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The *Journal of Urban Learning, Teaching & Research* (JULTR) provides opportunities for ULTR members to publish scholarly articles in a peer-reviewed, ERIC indexed journal. Recently JULTR was recommended for inclusion in Cabell's Directory of Publishing Opportunities. This year, we also published book reviews of interest to our readership. We strongly encourage our members to take this professional opportunity and share your knowledge about issues in urban education with more than 400 US and international members.

Please carefully review the submission guidelines and selection criteria before you submit your article. All manuscripts are double blind-reviewed by at least 3 members of the JULTR Editorial Review Board. The *Journal of Urban Learning, Teaching, and Research* accepts quantitative, qualitative, and mixed method research that addresses issues of urban learning, teaching and research; manuscripts should be 1500-4000 words not including references and submitted in correct APA style to be considered.

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INTRODUCTION TO 2016 ISSUE OF JULTR

Kara Mitchell Viesca
Editor-in-Chief
University of Colorado Denver

The summer of 2016 is certainly one for the history books. In Orlando 49 victims, mainly Latinx members of the LGBTQ community, were killed in the deadliest mass shooting in recent history. In Baton Rouge and the very next day in Minnesota, the inexcusable execution of two Black men by police were caught on video and released for the world to witness. Later that week, five police officers in Dallas were killed as they manned the peaceful protest held to argue for the value of Black lives (#BlackLivesMatter). Shortly thereafter, three more police officers were killed in Baton Rouge. All of this occurred in the context of despicable bathroom laws that target the LGBTQ community and Donald Trump running for president against Hillary Clinton in the most expansive open displays of racism, sexism, xenophobia, homophobia, abelism, and intolerance our country has witnessed for years. Internationally, a gunman killed nine shoppers in a mall in Munich, Germany. Turkey experienced an unsuccessful military coup that was followed by the expansive ousting of teachers and intellectuals from their posts, adding substantial concern to the chaos. British voters chose to leave the European Union (Brexit), the war in Syria raged on, and ISIS/ISIL continued to engage in terrorist attacks across various parts of the Middle East and Europe. As I write all of this, I cannot help but wonder what I would be adding to this list if I wrote this introduction to our 2016 Issue of the *Journal of Urban Teaching and Learning* just one week, or even one day later. It seems our world is crumbling around us to violence, terrorism, and hatred.

The summer of 2016 has been devastating. But it has also strengthened my resolve to do the important work that we do as educational researchers in urban teaching and learning. Individually and as a community, we strive to improve the education of students in urban environments and their teachers. Our research documents the important challenges and issues that exist in urban teaching and learning as well as the successes and possibilities for improvement. As we strive for equity and social justice and for improved schooling and life opportunities for urban students through impactful research, we stand on the right side of history and work to ensure that the arc of history does indeed bend toward justice. It is imperative that through these troubling, historic times, we continue working to dismantle the school to prison pipeline, to improve the preparation of teachers to work in urban contexts, to diversify the teaching force as well as administrators, to examine engage in anti-racist research and discourse. To this end, we publish the excellent work of the members of the Urban Teaching and Learning Special Interest Group (SIG) of the American Educational Research Association (AERA) in this 2016 Issue of the *Journal of Urban Teaching and Learning.*

In this issue, members of our SIG share research regarding innovative and impactful practices in urban schools that positively impact student learning, research on administrators, pre-service teachers and in-service teachers. Our SIG members have contributed studies that employ qualitative and quantitative methodologies and utilize a variety of theoretical and conceptual frameworks. In total, the 16 articles published in this issue provide a positive contribution to the field of urban teaching and learning through grappling with important issues and documenting valuable opportunities for improvement. Additionally, members of our SIG have expertly reviewed 11 recently published texts that are relevant to our shared interest in

urban teaching and learning.

The success of this issue would not be possible without the hard work and expansive collaboration of the entire editorial team. I would like to extend a heartfelt thanks to both Alyssa Hadley Dunn and Tondra L. Loder-Jackson for their incredible leadership, thoughtfulness and extremely collegial collaboration as Associate Editors on this issue. I would also like to thank Roberto Montoya, Tiffany Russell Thomas and Christopher Seals for their substantial and important work as editorial assistants. Further, I would like to thank our excellent editorial review board for their thoughtful reviews and all of the authors who submitted manuscripts and book reviews. The ongoing success of the JULTR would not be possible without such expansive participation and contributions.

