CONVERSATIONS ACROSS THE DECADES: LEARNING AFRICAN AMERICAN PEDAGOGICAL EXCELLENCE FROM BLACK MATHEMATICAL "DREAMKEEPERS"

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Examining the Trajectories of Black Mathematics Teachers: Learning From the Past, Drawing on the Present, and Defining Goals for the Future is a three year-long research study funded by the National Science Foundation. Our study was designed to reflect on the dearth of Black mathematics teachers, including problems with recruiting and retaining Black mathematics teachers. The research study mitigates some of the oversights in the history of mathematics education. The first phase of the study was a large-scale survey of more than 500 currently practicing Black mathematics teachers. Simultaneously, the research team began conducting oral histories of retired Black mathematics teachers. In the second phase of the project, there will be focus group with currently practicing Black mathematics teachers. Ultimately, the objective of the research is to leverage the epistemological wealth of Black teachers, particularly through an historical lens, to guide contemporaneous teacher education policy and practice. This paper focuses on preliminary findings from the oral histories part of this multifaceted research study.

Objectives

Examining the Trajectories of Black Mathematics Teachers: Learning From the Past, Drawing on the Present, and Defining Goals for the Future is a three year-long research study funded by the National Science Foundation. Our study was designed to reflect on the dearth of Black mathematics teachers, including problems with recruiting and retaining Black mathematics teachers. The research study mitigates some of the oversights in the history of mathematics education. The first phase of the study was a large-scale survey of more than 500 currently practicing Black mathematics teachers. Simultaneously, the research team began conducting oral histories of retired Black mathematics teachers. In the second phase of the project, there will be focus group with currently practicing Black mathematics teachers. Ultimately, the objective of the research is to leverage the epistemological wealth of Black teachers, particularly through an historical lens, to guide contemporaneous teacher education policy and practice. This paper focuses on preliminary findings from the oral histories part of this multifaceted research study.

Education theorist Popkewitz (1987) noted that what is *not included* in the history of education is just as telling as what gets to be told. Toward the centering of race, Milner (2006) offers the charge that educators and researchers should look to "Black teachers' experiences and success both pre- and post-desegregation for insights about how all teachers can deepen and broaden their knowledge and understanding to better meet the needs and situations of students at present, particularly among Black students" (p. 90).

Henry (2006) highlighted the powerful nature of oral history in collecting the stories of marginalized groups, as this methodology honors the generative power of spoken word, which has been noted as central to Black peoples' collective way of knowing. We argue that our mixed methods research study contributes to the Critical Race Theory (CRT) literature through its linkage of the historical counternarratives of retired Black mathematics teachers with current

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educational policies for racially diversifying STEM instruction (National Math and Science Initiative, 2016; U.S. Department of Education, 2016). These counternarratives in the form of oral histories help fill the gap left by many texts that claim to be comprehensive. One such text, published by the National Council for Teachers of Mathematics and commonly used by professors of education, is *A History of School Mathematics* (Stanic & Kilpatrick, 2003). Our oral histories intend to offer a meaningful historical foundation for understanding the contemporary racialized experiences and practice of Black mathematics educators.

Two components of Critical Race Theory (CRT) shape our research – racial realism and counternarratives. Racial realism is an integral component of critical race theory (Bell, 2005). It accepts that we live in a society in which racism has been internalized and institutionalized to the point of being an essential and inherently functioning component, in this case an intransigent, intractable component of educational institutions, including the ways that whiteness appears in mathematics education (Battey & Levya, 2016).

In response to the racial realism that dominates educational practice and outcomes, we look to history for counternarratives (Solorzano & Yosso, 2002), or evidence of equity-centered pedagogies that focused on teaching excellence for well-rounded student achievement, particularly for Black children and particularly in the discipline of mathematics. These pedagogies include but are not limited to culturally relevant teaching (Irvine, 1989; Ladson-Billings, 2009) and African American pedagogical excellence (Acosta, Foster, & Houchen, 2018; Siddle-Walker, 2001).

