the design of the Algebra I Academy for scale.

Implications

Findings from this study have important implications for Black teacher education specifically, teacher education more broadly, as well as policy. Our findings suggest that Black pre-service teachers who plan to teach math, Black Algebra I educators, and Black mathematics educators more broadly need and desire racial affinity-based professional development opportunities. As much of the current K-12 teacher development ideology and approaches take a colorblind orientation to professional development, our findings suggest the need to center more racially affinity-based and Black-affirming professional learning for Black Algebra I educators. Such professional learning experience could be an important tool in retaining and supporting Black Algebra I, and Black mathematics educators.

Critically, our findings illuminate the relevance and urgent need to think more expansively about the aims and desired outcomes of professional development for Black Algebra I teachers. While professional learning that improves teachers' pedagogical practices is important for Black Algebra I educators as it is for all educators, as a singular aim, pedagogical focus alone is insufficient to meet the professional development needs of Black Algebra I educators. Our study highlights how critical healing and re-imagining are as explicit outcomes for Black Algebra I teachers within a professional learning community. The historical and contemporary ontological (i.e., ways of being) and epistemological (i.e., ways of knowing) context of being Black math educators, and in particular, Black Algebra I educators, is specific and complex. As such, our findings suggest that professional development for Black math educators envision and pursue broader outcomes than traditional professional development.

Our findings have important implications for policy around race and teacher education. Currently, much of the attention and resources in education are directed toward building the

pipeline of teachers of color rather than *retaining* those teachers, with few resources targeted, specifically, for Black teachers. As an example of policy shortcomings in addressing this challenge, the FY 2024 United States Department of Education budget request includes $3 billion for the Education Innovation and Research Program, $798 million of which is allocated for "competitive programs that support a diverse and well-prepared pipeline of educators and strengthen teacher retention" (United States DOE FY 2024 Budget). The budget also requests $132.1 million be allocated to support alternative pathways into teaching, such as teacher residencies and Grow Your Own programs. However, within this budget, the Supporting Effective Educator Development (SEED) program would utilize $93 billion to provide competitive grants to support evidence-based professional development that prepares, develops, and retains a diverse teacher workforce (U.S. Department of Education, n.d., p. 15).

BTC's Algebra 1 Academy provides content-specific pedagogical support, as well as social-emotional learning for Black teachers, both critical supports after the COVID-19 pandemic that saw an increase in teachers' feelings of anxiety and stress (Sparks, 2022) and their uncertainty about remaining in the profession (Zammaro et al., 2021). Nationwide, policymakers have also relaxed certification rules, hiring uncertified teachers or allowing teachers certified in another content area to teach those subjects that have been traditionally hard to staff, like math and science (Richman & Crain, 2022). The placement site for BTC's Algebra 1 Academy experienced these policy shifts, illuminated the need to support Black Algebra I educators' emotional well-being while also building their content knowledge and pedagogical skills even more necessary. As such, findings from the Algebra I Academy are promising in their ability to inform financial and program-related policy decisions aimed at retaining teachers of color, specifically Black teachers.

Finally, findings from this study highlight the urgent need for teacher education to eschew its traditionally colorblind orientation and contend with the broader racial and sociopolitical context (e.g., racial microaggressions) of the teaching field, and of Black teachers' lives, that impact Black Algebra I educators' experiences. Our study findings show that Black Algebra I educators have been yearning for a professional learning space in which their lived experiences were considered in every aspect of the design and implementation of the learning space. In order for professional learning to resonate with Black Algebra I educators, schools, districts, and other teacher development organizations need to create learning spaces that do not obscure Black Algebra I educators' lived experiences.

Conclusion

Though teaching math while Black (Frank et al., 2021) comes with its challenges, from the voices of Black Algebra I educators in the Algebra I Academy, professional learning can be a site of liberation for them, and Black mathematics educators more broadly. Ultimately, this study challenges teacher development and support professionals to center racial affirmation, liberation, and innovation in the professional development spaces they create for Black mathematics educators.

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Appendix A

Description of Black Liberatory Pedagogical Elements

Black Liberatory Pedagogical Elements	Description
Critical Care & Love	Creates classroom cultures in which Black students feel loved and known
Strong Racial Identity	Creates classroom cultures in which Black cultural customs & patterns appropriate/aligned to students are highlighted and embraced
High Expectations	Creates classroom cultures where students and teachers collectively engage in social, emotional, and academic support systems, routines and strategies for students striving to meet high expectations
Sociopolitical Consciousness	Creates classroom cultures in which Black students are comfortable with and skillful at engaging in sociopolitical discourse with their peers and confidently and skillfully challenge the status quo using content area knowledge and skills
Healing	Creates classroom cultures in which a "many hands make the work light" approach is taken to building a classroom culture, and there is structured time for lament, disappointment, and grief
Collective Responsibility	Creates classroom cultures in which intentional actions bring attention (without diminishing personhood) to the importance of full participation and community problem-solving is promoted to emphasize the classroom space as a learning space in which problems are solved collectively
Love of Learning & Intellectual Excellence	Creates classroom cultures in which resilience in learning and excellence as a way of Being is cultivated, and black students' confidence in the "How" and the "Why" is developed

Culturally Compatible and Community Connected Praxis	Creates classroom cultures that model community obligation to cultivate students' community obligation and demonstrate the success of each learner to the success of the community

Appendix B

Description of Learning Activities and Focus Areas

Learning Activity	Description	Focus Area(s)
Summer Intensive	Over the course of three days, Black Algebra I educators will participate in an offsite retreat where you will be introduced to BTC's Black Liberatory Pedagogical approach and principles of Black Liberatory Algebra I.	● Healing ● Storytelling ● Doing Math ● Strengthening Teacher Practice
Coaching and Observations	Over the course of the school year, Black Algebra I educators will engage in individual and group coaching with BTC Algebra I math instructional coaches with	● Strengthening Teacher Practice
Community of Practice	On a quarterly basis, Black Algebra I educators will participate in a fun, relational, engaging, and restorative co-learning space aimed at socially and emotionally supporting teachers as Black Algebra I Teachers	● Healing ● Storytelling ● Doing Math ● Strengthening Teacher Practice
Self-Directed Online Learning Modules	Via interactive online modules twice per month, Black Algebra I educators will increase their knowledge of the African and African-American historical and contemporary connections to Algebra, increase their conceptual knowledge of Algebra, and increase their ability to apply this knowledge and skills in their teaching practices with students.	● Strengthening Teacher Practice

Appendix C

Sample Community of Practice Annotated Agenda

Time	Mins	Workshop Segment
10:00- 10:05	5 mins	**Welcome** ● A word from Dr. Amos Wilson ● Community Agreements ● Review Agenda & Goals
10:05- 10:15	10mins	**Healing Moment** ● Radical Imagination - Scripted visual meditation
10:15- 10:45	30 mins	**Understanding Black Math Identities- African Americans in STEM** ● Seven groups of 2-3 participants will read about a person and take notes on a note catcher and use questions to guide their discussion
10:45- 11:45	60 mins	Building Community- The Remix Challenge ● The same group members will create a representation of their learning about African-Americans in STEM using multimodal resources ● Debrief Prompt- How can you use these ideas and resources in your instruction? ● Gallery Walk for all to explore ● Share / Debrief
11:45- 12:30	45 mins	**LUNCH**
12:30- 2:15	105 mins	**Doing Math- The Housing Math Problem** ● Launch Activity- low-income/ affordable housing- ● Act 1- Notice Think Wonder with Math lens - Housing in Georgia ● Act 2- Notice, Think Wonder, and Extend with Math lens- Forest Cove - news clip ● Act 3- Solve an action-driven math problem ● Share/ Debrief
2:15- 3:30	75	**Strengthening Teacher Practices- Integrating Social-Political**

	mins	**Consciousness in Lessons** ● Background of Lesson Plan ● Model integration in lesson, practice the Math in real time ● Participants practice in small groups ● Share/ Debrief
3:30- 4:00	30 mins	**Closing** ● Wrap up and Exit Ticket Survey

Appendix D

Workshop Perception Feedback

Domain	Construct	Item	n	Mean	1 (Strongly Disagree)	2 (Disagree)	3 (Neutral)	4 (Agree)	5 (Strongly Agree)
Workshop Perceptions	Relevance	The content of this workshop is relevant to my professional goals and interests as a participant in Algebra 1 Academy.	24	4.54	0%	0%	4%	38%	58%
	Needs	The workshop met my needs as an educator in Algebra 1 Academy.	24	4.58	0%	0%	4%	33%	63%
	Utility	I can use this content to positively impact my teaching/coaching.	24	4.67	0%	0%	8%	17%	75%
	Organization	The workshop was well organized	24	4.79	0%	0%	4%	13%	83%
	Materials	The handouts and visual aids enhanced my understanding.	24	4.71	0%	0%	0%	29%	71%
	Time	Time was used efficiently and effectively.	24	4.42	0%	8%	0%	33%	58%
	Leadership	The workshop leaders/instructors were knowledgeable and helpful.	24	4.75	0%	0%	0%	25%	75%
	Clarity & Guidance	The workshop goals and objectives were clear.	24	4.71	0%	0%	4%	21%	75%
			n	Mean	1 (Poor)	2 (Below Average)	3 (Average)	4 (Above Average)	5 (Excellent)
	Overall Rating	Please give an overall rating for the quality of this workshop	23	4.57	0%	0%	4%	35%	61%

Appendix E

Pedagogical Growth Survey

ALGEBRA 1 | COMMUNITY OF PRACTICE 1 FEEDBACK FORM

Your unique identifier:	

Note: Your unique identifier will be used for tracking purposes only. Your responses will be kept confidential and will only be reported in the aggregate.

Thank you for your participation in BTC's Communities of Practice 1 Feedback Form. We would like to learn more about your experiences as a participant in the workshop. Your responses will be used to improve the program for future participants. This survey should take you no more than 10 minutes to complete.

To start, please share your overall impression with our professional development.

1. **WHAT ASPECT OF THE BLACK LIBERATORY ALGEBRA I PROGRAM DO YOU LIKE MOST? WHY? [Summer Intensive, Coaching/observations, Community Space or Online Learning Modules]**

2. **WHAT ASPECT OF THE BLACK LIBERATORY ALGEBRA I PROGRAM DO YOU LIKE LEAST? WHY? [Summer Intensive, Coaching/observations, Community Space or Online Learning Modules]**

Now, please indicate the extent to which you agree or disagree with the following statements by circling your response:

	Strongly Disagree (1)	Disagree (2)	Neutral (3)	Agree (4)	Strongly Agree (5)
3. The content of this workshop is **relevant** to my professional goals and interests as a participant in Algebra 1 Academy.	1	2	3	4	5
4. The workshop **met my needs** as an educator in Algebra 1 Academy.	1	2	3	4	5
5. I can use this content to **positively impact** my math teaching/coaching.	1	2	3	4	5
	Strongly Disagree (1)	**Disagree (2)**	**Neutral (3)**	**Agree (4)**	**Strongly Agree (5)**

Next

1

Continued,

6. The workshop was **well organized.**	1	2	3	4	5
7. The **handouts and visual aids** enhanced my understanding.	1	2	3	4	5
8. Time was used **efficiently and effectively**.	1	2	3	4	5
9. The workshop leaders/instructors were **knowledgeable and helpful.**	1	2	3	4	5
10. The workshop goals and objectives were **clear**.	1	2	3	4	5

As a result of this Workshop, I…	**Strongly Disagree (1)**	**Disagree (2)**	**Neutral (3)**	**Agree (4)**	**Strongly Agree (5)**
11. Have a larger professional network.	1	2	3	4	5
12. Feel like I fit in with this community.	1	2	3	4	5
13. Expect to be part of this community even after this workshop ends.	1	2	3	4	5

We are interested in finding out how you felt BEFORE attending this workshop and how you feel NOW. In responding to the following statements, please take a few moments to reflect on how you felt before this summer compared to how you feel now. For each item, please circle your response for each statement both in the left column (BEFORE) AND in the right column (NOW):

As a result of this Workshop, I understand how to…	**BEFORE**					**NOW**				
	Strongly Disagree	**Disagree**	**Neutral**	**Agree**	**Strongly Agree**	**Strongly Disagree**	**Disagree**	**Neutral**	**Agree**	**Strongly Agree**
14. Offer a **Black Liberatory education** alongside the required curriculum.	1	2	3	4	5	1	2	3	4	5
15. Customize instruction to strengthen students' **Mathematic Brilliance.**	1	2	3	4	5	1	2	3	4	5
16. Strengthen students' identities as **Black math learners.**	1	2	3	4	5	1	2	3	4	5
17. Identify and respond to Black students' **academic and social needs**.	1	2	3	4	5	1	2	3	4	5
18. Communicate **high expectations**.	1	2	3	4	5	1	2	3	4	5
19. Teach a curriculum that **meets and exceeds** grade level expectations.	1	2	3	4	5	1	2	3	4	5
20. Manage **internalized racism and deficit-thinking** among Black students.	1	2	3	4	5	1	2	3	4	5
21. Create a classroom environment that aligns with the **sociopolitical aims** of the Black community.	1	2	3	4	5	1	2	3	4	5

Next 2

Continued,

22. Design lesson plans and/or activities that focus on the **sociopolitical conditions** of Black people.	1	2	3	4	5	1	2	3	4	5

I am confident in my ability to…	**BEFORE**					**NOW**				
	Strongly Disagree	**Disagree**	**Neutral**	**Agree**	**Strongly Agree**	**Strongly Disagree**	**Disagree**	**Neutral**	**Agree**	**Strongly Agree**
23. Use **Black Liberatory Pedagogy** in my instructional/coaching practices.	1	2	3	4	5	1	2	3	4	5
24. Build upon the **Black liberatory pedagogical tradition** in my classroom/schools I support.	1	2	3	4	5	1	2	3	4	5
25. Teach students/teachers about the **Black presence in Mathematics.**	1	2	3	4	5	1	2	3	4	5

26. WHAT ASPECT(S) OF THE WORKSHOP DID YOU FIND MOST VALUABLE?

27. BRIEFLY DESCRIBE 1-2 THINGS THAT YOU WOULD IMPROVE ABOUT THE WORKSHOP:

28. WHAT DO YOU INTEND TO IMPLEMENT OR USE IN YOUR CLASSROOM/SCHOOLS AS A DIRECT RESULT OF PARTICIPATING IN THIS WORKSHOP?

29. PLEASE GIVE AN OVERALL RATING FOR THE QUALITY OF THIS WORKSHOP:

1 - Poor
2 - Below Average
3 - Average
4 - Above Average
5 - Excellent

Thank You!

3

The Potential of Collaborative Inquiry for Teachers' Equity-Oriented Development in Complex Sociopolitical Contexts

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Abstract

After conducting a collaborative inquiry professional development project with educators at a suburban Title I school focused on data use for equity, researchers followed up with participants a year later to determine if there were lasting, meaningful learning outcomes. Findings from interviews indicate that the project was impactful because it provided access to tools (e.g., graphics and rating scales) and rich dialogue that the educators could reference in their continued practice and reflection. Evidence also suggests that despite being primed to notice inequities and to adjust their practice, educators still need improvement to challenge their biases and integrate equitable, asset-forward philosophies and practices. To explore the potential and complexities of such a collaborative inquiry project, the experiences of the sole participant of color are highlighted. Considerations and cautions are provided for teacher educators who wish to engage educators in equity-oriented collaborative inquiry.

Keywords: equity-oriented collaborative inquiry, data use for equity

In spring of 2020, a group of university teacher educators and elementary school educators concluded a year-long professional development project. The project focused on developing the capacity for equity, the extent to which teachers' dispositions, knowledge, and skills align to transformational change, within the school via the educators' engagement in collaborative inquiry. The educators' inquiries began with varied forms of data from inside and outside of their classrooms, as well as concurrent learning in culturally responsive and relevant teaching (Gay, 2018; Ladson-Billings, 2011; Nieto & Bode, 2018; Souto-Manning et al., 2018). Spurred by research that has consistently found educators to be underprepared to engage with

data critically and in ways that employ asset-based views of students, the project design centered educators' learning in a data use for equity (DUE) construct (Dodman et al., 2023). DUE theorizes that it is at the intersection of data literacy (Mandinach & Gummer, 2016) and equity literacy (Gorski & Swalwell, 2015) where educators must engage to be able to notice, reflect, and act (Wink, 2010) on how their own and their school's policies and practices contribute to in/equitable learning conditions and opportunities.

The initial study asked what happens when a group of educators at the same school site engage in collaborative inquiry within a DUE framework. We published the initial findings from the conclusion of the yearlong study, which demonstrated potential in the DUE construct and professional development design to strengthen educators' skills, dispositions, and knowledges related to data and equity literacies. Because the conclusion of the project coincided with pandemic-related school shutdowns, we wanted to then know how the project influenced the educators the following year. In addition to the inequities highlighted by the pandemic, the year in question saw massive public calls for racial equity, and we realized that the findings would represent a sociopolitical complexity different from the context in which the project occurred.

