

Leveraging community-based assets in coaching, wellness and mentorship to increase the African American and Latinx math teacher workforce

Sean S. Warner

*Department of Educational Leadership, Clark Atlanta University,
Atlanta, Georgia, USA*

Abstract

Purpose – There is some evidence to suggest that the historical challenge associated with recruiting and retaining Black and Brown Science, Technology, Engineering and Math (STEM) collegians is tied to early their teaching and learning experiences in Mathematics. This paper describes an National Science Foundation (NSF) funded project (NSF #2151043) whose goal is to attract, prepare and retain math teachers of color in high need school districts ensure that those teachers remain in the field long enough to make a meaningful impact on the minds and hearts of BIPOC students who are often, extrinsically, and intrinsically, discouraged from pursuing careers in STEM professions.

Design/methodology/approach – This mixed-methods study, which began in the summer of 2023, seeks to recruit, prepare, support and retain nineteen (19) Black and Brown math teachers for two (2) high need urban school districts. The expectancy value theory will be used to explain the performance, persistence, and choices of the teachers, while grounded theory will be utilized to understand the impact of the intensive mentorship and wellness coaching that applied over the first year of their preservice preparation and subsequent in-service years.

Findings – Measures of project efficacy won't begin until 2025 and as such there are no findings or implications to draw from for the study at this time.

Originality/value – The intention of this paper is to augment the body of knowledge on recruiting and retaining Black and Brown math teachers for urban schools where the need for quality STEM teachers is critical.

Keywords African American and Latinx math teachers, Coaching, Mentorship, Wellness, University-school partnership

Paper type Research paper

Introduction

There is compelling historical evidence to indicate that before the sixteenth century, countries in West Africa were thriving in the areas of medicine, architecture, technology, engineering and mathematics. We only need to take stock of the Songhai, Mali and Ghanaian empires (Rochman, 2006; Hanson-Harding, 2000).

In spite of this dynamic, the Transatlantic Slave Trade (Eltis, 2008; Bucy, 2003; Inikori, 2000) which propagated and promoted the capture, exploitation, and sale of mostly west



African slaves to the Americas halted that progress. The descendants of those individuals while in enslavement reportedly developed and/or invented new tools, technologies, and approaches on plantations all over the New World but were not acknowledged or recognized for those innovations (Colby, 2020; Kaye, 2009). It wasn't until the advent of the HBCUs in the mid-to-late 1800s and early 1900s that African Americans in this country were given the opportunity to access a college education—however, the initial focus of that training was prioritized around pastoral studies, teacher preparation and agricultural apprenticeship (Altbach & Lomotey).

Consequently, in the mid-1900s Historically Black Colleges and Universities (HBCUs) began to produce critical masses of STEM professionals in this country; and very little has changed in that regard in the last sixty (60) plus years (Toldson, 2018; Perna *et al.*, 2009).

HBCUs occupy a small share of existing colleges and universities in the United States (United Negro College Fund, 2022) that have systematically been underfunded and under resourced by both public and private sectors, relative to their counterparts, in the STEM areas. The tide is slowly changing, but not nearly fast enough; and even if there were equitable levels of STEM funding it would not be enough to fully address the demand for African American STEM professionals in the national and global marketplace. There is some evidence to suggest that predominantly white institutions have begun to do their part in recruiting and preparing Black STEM professionals, but their track record in this regard is sorely lacking (Oseguera, Park, De Los Rios, Aparicio, & Johnson, 2019; Basile & Black, 2019).

It seems, though, that one of the core issues may not lie at the college level, but at the P-12 level, as the scarcity of STEM teachers of color across the nation is staggering (Tran & Smith, 2022). The reasons surrounding the paucity of Black STEM teachers largely center around economics as STEM leaning Black colleges have immeasurable career and wage-earning opportunities in industry as opposed to teaching. Juxtaposed against their current financial reality (Warner, Oliver & Peng, 2022; Patton, 2013) the choice for many, if not most, is a no-brainer: consider something else other than the teaching profession.

The consequence of that choice knowing what the research says about the kind of impact Black teachers and culturally and linguistically diverse teachers, have on Black and Latinx children's learning, self-efficacy, identity-development and visioning is critical (Lindsay, 2020; Rosen, 2018). Therefore, it may not matter what type of college (MSI or HBCU) Black and Latinx high schoolers attend. If they haven't had culturally affirming STEM learning experiences, particularly with teachers that look like themselves the chances a career or a college degree in STEM related disciplines are slim. In fact, a growing body of research (Gershenson, Hansen & Lindsay, 2021; Lindsay, 2020; Rosen, 2018; Gershenson, Hart, Hyman, Lindsay, & Papageorge, 2018; Clotfelter, Ladd & Vigdor, 2007) points out that Black and Latinx P-12 students are more likely to seek higher education when they've experienced at least one teacher of color, so one can only imagine what the effect could be if they had multiple experiences with STEM teachers of color.

And it is this notion that schools and colleges of education at HBCUs and HSIs have been acutely aware of since their founding—even if the research has been slow to acknowledge this fact. It invariably undergirds the conceptual framework under which they prepare teachers, counselors and school leaders for the communities and school districts they serve.

One of the open secrets about HBCUs and HSIs is that their cultural context (Brathwaite, Raufman, Mateo, & Edgecombe, 2021) lends themselves to having educator preparation programs that value and prioritize cultural and linguistic diversity and as such attract preservice candidates who match the sociocultural realities of the P12 students (and sometimes teachers) they work with in field and clinical placements, particularly urban center schools.