We were curious about the extent to which retired Black mathematics teachers – facing the intractability of racism in a discipline that falsely purports to be race-neutral and objective – challenged and overcame systemic barriers during the historical period of formally racially segregated schools, well into the mid-1970s. We wondered whether they manifested African American Pedagogical Excellence (Acosta et al., 2018). In short, we wondered whether these teachers demonstrated the characteristics described in Ladson-Billings' seminal work *The Dreamkeepers: Successful Teachers of African American Children* (2009). Just as there is evidence of enduring institutional racism in schools – a legacy of the history of segregated schooling -we queried whether there was there evidence of enduring teaching ideologies and common behaviors that historically helped students achieve academic success overall and mathematics success specifically while maintaining a positive identity as African Americans (Ladson-Billings, 2009). Our research team explores how the past and the present communicate with one another to shape educational policies.

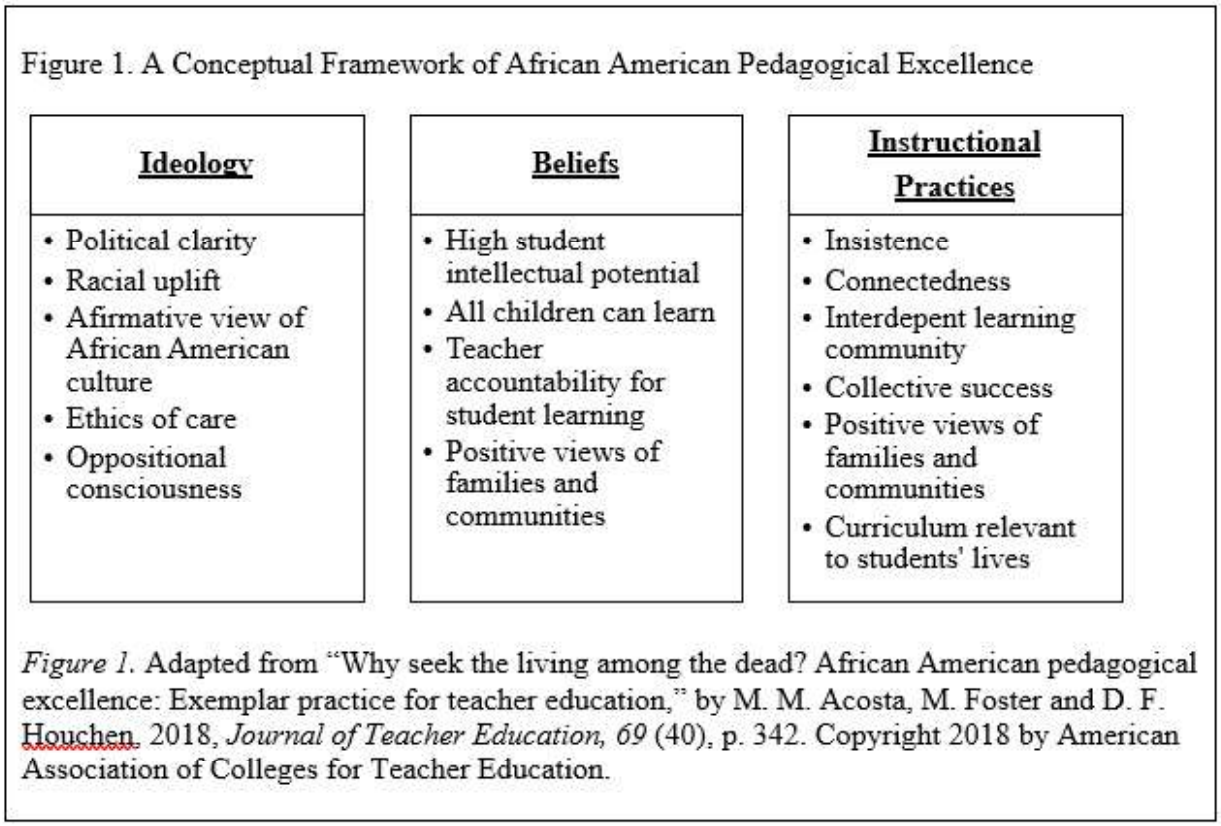

Figure 1: A Conceptual Framework of African American Pedagogical Excellence

Participants

Collecting histories of retired Black math teachers is time-sensitive, as these educators who have experiences spanning decades, are aging. To date, our team has conducted 13 oral histories. A total of 20 fulfills the deliverables for our NSF grant. The oral history participants taught mathematics in Atlanta, Washington, DC, and Maryland schools between the 1950s and the 2000s. Their ages ranged from mid-60s to late-80's. The average teaching experience was 40 years, meaning a cumulative total of over 400 years of teaching mathematics to Black children. And all participants were women.