The sociopolitical context of this time was characterized by increased calls for anti-racism in all facets of society from policing, to housing, to education, and so on (Bonilla-Silva, 2022). The interconnected social systems that both influence and that are influenced by schooling were called on to make impactful changes that would disrupt the systemic racism and classism that had re-emerged as broadly visible with the murder of George Floyd by police and the closure of schools due to the COVID-19 pandemic. States made great strides to immediately begin using a discourse of equity and access. Anti-racism became a common term in educational initiatives. The state within which this study occurred created an online repository of

professional learning materials devoted to educational equity that included readings for educators in cultural responsiveness and curriculum materials aimed at developing anti-racist perspectives and actions. Educators were also engaged in continual conversations about equitable access to instruction during school closures as the differences in marginalized and minoritized students' barriers and opportunities became more evident than ever before in recent history (Office for Civil Rights, 2021). However, as these calls, resources, and conversations increased, so did a whitelash (Lippard et al., 2020) that pushed back on the ideas of systemic racism. Whitelash, or White backlash, is resistance to the existence of White supremacy and the structures and systems that maintain it, a rejection of White privilege, and an adoption of color-blind racial ideology (Doane, 2020; Williams, 2020). During this time, educators became caught in a space that simultaneously had them engaging in conversations related to access and equity and a space that reinforced considering these things in individual rather than in systemic ways.

To this end, we report here on how the educators described the influence of the project on their personal and professional lives and elements of the professional development model that participants noted to be impactful given all that they experienced over the year. We highlight the experience of the only teacher of color in the educators' group, as her experience holds important implications for designing collaborative professional development opportunities.

Project Design and Related Literature

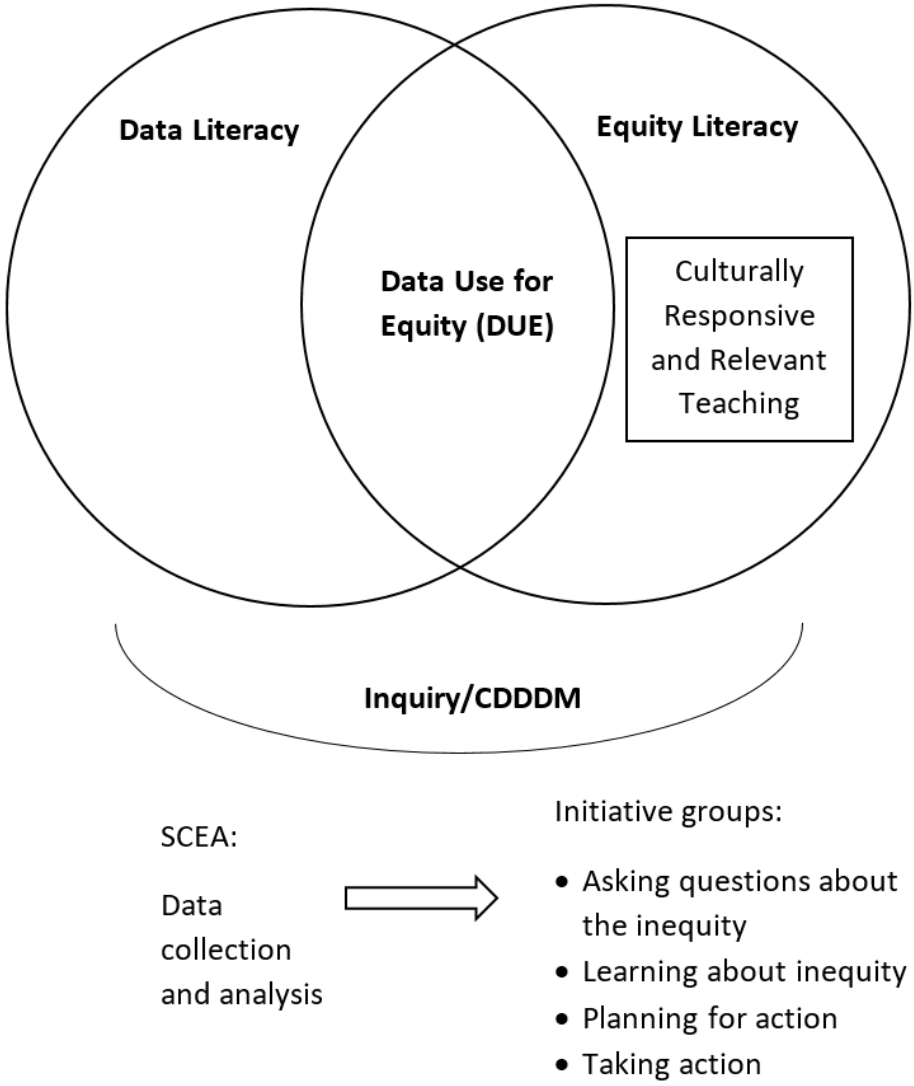
The project was designed to develop teachers' data use for equity through collaborative inquiry spurred by data. As we designed the project, we were informed by literature in equity and data literacies and teacher inquiry.

Equity and Data Literacies

Elsewhere, we have argued that data in schools can be harnessed for equity ends, but doing so requires the intentional cultivation of educators' data and equity literacies (Dodman et al., 2021). Such literacies are necessary to move educators away from neoliberal models of data-driven decision making with accountability emphases towards a liberatory model of critical data-driven decision making (CDDDM), that reorients what, why, and how data are considered. DUE exists at the intersection of data literacy and equity literacy, in a space where teachers can recognize, respond, redress, and sustain equity by using what they know and are able to do with data. The framework that represents how we positioned DUE and inquiry in teachers' professional learning is presented in Figure 1. To support the development of equity literacy, the project included professional learning in culturally responsive and relevant teaching that positioned teaching and learning as culturally mediated and influenced by sociopolitical-historical policies and practices experienced by both teachers and students. We utilized tools, such as the Multicultural Teacher Capacity Scale (MTCS; Cain, 2015), which is a self-evaluation rubric featuring dispositions that influence teachers' knowledge development and skill application. The rubric provides concrete descriptions of knowledge and skill progressions from nascent to transformational that can act as a guide for educators who seek to move from awareness to critical analysis and action-oriented changes in pedagogy and content.

Figure 1

Professional Development Design Framework



Teacher Inquiry

Teacher inquiry is a key vehicle for utilizing and building skills in DUE. The CDDDM model is founded in a critical inquiry stance that demands educators' curiosity and attention to their own positionalities, expanded notions of data, and assumptions of in/equity built into the systems of schooling (Cochran-Smith & Lytle, 2001). A typical model of teacher inquiry begins

with a question of interest about which an educator then seeks out more information by consulting with professional practitioner and academic resources to design an action plan in response. The plan includes the collection of data to monitor the action's outcomes. The data are analyzed, the teacher reflects on the findings, and they determine the next steps or the next question. There is then a key sharing phase as teachers make their learning and practices public to others (Dana & Yendol-Hoppey, 2020). Mohr et al. (2012) offer six attributes of teacher inquiry: "intentional, systematic, public, voluntary, ethical, and contextual" (p. 23). While, typically, teacher inquiry is conducted by individual or pairs of teachers to study their own pedagogical practices (Mohr et al., 2012), the inquiry engaged in this project was collaborative and intended to target the school's *systems*.

In the initial study, the project's participating educators engaged in eight professional development sessions that were structured as a mix of half and full day sessions from summer 2019 through spring 2020. The emphasis on the systemic nature of in/equity was catalyzed via an initial data gathering exercise using a School and Classroom Equity Audit (SCEA). Participants included a variety of school staff including teachers, counselors, and administrators, referred to collectively in this article as *educators*. Using the SCEA, the educators in the project collected data on a range of equity indicators both within their classrooms and at the larger school-level. They examined for over- and underrepresentation of students in such areas as gifted programming, achievement, student council, special education, school clubs, disciplinary referrals, etc. This initial data analysis identified compelling areas of inequity that helped the educators "define the field of action" of their inquiries (Lambirth et al., 2021). Educators then formed groups of two to three to address inequities through collaborative inquiry: gender disproportionality in discipline data, English Learner underrepresentation in the gifted program,

gender disproportionality in STEM, and high student mobility causing disrupted learning and community. To support the collaborative inquiries, teachers engaged with multiple resources and tools and there was ongoing attention to culturally responsive and relevant teaching.

Findings at the conclusion of the project indicated that participants' sense of agency, perceptions of equity and data, and perceived multicultural capacities were enhanced; yet, findings also demonstrated that while participants made progress in strengthening their data and equity literacies on almost all indicators, they were still developing in these capacities. We theorized that the project served as a priming foundation for educators, increasing their awareness and comfortability in discussing inequities, rather than as a finished effort that would include consistent critical self-reflection, changes to classroom practices, and addressing of systemic inequities as a way of being as an educator. To this end, we individually interviewed participants one year later to learn how the project may have impacted their continued work and learning, particularly in the new sociopolitical context forged since the project ended.

Methods

We employed qualitative methods to learn how the participants were affected by their engagement in the professional development project a year later in a different sociopolitical context. We specifically asked the following research questions:

1. In what ways do participants describe the influence of the collaborative inquiry project on their work and learning one year later?
2. In what ways did the professional development design facilitate or hinder participants' identified learning?

Participants

The professional development project initially took place with nine educators in a single elementary school. One educator identified as a Black woman and eight educators identified as White women. All were native English speakers. Initial and follow-up study participant demographics are presented in Table 1. The suburban Title I school's student demographics were 77% Hispanic, 12% White, 6% Black/African American, 3% Asian/Pacific Islander, and 2% Multiracial. Nineteen percent of students were identified with Autism, Specific Learning Disabilities, and/or Speech/Language Impairments. Six percent of students were identified as gifted. Sixty percent of students were identified as English Learners. Finally, 85% of students were considered economically disadvantaged.

Table 1

Follow-up Interview Participants

Participant Name	Grade/Position	Race	Sex	Career Stage	Study Participation
Erica	K	White	Female	Late	I & F
Sara	1	Black	Female	Late	I & F
Maisy	2	White	Female	Early	I
Veronica	3/ESOL	White	Female	Mid	I & F
Tracey	5	White	Female	Early	I & F
Katrina	ESOL	White	Female	Late	I & F
Marilyn	Principal	White	Female	Late	I & F
Tina	Assistant Principal	White	Female	Late	I & F
Diana	Guidance Counselor	White	Female	Mid	I & F

Note. All names are pseudonyms; Veronica began the project teaching 3rd grade and moved into an ESOL position during the project.
Note. "I" represents initial study participation; "F" represents follow-up study participation.

Eight of the nine educators who engaged in the project participated in the follow-up interviews: the school's two administrators (principal and assistant principal), one guidance counselor, two English for Speakers of Other Languages (ESOL) teachers, and three teachers from grades kindergarten, first, and fifth. Seven of the interview participants identified as White and one identified as Black. Two of the teachers were not teaching at the time of the follow-up interview: the fifth-grade teacher left the teaching profession to attend law school and the 3rd/ESOL teacher took the year off to care for a new baby. A final participant in the project (a second-grade early career teacher) declined to participate in the follow-up interview due to personal and professional time commitments.

Data Collection and Analysis

An individual follow-up interview was conducted with eight of the participants. Thirty-to-forty-five-minute interviews were conducted using a semi-structured interview protocol. Each participant was interviewed by one of the researchers via Zoom to ascertain the educators' perspectives on the impact of the data use for equity project on their professional learning and growth. At the time of the interviews, educators were in the spring semester of pandemic teaching. Two of the eight participants were still teaching virtually (first grade teacher Sara and kindergarten teacher Erica), while four had returned to in-person teaching in the school (Katrina, Marilyn, Tina, and Diana). Contributing to the teaching and social context at that time were local, national, and global calls for racial reckonings in public-serving institutions. We recognized that the educators' responses to our work the previous year would be influenced in important ways by the new/renewed conversations around equity that were taking place both within and outside of educational contexts. We crafted interview questions in response. Questions focused on the topics of: successes and challenges during the year, perceptions of

students and families as influenced by virtual teaching and racial justice movements, feelings of preparedness to address newly visible inequities, and reflections on the professional development project and any potential lasting influences.

Analysis followed Braun and Clarke's (2006) thematic analysis approach. Transcribed interviews were analyzed inductively by the first two authors by first assigning open codes to related text segments in two participant interviews. The two researchers met to determine agreement and refine codes, keeping a code book that defined each code and offered representative excerpts. Each of the two researchers then individually coded two more interviews using the refined codes, meeting again to compare codes with each other and with previous code applications to determine agreement. Via discussion of the coded text, these two researchers ensured that each data excerpt was given equal consideration in the sense-making process so as to avoid ignoring data that did not fit potentially anticipated themes. The process was repeated for the remaining interviews. Each time researchers met, emergent themes were brainstormed and tested against the coded data set. This process resulted in the development of themes as the researchers used the codes to make meaning of the data. The researchers created "an overall conceptualization of the data patterns and relationships between them" (Braun & Clarke, 2006, p. 89) as final themes were constructed.

Central to the analysis was researchers' intentional attention to their positionality. The second author is an administrator in a Preschool-8th grade charter school and a PhD student in teaching and teacher education. She identifies as a Latina woman. She was not involved with the initial project but engaged in data analysis with the first author for this follow-up study. The first author is a university faculty member and facilitated the initial project. As such, she had background knowledge of participants' engagement and pre-existing relationships with each

educator. She identifies as a White woman. The third author helped to facilitate the initial project with an additional three colleagues but was not engaged in data analysis. She identifies as a White woman.

Findings

Our prior research posited that the professional development endeavor acted as a potential priming experience for the educators. That is, that educators were prepared to use the foundation they had developed in equity and data literacies to continue acting to create more equitable environments for their students, particularly using data. Our follow-up interviews a year later, after a year of virtual teaching, school closures, and widespread public movements for racial justice, confirm that educators were indeed primed and indicate that the project was impactful because it provided access to tools (e.g., graphics, audits, and rating scales) and rich dialogue that the educators could reference in their continued practice and reflection. However, as we analyzed our follow-up interviews, there were findings in areas that we did not anticipate related to colleague relationships and the experience of the sole teacher of color (Sara) in the participant group. The findings of our two research questions overlapped (1. In what ways do participants describe the influence of the collaborative inquiry project on their work and learning one year later? and 2. In what ways did the professional development design facilitate or hinder participants' identified learning?), so we first present the tools and dialogue space that were named by the participants as meaningful to their learning. As we do this, we describe how the educators utilized these elements in their continued learning and work in a sociopolitical context that increased in complexity post-project. We then report on the participants' characterizations of their relationships. It is here that we highlight the experience of Sara.

Project Tools

After the forced end of the project due to the school's COVID-19 pandemic-related closure, public dialogue around equity increased. Participating educators named the equity work in which we engaged as important to how they then asked questions related to, "What do students need? What do parents need?" (Veronica). A graphic depiction of equality, equity, and liberation used during the sessions offered participants a touchpoint on which to return as they considered fairness in terms of their students' opportunities and access to instruction during the pandemic. Kindergarten teacher, Erica, spoke to an altered way of noticing, even if she could not articulate it in the way she wanted:

> I have to say that I do think more about equity things now, you know, when I hear about somebody's situation, I'm like "Is that really fair?" I mean - is that their fault or is there something we can do to fix it? I'm more conscious of [in/equity] … Because I used to just like say "Yeah, okay, whatever everybody gets [the] same thing you know. If you don't get it, you don't get it." … And some people just need extra help, so you know... I do think differently now, I think. I really think I do, but I can't really kind of put that into words.

Erica's time in the project was interrupted by health-related absences. Due to this, she was unable to be fully present in the project. Despite this, there were noted instances during the sessions where Erica identified new learning, particularly related to cultural representations. Her expression of a perspective shift in relation to fairness of opportunity in her follow-up interview was noteworthy for her, even though she is still thinking in terms of 'help' and individual 'fault.'

Katrina expressed a sense of critical reflection in which she probed her own understandings of diversity and race. She specifically spoke to the SCEA as "opening [her] eyes":

> I think other schools definitely should get into [the SCEA] and should look at [their data] themselves … I grew up in [a large city]. I grew up in a diverse world. I have biracial nieces and nephews. In my mind, I was culturally relevant. I work in Title I – I thought I had it. And then we see [the SCEA data] and, like I said, I start thinking of other things, like the ableism, and it's like, 'Ok, my mind is kind of been blown and it's even more than I thought' kind of thing.

During the project, Katrina expressed the greatest skepticism towards our emphasis on equity and culture. For her to express such strong critical reflection in the follow-up interviews was surprising and confirming of the priming nature of the tools and activities in which participants engaged. The principal, Tina, also referred back to the equity graphic and SCEA as important influences on her current work as she moves away from an equality- to a justice-based approach:

> Making sure that students had the things that they needed to be successful at the beginning of the year [when the school was virtual] … [and] we do need to continue to learn and make sure that we're not only treating people equally, but providing the support that people need … That [equity graphic] always comes to mind. That sometimes you need a big box and sometimes you need a medium box, sometimes you don't need a box.