Thus, they are intrinsically equipped with a cultural capital that their white counterparts generally ill-equipped to access, at least at the start of their preservice clinical experience (Leggett, 2020). Moreover, preservice teacher candidates, whether they want to or not, end up

serving as the physical representation of what their college or university values. And in the case of minority serving institutions (MSIs) like HBCUs and HSIs its cultural, linguistic and racial diversity. Communicating institutional disposition in this way goes a long way in demonstrating that the school/college of education cares, understands and most importantly is vested the priorities of that school and that community. Essentially, conveying that they can be trusted (Menon, Suresh & Raman, 2022). Because a partnership without trust is not a true partnership, rather a transactional construct—a construct that often feels disingenuous and insincere.

However, trusting relationships, even when the strategic priorities of both parties appear to be aligned, there's no guarantee of success. The school or school district and university have to be honest with each other about their aims and aspirations; their structural shortcomings and deficiencies; and how their union given the aforementioned aids them in achieving or exceeding both shared and independent goals (Hill, del, Garas-York, Ferrara, & Nath, 2021; Polly, 2020).

This paper will provide a brief illustration of how Clark Atlanta University, Clayton County Public Schools and Genesis Innovation Academy came together to collaborate on a two-phase project that served both their needs, goals and aspirations. For the two school districts the project was an opportunity to collaborate—at the ground level—with a university in tailoring a math teacher education program to suit their contextual realities. And, on the other hand, the university, Clark Atlanta University, was given the opportunity to redesign its degree program in a way that truly meets the needs of metro-Atlanta local education agencies (LEAs). It will also explain how its phase two initiative, which is an NSF funded two-cohort scholarship program, will be executed and measured for efficacy.

Historical context

Mathematics is considered a critical need area in the state of Georgia and for good reason. Ten years ago, a quarter of all high school graduates attending universities and colleges in the state needed remediation in mathematics (Governor's Office of Student Achievement, 2023). While eighth-grade National Assessment of Educational Progress (NAEP) scores in mathematics continues to trend below the national average (National Center for Education Statistics, 2019). Furthermore, the average scores of Black students in the state were 30 points lower than their white counterparts. Even more alarming is the Governor's Office of Student Achievement's data which revealed that in the 2020–2021 school year less than five percent of Black eighth graders were considered “proficient” in grade-level mathematics (Governor's Office of Student Achievement, 2023). The following year the percentage more than doubled to ten percent, which was encouraging but still the finding is troubling and emblematic of the need for more qualified BIPOC mathematics educators serving Black and Brown school communities (Lindsay, 2020; Moon, 2007).

The community where Genesis Innovation Academy is located is situated in southeast Atlanta. Founded in 2017 on the ideals of STEM, it is a free public charter school that is also listed and funded as a district. Clayton County on the other hand is not in Atlanta but belongs to the cluster of the five core counties that make up the metro-Atlanta area. The households of both school districts communities are made up of households that are more than 70% African American. Clayton County has 67 schools while Genesis Innovation, even though it's considered a school district, has only two. Both communities have suffered from the historical vestiges of redlining (Nardone, Chiang & Corburn, 2020) and the continued onslaught of gentrification perpetually disrupting any systematic efforts to provide quality schooling.

Clark Atlanta University situated in southwest Atlanta had its own challenges attempting to serve metro area schools through its School of Education. It found itself sanctioned in the early 2000s by the national professional accrediting body structural failings in the field and

clinical components of its teacher education preparation programs. Meaning elements of its university–school partnership were severely lacking (AACTE, 2018). Moreover, area schools and school districts during that time were spending less time and energy seeking Clark Atlanta University’s input for STEM teachers because the programs were graduating very few science and math teachers. And although the university remedied its teacher education field and clinical inadequacies in 2012 by designing what Dennis *et al.* (2017) refers to as a clinically accompanied program—with the hopes of moving toward a clinically rich (Garas-York *et al.*) construct—the challenges surrounding STEM teacher production persisted. One statistic that bears this point out was the fact that Clark Atlanta University’s math and science secondary teacher program combined had a total of five students between 2001 and 2006; and two consecutive years during that period where no prospects were in the program (Clark Atlanta University Undergraduate Recipient Report, 2019). In recent years, 2017–2020, a combined total of seven math and science teachers had been produced but that was the result of external funding to support the effort. However, in 2014–2016, no STEM teachers were produced.

In 2017, Clark Atlanta University began to take serious stock of its shortcomings in this regard and began to engage its partner schools and school districts in substantive discussion around what their critical needs and goals were; as well as how the School of Education could support that effort. Clayton County Public Schools and Genesis Innovation Academy took Clark Atlanta University’s School of Education to task by pointing out that their STEM teacher preparation programs were antiquated, expensive and unattractive. All of which meant, they were unresponsive to the local and regional industry demands. Given these revelations the three entities won an NSF capacity-building grant proposal to completely rebuild the STEM teacher preparation program at Clark Atlanta University in a way that would provide Clayton County Public Schools and Genesis Innovation Academy with the kinds of teachers they needed for their particular community and school context.

Collectively they built a 13-month master’s degree program with an emphasis on culturally relevant teaching practice that would begin in the summer and be delivered primarily online. The thinking was that this would be more attractive to long-term substitute teachers and paraprofessionals (Podolsky, Darling-Hammond & Bishop, 2019), career switchers (Ruitenburg & Tigchelaar, 2021) and retired military (Moon, 2007) who met the criteria.

The outcome was the development of a hybrid online accelerated degree program that infused culturally relevant teaching (Gay, 2018; Ladson-Billings, 2014; Gay, 2003; Gay, 2002; Villegas & Lucas, 2002a, b) and social and emotional learning and well-being (Schonert-Reichl, 2017; In Durlak, 2015; Cohen, 2006). Subsequently, the three collaborated and won another NSF grant, this time for almost three (3) million dollars, to fund the recruitment, preparation and retention of 19 African American preservice mathematics teachers for both the Clayton County Public Schools and Genesis Innovation Academy school districts.