It is my sincere hope that as we continue to engage in our work as educational researchers in urban teaching and learning we can collectively help to overcome the substantial challenges that are facing our communities, our country, and the world right now. In the face of the major issues of racism, xenophobia, sexism, ableism, and homophobia as well as all other forms of intolerance, disrespect, violence and hate that are currently dominating news cycles, we must not lose hope. We must maintain our resolve to play the important roles we have to play in the fight towards justice. May our scholarship, including our research, teaching and service, be tools that help guide us towards a better future. And may our SIG continue to be a space of collegiality, collaboration and community where we can strive together for equity and social justice.

July 23, 2016

SECTION I: RESEARCH STUDIES

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CASH ACROSS THE CITY: PARTICIPATORY MAPPING & TEACHING FOR SPATIAL JUSTICE

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Abstract

This paper explores teaching mathematics for spatial justice (Soja, 2010), as an extension of teaching mathematics for social justice (Gutstein, 2006). The study is contextualized in a 10-session curricular module focused on the spatial justice of a city's two-tiered system of personal finance institutions (mainstream vs. alternative), piloted with two 11th/12th grade mathematics classes in a high school in a low-income neighborhood. The module includes a form of participatory action research known as participatory mapping (PM), examined here as a learning activity particularly conducive to urban settings. The study investigates learning opportunities and complexities opened up by PM for students. In particular, the analysis investigates how collecting narratives through PM engaged and complicated students' senses of place, whereby narratives that surfaced challenged the module's narrative about predatory lending. Findings are used to generate recommendations about ways to better support the use of PM in teaching for spatial justice.

Keywords: spatial justice, urban schools, participatory mapping, critical mathematics

Despite John Dewey's claim that "it is through what we do in and with the world that we read its meaning and measure its place" (as cited in Dworkin, 1952, p. 42), school learning primarily continues to be structured such that learning takes place inside schools, according to a model of "classroom as container" (Leander, Phillips, & Taylor, 2010). A way to break open the classroom as container is through place; here, we draw on a "critical pedagogy of place" (Gruenewald, 2003), which integrates place-based education (e.g., Smith, 2002) and its focus on place with critical pedagogy (e.g., Freire, 1970/1998) and its emphasis on social critique and agency. Students' senses of place have geographical, historical, socio-cultural, and political dimensions (Lim & Calabrese Barton, 2006) and are recruitable toward investigating a place's multiple histories and social interactions (Leander et al., 2010) as well as spatial injustices (Soja,

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2010). An emphasis on places familiar to students privileges their local knowledge, which could be significant in urban schools where teachers are typically outsiders to the school neighborhood (e.g., Milner, 2008). This article examines such an investigation and its use of participatory mapping (PM), a form of participatory action research whereby participants collaborate to gather data in place toward producing a map.

Teaching mathematics for spatial justice (Rubel, Lim, Hall-Wieckert, & Sullivan, 2016) is an extension of teaching mathematics for social justice (Gutstein, 2006). Spatial justice is defined as the right to access public services for basic needs and advantages of city life, to participate in the production of urban space, and to be free from imposed spatial segregation (Lefebvre, 1968; Soja, 2010). An extension from social to spatial is fitting since all social justice issues are inherently spatial (Soja, 2010). Mathematics, through its disciplinary foci on geometry, proportion, data science, and modeling, provides an entryway into analyzing issues of spatial justice.

The spatial justice issue described here concerns New York City's two-tiered system of financial institutions (FIs), comprised of traditional banks alongside alternative financial institutions (AFIs), like pawnshops, check cashers, and wire-transfer outlets. AFIs typically proliferate in low-income neighborhoods that are under-banked but charge higher rates than banks (e.g., Caskey, Duran, & Solo, 2006). While participation in the traditional banking system is necessary for building credit to access wider capital, overdraft charges and other bank fees make banks less accommodating to the needs of low-income people (Servon, 2014). This inherent complexity serves as the context for considering the spatial distribution of a city's FIs, relative to spatial distributions of other demographic variables, like household income.

This theme of access to a diversity of FIs was explored in a 10-session module known as *Cash City*. The module was designed for high school students by an inter-disciplinary design team comprised of educational researchers as well as urban planners and cartographers, piloted, and revised in multiple iterations as part of a larger project. As part of the module, PM complemented a study of the mathematical comparisons of rates and a spatial analysis of patterns in the locations and densities of FIs. Theorized as integral in order to offer students a zoomed-in and three-dimensional spatial exploration of the distribution of FIs in their neighborhood, PM was seen as a way to surface narratives that could contribute to students' understanding of the significance of this spatial justice issue. In this study, we focus in particular on the research question of how PM engaged and complicated students' senses of place. The discussion shares observed affordances of PM and highlights its potential for teaching and learning in urban schools amidst complexities and challenges.