The final tool that was named by participants was the MTCS (Cain, 2015). The MTCS enabled imaginative futures for Veronica in which she is able to increase her understanding of the sociopolitical contexts of schools:

> When first reading [the MTCS], I thought "No, but maybe I'll get there" and now, I think more and try to take action. For example, one of the [knowledge of sociopolitical context of schools] indicators was "watching the news." At first, I thought, "No, people don't do that! ... But do people actually?" Then I thought, "Maybe I could. How could I?" Then thinking [after trying] "Did I do it?"

Being able to imagine differently is important to equity work. If we cannot imagine beyond current structural, personal, and systemic boundaries to consider alternatives, then dominant narratives are maintained and marginalized voices and experiences remain afterthoughts. In each of the participant examples above, the educators relied on the project tools as anchors to refer to when grappling with new reflections. Participants' engagement in the collaborative inquiry project prepared them to use these tools to increase their awareness and understanding of inequities experienced by their students and their families.

Dialogue

Participants mentioned that the opportunities for dialogue offered during the project had lasting impacts on them. Dialogue during the project was positioned as an intentional kind of talk meant for understanding versus agreement. Marilyn noted that such engagement has affected how she interacts with others now:

> I feel way more comfortable now, asking people things, [asking] for more information – "I don't really understand what your experience has been, can you tell me more because I really do want to understand." Or, not even understand so much, but just value.

Similarly, the principal, Tina, expressed how she is deliberately working on questioning more before jumping immediately to action. Her emphasis on questioning and listening over telling is important:

> I want to fix things, and I think that I know the answers when sometimes I need to be listening more than telling. So being an active listener, that's something that I've been working on since the project is really listening to others more, and then trying to figure out what questions to ask, too. Because we can't get the right answers if we don't ask the right questions.

During the project, Tina was a supportive principal who clearly cared for her teachers. In service of that support, at times, she shut down questioning and reflection by bolstering teachers' confidence in their current efforts and perspectives. Her deliberate attempt now to listen more and ask questions is a strong outcome from the high value we placed on dialogue, questioning, and reflection. Veronica was also affected by her engagement in the project dialogue. She spoke on her new attention to being okay with lag time between people's thoughts and giving wait time to formulate thinking. Veronica also mused about this affecting not only her adult-to-adult talk but also her consideration of what students need in her classroom in relation to talk and to varied perspectives and representation. Noteworthy, participants' reflections on the dialogic nature of each session also revealed sometimes conflicting experiences related to connections with colleagues and the larger school community.

Characterizing Relationships

As participants shared their perspectives on their experiences in the professional development project, an important theme emerged in how educators spoke of their relationships with colleagues and students and families. While these relationships were often identified as positive in relation to one's professional learning, they were also revealed to be complex in their influence and their outcomes.

Colleagues

When describing relationships with colleagues, six of the eight participants reflected positively on the group and referenced the importance of camaraderie during the pandemic year following the research project. Diana spoke about having shared background knowledge as a result of participating in the project.

> I'd like to believe that whether it's been a perspective change or just like a change of thinking...it's been helpful to be able to reference [the project] too, to some of those colleagues within that group, to say "Hey, do you remember?" "Or what if we thought about it in this?" "Or remember when we talked about this, you know, could what we're dealing with right now have a relationship with that or correlate?"

Participants found value in continuing their personal growth through collaborative dialogue and personal reflection with their colleagues. When interviewed a year later, over half of the participants referenced a new professional learning group at their school comprised of a mix of study participants and non-participants. The purpose of the educator-created group (EG) was to engage in critical dialogue with colleagues and read materials to support the development of their culturally responsive practices. As Diana again described,

> [The EG] looks at that discomfort, accepting discomfort, difficult conversations piece of education – in regards to gender, in regards to class, in regards to race, in regards to culture. All of those different things has been a gift, I think, in a season that has been really unknown. It continues to push us into those unknown territories, but with each other.

When discussing how they had been affected by the movements for racial justice, participants described a renewed sense of urgency, new revelations, and their collective increase in racial

equity work. Marilyn described using dialogue to "push the envelope" by asking questions in a safe place of understanding.

Despite these positive outcomes, there were two educators in the group who both spoke of complex entanglements when aspects of their identity intersected with their professional roles. Tracey, a fifth-grade teacher who has since left the profession, spoke of a particularly difficult experience during the sessions:

> I remember us having to have a really hard discussion, I think race did come up, and unfortunately, because I admitted and took that vulnerable moment - just admitting that there are people in my life that are not as understanding or not as willing to hear and entertain these conversations - unfortunately, I was perceived, and it was spread around the school, that I was racist.

Tracey recognized the importance of vulnerability and establishing trust in spaces when dialogue is used as a means of connection for people but acknowledged the challenge when "putting people from different backgrounds in a room." Sara, as the only participant of color, spoke frequently in her follow-up interview of how different her experience was because of her identity as a Black woman. She spoke about the professional development project, and she explicitly referred to the racialized social contexts of the past year. She hesitated to describe her relationship with colleagues, referring to herself as an outsider, and questioned her continued role in the school community.

> I feel less connected to the school as a community after all of [the racial justice protests] happened. A lot of views have come out, a lot of opinions have come out, and it's been hard for me. It's been really hard for me … I've never thought of not being a teacher

> more. It's just so – especially an African American teacher – it's just so much pressure right now on everything and … I don't know.

Additionally, Sara contrasted her White colleagues' interests in racial equity work, stating, "It's not really a movement for me because I've lived it my whole life." She described how her White colleagues projected their feelings of anger, sadness, or frustrations in response to George Floyd's murder onto her. They expected Sara to share their indignation and to feel similarly because of her racial identity. When she didn't share their views, Sara felt judged and othered ("It's made me feel different...when I was at the school before, I didn't feel like the Black teacher, and now I do."). This worry over having to defend her choices or rationalize her decisions led Sara to withdraw as a member of the community, choosing to stay silent and disengage instead of participating in the dialogue and reflection around controversial topics.

> Because here's the thing, if you tell a colleague, "Yes, that's offensive." Then their next question is "Well, why?" And now you're into defending why you're offended by it, and nobody wants to be put in that situation ... You're like "It's offensive because ..." "Well, why would that offend you?" And you're like "This is …" (trails off). I should have just said "It's fine."

In fact, while Sara indicated that the professional development project "covered everything that [she] would have hoped it would cover" and "it was a chance to bring out a lot of different perspectives that [colleagues] may not have had before or [she] may not have had before," she also indicated that if the group was forming today, she probably would not join. She attributed this hesitation to the potential difference that more teachers of color would have made to the group's dialogue. She, as the only teacher of color in the participant group and a self-described introvert, was not comfortable speaking up or back to issues on her own. In her words:

> I think, maybe you would have gotten a different chance if you had other teachers of different color or ethnicity present. But I hate confrontation, first of all, and so the little things that I did feel strongly about enough to talk – which, you know, I didn't like to talk in there, to begin with - I (pause, sigh), I didn't even like that bit of confrontation, but I knew that [my colleagues] got where I was coming from. Like, there's a couple of instances that I can remember that I knew that they knew that that didn't sit well with me but because – it's, not that I didn't think you didn't poke enough, I think that you didn't have an opportunity to if that makes sense, like there was no pushback.

Despite the development of shared conversations, practical use of tools, and efforts to continue elements of professional learning related to equity-based practices, the contrasting experiences of Sara and her White colleagues highlight the continued need to consider racial positionality in professional learning, coupled with the need for strong challenging of assumptions and biases. Similar outcomes were observed when analyzing the positioning of the participants as they described their students and families.

Students and families

Some participants' engagement and outcomes related to the project were conflicting. For example, during Erica's follow-up interview, she often spoke about students and families from a place of deficit; her pity was interpreted as empathy to her. While she espoused how much she loved her students and described her growing noticing of inequity in resources, she simultaneously degraded students' home lives.

> So, I have this one little kid who was in my class ... [at] his house, you can see, there were hammocks hanging in the background that people are sleeping in because he lived with so many other people. And you know, and he didn't speak a lick of English, he

> showed up sometimes, sometimes he didn't. And it was just like, to me, it's like going, okay, so one kid has all the advantages of having a stay-at-home parent who can stay home and do that with them, and they give him all the resources they need. And then, we have this poor little guy over here who's you know sucking on a juice box, rolling around while other people, you know, sleep in hammocks behind him in the kitchen. And it, I mean, it kind of broke my heart.

Similarly, Katrina described contradictory reflections on her engagement with students and their families. On the one hand, she positioned schools and teachers as saviors and described families having to "swallow their pride" to seek assistance for access to food and technology. She expressed surprise when it was college educated families or those with students labeled as gifted and talented who needed support with access. However, Katrina also noted key revelations that caused her to rethink her interactions with students and families. As she furthered her understanding of equity and equality, Katrina gained confidence in engaging her students in meaningful dialogue.

> We have basically been reading and talking and studying various subjects about equality and equity, and opening our eyes to things that maybe we hadn't even thought were part of that equation, like ableism and Indigenous peoples and, you know, is it people-first wording or is it disability first wording? And the conversations we've had have been amazing. So, I definitely think that has probably opened my eyes to what is going on or maybe why is it going on kind of thing ... And try and talk to [the students] about things that maybe I wouldn't have in the past. I would have just kind of glossed over and gone "Oh, okay, I'm gonna keep going now."

Katrina's development is not linear. As she moves forward in one space of equity literacy development, she maintains a deficit perspective in another. Her experience demonstrates the necessity of DUE professional development that is ongoing and embedded within the facets of everyday work. Katrina demonstrated capacity for critical reflection and reexamination of assumptions. But this work is not all or nothing. She needs regular, naturally occurring opportunities to practice such reflection within a DUE framework.

Discussion and Future Implications

Findings of our follow-up study indicate the DUE inquiries primed teachers for noticing inequity and its associated critical reflection. However, some participants still struggled with assumptions and biases that influenced their perceptions of students and their families. While the kindergarten teacher was not fully engaged in the project due to health-related absences, her maintenance of assumptions and biases is still troubling and offers implications for future professional development design. In assessing their equity-oriented development, the participants provided feedback that asked for more concrete ways to apply the learnings from the collaborative inquiry and dialogue. While we focused heavily on Ladson-Billings's (2011) stance that "'doing' is less important than 'being'" (p. 176), teachers ultimately needed help translating the *being* to the *doing*, so that they may better inform one another (Castagno, 2012; Farinde-Wu et al., 2019; Irizarry, 2011). Veronica's response, in particular, implies that centering self-reported or evaluative rubrics (e.g., MTCS; Culturally Responsive Teaching Self-Efficacy Scale, Siwatu, 2007; Culturally Responsive Instruction Observation Protocol, Powell et al., 2016) may be useful to this translation because such instruments can serve an aspirational as well as evaluative function.

In the original professional development, the MTCS rubric was introduced as a tool to identify the dispositions, knowledge, and skills necessary to promote educational equity, but ultimately was not a central area of focus. Findings from this follow-up study indicate that educators can benefit from intentional focus on the rubric's personal to systemic continuum as they work to translate abstract concepts into actionable practices. Despite increased awareness of inequities, the participants were limited in their capacities across different spheres of influence, such as personal, interpersonal, cultural, school/district-based, or systemic. The result heavily influenced the different experiences between the participants.

As the White educators spoke of their learning and the powerful dialogue in which they engaged/were engaging, they also seemed oblivious to their Black colleague's discomfort or potentially different experiences. During her interview, Sara shared a powerful story of fear for her Black son at the hands of police. With the recent murder of Tyre Nichols as we write this, her fear weighs heavy. She noted in her interview that sharing her fears is not something that she would do with her White colleagues. Her anxiety related to being singled out as "the Black teacher," and therefore, burdened by having to speak for race and racism kept her quiet in the group setting, a phenomenon not unique to Sara (Daniel, 2019).

An impetus for the professional development was to move what was an individual inquiry graduate project to a school site where colleagues could collaborate in using data for school change. While we worked to create safety and trust between the educators and us as external researchers, our findings demonstrated that the shared histories and relationships among the educators themselves were essential influences on the group's trajectory. As we consider how to center experiences of teachers of color such as Sara, Mensah's (2019) use of personal

narratives and written reflections may be helpful. Incorporating journaling could emphasize continuous reflection that would enable personal exploration without public judgment.

In fact, knowing what they know now, the participants themselves noted several areas for future consideration in designing a similar professional learning effort. Those include a greater focus on examining self/identity, greater attention to their own classroom data and practices, more frequent sessions, and greater attention to the collection of "street data" (Safir & Dugan, 2021) to better understand the perspectives and desires of stakeholders to combat assumptions. Street data are the "qualitative, experiential data … [data that are] asset based, building on the tenets of culturally responsive education by helping educators look for what's right in our students, schools, and communities instead of seeking out what's wrong" (p. 2). Street data value the cultural wealth of communities (Yosso, 2005) by not relying solely on numerical data, but by pairing those data with artifacts, stories, and observations. One such type of story, the counter narrative, offers much potential to disrupt educators' socialized deficit orientations by presenting alternatives to dominant stories of students', families', and educators' experiences.

Additionally, conceptually framing a stronger anti-deficit approach at the outset of the project would potentially enable us as the research team to more visibly position intentional, ongoing action as a key element of DUE. The emphasis on assets, while important and in many ways successful to the educators' shifts in noticing, was also perhaps insufficient without the action orientation of an anti-deficit framing. An anti-deficit framing would require the educators to continually dismantle their own systems of deficit narratives that have developed over time (Adiredja, 2019). Educators were more easily able to recognize inequitable conditions and structures at the institution level, but were challenged to interrogate their own deficit orientations. This was particularly true of the White educators who seemed unable to notice their

role in the markedly different experiences of their colleague of color, and in the case of Erica, who intertwined equity and pity.

While participants expressed important systemic learnings and skills in DUE from the collaborative inquiry endeavor, the findings from a year later during a time of social uncertainty indicate that there is still work to be done. While there is much potential to be seen in the outcomes reported by the participants, the identified challenges and changes to the project's design could have powerful implications for educators' sustainability of data use for equity knowledges, dispositions, and skills in sociopolitical climates that are only becoming more contradictory and complex.

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Teacher Candidates Dismantling Racism, One Book Study at a Time

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Abstract

Starting in fall of 2020, two faculty created and facilitated a book study with teacher candidates the semester before they entered student teaching. They read *This Book is Anti-Racist* by Tiffany Jewell and viewed the content through their own personal journey lenses and also applied the ideas to how they hope to bring anti-racism and multiculturalism into their teaching practice. In the spring of 2022, they conducted a pilot study to gauge the effectiveness in increasing teacher candidates' confidence in bringing anti-racism and cultural responsiveness to their teaching. Their initial findings showed promising results with a small sample size. They have progressed to over tripling their sample size during the fall 2022 semester with the hypothesis of seeing the promising pilot results further confirmed. This study has inspired ideas for future study and considerations for programmatic improvements, all with making anti-racism the norm for the teaching profession.

Keywords: anti-racism, biases, critical race theory

In the late summer of 2020, colleagues from the Elementary and Early Childhood Education Department at Bridgewater State University in Bridgewater, MA came together for a virtual meeting to discuss shared concerns about how to improve addressing racial equity and social justice in licensure programming. The department formed the "Anti-Racism Matters Committee" (ARM) which focuses on supporting both faculty and students in their racial learning journeys. ARM works to offer professional development for faculty at department meetings, a yearly retreat, and via a yearly summer book club. In addition, ARM provides guest speakers events that are open to both students and teachers that focus on anti-racism. After the

initial ARM meeting, two colleagues collaborated on an idea that is showing to be consistently effective.

The two researchers are two faculty members who care deeply about teacher candidates fostering ant-racist ideals, implementing culturally responsive pedagogy, and improving their equity lenses both professionally and personally. Since the researchers view multiculturalism as an important component of being antiracist, and antiracism is a necessary part of multiculturalism, those terms are used interchangeably throughout this article. Dr. Correia's area of expertise is in literacy and had experience with effective book studies in learning about various topics, including anti-racism. Dr. Boivin's specialization is in anti-racist teaching and multicultural understandings and is familiar with facilitating programming on these topics in an inviting, safe learning environment. Together, they forged a partnership, with the support of their department chair, to create and implement a book study focused on anti-racism.

Book clubs are often used with practicing and pre-service teachers as a means of professional development. Book studies provide an opportunity for teachers to examine their knowledge, beliefs and practices through considering different perspectives (George, 2002). In a study of book clubs as professional development for both preservice and practicing teachers, Burbank et al.(2010) found that preservice teachers reported that the book clubs were "critical to their development as educators" (p.61) and that the conversations in book clubs provided these novice educators with awareness of the platforms needed for systemic change. We believe our antiracist book club is an effective approach to striving for inclusive excellence, engaging in personal reflection, and building a much-needed community of support.