Relationship to the Nine Essentials

A cursory glance at our initiative might suggest the project fully embodies the 14 underlying concepts purported by the National Association for Professional Development Schools’ Nine Essentials (NAPDS, 2021) and on some level it does. However, a deeper scan reveals that the clinically centered (Yendol-Hoppey & Hoppey, 2018) project aligns mainly with four ideas from that framework, namely: boundary-spanning roles and structures (Clark *et al.*, 2005); community (Day, Gu, Townsend, & Holdich, 2021; Lieberman, Miller, Wiedrick, & von Frank, 2011; Nieto, 1992); equity and social justice (Chang *et al.*, 2019; Dyches & Boyd, 2017); and reciprocity (Martin, Snow, & Franklin Torrez, 2011).

Boundary-spanning roles and structures

The term *boundary-spanning roles* which has its roots in business management and organizational strategic decision-making realm (Jemison, 1984; Aldrich & Herker, 1977) resonates with our project because of the make-up of project team and skills, talents and professional experiences they bring to the undertaking.

There are six members on the project team. One member is a retiree who has co-founded two schools, worked at the district level in mathematics, served as an adjunct in Clark Atlanta University's Department of Mathematical Sciences and has her own consulting practice. She has conducted research on Black children and teaching mathematics through a culturally relevant lens (Ladson-Billings, 2014, 2022; Ladson-Billings & Anderson, 2021; Gay, 2002) in the two communities where the project will be executed; and has recently left retirement to return to the classroom full time to teach mathematics and support her learning in preparation for a forthcoming book. Another member is a community counselor (from the community) with her own practice who will be rendering social and emotional wellness coaching to the teaching fellows. One other member is a university mathematics professor, while the other three members have all served or are currently serving in leadership at the district and school level and are simultaneously teaching at Clark Atlanta University in either a full-time or part-time capacity. And so, the respect each member of the team has across the two worlds (the school and the university) lends itself to the notion of hybridization and Zeichner's point about navigating third spaces (Zeichner, 2010) in PDSs. Each member is multifunctionally equipped to leverage their superpowers, when necessary, to negotiate whatever obstacles we might encounter at Clark Atlanta University or the two school districts: Clayton County Public Schools or Genesis Innovation Academy. Moreover, as a team we have the respect and trust of the communities we will be serving.

Community

A sense of community and collegiality among team members was cultivated over a four-year period when they collaborated to respond to the longstanding local math teacher workforce (Espinoza, Saunders, Kini, & Darling-Hammond, 2018) needs by redesigning Clark Atlanta University's MAT-Math program. The act of collectively customizing a degree program to respond to local (and possibly regional) needs according to the is a co-constructive activity. An activity that bonds each partner through a shared set of beliefs, values and most importantly, aspirations around the mission. In the case of our dynamic the partnership created between Clayton County Public Schools, Genesis Innovation Academy and Clark Atlanta University is a *community* in truest sense of the word. The relationship exists solely to strengthen and enhance the culture of STEM in predominantly Black and Brown schools through collegial, respectful and harmonious engagement (NAPDS, 2021; Lieberman *et al.*, 2011).

Equity and social justice

The alignment in the curriculum of the redesigned program embeds the concepts, practices and ideals of mathematics teachers being agents of equity (Chang *et al.*, 2019) and social justice. In fact, there is an action research assignment built into the preservice instructional experience that calls for the teachers to locate a classroom problem of practice tied to a local environmental dilemma that speaks to equity and social justice (Polleck & Spence-Davis, 2020; Ladson-Billings & Tate, 2006). Moreover, its congruent with culturally responsive teaching (Paris, 2021; Hammond & Jackson, 2015) and as such humanizes the teacher-student dynamic. Although, the topics have not been fully fleshed out, both communities have experienced shifting financial resources because of economic and political changes. In the case of Clayton County, it moved from a predominantly white rural county to a more

culturally and linguistically diverse county as a result of the gentrification occurring in neighboring metro-Atlanta communities. Genesis Innovation Academy which is situated in Southeast Atlanta, Georgia, has a different set of economic and political challenges that at the moment are not tied to gentrification, but early signs suggest that plans are afoot.

Ultimately, the majority of the children our preservice teachers will encounter will emanate from culturally and linguistically diverse homes.

Reciprocity

The myriad ways in which Clayton County Public Schools, Genesis Innovation Academy and Clark Atlanta University have collaborated to address STEM teacher workforce needs through the NSF Noyce initiative and STEM student achievement, over the last few years, incrementally crystalizes the respect and admiration between the three. Each work plan meeting and strategy session seems like a kind of scaffolding exercise fortifying the group's symbiotic relationship. And as a result, a healthy institutional interdependency has organically formed. It is akin to the notion of *reciprocity* (as cited by [NAPDS, 2021](#) in [Teitel, 2003](#)).

Of course, it would be naïve or a mistake to suggest that all parties within these three spaces feel, appreciate or even understand this dynamic. The practice and/or culture of university educator preparation programs devaluing and minimizing practitioner work and spaces has a long history. And by extension contributes to the ill-conceived presumption that the professionals of those communities are not peers—and it is simply not true. Therefore, if the two don't see each other as peers there's no basis for "accepting joint responsibility for the preparation of new teachers and P-12 student learning" ([NAPDS, 2021](#), p. 13). It is precisely that mindset that undermines the work and mutual respect and trust ([Wepner, Gomez & Quatroche, 2021](#)) that has been built, which is why our project team as a collective is so protective and careful about its workspace. Probably the most important lesson the team has learned and continues to learn is how to be strategic in delivering and furnishing information about the needs and progress of the project. In both P-12 and educator preparation environments, there are always forces with primary agendas that don't align as tightly as they should with the goals of the initiative; and it is mainly because of the antiquated perceptions mentioned earlier and the lack of appreciation for the nuance of the exercise. Consequently, when requests for data are made beyond the regularly scheduled updates, the team is diligent in collectively deciding how that information will be framed, the timing of its release (if it can be controlled) and what exactly is communicated. Without it the team is perpetually vulnerable to unforeseen challenges and/or barriers—structural and otherwise—that could disrupt the relationship and its work.