Methods and Data Sources

In qualitative research, generating findings to explore research questions typically involves making direct field observations, conducting in-depth interviews, and collecting artifacts such as written documents (Patton, 2002). Oral history is one method of qualitative research methodology that gathers thick description from information-rich participants, contextualized within specific historical moments across space and time (Llewellyn & Ng-A-Fook, 2017; Patton, 2002). In-depth interviews, digital video recording, as well as both document and artifact analysis were the primary forms of data collection for our research study.

Due to the age and stamina of our participants we conducted one pre-interview by telephone and one follow-up interview. The first interview encouraged participants to recollect and arrange their teaching experiences. The second interview explored their experience in detail and the

context in which it happened, as well as an exploration of the meaning that their experience holds for the participant. This second interview happened in person and was professionally video recorded. During this second interview, many of the participants shared artifacts.

Qualitative data analysis is an iterative process that begins at the design of the research study. As a team, we made amendments to the protocols as we conducted pre-interviews by phone and face-to-face professional videos. At the same time, we began the process of crafting initial codes and using the codes to create categories and sub-categories for understanding the first interview and shaping the second interview. We housed these codes in Excel. By using Rev.com, our research team was able to analyze transcripts while watching the video recording. The next step in our data analysis was archiving clips of videos with time stamps related to the codes that were initially created.

Following this process was a close examination of the written transcripts. All transcripts were both printed and became digitized copies when added to a Qualitative Data Analysis Software. These digitized transcripts afforded the research team a way to analyze the same documents individually and together during team meetings. We continued to add additional codes or modify existing codes for each individual participant. It was during this time that our analysis incorporated participants' artifacts such as yearbooks and curricula unit plans. This allowed the team to get a more holistic view of the participants.

The team worked as a cohesive unit to discuss difference and similarities among codes and categories to develop consensus and address potential validity threats in our analysis. As we continue the iterative process of coding, we are beginning to construct a narrative of each participant. While constructing narratives for each participant, we repeat the process of coding and categorizing *across* participants to gain a collective narrative of the experiences of retired Black mathematics teachers. In order to deepen our understanding of the participants' life experiences, we also began analyzing historical artifacts such as school board records, mathematics curricula, and records from the Miner Teachers' College. This process will continue with the additional interviews.

Our analysis of these transcripts and digital video oral histories of retired Black mathematics teachers empowers us to "address historical harms" (Llewellyn & Ng-A-Fook, 2017, p. 5) or the absences demonstrated in the history of mathematics education textbooks, as well as to offer "intergenerational dialogues" (p. 7) to transform "masculinist approaches for socially constructing knowledge in STEM…to (re)orient ways of knowing away from disembodied, objective truths and toward an embrace of positionality, inquiry, and social context." (p. 8).

Results

We knew from the start of our study that finding retired Black mathematics teachers would be a challenge. Our participants were recruited from our personal and professional networks as well as using snowball sampling. Even as such, our research team become keenly aware that all retired mathematics teachers that we interviewed were female. As such, we began to develop theories to understand this phenomenon. We will continue to search for male retired mathematics teachers and anticipate that doing so will bring a different dimension to our research study.

To date, the experiences of retired Black teachers of mathematics suggest alignment with the ideology, beliefs, and instructional practices expressed by African American Pedagogical Excellence (Acosta et al., 2018), as adapted to the context of each teacher. as well as alignment with Ladson-Billings' (2009) descriptions of successful and culturally relevant classroom interactions, which we have labeled "Dreamkeeper" codes. She describes instructional methods

for eliciting *student competence* (p. 134), building student confidence through *instructional scaffolding* (p. 135), creating a collective classroom *focus on instruction* (p. 135), an approach to education that extends and contextualizes *student knowledges* (p. 136), and teachers having *deep knowledge* of both the students and the subject matter (p. 140). These transcripts also suggest codes for *institutional racism* (such as *teacher tracking*), *interpersonal microaggressions* (such as *parental vetting* and *peer disdain*), *racialized teacher professional development* and *mentoring*.

For example, one teacher expressed *oppositional consciousness* in a late 1960s setting with Black administrative leadership by insisting that James Brown's song, *Say it Loud - I'm Black and I'm Proud* was a governing ideology for her classroom presence and, by extension, her mathematics instructional practices.