This book study was a non-credit addition to the coursework that elementary and early childhood teacher candidates took in addition to their courses that are required the semester before student teaching (first half of their senior year).

Students were placed in a cohort of anywhere from 10-22 students (pending enrollment each semester) called the "Block." They take five methods courses over the semester, all with the same group of peers. For their classes, they teach small groups and whole classes at a mixture of clinical field placement sites. The workload and schedule are demanding but serves as a prerequisite to the demands for student teaching the subsequent semester.

During the fall 2020 semester, the Dr. Correia and Dr. Boivin implemented their book study with these students for the first time. Using *This Book is Anti-Racist* by Tiffany Jewell, they offered four asynchronous discussions on their LMS (BlackBoard) each of which aligned with the four sections of the book. The questions offered the teacher candidates opportunities to reflect on their personal journeys addressing unconscious biases, but also tied this work to their professional roles as educators. They made their answers as long as they choose, but we explicitly articulated that we are looking for thoughtfulness in their replies, which aligns with the discussion norms we established at the start of the book study. The discussion norms included ideas like determining when to "call out" versus "call in," (Diangelo, 2018) assume best intentions, and avoid generalizations. Students were then asked to thoughtfully respond to two peers.

Here is an example of a discussion prompt that we used for the second of the four sections, which were geared toward personal development and professional development (through the eyes of a classroom teacher):

1.) This section of the book truly illuminates the deep-rooted racism the US has that has been present since the conception of the nation. Can you think of something you learned about in school that ignored racism, but rather glorified our nation's past? For example, was there a historical figure that you were taught was incredible for numerous reasons and later found out had a past of racist actions? Did he/she perpetuate the oppression of People of Color?
2.) Explain how uncovering these "truths" will impact your teaching. How will you ensure that you aren't ignoring the ugly past?
3.) How will you "decolonize" your classroom?
4.) What is something new you learned in the second section? Be as specific as possible and explain the impact that this new information/insight had on you.
5.) What activity, reflection prompt, or metaphor/description challenged your thinking or understanding? Was there anything that made you "dig deeper" than you have in the past? Explain.

In addition to these asynchronous discussions, we offer three synchronous meetings. The first took place at their Block orientation at the start of the semester (typically in-person). We went over the book study expectations, logistics, schedule, and emphasize how important this work is to becoming an educator. The second meeting took place half-way through the semester via Zoom to allow students to go home after a long teaching day and be in a space that makes them feel comfortable when tackling challenging topics and uncomfortable conversations. Dr. Correia and Dr. Boivin opened the session with sharing that it is a time and space to discuss anti-racist education, equity, and related topics in a way that helps them process, plan and reflect. Typically, the teacher candidates have experiences and questions that they need to share and Dr.

Correia and Dr. Boivin do not need to use the premade prompts that they have ready just in case. In the fall of 2022, the second synchronous session was a bit different by having a guest speaker, a school administrator of color from a nearby school district, facilitate the session with prompts that pushed teacher candidates' understanding past the text and even challenged some of the text to enhance their critical lenses.

We first conducted this study as a pilot in the spring 2022 semester and had 16 teacher candidates respond. The initial findings revealed that overwhelmingly, students' confidence about integrating anti-racism and multiculturalism into their teaching practice increased over the course of the semester. In the fall 2022 semester, enrollment was much higher, and we will be fortunate enough to analyze results for 57 teacher candidates. The next section delineates the study methodology.

Methods

This section describes the study methodology, including the guiding research questions, the data collection procedures, and data analysis procedures. Prior to unpacking the data collection and analysis procedures, it is necessary to understand the underlying theoretical framework for this study: Critical Race Theory.

Kimberlé Williams Crenshaw is the "mother" of Critical Race Theory (CRT) as a UCLA Law School Professor. In essence, CRT affirms that race was created by society and systemic racism is built into the foundational structures of this nation. Crenshaw contends that CRT is more of an action than a thing, meaning that CRT is a way of seeing the world and challenging norms. CRT allows us to notice race and racism, where we may not have noticed it before. She adds that CRT utilized peoples' lived experiences of racism in a serious way, along with social and historical reality "to explain how racism operates in American law and culture, toward the

end of eliminating the harmful effects of racism and bringing about a just and healthy world for all" (Crenshaw as cited in Fortin, 2021). In the context of this study, noticing that every aspect of the teaching profession can be related to race and racism allows us as researchers and educator preparation faculty, to seriously consider how every action these future teachers take can help either perpetuate systemic racism, or dismantle it. Viewing antiracism through personal and professional lenses, as this book study encouraged, heightened students' awareness that race is embedded in society at every level. The instrument we utilized in this study exemplifies that viewpoint.

Two guiding research questions were the focus for this study.

1.) Does participation in an anti-racist book club increase the value that pre-service teachers place on anti-racism work personally, professionally, or both?

2.) What is the multicultural proficiency of pre-service teachers before and after completing an anti-racist book club and online learning community?

To help answer these guiding research questions, the teacher candidates were administered a survey before and after participation in the book study. The survey was adapted from the Multicultural Efficacy Scale (Guyton & Wesche, 2005). Our survey instrument measured teacher candidates' attitudes towards multicultural beliefs and practices, but also their perceptions about whether they can effectively implement these practices as future educators. The complete survey can be found in Appendix A, but a few examples of survey items aimed at efficacy are included below:

I can help students view history and current events from diverse perspectives.

I can plan instructional activities to reduce prejudice toward diverse groups.

I can help students work through problem situations caused by stereotypical and/or prejudicial attitudes.

There was a total of twenty items with the following Likert scale response options for each item:

I do not believe I could do this very well.

I could do this, but it would be difficult for me.

I could do this reasonably well if I had time to prepare.

I am confident that this would be easy for me to do.

The pre-service teachers took the survey on Qualtrics in the first week of the spring 2022 semester during the book club introductory meeting and then the post-survey about 14 weeks later during the final synchronous book club session. This first round of data collection using the survey instrument served as a pilot since our N was small, at 16 students. In the fall semester of the same year, we had 56 teacher candidates participate in the survey and book study. We anticipate analyzing that data soon to confirm or reject any initial trends that were derived from the pilot.

The quantitative data resulting from the survey responses were analyzed to determine levels of confidence increase from pre to post measures on each survey item. Data were also examined for emergent themes. These themes were then validated across the data. The pilot survey results were carefully analyzed to determine any trends in the data. Those trends are presented in the findings and results section below.

Results and Findings

This section describes the study results and findings. Careful analysis of the data revealed promising results that showed overall, teacher candidates had developed increased confidence in

their ability to bring anti-racism and cultural responsiveness to their teaching. Further analysis revealed that their responses and levels of growth in confidence fell into three distinct categories.

Category 1: Most Confidence

The first category consisted of items showing *notable confidence increases,* with zero participants reporting, "could not do this very well" and fewer than three participants reporting, "I could do this, but it would be difficult for me" in the post-survey. Fourteen of the 20 items fell into this category of notable confidence increase from pre to post survey.

A few sample items that fell within this category include:

I can identify cultural biases in commercial materials used in teaching.

I can help students take on the perspective of ethnic and cultural groups different from their own.

I can help students view history and current events from diverse perspectives.

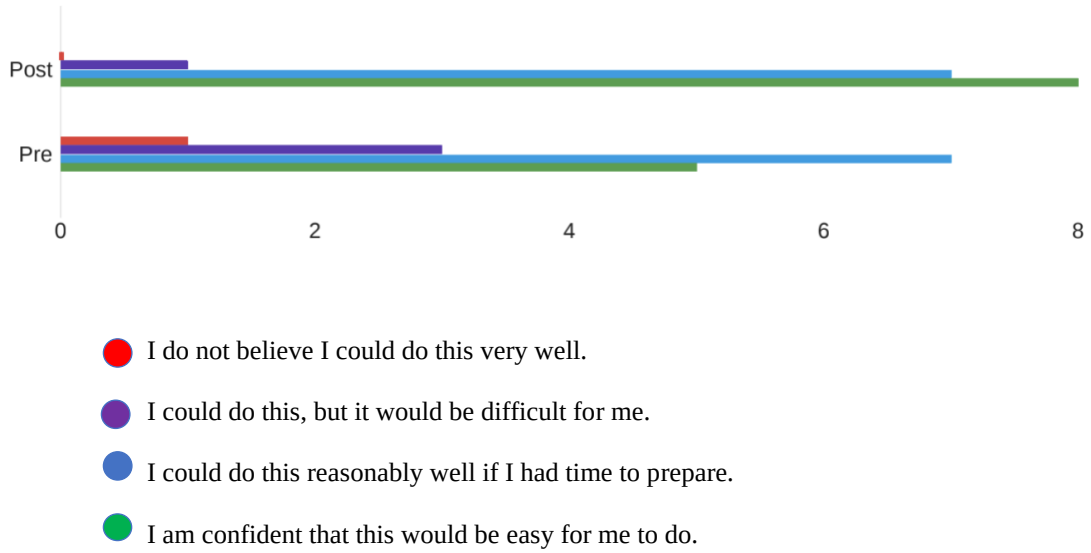
I can develop activities that increase the self-confidence of diverse students.

An example with a data graph is provided in Figure 1 of an item that is of particular interest to us as teacher educators and is an important part of the development of our teacher candidates. Participants reported high levels of confidence in being able to analyze instructional materials for stereotypical content. This is an aspect we discuss often in our courses and put into practice within our own teaching and choice of materials.

Figure 1

Example of Survey Item in Category 1 Showing Notable Confidence Increases

Q5- I can analyze instructional materials for potential stereotypical and/or prejudicial content.



Further analysis of all the items that fall in category one point to a broader theme of teacher candidates' increased confidence in being able to critically evaluate curriculum materials for bias and using and adapting instructional methods that align with meeting the needs of learners from diverse backgrounds. Being critical of the disciplinary texts, read aloud books, audio-visuals and other curriculum instructional materials is an essential aspect to creating more inclusive classrooms and developing multicultural proficiency. In addition, reducing prejudice towards diverse groups and helping students view history from diverse perspectives was a repeated trend with noteworthy changes in confidence level.

Category 2: Moderately Increased Confidence

The second category consisted of items showing *some confidence increases*, but still three to five participants reporting, "I could do this, but it would be difficult for me" in the post-survey. Four of the 20 items fell into this category of showing some confidence increase from pre to post.

The four items that fell within this category include:

I can provide instructional activities to help students to develop strategies for dealing with racial confrontations.

I can develop instructional methods that dispel myths about diverse groups.

I can provide instruction showing how prejudice affects individuals.

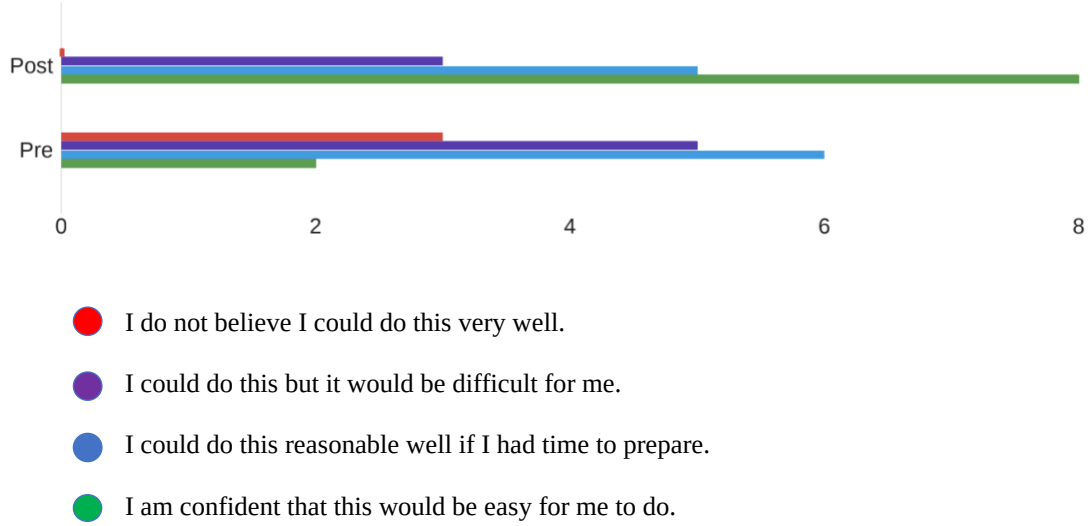
I can help students work through problem situations caused by stereotypical and/or prejudicial attitudes.

An example with a data graph is provided in Figure 2. In the pre-survey, eight participants responded affirmatively to item nine that they could do this reasonably well or easily. On the post-survey, that number increased to 13 out of 16 respondents, with only three reporting, “I could do this, but it would be difficult for me.”

Figure 2

Example of Survey Item in Category 2 Showing Some Confidence Increases

Q9- I can provide instruction showing how prejudice affects individuals.



Further interpretation of the four items that fall in category two point to a broader theme of teacher candidates’ showing more hesitation when it comes to dealing with delicate issues that

require careful forethought and self- reflection, like in helping students deal with racial confrontations and working through related problems. Additionally, their affirmative response to preparing instructional activities and developing methods for these difficult conversations showed increased confidence with the need for more time to prepare.

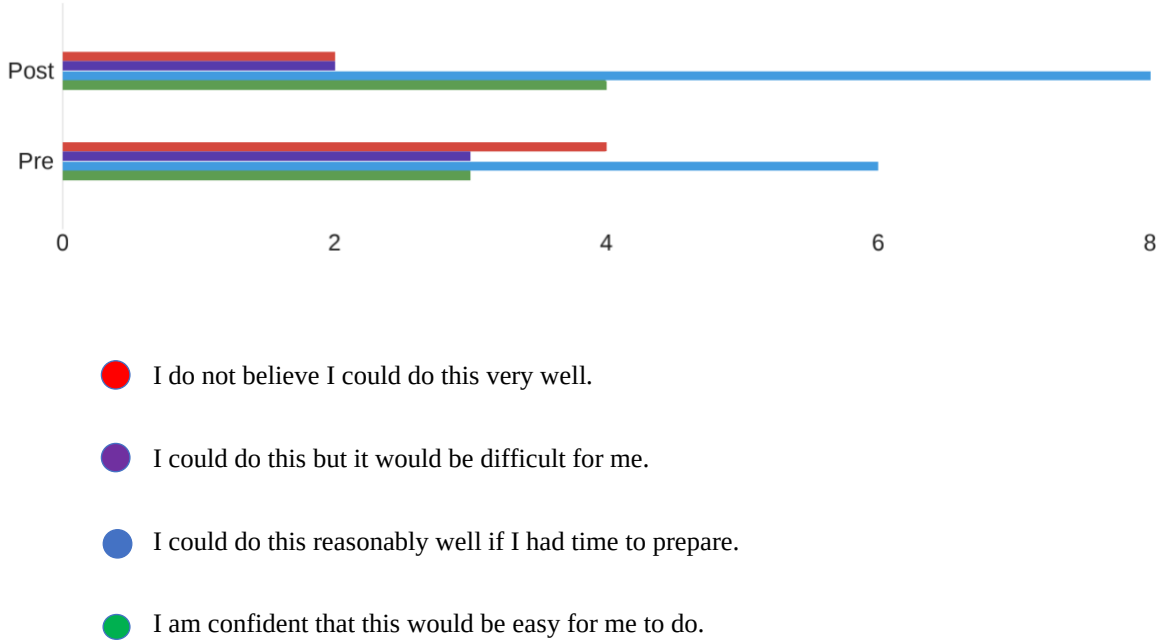
Category 3: Least Growth in Confidence

The third category consisted of only one item: *I can help students to examine their own prejudices.* As you can see in Figure 3, there was a slight increase in confidence levels (but less than in category 2). In the post-survey, half of the respondents (eight) noted that they could do this reasonably well if they had time to prepare, which was an increase from six in the pre-survey. But the response of, "I am confident this would be easy for me to do" only showed a slight increase (1 student) while the numbers on the lower two choices of the Likert scale decreased, there were still four students reporting this would be difficult or they did not believe they could do this very well.

Figure 3

Survey Item in Category 3 Showing Slight Confidence Increase

Q6- I can help students to examine their own prejudices.



After reviewing this item in category three it could also fit into the theme found for category two related to hesitation when it comes to having difficult conversations and doing the hard work of engaging in self-reflection around bias or helping their students to engage in this same exercise. Being comfortable enough to notice and name our own prejudices is one thing, but then to also lead students through that same process is another area these teacher candidates feel like they could do but not as easily as some of the other tasks represented on the survey.

Finally, there was one item that was an outlier to our data. The statement was: *I can identify school practices that may harm diverse students.* The reason we labeled this an outlier is that in the pre-survey data there were zero participants responding in the bottom two Likert scale choices showing no confidence in being able to do this. However, in the post-survey, there was

one participant reporting they do not believe they could do this very well. We are unsure as to whether this was a user error when taking the survey or a change of thinking.