Conceptual framework

At its very core the Noyce Teacher Scholarship program is a human capital enterprise; one which seeks to effectively attract, train and retain teachers to offset the STEM teacher shortage in states across the nation. In this case, the goal is to address those shortages ([García and Weiss, 2019](#)), specifically in the state of Georgia in southeast Atlanta and Clayton County. Accordingly, our project team will employ the expectancy value theory ([Wigfield, Tonks & Klauda, 2009](#); [Eccles & Wigfield, 2002](#); [Wigfield & Eccles, 2000](#)) as the primary theoretical prism through which to explain the performance, persistence and choices ([Rutten & Badiali, 2020](#)) of the teaching fellows selected for the NSF Noyce program. Additionally, grounded theory ([Charmaz, Thornberg, & Keane, 2018](#); [Wronowski, 2018](#)) will be used to understand the degree to which the mix of wellness and mathematical literacy coaching alongside mentorship impacted the teaching fellows sense of readiness and wellbeing to be effective in the classroom.

Other studies scrutinizing the effectiveness of NSF Noyce grants to attract STEM teacher prospects (Hill *et al.*, 2021; Morrell & Salomone, 2017) found that these funds do successfully attract STEM undergraduates and career switchers. In fact, career switchers indicate that their attraction, aside the funding, was mainly driven by the opportunity to give back. Additionally, the majority who participated were overwhelmingly white and female.

Our context is and will be different, which means our research queries and corresponding variables will be different. First, in addition to attracting graduate students with STEM bachelor's degrees, our NSF Noyce teaching fellows will be individuals of color. Second, all of the partners of the PDS are predominantly Black and Brown, serving predominantly Black and Brown communities. And lastly, outside of examining recruitment, we intend to understand what the stressors are for new teachers in this space and how to offset them through social and emotional wellness coaching (Petrovic *et al.*, 2022; Kim, Crooks, Bax, & Shokoohi, 2021).

Methodology

The 19 African American preservice teacher candidates will be split into two cohorts of what the project team is calling teaching fellows: eight teaching fellows in the first year (2023) and 11 in the second year (2024). They will be recruited primarily, as described in the project proposal, through social media; and vetted by district mentor and master teachers and the project team. The project team is made up of the coordinators of mathematics from both school districts; institutional faculty from the departments of educational leadership, curriculum and instruction, and mathematical sciences; a well-being and social and emotional health coaching professional and a math education preparation expert from the local community.

The effectiveness of the project's ability to attract, prepare and retain as well as sustain African American mathematics teachers will be evaluated through the lens of three research questions, namely: what impact does the social media marketing strategy (SMMS) have on attracting teaching fellows (ATF) from STEM fields and/or majors; to what degree does wellbeing and social and emotional health coaching (WSEHC) as well as math literacy coaching (MLC) impact teaching fellow preparation (TFP); and to what degree does wellbeing and social and emotional health coaching (WSEHC) and math literacy coaching (MLC) impact teaching fellow retention (TFR)?

Illustrated in the research questions are three dependent variables and two independent variables. ATF, TFP and TFR are the dependent and WSEHC and MLC are the independent.

Using a sequential explanatory design (Creswell & Creswell, 2017), survey questionnaires followed by focused group interviews (Franeke, Wallen, & Hyun, 2018) will be administered throughout the six-year grant period. Since there are two cohorts, entering in a staggered format, one in the summer of 2023 and the other in 2024, the instruments will be administered at different points over the course of the grant cycle.

As detailed in Table 1, repeated measures *t*-tests will be conducted to determine the degree to which the independent variables (SMMS, WSEHC and MLC) impact the dependent variables (ATF, TFP and TFR), while the qualitative findings will be analyzed through a grounded theory framework (Chun Tie, Birks & Francis, 2019).

The impact of social media marketing on the ability to attract quality TF candidates will be evaluated in the fall of the 2023 and 2024 (Charmaz *et al.*, 2018). Conversely, the impact of well-being and social and emotional health coaching on the TF's preparation will be assessed in the first and third years following degree completion of the two cohorts. And finally, beginning in June 2024, the level at which the TFs were retained over the course of their commitment will be evaluated, annually. Given, the demand for STEM teachers of color and teacher turnover in high need school districts (Benson, Salas, & Bobbi, S. 2021) and the

national teacher shortage (Dos Santos, 2021; Sutchter, Darling-Hammond & Carver-Thomas, 2019), particularly in critical need areas like mathematics the data will be instrumental in supplementing the body of knowledge relative to attracting, preparing and retaining teachers of color (See, Morris, Gorard, Kokotsaki, & Abdi, 2020).

Additionally, where possible the data collected on teaching fellow preparation will be compared with data collected by the state in the first three years of their experience as the Georgia Professional Standards Commission collects novice teacher data on perceptions of preparedness for the classroom. The team hopes to understand how well the outcomes of the project trend against statewide data.

Given the widely documented and staggering data regarding teacher attrition (Mancenido, 2021; Chaw & Kopp, 2021; Viac & Fraser, 2020; Herman, Reinke, & Eddy, 2020), particularly in high-need school districts, the team felt strongly that teacher support (Alemdar, Cappelli, Gale, & Boice, 2022; Evthokia, 2022) would have to be prioritized; and even possibly re-envisioned beyond its current conceptualization. That is to say, the team began to consider the notion of 360-degree support for new teachers and ideate on what that would actually look like in real time. Very much akin to the way schools have or provide wrap-around services for their students. What if wrap-around support services existed for novice teachers? What would that look like? And how would or could a university educator preparation program collaborate with their school and/or district partner to bring the idea to fruition?