An example of interpersonal microaggressions included a teacher stating: One [colleague] even told me several times, he said, 'you just don't have the experience to teach math'...He was a [white] navy man, been in the navy for years and retired. I don't know what he meant by that, but he kept telling me that [*peer disdain*]…and the white parents would pick their teachers for their students…and didn't want their kids in my class [*parental vetting*]. In response, she persisted with an *ethic of care* and *high student intellectual expectations* that eventually earned the respect of colleagues and parents.

Several teachers who taught in multiracial school settings recalled *teacher tracking* where they were initially assigned to teach "consumer math," or "the Black kids' math," and introductory algebra, rather than Algebra 1, Algebra 2, Geometry, or "intensive math" that was offered to white students. To counteract these professional slights, these retired Black math teachers described the ways they used planning time, departmental meetings, after school clubs, grant-seeking and professional conferences to both design instruction to improve student content knowledge and to provide one another opportunities to advance their professional skills. Forming *interdependent learning communities* with an eye on *collective success,* these teachers offered one another the *mentoring* and *racialized teacher professional development* that was lacking in their schools and districts.

Despite the barriers of racism, the teachers described student-teacher relationships and classroom environments that speak to several of the Dreamkeeper and AAPE codes. One extended quote is an example:

> I kind of enjoyed working with [the really tough kids] because I enjoyed the results that I was getting, enjoyed the kids coming to me and saying, ' I want be in Mrs. L's class because she *teaches*!'…I think [they meant] that I presented lessons in a way that they understood it, they could comprehend it…I had this thing always that I would tell them that my classroom is not a quiet room…we don't have holy quietness in this room. We're going to talk, we are going to talk about the work. We are going to learn the language of mathematics.

This quote has been coded as follows: "I kind of enjoyed working with [the really tough kids] because I enjoyed the results that I was getting [*student knowledges]*, enjoyed the kids coming to me and saying, 'I wanna be in Mrs. L's class because she *teaches*!' [*student competence*; *focus on instruction*]…I think [they meant] that I presented lessons in a way that they understood it, they could comprehend it [*student knowledges; scaffolding*]… I had this thing always that I would tell them that my classroom is not a quiet room…we don't have holy quietness in this

room. We're going to talk, we are going to talk about the work. We are going to learn the language of mathematics [*deep knowledge; student knowledges*]."

The individual and collective narratives that emerge from the coded transcripts illuminate their own stories about their K-12 and undergraduate learning, and their experiences of teaching mathematics in schools pre- and post-desegregation. Ultimately, these narratives will be compared with data from other quantitative and qualitative components of our research study that focus on the experiences of contemporary Black teachers of mathematics. The "dialogue" between past and present will help shape an understanding of both change and continuity over time.

The research is ongoing and we expect to have the concluded all of the oral history interviews by September 2019.

Scholarly and Policy Significance

Ladson-Billings (1998) stated that, "adopting and adapting CRT as a framework for educational equity means that we will have to expose racism in education *and* propose radical solutions for addressing it" (p. 22). Teacher education for pre-service teachers and teacher professional development for in-service teachers, particularly in mathematics education, stand to benefit from the insights gained from the oral histories of retired Black mathematics teachers. The stories shed light on the origins and persistence of what Ladson-Billings refers to as the "education debt" (2006) as a direct counter to the language of the "achievement gap" in mathematics acquisition and numeracy. While the oral histories to date suggest that not all 20th century Black children, particularly in rural areas, had access to formal instruction in higher mathematics, their experience of numeracy stands in stark contrast with the lower level, rote mathematics that is typical in most 21st century majority-Black classrooms (Clark, Badertscher, & Napp, 2013; Gillen, 2014; Neil, 2015).

Teacher education placement offices may attempt to mitigate the intractability of the hiring discrimination that D'Amico, Pawlewicz, Earley, & McGeehan (2017) document and which finds its origin in some of the histories of retired Black mathematics teachers. The wisdom of seasoned Black mathematics teachers, made available on the project website in digital form, can lead to greater reflexivity for in-service teachers and to metaphorical cross-generational "conversations" with novice teachers in teacher education programs. Without this knowledge, teacher education and professional development programs will continue to lack sufficient data for reforming their curricula and pedagogy to recruit and retain high-quality Black math teachers who have the resilience and readiness to meet 21st century needs (Battey et al., 2018). Teacher education programs that talk about "equity" and "diversity" while explicitly ignoring how the history of race and racism impact the praxis of former and current Black mathematics teachers serve no one (Cook, 2015).

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