Discussion

This section delineates the implications of the findings from this study, along with ideas for how we will use these findings for improving our programming. Overall, the findings show that confidence for teacher candidates when addressing race and diversity in the classroom increased substantially from before the book study to after. The majority of survey items fell into category one showing notable increases in confidence level.

An evident trend in responses was that time for preparation was a precursor to these teacher candidates feeling able to confidently support a racially inclusive learning environment. While they feel confident in their understanding and efficacy, they realize it will take time and attention to do instructional planning that demonstrates cultural proficiency and promotes equity amongst their students. The results also point to needing more time to address situations involving racial or prejudicial conflict in a meaningful way. More practical approaches such as role playing, case studies, and specific instructional planning around these topics may be needed in our teacher preparation courses so that pre-service teachers feel more confident. Opportunities for teacher candidates to ask related questions to supervising teachers at pre-practicum placements should also be considered.

Preparing instructional activities to reduce prejudice showed the most growth and increase in confidence, but not when it comes to the prejudices, they, themselves, hold. An implication for our programs from this finding is the need for increased opportunities for specific activities with reflection around teacher candidates examining their own biases and supporting one another in this work. Helping their future students examine their own prejudices also posed

the most challenges still. Suggestions for how to seek support in school systems for difficult conversations/topics with students is a topic that needs to be addressed in our work as teacher educators and researchers.

Another take-away from this research that will inform our teaching and book study is preparing our teacher candidates to have approachable ways to talk with colleagues and administrators about anti-racism/bias and areas of improvement needed. Often, new teachers feel as though their critiques should not be voiced or that their suggestions for change will go unheard. However, when it comes to the critical work of anti-racism and multicultural proficiency, we want our students to be confident and courageous in doing what's best for their students. Inviting administrators to offer advice in this regard may be a practical approach to helping our students feel empowered.

Conclusion

This section explores ideas for future research and other considerations baked on this study. Since this study was conducted the semester before student teaching, which is teacher candidates' second-to-last semester before graduating and entering the field full-time, we wonder if the results would be similar if the book study took place earlier in the program. Future research could also investigate students' plans and motivations to continue committing themselves to anti-racist learning and work, both personally and professionally. Moving forward, a recommendation to anyone thinking of implementing a similar book study into their programming should consider having similar offerings with credit attached. This book study did not supply the teacher candidates nor the faculty facilitating it with credit. Having this work integrated into credited coursework is a more ideal approach. In addition, as two white women facilitating this book study, Dr. Corriea and Dr. Boivin openly recognized their limitations as lacking lived

experiences facing racism, which made it more so important to bring in voices of color to elevate in this work.

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Appendix A:

Instrument Items:

To the best of your knowledge, self-assess your own ability to do the various items listed below. Many of the items refer to you as a teacher candidate. Please consider the teaching you will be undertaking now or in the future as a leader in Elementary Education.

1. Name:
2. I can provide instructional activities to help students to develop strategies for dealing with racial confrontations.
3. I can adapt instructional methods to meet the needs of learners from diverse groups.
4. I can develop materials appropriate for the multicultural classroom.
5. I can develop instructional methods that dispel myths about diverse groups.
6. I can analyze instructional materials for potential stereotypical and/or prejudicial content.
7. I can help students to examine their own prejudices.
8. I can present diverse groups in our society in a manner that will build mutual respect.
9. I can develop activities that increase the self-confidence of diverse students.
10. I can provide instruction showing how prejudice affects individuals.
11. I can plan instructional activities to reduce prejudice toward diverse groups.
12. I can identify cultural biases in commercial materials used in teaching.
13. I can help students work through problem situations caused by stereotypical and/or prejudicial attitudes.
14. I can get students from diverse groups to work together.
15. I can identify school practices that may harm diverse students.
16. I can identify solutions to problems that may arise as the result of diversity.

17. I can identify the societal forces which influence opportunities for diverse people.
18. I can identify ways in which various groups contribute to our pluralistic society.
19. I can help students take on the perspective of ethnic and cultural groups different from their own.
20. I can help students view history and current events from diverse perspectives.
21. I can involve students in making decisions and clarifying their values regarding multicultural issues.

Advancing Equity Through Collaborative Partnerships: Developing an Emergent Literacy Open Educational Resource (OER)

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Abstract

Educator preparation programs play an important role in preparing early educators (EEs) to work with young children (PPNTF, 2020). However, EEs often experience suppressed salaries making preparatory programs financially burdensome (NASEM, 2018). It is incumbent upon institutions of higher education to embrace practices that alleviate financial barriers experienced by EEs seeking critical knowledge regarding practices that support learners throughout their formative years (NASEM, 2018). Open Education Resources (OER) is emerging as an effective equity practice that positively impacts students' perceptions, performances, and perseverance while also alleviating some of the financial burdens associated with higher education. This article explains a cross-institutional collaboration to create a high-quality OER to enhance EEs' professional knowledge in language and literacy practices for young children, birth to age five. This initiative reflects standards articulated by the Association of Teacher Education, specifically in the areas of collaboration, cultural competency, scholarship, contribution, and vision (ATE, n.d.).

Keywords: Open Educational Resources, early literacy, early childhood teacher preparation

The use of Open Educational Resources (OER) embraces technology and new configurations of learning to promote equity. The term OER emerged in 2002 from forum discussions held by the United Nations Educational, Scientific and Cultural Organization (UNESCO) focused on establishing inclusive and equitable distribution of knowledge resources

(Miao et al., 2016). UNESCO (n.d.) defines OER as "any type of educational materials in the public domain, or released with an open license, that allows users to legally and freely use, copy, adapt, and re-share" (p. 2). Since 2002, a significant variety of OER has been created and shared globally for teachers and students to use and modify freely, many with a Creative Commons license (Hilton, 2016).

This article examines how we designed an OER textbook with equity in mind for early educators (EEs) and the learners they serve. The development of *Early Childhood Literacy: Engaging and Empowering Emergent Readers and Writers, Birth – Age 5* (Schull et al., 2021) was the result of ongoing conversations among teacher educators about the need for an affordable textbook detailing early literacy. The goal of this project was to provide accessible resources for EE students and encourage the integration of rich, culturally responsive practices. This work was made possible by a grant obtained through Virginia's Academic Library Consortium (VIVA).

VIVA is an association of nonprofit academic libraries within the Commonwealth. VIVA states that its mission, "is to build an equitable and accessible infrastructure of library resources for higher education students and faculty in Virginia" (VIVA, 2022). With this mission in mind, VIVA offers grant funding, allocated through a competitive process to adopt, adapt, or create new materials published as OER. The creation and subsequent use of OER is a way to remove barriers to degree completion and improve content mastery for all students, including aspiring and practicing teachers (Petrides et al., 2011). Policies advocating for the integration of OER into higher education contexts mitigate financial costs for students. These policies encourage faculty to reconsider knowledge transmission practices grounded in the use of commercially available textbooks. VIVA funding provides the necessary support structures and resources for faculty to

engage in the generation, integration, and adoption of OER. VIVA's sustained commitment to increasing faculty adoption of OER supports movement towards inclusive excellence by removing potential barriers students experience. This project furthers the mission of VIVA as well as the Association of Teacher Educators professional standards of collaboration, cultural competency, scholarship, contribution, and vision (ATE, n.d.) and underscores ATE's commitment to equity.

Our Collaboration

Our authoring circle was composed of five faculty members with expertise in early childhood literacy and early childhood teacher education. The authors represented four public institutions: two 2-year institutions and two 4-year institutions. Among these institutions, one community college and university are in a major metropolitan area. The other university and community college are located in distinct rural communities associated with farming and mining respectively. Our collaboration was an outgrowth of a number of statewide initiatives designed to streamline EEs' progressions through credentialing and licensure programs, reducing structural barriers limiting students' access. This work codified articulation agreements that eliminated credit loss for early childhood educators who completed associate degree programs and transitioned to accredited early childhood education undergraduate state licensure programs. As a result of this agreement, many students transition from associate degree programs in early childhood to bachelor degree programs. Reciprocal relationships and cross-institutional alliances allow EEs continued engagement and successful completion of degree programs to inform their work with young children and families.

This work was grounded in social justice initiatives that promote access to educational pathways for the student populations we serve. Equity, diversity, and inclusive philosophical

lenses were foundational perspectives we carried into our writing collaboration. An important aspect of equity is ensuring access to materials that are inclusive and culturally representative. We made intentional decisions throughout the textbook creation process to ensure a diversity of perspectives. This focus began with our authoring circle, including our respective institutional affiliations, student demographics, geographic locations in the state, personal cultural identities, and teaching experiences. Our commitment to this intentional focus on diversity subsequently extended to the content we chose to highlight, including the families and children referenced throughout the text. Finally, we expanded the diversity of our group by incorporating the voices and perspectives of reviewers and students, solicited in multiple waves over the duration of the project. The collaborative partnership developed for this project directly impacted the OER text both in scope and in design.

Intended Audiences

Early childhood educators (EEs) are instrumental in supporting young children's literacy development. There are a plethora of high-quality commercially available emergent literacy texts on the market. However, the cost of commercially available texts are financially burdensome, leading students to forgo the purchasing of required course materials (Buczynski, 2007). This sustains cycles of educational inequity for students, which may be more keenly felt by early educators who engage in professional spaces that have been historically undervalued and underpaid (Austin, 2019). Our initial review of available OER revealed a sparse number of texts examining early literacy practices. Therefore, when deciding to develop an OER textbook, we strove to tie research-based practices to theoretically and developmentally appropriate experiences to prepare current and future educators to effectively teach early literacy to our youngest learners.

The OER textbook developed through this collaboration was intended to serve EEs who bring racial, ethnic, linguistic, and/or socioeconomic diversity to the field. We anticipated that many of these EEs would be part of a certificate or degree program in the community college system. Community colleges in general are more diverse than higher education in aggregate (Ma & Baum, 2016). The Associate of Applied Science in Early Childhood Development is a common degree across the state and early literacy coursework is a foundational component of the curriculum. Many of the faculty teaching the early literacy course require students to purchase the same commercial textbook, the price of which has typically ranged from $150 to $200 over multiple editions. Because of the common state community college curriculum, the opportunity existed to encourage instructors from all community colleges across the Commonwealth of Virginia to adopt this new resource. To increase the likelihood that early childhood instructors across the state would replace the texts they currently require students to purchase, we disseminated a survey to current faculty across the community college system at the onset of the grant. Faculty articulated strong support for the development of an OER textbook focused on early literacy.

Equity in Teacher Education

Equity work requires an examination of power structures that work to either privilege or perpetuate the marginalization of individuals or particular groups. These power structures are evident within institutions of higher education and teacher educators need to engage in reflective work to shift this paradigm. One major barrier is the cost associated with obtaining a degree. The use of commercially available textbooks as an essential tool for imparting knowledge is historically a structural component of academic life. However, the cost of textbooks is a financial burden for many college students. Not having access to the textbook creates an access to

knowledge deficit that negatively impacts overall course and program outcomes and ultimately can prevent a student from mastering the content (Colvard et al.2018; Ikahihifo et al. 2017).

At the individual level, advancing equity means that students have the tools they need to learn. Flexibility in how, where, and when students access learning resources including texts is also an important equity lens worth considering. Both the readability of digital print across devices (e.g., smart phones, laptops, exportability, etc.) and ease of obtaining access to resources can pose structural barriers for students that need to be considered to promote engagement. Once accessed, texts open opportunities for developing equity pedagogical perspectives. As students and teacher educators engage meaningfully with texts created with an equity lens, EEs reflect on their own learning, and begin to see how they can advance equity in their own classrooms.

Addressing Equity in Early Childhood Education

Early educators (EEs), serving children, birth through age five, play a central role in promoting learners' emergent literacy practices. However, this workforce has not always been valued for their significant contribution. EEs are often the lowest paid workers, compared to teachers in the K-12 system. On average, EEs make $10-$13 per hour (Austin et al., 2019; Loewneberg, 2018). Additionally, EEs are the most racially diverse sector of the teaching workforce; 40% of EEs are women who identify as Black, Indigenous, and People of Color (Austin et al., 2019). Requirements for EEs vary greatly in large part because of a belief that working with young children requires less skill than teaching older students. Brain development research has clearly shown that the EE workforce is vitally important and that there are different, but equally important, competencies required (IOM & NRC, 2015). As Schull et al. (2021) state,

> Looking at the importance of early childhood educators from a numerical perspective, the number of children throughout the country in care and education settings from birth

> through age five is over 60% of the population (Childstats.gov, 2018). With well over half of children in the U.S. being cared for and educated by someone in addition to the support they receive in the home, it becomes clear that the work of these educators has a significant impact on children's development. Having a highly skilled workforce is vital to capitalize on children's learning potential. (Ch. 2, Importance of Early Childhood Educators section, para. 2)

EEs are dedicated to enhancing children's literacy development. Knowledgeable educators understand that children rapidly acquire language and literacy skills beginning in infancy and that intentional pedagogies support children's early literacy practices (IOM & NRC, 2015). However, to acquire the essential content and pedagogical knowledge for supporting all young readers and writers, EEs must engage in ongoing professional development experiences or enroll in educator preparation programs. Institutions of higher education are instrumental in supporting EEs' growth across their professional journeys. It is incumbent upon institutions of higher education to embrace practices that alleviate financial barriers experienced by EEs seeking critical knowledge regarding practices that support learners throughout their formative years (NAEYC, 2021; NASEM, 2018). To that end, teacher educators are turning to OER to remove the expense students confront when purchasing commercially available texts.

The Value of OER

Textbook costs are a substantial expenditure for students. In 2007-2008 it was reported that the cost of textbooks accounted for 59% of the total cost of attending community college in California (Goodwin, 2011). When faced with difficult financial decisions, sometimes students will forego the purchase of textbooks (Buczynski, 2007). OER integration reduces the financial burden students experience pursuing educational opportunities. In multiple studies, cost is

indicated as the most important factor for students as they selected courses containing OER (Bliss et al., 2013; Bowen et al., 2014). As the number of courses utilizing OER increased, understanding and documenting the benefits of OER for faculty and students also intensified. For nearly two decades, research examining student and faculty preferences for OER, OER quality, and the impact of OER on student learning and retention has evolved and findings suggest a number of benefits.

Recent studies report OER have a positive impact on student perceptions, performance, and perseverance. For example, a large-scale study by Colvard et al. (2018) found students enrolled in courses with OER achieved higher grades and reported lower withdrawal and failure rates. Similarly, Ikahihifo et al. (2017) reported providing free, high-quality OER textbooks and materials bolstered student retention and enhanced academic achievement for all students. In a recent synthesis of the research examining OER integrations Hilton (2020) concludes,

> Based on the growing research on the efficacy and perceptions of OER, policy makers and faculty may need to judiciously examine the rationale for obliging students to purchase CT [commercial text] when OER are available. … The fact that (1) more than 95% of published research indicates OER does *not* lead to lower student learning outcomes, and (2) the vast majority of students and faculty who have used both OER and CT believe OER are of equal or higher quality make it increasingly challenging to justify the high price of textbooks. (p. 873)

The successful completion of coursework for students experiencing economic insecurity bolsters the use of OER as an equity strategy that reaches beyond the initial cost of textbooks (Colvard et al., 2018). Removing the cost barrier associated with textbooks may open access to the essential content students need to be successful and help students avoid the punitive expenses

they incur when withdrawing from or repeating coursework for passing credits (Colvard et al., 2018).

A complementary study, Fischer et al. (2015), found statistically significant differences in enrollment intensity between students enrolled in courses using OER and students enrolled in courses using commercially available text. The authors hypothesized, affordability was the deciding factor compelling students in OER courses to "reinvest" savings by taking on additional courses in the future thereby accelerating their graduation timelines (Fischer et al., 2015, p. 169). Finally, a small study by Vojtech and Grissett (2017) found students held more favorable impressions of faculty on dimensions of kindness, encouragement, and creativity when they used OER. Students also said they would be more likely to take another class with faculty using an open textbook (Vojtech & Grissett, 2017), further demonstrating the potential for OER to encourage students' progressions through programs of study. Quality OER materials not only increase student success as a result of affordability, there is also evidence that it has a positive influence on student achievement and this difference is even more viable amongst Pell recipients and other student populations that are historically underserved by higher education (Colvard et al., 2018).