And so, the team believed that a multileveled multidimensional set of structural support (Myers, Lambert & Howard, 2022) mechanisms needed to be embedded in the first three to five years of the teaching fellows' experience. As such, the team leveraged their relationship with the Atlanta Algebra Project and Young People's Project (APYPP) to plan to use math literacy workers as coaches for the first three years while also hiring a mental health and wellness coach to support the wellbeing (Dunn, 2021) and social and emotional learning of the TFs through workshops and wellness bootcamps during their five (5) year experience.

The project is clearly multidimensional with countless moving parts and thus requires a certain kind of coordinated synergy among all the partners to optimally execute the way in which the teaching fellows are supported throughout their in-service and preservice experience.

For example, during the 13-month preservice experience, the teaching fellows are required to execute two school-community projects with the collective guidance of the onsite school leader, their onsite master teacher mentor, the university clinical supervisor and an assigned university faculty member from both the math and teacher education departments. The first assignment is an action-research exercise centered on identifying and examining a problem of practice regarding student math literacy. The second is the coordination of a school-community effort addressing a social-justice issue (Paris, 2021).

The first two cohorts will be completed funded throughout their five-year experience. However, subsequent cohorts at least at this juncture may not receive NSF support in the same way. And so, the question becomes what kinds of support will be available if any in year

Research questions	Dependent variables	Independent variables	Method
RQ1	Attracting TFs (ATF)	Social Media Marketing Strategy (SMMS)	<i>t</i> -test
RQ2	Preparing TFs (TFP)	Well-being and Social and Emotional Health Coaching (WSEHC)	<i>t</i> -test
RQ3	Retaining TFs (TFR)	Math Literacy Coaching (MLC)	<i>t</i> -test

Table 1.
Research question,
variables and
methodology
alignment

three for future cohorts, such that they can benefit from the same kind of 360-degree support that their predecessors did?

Answers are still pending, but what is known is that building teacher training programs that center the voices and priorities of schools, school districts and the communities they serve with wrap-around support, positions and equips teachers to be successful (See *et al.*, 2020).

Conclusion: aspirant outcomes

We are at the embryonic stages of the project engaged in recruitment of the prospective teaching fellows for the first cohort: the summer 2023 cohort. It will be a few years before any meaningful data is captured that might us understand how our efforts impact recruitment and most notably retention (Parsons *et al.*, 2018). We hope to discover specifically what component pieces of their experience made a difference in their willingness to persist and commit. We hope to find out if the social and emotional wellness bootcamps will have an impact in some way and whether the tools and skills they learn will be not only applied, but the degree to which they may travel into other spaces impacting others (hopefully their colleagues) in positive and meaningful ways. There's no way to know—what we do know is that our team synergy and collective cultural capital positions us, we believe to optimally leverage the third space (Cosenza *et al.*, 2021) created by this PDS to meet the goals of the project.

References

- Aldrich, H., & Herker, D. (1977). Boundary spanning roles and organization structure. *Academy of Management Review*, 2(2), 217–230.
- Alemdar, M., Cappelli, C. J., Gale, J., & Boice, K. L. (2022). An exploratory study of STEM teachers' mentorship networks. *International Journal of STEM Education*, 9(1). doi: [10.1186/s40594-022-00383-7](https://doi.org/10.1186/s40594-022-00383-7).
- Altbach, P. G., & Lomotey, K. (1991). *The racial crisis in American higher education*. New York: State University New York Press.
- American Association of Colleges for Teacher Education (2018). *A pivot toward clinical practice, its lexicon, and renewing the profession of teaching*. Washington, DC: Clinical Practice Commission.
- Basile, V., & Black, R. (2019). They hated me till I was one of the 'good ones': Toward understanding and disrupting the differential racialization of undergraduate african American STEM majors. *The Journal of Negro Education*, 88(3), 379-390,421.
- Benson, T. A., Salas, S., & Bobbi, S. (2021). Irreconcilable differences: Black teachers' lives and K-12 schools. *The Urban Review*, 53(4), 659–680. doi: [10.1007/s11256-020-00591-x](https://doi.org/10.1007/s11256-020-00591-x).
- Brathwaite, J., Raufman, J., Mateo, A., & Edgecombe, N. (2021). *What HBCUs can teach us about culturally sustaining practices*. New York, NY: Teachers College, Columbia University. <https://ccrc.tc.columbia.edu/easyblog/hbcus-culturally-sustaining-practices.html>.
- Bucy, E. (2003). The transatlantic slave trade and American slavery. *Magazine of History*, 17(3), 55–56.
- Chang, W. C. C., Ludlow, L. H., Grudhoff, L., Ell, F., Haigh, M., Hill, M., & Cochran-Smith, M. (2019). Measuring the complexity of teaching practice for equity: Development of a scenario-format scale. *Teaching and Teacher Education*, 82, 69–85.
- Charmaz, K., Thornberg, R., & Keane, E. (2018). Evolving grounded theory and social justice inquiry. In Denzin, N. K., & Lincoln, Y. S. (Eds.), *The sage handbook of qualitative research* (5th ed., pp. 441–436). Los Angeles, CA: Sage Publications.
- Chaw, E. P., & Kopp, E. (2021). Coping issues as a topic in teacher education research: A systematic literature review. *Acta Didactica Napocensia*, 14(2), 44–58. doi: [10.24193/adn.14.2.4](https://doi.org/10.24193/adn.14.2.4).