The number of OER available in the field of early childhood remains limited in comparison to the breadth and depth of commercially available textbooks. Our initial review of available OER revealed a sparse number of texts examining early literacy practices. Developing educators' understandings of emergent literacy practices that promote young learners' literacy enactments and developmental progression is a central area of focus for teacher educators (NAEYC, 2019). The intentional infusion of early literacy experiences that expand learners' language, reading, and writing expressions are instrumental in developing the pre-literacy

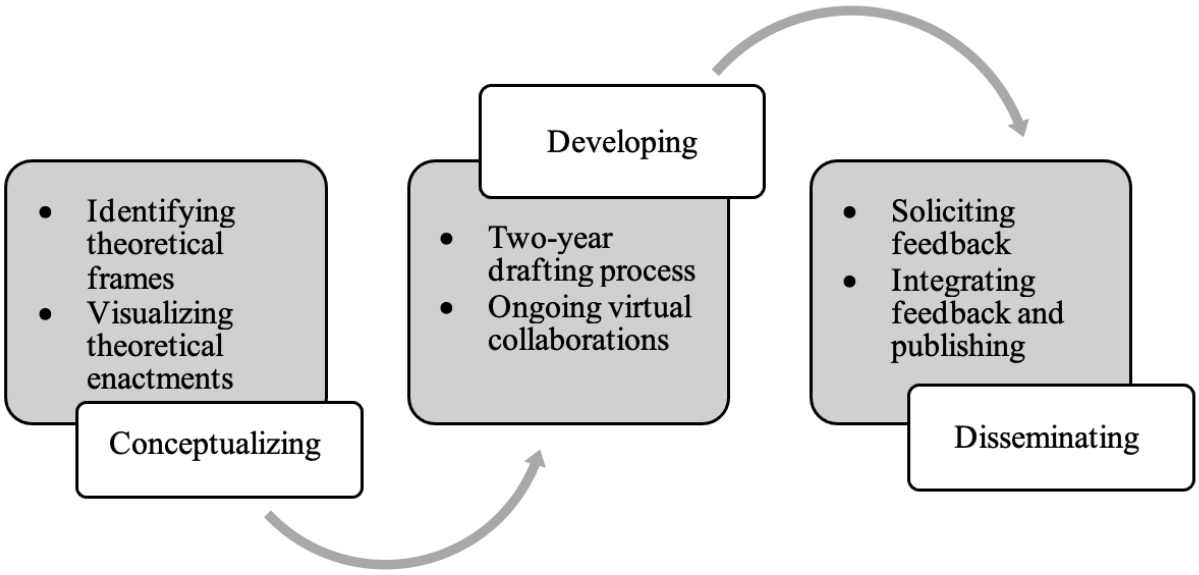
behaviors and skills that support children's acquisition of conventional literacy (Sulzby et al., 1991). Against this backdrop, we decided to create OER for teacher educators to use within an introductory early language and literacy course that embeds the Virginia Early Learning and Developmental Standards (Virginia Board of Education, 2021).

OER Development Process

This section documents the three development phases we followed to create the OER early literacy text. Critical conversations focused our progression as we conceptualized, developed, and disseminated the text (see Figure 1). Before beginning the drafting process, we met as a group to identify the essential theoretical frames, literacy concepts, and pedagogical practices EEs need to support young children's literacy development. The intensive conceptualization phase was foundational and informed our work as we collaboratively developed and revised the textbook over time.

Figure 1

Open Educational Resource Development Process



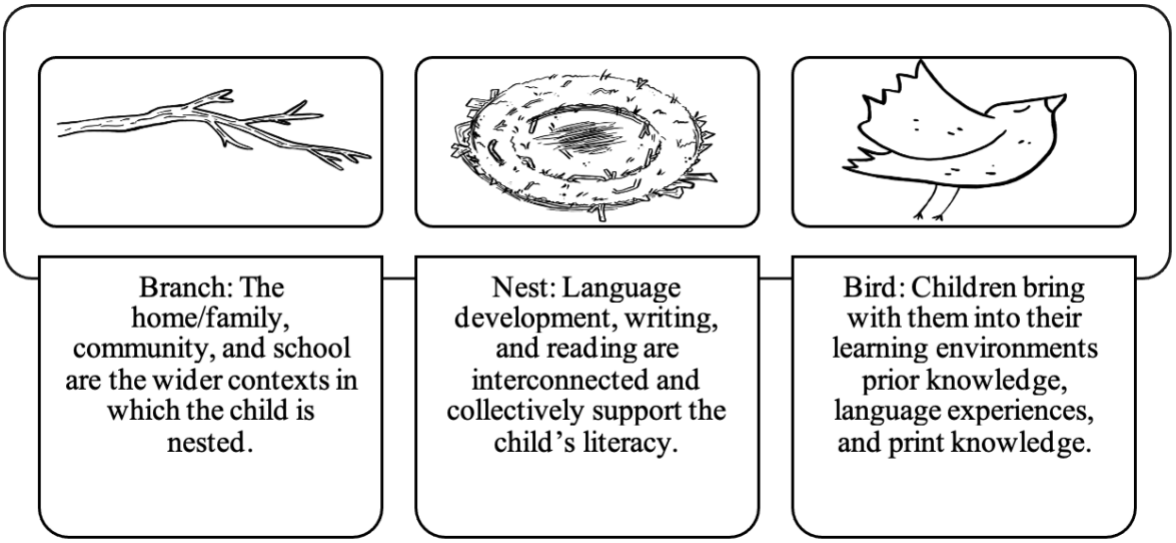
Conceptualizing

Our collaboration began with iterative brainstorming to identify the pedagogical content knowledge and literacy-specific knowledge EEs need to intentionally support young children's literacy enactments. In our conceptualizing conversations, we challenged each other to identify, clarify, elaborate, and justify components we believed needed to be included in the text as well as how the specific components should be presented. We grappled with challenging questions to clarify our perspectives and provide the necessary philosophical anchor for our continued collaboration.

Our Philosophical Perspectives. Children's literacy knowledge and skills develop over time and their literacy progressions are influenced by a child's unique characteristics, social experiences, and environmental contexts. We embedded constructivist, sociocultural, and ecological theories to guide EE's conceptualization of the dynamic, multifaceted early literacy environments influencing children's language, reading, and writing expressions (see Figure 2). In a complementary way, we integrated Freire's (1985) critical literacy lens to emphasize the contextual nature of language and literacy development. We used critical perspectives to provoke students to consider the importance of power and context as they examine how children learn and how they acquire language and literacy (Luke, 2012). Our theoretical frames prompted the development of a visual graphic for EEs to symbolize the important role theory plays in supporting children's emerging literacies.

Figure 2

The Nested Literacy Model



Note. Adapted from Schull et al. (2021).

These theoretical perspectives honor the contextual experiences children bring to classroom communities and encourage EEs to leverage children's unique voices, abilities, and interests as they collaboratively construct literacy understandings. The bird, branch, and nest symbols are integrated throughout the text to guide readers' attentions and help readers understand the why and how behind specific early literacy practices.

In addition to the constructivist, sociocultural, and ecological theories presented, we also committed to using a strengths-based framework regarding educators, children, and families. In a complementary way, we embraced equity lenses to empower EEs to engage and create inclusive literacy settings for all learners and families. These commitments allowed us to continually challenge and reframe deficit perspectives, model strengths-based language, and promote equity practices throughout the text. Our critical conversations led us to conceptualize the text into two parts. The first part of the text immerses EEs in explorations of essential content we view as

foundational elements all EEs need to intentionally encourage young learners' language and literacy expressions. The second part of the text examines children's emergent language, reading, and writing development and the pedagogical practices that best promote children's literacy progressions.

Text Components. The first chapter introduces the nested literacy model as the theoretical frame for examining, creating, and developing young children's literacy world. Subsequent chapters describe the essential research examining (a) early brain development, (b) theories that support early literacy development, (c) the role of families, (d) the impact of play-based literacy environments, and (e) the power of strategic assessment practices in enhancing children's early literacy development. To honor our strength-based perspective we intentionally put our families chapter into the first part of the text. Similarly, the assessment chapter is also in the first part of the text to underscore the essential role assessment plays in shaping children's literacy experiences, documenting children's literacy development, and identifying children who may benefit from literacy and language intervention services.

Collectively, the first part of the text provides the structural aspects necessary for the successful integration of intentional emergent language, reading, and writing opportunities for young learners. In conceptualizing the text, we wanted to ensure that EEs understood the important role of creating the environment, engaging in assessment, and interacting with families. In subsequent chapters of the textbook, we presented language development, reading development, and writing development as central emergent literacy domains or components. It is within these domains that EEs promote children's literacy understandings. Our framework supports the explicit teaching of discrete skills, while promoting holistic integrations of

language, reading, and writing development. We aimed to show a strong practitioner lens while asking critical questions about why EEs should engage in certain practices.

Developing

Our approach to writing the textbook enabled us to develop a collective vision for our work and refine our conceptualizations as the textbook evolved. We convened for three overnight retreats in Spring 2019, Fall 2019, and Winter 2020. These in-person opportunities enabled us to identify roles and responsibilities. We used Google Drive to further our collaborations, and committed to weekly 2- to 3-hour writing/work sessions via Zoom. One member of our authoring circle, who teaches an emergent literacy methods course at a community college, served as first author of the textbook and took on the role of overseeing and coordinating efforts. She scheduled our authoring meetings, worked with our consulting OER librarian, and facilitated the external feedback processes.

For each chapter, we designated a lead author who was responsible for facilitating the drafting and revision of the chapter. Our process involved (a) drafting independently or with a partner; (b) uploading drafts to our Google Drive for review and written feedback; (c) meeting to discuss, draft, and revise; and (d) finalizing each chapter after all of the chapters were drafted. Although we worked on several chapters simultaneously, we continually used what we had already written to inform subsequent drafts and circled back to previous drafts to revise based on our ongoing conversations. In addition, we invited a doctoral candidate to co-author one chapter and a practicing prekindergarten teacher to co-author two chapters and provide feedback on the other chapters. This recursive writing approach ensured cohesion among chapters and drew upon everyone’s expertise to inform the final product.

During this phase, we integrated vignettes and examples privileging the experiences of children, families, and communities with diverse ways of knowing. We critically refined text examples to model inclusionary practices and strengths-based perspectives to offer opportunities for examining implicit bias, structural barriers, and the rich intersectionalities children bring to classroom communities. This led to the creation of vignettes such as “Prashant's Naan,” “More Leche,” and “The Tale of Two Teachers” where we asked EEs to think about children’s contexts, acknowledge power imbalances, and critique assumptions about family literacy experiences.

Disseminating

We intentionally leveraged feedback from a variety of sources to inform our dissemination process, using an iterative revision process that solicited feedback over the course of the project. Dissemination of text ideas, concepts, and chapters occurred throughout all phases of the OER development process. Feedback was gathered from the following audiences throughout our writing process: (a) community college instructors, (b) students, (c) key instructional faculty, and (d) specialists. This dissemination process sharpened our equity lens and the critical perspectives emphasized throughout the text.

Internal Stakeholders. Early in the developing phase, we initiated feedback on the book outline, theoretical framework, and introductory chapter with a large group of community college early childhood instructors from across the state. These instructors indicated their support of the project and recommended specific items to include in the text, such as the use of case studies to illustrate examples. Next, students at one community college read several draft chapters of the text as part of their coursework and offered feedback regarding accessibility and value. The students in this early dissemination phase indicated some specific requests, including

color photographs and additional use of headers to segment content. This feedback process yielded helpful information about student expectations and overall usage of the OER textbook.

The feedback cycle was repeated in year two of the project with a larger pilot group at two institutions in the community college system offering an emergent literacy methods course. Students during this dissemination phase articulated suggestions for clarification and wording. The students also clearly expressed their support of a free textbook option in the class.

Blind Review. Once all chapters had been drafted, a blind review process was initiated to solicit critical feedback from various specialists. The five experts represented various parts of the state (e.g. urban, suburban, and rural) and areas of expertise (e.g., special education, curriculum and instruction, and language and literacy). In addition, we requested that the reviewer pool include individuals who use an anti-bias lens and are racially, ethnically, and linguistically diverse. We also sought help from institutional experts that work in areas of accessibility. Some recommendations from these reviewers were applicable to the full text. For example, reviewers suggested incorporating additional resources at the end of every chapter and enhancing the key takeaways. Other recommendations were chapter specific, particularly related to theories, assessment, and language differences. As a result of the review, the stage models in the theory chapter were clarified. The assessment chapter was also streamlined for continuity. This cycle of feedback was robust and served to strengthen the book by topic and enhanced overall cohesion.

Targeted Feedback. Throughout the dissemination phase, we solicited professionals with expertise in anti-bias approaches. The ongoing review process revealed opportunities for us to extend our efforts articulating diversity, equity, and inclusion within the text. For example, the information related to multilingual and multi-dialectical learners was substantially expanded and reworded to address perceived negative connotations surrounding various dialects. Additionally,

we emphasized the development of children who have autism and are deaf and/or hard of hearing. Finally, implicit bias and associated resources were intentionally addressed in both the chapter on theory and families. Then we worked with an accessibility office and an OER librarian to finalize text elements to ensure accessibility for all readers. After changes were made, we submitted the textbook back to the reviewers for a final review.

Discussion

As early childhood teacher educators, we embrace the call for teacher preparation programs to implement practices that promote pre-service and in-service teachers' professional development (Cochran-Smith & Villegas, 2015; Darling-Hammond & Bransford, 2005). Given that students in higher education identify purchasing textbooks as an enrollment barrier (Senack, 2014), we recognize the potential of OER texts to act as an additional equity strategy for EEs' pursuit of professional opportunities within institutions of higher education. We also acknowledge the need to share potentially effective preparatory practices with our professional community of scholars (Darling-Hammond & Bransford, 2005).

Expanding EE's access to free resources that support their learning, through the development and dissemination of OER, is a viable practice for promoting equity for teachers, children, and families. The intentional conceptualization process led to the creation of an early literacy textbook that connected all literacy components and honored the complex reciprocal nature of children's language, reading, and writing expressions. We designed the nested literacy model to encourage EEs to visualize the dynamic relationships influencing young children's literacy development and guide EEs' early literacy content and pedagogical knowledge.

The three-phase process of conceptualizing, developing, and disseminating OER provides a framework for creating content for diverse audiences. Our collaborative writing process,

coupled with our intentional review processes, enhanced the quality of the text. The reflective revision process encouraged the integration of more voices and enhanced the inclusive nature of the text. Participating in collective decision-making and producing joint materials make vulnerable populations visible and are examples of equity-focused practices.

In the end, our collaborative design process resulted in an OER for teacher educators and EEs who are seeking to engage and empower emergent readers and writers, from birth to age five. The generation and integration of OER is an advocacy stance we are committed to as teacher educators. Removing structural barriers by creating textbook materials that increase accessibility diversifies the teacher educator pipeline and subsequently influences and reforms education. We encourage other teacher educators to consider how they may contribute their expertise to expand the available collection of OER for education students.

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The Commonwealth Learning Partnership: How Virginia's Education Vanguard Came Together to Equip Teachers, Modernize Public Education, and Spur Educational Change

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Commonwealth Learning Partnership

Abstract

The Commonwealth Learning Partnership is a statewide network in Virginia made up of nearly 40 state education organizations and university members, plus national partners and supporters. The mission of the partnership is to actualize the Profile of a Virginia Graduate. Individually and collectively, Partnership members reach most educators across the state, providing them with resources and responsive in-service and pre-service opportunities. The history and evolution of the Partnership demonstrates the critical nature of policy, organizational collaboration, and outside investments to support and upskill the educator workforce.

Keywords: education leadership, professional development, Profile of a Virginia Graduate

For the past three years, a monthly meeting is held for Virginia's education vanguard. The group typically gathers virtually, although sometimes in-person, representing most of the Commonwealth's leading education organizations, associations, and teacher education programs. Together, they discuss the state's evolving education landscape, various signature initiatives, ways to partner, and opportunities to act on a set of visionary education "Profiles" for Virginia students, classrooms, educators, and education leaders.

These are the members of the Commonwealth Learning Partnership, a network formalized at the start of the Covid-19 pandemic, after months of planning and years of working together ad-hoc. Arguably, their reach extends to more communities, schools, and educators than any other network in Virginia. Members include the Virginia Association of School Superintendents, Virginia ASCD affiliate, EdPolicy Forward at George Mason University,

William & Mary School of Education and School University Research Network, and the Virginia School Consortium for Learning.

The mission of the Partnership is to actualize the *Profile of a Virginia Graduate,* a statewide framework describing the knowledge, skills, and experiences Commonwealth students should have before they graduate. Partnership members work individually and collectively to provide teachers, education leaders, and central office staff with the highest quality and most accessible professional learning resources and trainings. The Commonwealth Learning Partnership's genesis, evolution, and impact elevate important insights into the types of collective action and statewide policy and perceptual shifts enable and encourage real educational change.

Laying the Groundwork: An Educators' Summit on Performance-Based Assessments

In the spring 2016, more than 400 Virginia education leaders gathered on the campus of the University of Virginia's School of Education and Human Development, to explore ways performance-based assessments—then called localized performance assessment—might support a reduction in standardized tests and increase deeper learning with students. Remarks made during the summit set wheels in motion for a large private investment that would fully fund a much larger statewide agenda—one that went well beyond assessments to ambitiously attempt to modernize public education so that Virginia students and staff would be able to succeed in a rapidly changing world.

Two William and Flora Hewlett Foundation program officers attended the summit and heard then state superintendent Steven Staples cast a clear vision of a more equitable Virginia public education system, one where students received a world-class education that promoted deeper learning and prepared students for the world and future of work. According to Staples, at

the center of the public education experience was the development and mastery of five future-ready skill sets, dubbed the "5Cs": critical thinking, collaboration, communication, creative thinking, and citizenship.

Following opening remarks, the two Hewlett program officers met with Virginia teachers to learn about their local performance assessment work and joined a conversation with top policy and system leaders to discuss the types of legislation, flexibilities, and regulations necessary to support performance assessment and broader innovation efforts at scale.

Private Investment Paves the Way

Several months after the summit, the Hewlett Foundation made a $1.1 million investment to support to Virginia's local alternative assessment work, and to actualize Superintendent Staples' vision for a more modern and equitable public education system. The investment was granted to a national nonprofit, Jobs For the Future (JFF), with the responsibility of providing staffing and support to Virginia's education leaders, with flexibility to redirect funds to education organizations in the state. It was a two-year investment that began in July 2017 and ended in June 2019.

Before the grant went into effect, JFF staff flew to Richmond, Virginia to meet with Virginia Department of Education leadership and a set of pre-service (e.g., schools of education), and in-service (e.g., state education associations) providers. At the meeting, attendees went through Virginia's education priorities and wins from prior years. Table 1 describes those positive policy shifts in chronological order (Steinberg et al., 2020):

Table 1

Timeline of Virginia's Major Education Policy Wins, 2013-2016

Year	Major Education Policy Decision(s)
2013	Governor Terry McAuliffe was elected with a campaign promise to address "over-testing."
2014	Virginia passed HB930 and SB306 which required replacement of five Standards of Learning (SOL) tests with "age-appropriate, authentic assessments and portfolios," and established a *Standards of Learning Innovation Committee.* Appointed committee members included several school superintendents and administrators. The committee was given unprecedented authority to influence state policy in support of public education and school-related innovation.
2015	The "SOL Committee" recommended the Virginia State Board of Education develop a *Profile of a Virginia Graduate*—a common framework to articulate what a student should know, be able to do, and experience by graduation. The SOL Committee worked with the Governor and Virginia Department of Education (VDOE) to award five $50,000 high school innovation planning grants to Fairfax County, Newport News, Salem, Williamsburg-James City County, and a Chesterfield-Richmond area consortium. Recipients were granted policy flexibility and regulation exemptions to support innovation efforts.
2016	More than 400 educators gathered on the campus of the University of Virginia School of Education and Human Development for the first-ever *Innovations in Student Assessments* summit. After the summit, the Hewlett Foundation made a $1.1 million contribution to Jobs For the Future to support Virginia education efforts.

Beyond the positive political and policy moves described in Table 1, the group discussed the value of being a trusted network of colleagues who collectively held outsized influence on education leaders in the state. Many of the education leaders in that meeting had worked together for years. A number were involved in related efforts, either their own or ones supported at the national level. For example, a cadre of Virginia school districts represented by their superintendents were a part of national networks focused on performance-based assessment,

deeper learning, and developing local profiles of a graduate. The group was interested in spreading and scaling these ideas and there was openness and willingness to come together as a more formalized network.

Without realizing it, the group was putting in motion the characteristics of healthy networks for social impact, which as described in *Connecting to Change the World: Harnessing the Power of Networks for Social Impact* include the following eight design issues: purpose; membership; value proposition; coordination, facilitation, and communication, resources, governance, assessment, and operating principles (Plastrik et al., 2014).

Collectively, the group requested to focus Hewlett funding and its overall purpose on actualizing the *Profile of a Virginia Graduate*, by developing a companion set of profiles for the Virginia classroom, educator, and education leader. They also wanted to support extant efforts to promote performance-based assessments. The value proposition was the group's belief that an updated "Profile" of what students should learn and be able to do warranted similar "Profiles" on what teachers and leaders should know and be able to do, along with a more equitable and modern picture of a Virginia school and classroom.

The group discussed and agreed that profile development work was a critical for pursuing educational equity across the state, and addressing demographic disparities, including alarming differences in academic outcomes among students of color, English language learners, and others. They also wanted to ensure a broader group of leaders engaged in developing the profile, and that collectively this design team was demographically and geographically representative of the state. A matrix was developed that included various design team dimensions, including position, expertise, location, race, and gender.

Based on the group's thinking, the supportive policy landscape, historic education wins, and the enthusiasm of a committed vanguard, JFF set-up a pooled fund to enable Hewlett funds to passthrough JFF and be sub-granted to Virginia education groups. Anything funded had to focus on one or more of these three priorities: (1) translate local models of instruction and assessment for educators across Virginia, (2) lay the groundwork for a positive policy environment long-term, and (3) build for long-term educator and education system capacity related to the actualization of the *Profile of a Virginia Graduate* (Krauss, 2018). The funding also provided direct support for the Virginia Department of Education's development and launch of EdEquity Virginia, an initiative that provided training, resources, and convenings to educators on strategies to identify and address racial disparities in schools and prioritize and pursue equity. Table 2 outlines the entities that received initial pooled funding and what they proposed.

Table 2

Inaugural Round of Hewlett Sub-Awardees, 2017-2018

Sub-Awardee	Description of Activities Funded by Grant Dollars
EdPolicy*Forward*: The Center for Education Policy at George Mason University	Co-host a series of convenings with William & Mary for education in-service and pre-service providers to inform the development of a *Profile of a Virginia Educator;* lead the initial development of a *Profile of a Virginia Educator*.
Virginia Association for Supervision and Curriculum learning (VASCD)	Convene a group of education thought leaders and engage VASCD members to develop a *Profile of a Virginia Classroom* and accompanying briefs.
The Virginia School Consortium for Learning (VASCL)	Start-up support for an education innovation network of school district teams, called the Virginia Learning Innovation Network (VALIN).
Virginia Association of School Superintendents (VASS)	Develop a new Superintendents Academy focused on training and coaching new superintendents.

Virginia Department of Education	Unrestricted support to drive and participate in priority-furthering activities.
WHRO	Curate video clips and media to showcase school districts implementing local *Profiles of a Graduate* and performance-based assessments.
William & Mary School of Education	Co-host a series of convenings with George Mason University for education in-service and pre-service providers to inform the development of a *Profile of a Virginia Education Leader;* lead the initial development of a *Profile of a Virginia Education Leader.*
William & Mary School University Resource Network (SURN)	Facilitate/staff in-service and pre-service provider meetings and administer a statewide survey to those providers on the alignment of their activities to the *Profile of a Virginia Graduate.*

The Hewlett pooled fund ran for two additional cycles after the first set of sub-awards. Because grants were connected, sub-awardees met regularly and started forming a plan to move forward in a more unified way. Of central importance to the group was engaged with teachers and leaders who were active in the profession. As such, each funded effort included some level of participation and input from superintendents, school leaders, and teachers.

A pooled fund designed around a shared purpose—actualizing the profile of a Virginia graduate—accelerated and formalized a key aspect of systems and social change, alignment. As facilitator, JFF provided a simple application and reporting process, which required recipients to articulate how dollars and activities would facilitate educational change. Through writing and discussions, the group enacted a change-process like the four steps described in *Systems Thinking for Social Change*: (1) build a foundation and affirm readiness for change; (2) clarify current reality, (3) make a choice in favor of the change you want to see, (4) focus on high-leverage interventions (Stroh, 2015).

Launch of *Virginia is for Learners*

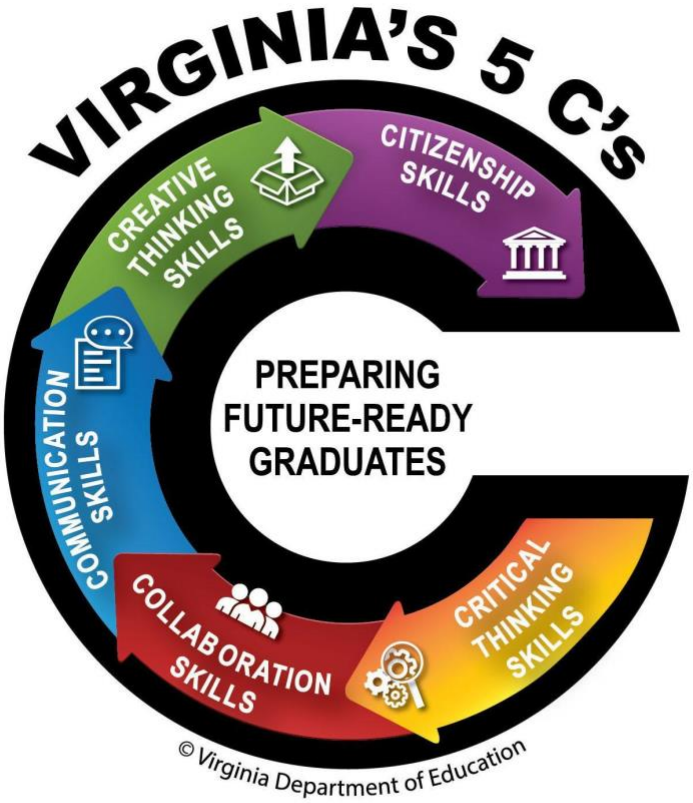
While pooled fund awardees worked to launch their efforts and integrate group priorities into existing work (e.g., tools and resources), VDOE—led by interim state superintendent, Steve Constantino—met with key policy leaders and communication specialists to build a broader communications campaign that could articulate and activate a statewide education agenda. In addition to focusing on modernizing public education, this agenda was designed to prioritize equitable and inclusive learning experiences, and implementation of the *Profile of a Graduate.*

With approval from the Virginia Tourism Corporation, VDOE worked with JFF staff and a Richmond-based communications firm Capital Results, to develop the "Virginia is for Learners" education campaign. The Department also continued its efforts with local districts on performance assessments and formally launched EdEquityVA, which—in addition to generalized resources, trainings, and conferences—provided technical assistance to school districts and teachers who wanted to work explicitly on anti-racist teaching and learning practices, and who were committed to building more equitable learning systems and student experiences.

That same year (2018), Ralph Northam became governor with a campaign promise to prioritize improving public education, and the Virginia State Board of Education officially approved updated state graduation requirements aligned with the *Profile of a Virginia Graduate* shown in Figure 1.

Figure 1

Profile of a Virginia Graduate 5 C's



The following year, then Governor Ralph Northam and then State Superintendent James Lane held a press conference at the Capitol to officially announce "Virginia is for Learners" as a gubernatorial and statewide public information campaign to modernize public education in the Commonwealth and pursue education equity. The campaign goals were to (1) focus on deeper learning through the prioritization of the "5Cs" for the *Profile of a Virginia Graduate*, (2) reform Virginia Standards of Learning, through the reduction of standardized tests and introduction of high-quality performance-based assessments, and (3) adjust Standards of Accreditation for school performance to align with the *Profile of a Virginia Graduate* (Virginia Governor's Press

Secretary, 2019). After the press conference, the education groups supported by Hewlett pooled fund, plus others, met with state leadership to discuss next steps. As a result of that meeting and several subsequent conversations, the *Virginia is for Learners* coalition was formed.

From Campaign to Coalition: Virginia Education Leaders Formalize Their Network to Deliver on *Virginia is for Learners* Priorities and Promises

Throughout 2019, the *Virginia is for Learners* coalition met and discussed how to work with VDOE to deliver on issue campaign promises. Discussions included progress being made by Hewlett sub-awardees who were finalizing profiles of a Virginia classroom, educator, and education leader, and the early successes of VaSCL's innovation network (VALIN), VASS's superintendent's academy, and William & Mary SURN's academies for Virginia principals and assistant superintendents.

Coalition members increasingly heard about more school districts adopting and operationalizing local profiles of a graduate and using "Virginia is for Learners" to communicate their efforts (one school district emblazoned "Virginia is for Learners" on their football field). Initiatives to modernize public education, actualize the profiles, and prioritize equitable learning seemed stronger and more visible than ever. As a result, the coalition decided it was time to become a more permanent, connected, and sustainable statewide partnership. This followed a process that leading networks expert June Holley calls "know, knit, and nudge the network" (Holley, 2012).

From Coalition to Partnership: Formation of the Commonwealth Learning Partnership

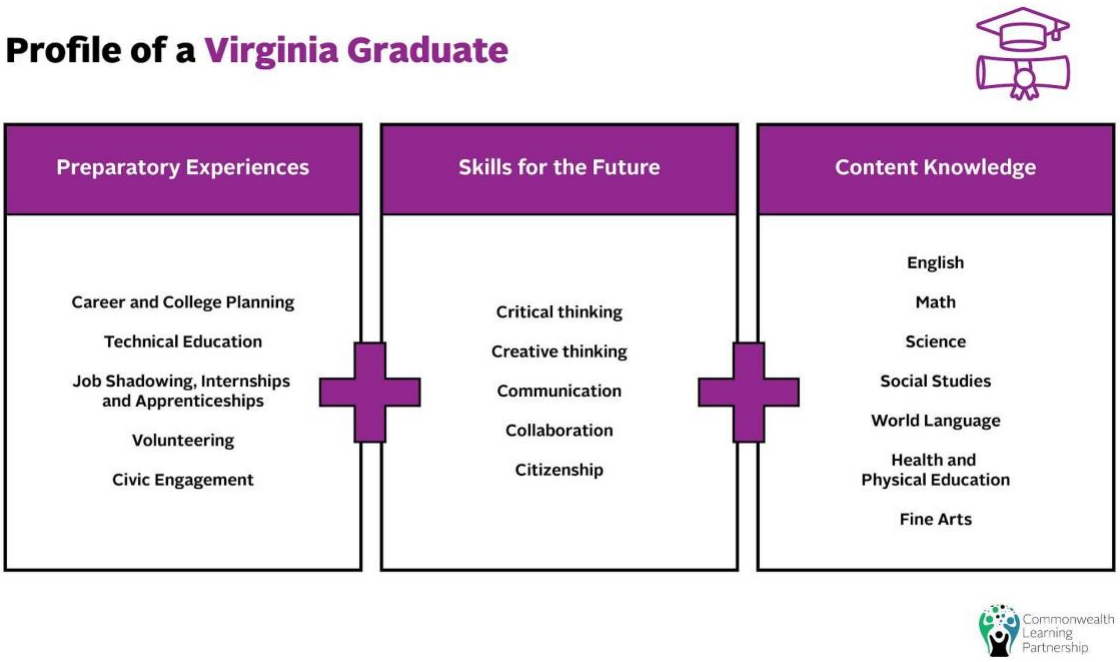
The coalition spent 2019 and early 2020 aligning professional expectations and resources of educators with the Profile of a Virginia Graduate and the revised accreditation standards. Coalition members, led by the Hewlett sub-awardees were a driving force in developing and

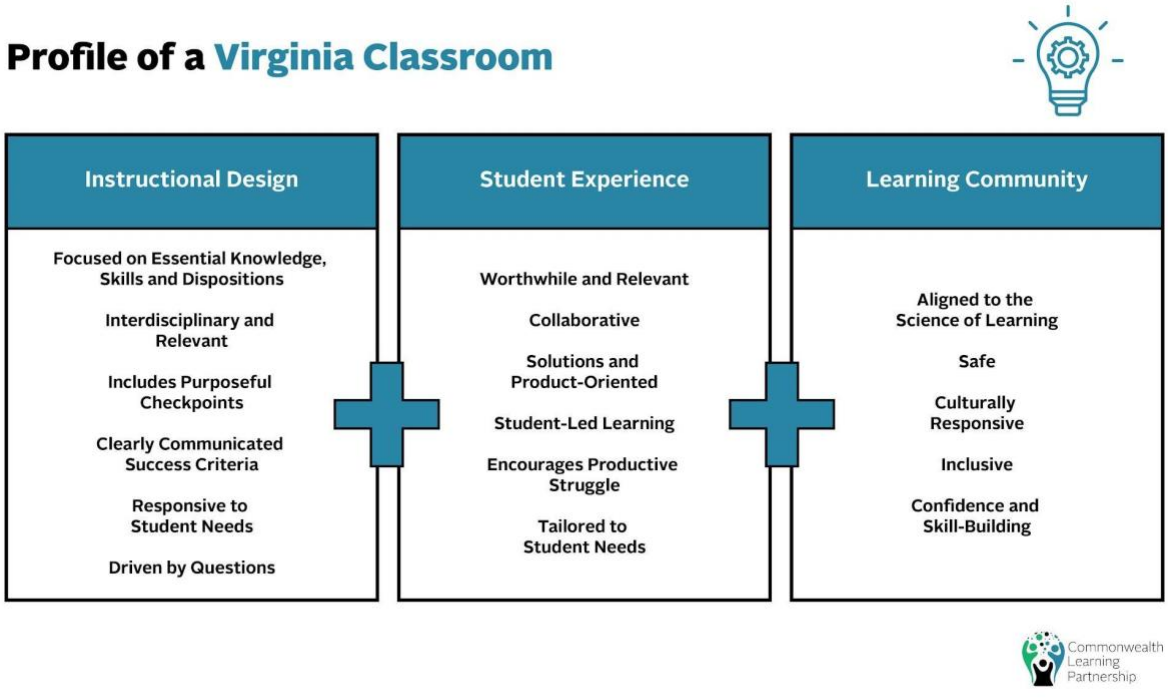
offering professional learning resources and trainings, including those being offered by EdEquityVA. They agreed that becoming a formalized network would maximize impact and access to professional learning resources for educators, leaders, and the public. From this idea came the concept of the Commonwealth Learning Partnership.