- Chun Tie, Y., Birks, M., & Francis, K. (2019). *Grounded theory research: A design framework for novice researchers* (7). Thousand Oaks, CA: SAGE Open Medicine.
- Clark, R., Foster, A., Mantle-Bromley, C., Anderson, J., Badiali, B., Barnes, R., and . . . Young, J. (2005). *Hybrid educators and the simultaneous renewal of schools and the education of educators*. Seattle, WA: Institute for Educational Inquiry.
- Clark Atlanta University Undergraduate Recipient Report (2019). Office of planning assessment and research. Available from: <https://www.cau.edu/opar/institutional-research/UG-Degree-Recipients-by-Sch-Major-and-Gen-2010-11—2019-20.pdf>
- Clotfelter, C. T., Ladd, H. F., & Vigdor, J. L. (2007). *How and why do teacher credentials matter for student achievement*. (NBER Publication No. 12828). National Bureau of Economic Research. Available from: <http://www.nber.org/papers/w12828.pdf>
- Cohen, J. (2006). Social, emotional, ethical, and academic education: Creating a climate for learning, participation in democracy, and well-being. *Harvard Educational Review*, 76(2), 201–237.
- Colby, R. (2020). Negroes will bear fabulous prices: The economics of wartime slave commerce and visions of the confederate future. *The Journal of the Civil War Era*, 10(4), 439–468, 598.
- Cosenza, M., Brown, E., Coler, C., Derrick, K., Nardo, E. J., Silva, R., & Wagler, K. (2021). A thriving third space: California lutheran university PDS network article from a 2020 NAPDS exemplary partnership award winner. *PDS Partners*, 16(4), 25–29.
- Creswell, J. W., & Creswell, J. D. (2017). *Research design: Qualitative, quantitative, and mixed methods approaches*. Thousand Oaks, CA: SAGE Publications.
- Day, C., Gu, Q., Townsend, A., & Holdich, C. (2021). *School-university partnerships in action: The promise of change*. Oxfordshire: Routledge.
- Dennis, D., Burns, R. W., Tricarico, K., vaningen, S., Jacobs, J., & Davis, J. (2017). Problematising clinical education: What is our future? In Flessner, R., & Lecklider, D. R. (Eds.), *The power of clinical preparation in teacher education* (pp. 1–20). Tampa, FL: Rowman & Littlefield Education in Association with Association of Teacher Education.
- Dos Santos, L. M. (2021). The workforce shortages of secondary environmental sciences teachers: The perspectives from second career changing teachers. In *IOP Conference Series. Earth and Environmental Science*, 690(1). doi: [10.1088/1755-1315/690/1/012036](https://doi.org/10.1088/1755-1315/690/1/012036).
- Dunn, M. B. (2021). When teachers hurt: Supporting preservice teacher well-being. *English Education*, 53(2), 145–151.
- Durlak, J. A. (2015). In *Handbook of social and emotional learning: Research and practice*. New York, NY: Guilford Publications.
- Dyches, J., & Boyd, A. (2017). Foregrounding equity in teacher education: Toward a model of social justice pedagogical and content knowledge. *Journal of Teacher Education*, 68(5), 476–490.
- Eccles, J. S., & Wigfield, A. (2002). Motivational beliefs, values, and goals. *Annual Review of Psychology*, 53(1), 109–132.
- Eltis, D. (2008). The U.S. transatlantic slave trade, 1644–1867: An assessment. *Civil War History*, 54(4), 347–378, 340.
- Espinoza, D., Saunders, R., Kini, T., & Darling-Hammond, L. (2018). *Taking the long view: State efforts to solve teacher shortages by strengthening the profession*. Washington, DC: Learning Policy Institute.
- Evthokia, S. S. (2022). An exploration of challenges and support when coaches model instruction for teachers. *International Journal of Mentoring and Coaching in Education*, 11(1), 52–68. doi: [10.1108/IJMCE-02-2021-0032](https://doi.org/10.1108/IJMCE-02-2021-0032).
- Fraenkel, J., Wallen, N., & Hyun, H. (2018). *How to design and evaluate research in education* (10 edition). New York, NY: McGraw-Hill Education.
- Garas-York, K., Hill, P., del, P., Day, L. K., Truesdell, K., & Keller-Mathers, S. (2018). *Doing PDS: Stories and strategies from successful clinically rich practice*. Charlotte, NC: Information Age Publishing.

- García, E., & Weiss, E. (2019). The teacher shortage is real, large, and growing, and worse than we thought. The first report in “the perfect storm in the teacher labor market” Series. *Economic Policy Institute*.
- Gay, G. (2002). Preparing for culturally responsive teaching. *Journal of Teacher Education*, 53(2), 106–116.
- Gay, G. (2003). *Becoming multicultural educators: Personal journey toward professional agency*. Hoboken, NJ: Jossey-Bass.
- Gay, G. (2018). *Culturally responsive teaching: Theory, research, and practice (third, ser. Multicultural education series)*. New York, NY: Teachers College Press.
- Gershenson, S., Hart, C., Hyman, J., Lindsay, C., & Papageorge, N. W. (2018). *The long-run impacts of same-race teachers. (No. w25254)*. National Bureau of Economic Research.
- Gershenson, S., Hansen, M., & Lindsay, C. (2021). *Passing with flying colors: How promoting racial diversity in teaching benefits all students*. Cambridge, MA: Harvard Education Press.
- Governor’s Office of Student Achievement (2023). Student performance interactive dashboard. Available from: <https://gosa.georgia.gov/dashboards-data-report-card/statewide-longitudinal-data-system-gaawards>. State of Georgia
- Hammond, Z., & Jackson, Y. (2015). *Culturally responsive teaching and the brain: Promoting authentic engagement and rigor among culturally and linguistically diverse students*. Thousand Oaks, CA: Corwin Publishing.
- Hanson-Harding, A. (2000). African kingdoms. *Junior Scholastic*, 102, 10–13.
- Herman, K. C., Reinke, W. M., & Eddy, C. L. (2020). Advances in understanding and intervening in teacher stress and coping: The Coping-Competence-Context Theory. *Journal of School Psychology*, 78, 69–74.
- Hill, P., del, P., Garas-York, K., Ferrara, J. A., & Nath, J. (2021). L. In *The impact of PDS partnerships in challenging times*. Charlotte, NC: Information Age Publishing.
- Inikori, J. (2000). Wonders of the African world and the trans-atlantic slave trade. *The Black Scholar*, 30(1), 30–31.
- Jemison, D. B. (1984). The importance of boundary spanning roles in strategic decision-making [I]. *Journal of Management Studies*, 21(2), 131–152.
- Kaye, A. E. (2009). The second slavery: Modernity in the nineteenth-century south and the atlantic world. *The Journal of Southern History*, 75(3), 627–650.
- Kim, S., Crooks, C. V., Bax, K., & Shokoohi, M. (2021). Impact of trauma-informed training and mindfulness-based social-emotional learning program on teacher attitudes and burnout: A mixed-methods study. *School Mental Health*, 13(1), 55–68.
- Ladson-Billings, G. (2014). Culturally relevant pedagogy 2.0: a.k.a. the remix. *Harvard Educational Review*, 84(1), 74–84.
- Ladson-Billings, G. (2022). *The dreamkeepers: Successful teachers of african American children* (3rd ed.). Hoboken, NJ: John Wiley & Sons.
- Ladson-Billings, G., & Anderson, J. D. (2021). Policy dialogue: Black teachers of the past, present, and future. *History of Education Quarterly*, 61(1), 94–102. doi: [10.1017/heq.2020.68](https://doi.org/10.1017/heq.2020.68).
- Ladson-Billings, G., & Tate, W. F. (2006). *Education research in the public interest: Social justice, action, and policy (ser. Multicultural education series)*. New York, NY: Teachers College Press.
- Leggett, A. B. (2020). Black teacher preparation: Experiences at a PWI and HBCU (Doctoral dissertation, George Mason University).
- Lieberman, A., Miller, L., Wiedrick, J., & von Frank, V. (2011). Learning communities: The starting point for professional learning is in schools and classrooms. *The Learning Professional*, 32(4), 16.

- Lindsay, C. (2020). *The power of a Black teacher*. The Edge: The Carolina Education Review. Available from: <https://ed.unc.edu/2020/09/08/the-power-of-a-black-teacher/>
- Mancenido, Z. (2021). How high achievers learn that they should not become teachers. *Harvard Educational Review*, 91(4), 433-456,547.
- Martin, S. D., Snow, J. L., & Franklin Torrez, C. A. (2011). Navigating the terrain of third space: Tensions with/in relationships in school-university partnerships. *Journal of Teacher Education*, 62(3), 299-311.
- Menon, S., Suresh, M., & Raman, R. R. (2022). Enablers facilitating industry-academia, transnational education and university-community partnering agility in higher education. *Higher Education, Skills, and Work - Based Learning*, 12(3), 604-626.
- Moon, B. (2007). *Research analysis: Attracting, developing, and retaining effective teachers: A global overview of current policies and practices*. UNESCO. Available from: http://www.emergency.am/res/Virtual%20Library/DRR%20in%20Education/Attracting_developing_and_Keeping_Teachers1.pdf
- Morrell, P. D., & Salomone, S. (2017). Impact of a robert Noyce scholarship on STEM teacher recruitment. *Journal of College Science Teaching*, 47(2), 16-21.
- Myers, J., Lambert, C., & Howard, C. (2022). Examining novice teachers' professional identities: A longitudinal study. *Teacher Education Quarterly*, 49(3), 6-26.
- National Association for Professional Development Schools (2021). *What it means to be a PDS: The nine essentials* (2nd ed. Author. [Policy statement]). Washington, DC.
- National Center for Education Statistics. (2019). *Mathematics state snapshot report. National assessment of education progress*. Washington, DC: Institute of Education Sciences. U.S. DoE.
- Nieto, S. (1992). *Affirming diversity: The sociopolitical context of multicultural education* (Vol. 10). Bank Street, White Plains, NY: Longman, 10606.
- Oseguera, L., Park, H. J., De Los Rios, M. J., Aparicio, E. M., & Johnson, R. (2019). Examining the role of scientific identity in Black student retention in a STEM scholar program. *The Journal of Negro Education*, 88(3), 229-248-421-422.
- Paris, D. (2021). Culturally sustaining pedagogies and our futures. *Educational Forum*, 85(4), 364-376.
- Parsons, S., Parker, A., Zenkov, K., Erbrecht, A., Kraft, J., & Slattery, C. (2018). PDS partnerships as a means to recruiting and retaining effective teachers. *PDS Partners*, 13(4), 11-13.
- Patton, S. (2013). Black and Hispanic science Ph.D.'s are more likely to graduate with substantial debt. *Chronicle of Higher Education*, 59(36), A13.
- Perna, L., Lundy-Wagner, V., Drezner, N. D., Gasman, M., Yoon, S., Bose, E., & Gary, S. (2009). The contributions of HBCUs to the preparation of african American women for STEM careers: A case study. *Research in Higher Education*, 50(1), 1-23.
- Petrovic, J., Mettler, J., Argento, A., Carsley, D., Bloom, E., Sullivan, S., & Heath, N. L. (2022). Understanding the needs of primary school teachers in supporting their students' emotion regulation. *Journal of School Health*, 92(9), 853-863.
- Podolsky, A., Kini, T., Darling-Hammond, L., & Bishop, J. (2019). Strategies for attracting and retaining educators: What does the evidence say?. *Education Policy Analysis Archives*, 27, 38.
- Polleck, J., & Spence-Davis, T. (2020). Centering #BlackLivesMatter to confront injustice, inspire advocacy, and develop literacies. *English Journal*, 109(4), 87-94.
- Polly, D. (2020). Looking for PDS examples and research: Connecting to articles and books. *PDS Partners*, 15(1), 29-30.
- Rochman, H. (2006). West African kingdoms: Empires of gold and trade. *The Booklist*, 102(14), 47-48.
- Rosen, J. (2018). *Black students who have one black teacher are more likely to attend college*. Johns Hopkins University. Available from: <https://hub.jhu.edu/2018/11/12/black-students-black-teachers-college-gap/>