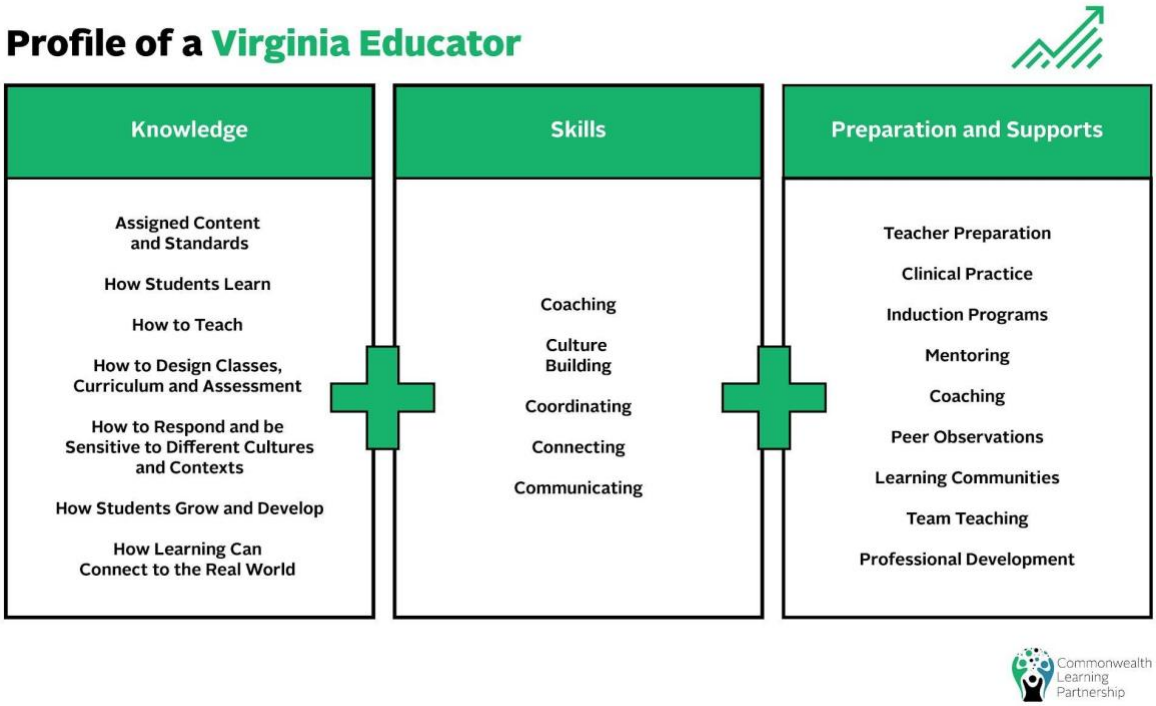
The Hewlett sub-awardees became the founding members of the Commonwealth Learning Partners, just as they had been the leaders who gathered after the summit on performance assessments and the ones to create companion profiles—as shown in Figure 3—and form the *Virginia is for Learners* coalition. In consultation with JFF staff, the group decided to dedicate remaining Hewlett funds to support an executive director for the partnership, or what networks expert June Holley would call a "network weaver" (Holley, 2012). The person they chose for the role was Gena Keller, a recently retired VDOE Assistant Superintendent for Learning, former school superintendent, and counselor.

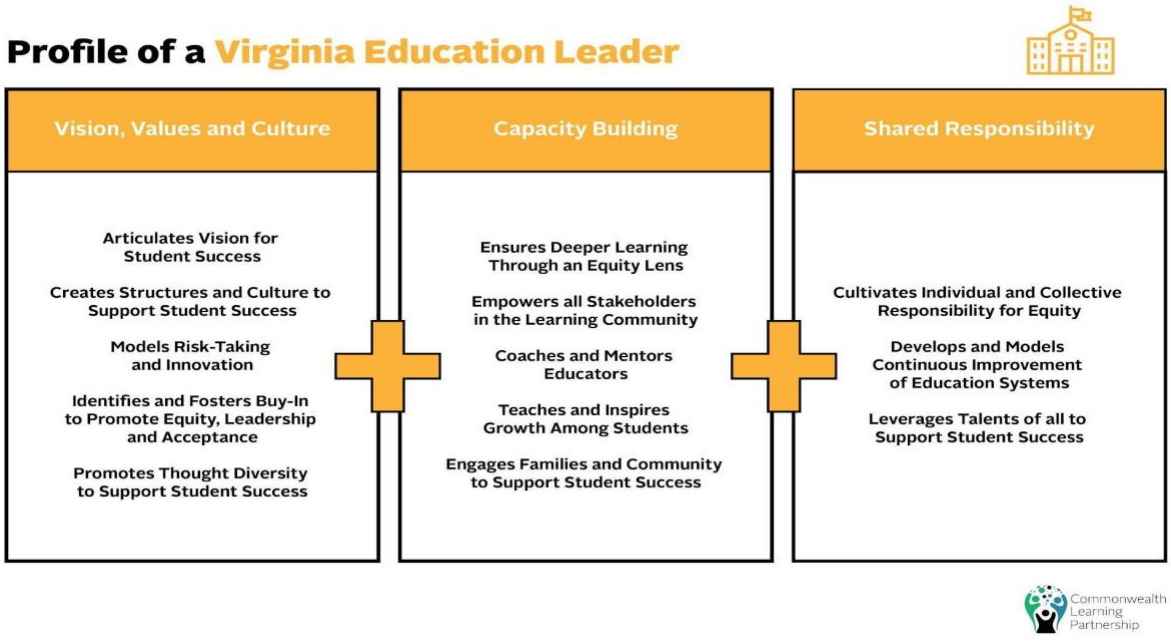
Figure 3

Graphics of the Profiles of a Virginia Graduate, Classroom, Educator, and Education Leader









Launching a Partnership in a Pandemic

Days before the planned in-person public unveiling of the Commonwealth Learning Partnership, Covid-19 shutdown the world and Virginia's schools. Instead of meeting at the

capitol, the founding partners met by Zoom to decide how to move forward. There was total consensus that as the state education vanguard with a responsibility to support Virginia teachers and leaders in all 132 school districts, the priority needed to be immediate support to the field and frontlines.

The Partnership pivoted with help from communications firm, Capital Results, and JFF staff. Instead of making an in-person public announcement as a new statewide Partnership, they did a soft launch as an online resource for districts and schools, and then launched two online campaigns to elevate support to education professionals on the ground:

- "Educator Heroes" celebrated school staff (e.g., teachers, counselors, librarians) nominated by their communities who were going above and beyond to support students during the Covid-19 pandemic.
- "Voices from the Field" published reflection pieces and quotes from teachers and leaders on what they were learning, seeing, and hoping for as the pandemic progressed. These reflections included educator experiences with the pandemic, as well as racial violence, and economic crises.

The first year of Partnership meetings became a war room for Virginia's education vanguard. The profiles took a backseat, although partners did learn a lot about how the Profiles worked and needed adjustments to accommodate crisis and virtual learning. The real power of the partnership became the networked capabilities, collective wisdom, and reach of the group (Plastrik et al., 2014).

As a "network of networks" the group could share and disseminate information quickly and at scale. They developed and deployed no-cost rapid response programming, listening sessions, and learning events to teachers and leaders across the state. Several partners continued

their signature initiatives, adapting to a virtual Covid-19 context. Partners worked together to create new resources and provide real-time coaching to administrators. The group worked closely with VDOE leadership to ensure alignment of priorities and to optimize state support for educators on the frontlines. For some districts and schools, this continued to include profile and assessment-related work. For most, it focused on triage and removing learning barriers while responding to urgent staff and student needs.

Return to School: Moving Profiles Statewide and Schoolwide

In 2021 and 2022, the Partnership was able to shift from rapid response to focusing on the future and supporting an inclusive education recovery from Covid-19. Schools returned to in-person learning and the Partnership considered its next phase of work. By 2021, the Partnership had expanded beyond its founding partners to include nearly 30 Virginia-based education groups and universities, plus a growing group of national partners and supporters. The founding group transformed into the partnership's governing body leading efforts with executive director, Gena Keller.

In the fall 2021, Virginia Learns—the state's first-ever K-12 education intermediary—was founded with the expressed purpose of bringing together business and education leaders with the shared goal of creating a more innovative, relevant, and equitable public education system in Virginia, to ensure all public-school students in Virginia receive an education that prepares them for the world and workforce (Virginia Learns, 2021). As an independent nonprofit, it formally partnered with the Partnership, giving the network an organizational and fiscal home. Founding partners found new footing with their signature initiatives, many in their third or fourth years of implementation.

At the same time, the political landscape in Virginia changed dramatically. Following Democratic governors, Republican candidate Glenn Youngkin was elected to be Virginia's new governor, resulting in new education leadership at the cabinet and agency levels. Several education priorities related to the profile work, especially social emotional learning and racial equity work were called into question, and in some districts banned altogether. The *Virginia is for Learners* brand and EdEquityVA website were suspended.

Because the Commonwealth Learning Partnership was designed as a non-partisan and distributed network model, it was able to continue even in a politically contentious environment. Virginia governors can only serve one four-year term; the Partnership operates with the belief it is crucial to seek common priorities and ways to work with the department of education across years and various administrations. This was critical for local educators because the political transition was confusing and concerning for many. Even though district and school teams were unsure of what was happening at the department, they could seek uninterrupted support and guidance from partnership members. Like the launch year in 2020, the Partnership took advantage of regular meetings to discuss state education changes and decide how to provide rapid response and support back to the field.

Table 3 describes what each of the Partnership's signature initiatives looked like during that period, and how it continues to look today. The pandemic and political climate led to innovations and collaboration that may not have happened otherwise. In some cases, it forced conversations about equity and inclusion and evolved efforts to focus on student development of the 5Cs and deeper learning skills to the need to prepare them for a rapidly changing world highlighting the importance of more durable skills.

Table 3

Commonwealth Learning Partnership Activities, 2021-2023

Founding Member	Signature Initiative(s)
EdPolicy*Forward*: The Center for Education Policy at George Mason University	Partnership members from George Mason University (GMU) worked with colleagues from William & Mary to put the Profiles of a Virginia Educator and Education Leader into practice. Through this work, GMU representatives promoted social justice through the development of educators and leaders as action-oriented ambassadors who speak to and address issues of educational equity and inclusion. GMU members surveyed the field to check for awareness and interest of, and investment into the Profiles and conducted aligned action research. They also interrogated the Profiles and survey feedback exploring key differences and unique themes between the responses of educators of color and white educators.
Virginia ASCD	VASCD completed the Profile of a Virginia Classroom and companion implementation briefs. They aligned regular programming, including the VASCD annual conference, one-day conferences, workshops, webinars, and module-based courses with the profile work. Beyond profile work, VASCD maintained and strengthened partnerships with other founding members of the Partnership. For example, VASCD and VaSCL partnered to launch a data science micro-credential; and VASCD and William & Mary, SURN co-hosted a Science of Teaching Reading conference.
The Virginia School Consortium for Learning (VASCL)	VaSCL held VALIN cohort 2.0 virtually during the 2020-2021 school year, cohort 3.0 virtually and in-person in the 2021-2022 school year, and cohort 4.0, moving under the umbrella of the Partnership virtually and in-person during the 2022-2023 school year. The Partnership is currently designing cohort 5.0 to kick-off summer 2023. Cohort 5.0 will reinvigorate a focus on the Profiles through communities of practice that focus on building local portraits of a graduate as the north star of districts' innovation work. By design, VALIN works with an expansive network of school district teams by using education innovation and

	transformation work, using a coaching and group learning model. It does so with facilitated support of the Advanced Learning Partnership and the involvement of nearly all Commonwealth Learning Partnership members.
Virginia Association of School Superintendents (VASS)	VASS continued offering, growing, and refining its Superintendents Academy, now called the Virginia Transformational Leadership Academy, which includes learning sessions on the Profiles of a Virginia Graduate, Classroom, Educator, and Education Leader, as well as executive coaching. VASS also partners with the Commonwealth Learning Partnership on issues of superintendent retention and support to VaLIN on executive leadership.
William & Mary School of Education	Continues to play a lead role in the Partnership by focusing on transformational leadership and working to identify and implement effective supports for Virginia emerging and established education leaders, and key levers for real educational change. This work includes continued collaboration with education scholars at George Mason University.
School University Resource Network (SURN)	SURN now runs three signature academies: the SURN Family Engagement Academy, SURN Principal Academy, and the SURN Novice Teacher Academy – all of which have elevated the Profile work and 5Cs for teachers and leaders. The Principal Academy was supported by all three rounds of Hewlett funds and is entering its 12th year. The Family Engagement Academy is supported by renowned family engagement specialist and former State Superintendent, Steve Constantino (his role in starting *Virginia is for Learners* and the Partnership is abovementioned). The SURN Novice Teacher Academy is a new effort with small school districts aimed to improve teacher retention.

Looking Ahead: Possible Futures for Partnership and Profile Work

In March 2023, the Commonwealth Learning Partnership will celebrate three years as a formalized partnership and nearly two years as a part of Virginia Learns. In that time, it has

grown from a founding group of six statewide education organizations and university programs to more than 40 members and many more affiliates. Next year, it will co-launch a network of similar education networks from across the US.

In the past three years, it has grown and supported Virginia teachers and leaders through a global pandemic, racial reckoning, economic crisis, and massive political change. At a state level, its members have worked as a collaborative and historically as individual entities to create a policy landscape that is hospitable to and permissive of the education innovations required to modernize Virginia's public education system and ensure learning opportunities are more equitable and inclusive.

Partnership members are now evaluating new models of networked impact. Currently, the Partnership is working to further embed the VALIN learning improvement and action network structure into the collaborative work of the Partnership. This would enable Partnership members to run thematic and skills-based offerings more seamlessly and strategically to members and the field writ large.

The Partnership has inspired adjacent statewide efforts, such as the Commonwealth Alliance for Thriving Youth, of which it is a member. The "Alliance" is a network of education, youth development, and human service leaders focused on youth well-being and thriving. This network has used the Partnership model as a blueprint to get started. Finally, the Partnership has become an example often cited in national education circles on how to build and operate an education leadership table that can continue through times of crisis and change.

Lessons Learned

The story of the Commonwealth Learning Partnership, which started with remarks given by a state superintendent at a summit on assessment and evolved to include a statewide

campaign, coalition, formal leadership network, and nonprofit intermediary illuminates the transformational power of close colleagues working together in networked activities towards a common goal (Plastrik et al., 2014). To spur real educational change and reach teachers and leaders at scale, there must be policy and infrastructural supports available from schoolhouse to statehouse and border to border. To sustain change, those supports must exist outside of a public agency, although ideally with the support of it. To achieve educational equity, there must be political will and distributed, invested leadership across the state who will figure out ways to continue pursuing centering the needs of students, even when efforts are stalled, slowed, or stopped completely.

Among Commonwealth Learning Partnership members are individuals with long-standing and trusting relationships. This has been hugely beneficial, and to continue to be successful, attention must be paid to sustainable leadership and succession planning. The next generation Virginia education vanguard will be well-served if they also have strong bonds and united purpose.

Additionally, the story and evolutionary process of this work shows the importance of public leaders and private funders making generational investments (years-long contributions) into the professional learning and training of the educator workforce, including general operating support to entities like the Commonwealth Learning Partnership and its founding members, who know how to assemble highly effective programming that is responsive to field needs and attends to a bigger vision of educational success and equitable learning.

Today the Partnership is a healthy and vibrant example of what collective action in education can look like at the state level and among in-service and pre-service providers. The work of putting Profiles into practice was slowed and stalled by the Covid-19 pandemic, but the

Partnership persisted and provided vital support and rapid response to the field during that time. Members also learned how to best support the field in challenging and changing contexts. This will enable future work where Profiles can be modified and operationalized with more intention and dynamism than could have been possible before.

In another eight years, there may be a new generation of teachers trained by pre-service programs like William & Mary and George Mason University that have actualized the Profiles of a Virginia Educator and Education Leader. They will be supported by education membership organizations and associations like VaSCL and VASCD and that are training and coaching on the Profiles of a Virginia Classroom and Graduate, and they will benefit from in-service academies and institutes like the ones offered by SURN and VASS where they can learn about the Profiles and work towards a shared vision of preparing students (and themselves) to be ready for a changing world and workforce.

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