- Ruitenburch, S. K., & Tigchelaar, A. E. (2021). Longing for recognition: A literature review of second-career teachers' induction experiences in secondary education. *Educational Research Review*, 33, 100389.
- Rutten, L., & Badiali, B. (2020). Why they teach: Professional development school teacher candidates' initiating motivations to become teachers. *School-University Partnerships*, 13(1), 12–21.
- Schonert-Reichl, K. A. (2017). *Social emotional learning and teachers*. (EJ1145076). ERIC.
- See, B. H., Morris, R., Gorard, S., Kokotsaki, D., & Abdi, S. (2020). Teacher recruitment and retention: A critical review of international evidence of most promising interventions. *Education Sciences*, 10(10), 262. doi: [10.3390/educsci10100262](https://doi.org/10.3390/educsci10100262).
- Sutcher, L., Darling-Hammond, L., & Carver-Thomas, D. (2019). Understanding teacher shortages: An analysis of teacher supply and demand in the United States. *Education Policy Analysis Archives*, 27(35).
- Teitel, L. (2003). *The Professional Development Schools Handbook: Starting, Sustaining and Assessing Partnerships that Improve Student Learning*. Thousand Oaks, CA: Corwin Press.
- Toldson, I. (2018). Why historically black colleges and universities are successful with graduating Black baccalaureate students who subsequently earn doctorates in STEM. (Editors Commentary). *Journal of Negro Education*, 87(2), 95–98.
- Tran, H., & Smith, D. A. (2022). *How did we get here: The decay of the teaching profession*. Charlotte, NC: Information Age Publishing.
- United Negro College Fund (2022). The numbers don't lie: HBCUs are changing the college landscape. Available from: <https://uncf.org/the-latest/the-numbers-dont-lie-hbcus-are-changing-the-college-landscape#:~:text=Some%20of%20the%20most%20heartening,of%20all%20African%20American%20graduates>
- Viac, C., & Fraser, P. (2020). Teachers' wellbeing: A framework for data collection and analysis, OECD Education Working Paper No. 213. Available from: <https://www.oecd-ilibrary.org/education/teachers-well-beingc36fc9d3-en>
- Villegas, A. M., & Lucas, T. (2002a). Preparing culturally responsive teachers: Rethinking the curriculum. *Journal of Teacher Education*, 53(1), 20–32.
- Villegas, A. M., & Lucas, T. (2002b). *Educating culturally responsive teachers: A coherent approach*. Suny Press.
- Warner, S., Oliver, T., & Peng, C. (2022). *How using data analytic tools to study the impact of debt and funding on black STEM Ph.D. degree attainment revealed systemic inequity in big data: A call to action*. Clark Atlanta University. Unpublished manuscript.
- Wepner, S. B., Gómez, D. W., & Quatroche, D. (2021). School-based leadership perspectives on university partnerships. *Excelsior: Leadership in Teaching and Learning*, 13(3), 233–246.
- Wigfield, A., & Eccles, J. S. (2000). Expectancy–value theory of achievement motivation. *Contemporary Educational Psychology*, 25(1), 68–81.
- Wigfield, A., Tonks, S., & Klauda, S. L. (2009). Expectancy-value theory. In *Handbook of motivation at school* (pp. 69–90). London: Routledge.
- Wronowski, M. L. (2018). Filling the void: A grounded theory approach to addressing teacher recruitment and retention in urban schools. *Education and Urban Society*, 50(6), 548–574. doi: [10.1177/0013124517713608](https://doi.org/10.1177/0013124517713608).
- Yendol-Hoppey, D., & Hoppey, D. (2018). Defining high-quality clinical practice in teacher education. In Hoppey, D., & Hoppey, D. Y. (Eds.), *Outcomes of high-quality clinical practice in teacher education* (pp. 1–5). Charlotte, NC: Information Age Publishing.
- Zeichner, K. (2010). Rethinking the connections between campus courses and field experiences in college and university-based teacher education. *Journal of Teacher Education*, 61(1-2), 89–99.

Further reading

- Badiali, B., Burns, R. W., Coler, C., Cosenza, M., Goree, K., Polly Donnan, S., . . . Hallinger, K. (2022). Explicating essential nine of the second edition of the NAPDS nine essentials. *PDS Partners*, 17(3), 49–54.
- Gallagher, G. (2002). West african kingdoms. *School Library Journal*, 48(2), 124.
- Sterrett, W. L., Pohlman, K., Hill-Black, S., Lewis, S., Jennings, L., *et. al.* (2022). Learning and leadership through sustainability education: School-university partnerships supporting collaboration and student voice. *PDS Partners*, 17(2), 50–66.
- Stork, M. G., Rodriguez-Meehan, M., Martelli, C. D., Martin, H., Turcotte, N., Molly, A., & Wang, C. X. (2022). Designing an innovation school: Perspectives from a school-university partnership. *PDS Partners*, 17(2), 18–33.

Corresponding author

Sean S. Warner can be contacted at: swarner@cau.edu

For instructions on how to order reprints of this article, please visit our website:

www.emeraldgrouppublishing.com/licensing/reprints.htm

Or contact us for further details: permissions@emeraldinsight.com