Conceptual Framework

Since place-based education is typically cast in terms of investigations of environmental features of students' physical environments (e.g., Smith, 2002), it is viewed as a natural fit for rural schools. Urban space is inherently conducive toward teaching mathematics for spatial justice (and place-based education more broadly) because of the density, traversability, and wired-ness of cities in concert with the abundance of location-based data about cities and their residents (Rubel, Lim, Hall-Wieckert, & Full, 2015). Accordingly, urban schools are uniquely positioned to harness the potential of new mobile technologies toward learning activities that rely on place. Indeed, the abundance of location-based data and availability of free mapping technologies have led to new opportunities to contextualize learning in spatial themes across an array of school disciplines, such as social studies, science, and mathematics. Often, these

investigations study place from the confines of the classroom and are restricted to analyses of broad-scale data, at the level of county, city, or neighborhood (e.g., Enyedy, Danish, & Fields, 2011; Esmonde, 2014). A focus on place from the vantage point of the classroom can be complemented by investigations outside of the classroom using a technique like PM.

Projects in the education literature that incorporate PM are trans-disciplinary and tend to capitalize on new mobile technologies that readily enable gathering, mapping, and visualizing participant-collected data (e.g., Umpress, Ma, Hall, Taylor, & Luna, 2012). Participants can collect quantitative data or can gather and map media like photographs, audio, or text (e.g., Literat, 2013; Mitchell & Elwood, 2012; Ranieri & Bruni, 2013; So, Seow, & Looi, 2009). Data can be collected using digital, analog, or hybrid tools (e.g., Pacheco & Vélez, 2009; Santo, Ferguson, & Trippel, 2010; Van Wart, Tsai, & Parikh, 2010). In the project described in this paper, participant-collected data included photographs (of storefronts, interiors of FIs, signage, and more) and audio interviews (with pedestrians and customers or employees of FIs) using mobile technologies. PM enables students to create maps of their city with narratives that they have gathered instead of only reading maps of their neighborhoods made by others. Interviews are a means of accessing people's narratives about places, which are significant because these narratives "continuously materialize the entity we call place" (Price, 2004, p. 4 as cited by Cresswell, 2015, p. 57). Within the logic of "map or be mapped" (Meier, 2011), participation in the creation of maps can be understood as a form of digital activism, as a way for students to claim their "right to the city" (Lefebvre, 1968).

Although contextualizing mathematics in terms of local relevance is thought to facilitate engagement (e.g., Moses & Cobb, 2001), findings from emerging research indicate that prior knowledge about place can distract students from grappling with quantitative data, especially when data contradicts or challenges students' senses of place (e.g., Enyedy & Mukhopadhyay, 2007; Esmonde, 2014; Wilkerson-Jerde & Laina, 2015). This paper further adds to the literature about teaching and learning in urban schools with a focus on local issues of spatial justice. The research question pursues how PM contributed to and complicated students' learning as part of a broader mathematics for spatial justice investigation of the city's two-tiered financial system.

Overview of the Module and Research Methods

The *Cash City* module consists of four components conducted across 10 class periods. First, the mathematical concept of percent and an associated ratio table are used as tools with which to model and compare loans toward exploring critical notions of predatory lending. The second component consists of an investigation of spatial patterns in the distribution of FIs in the local city, using data-rich, interactive maps (see examples in Figures 1, 3, and 4). These maps represent the spatial locations and relative densities of FIs, layered atop statistics that report spatial distributions of other demographic variables, like median household income or relative presence of immigrants, providing additional opportunities for using mathematics to learn about place. The module's third component is the PM, in which students conduct field research in the school neighborhood to explore and document the distribution of financial institutions firsthand and to conduct interviews with people in the neighborhood about their experiences as customers or employees of these businesses. The fourth, summative component of the module is the statement and justification (using mathematics) of student opinions about this spatial justice issue. Our focus in this study is on the PM, described in further detail below.

The design team (comprised of mathematics education researchers, mappers, and urban planners who identify as White or Asian) designed a web-based PM tool to support participant-

collected data for collaborative co-authoring of digital maps. Students used standard, cellular-enabled tablets to capture photographs or collect audio interviews (see Figure 2). Media was automatically tagged by location, submitted by the tablet devices over a cellular network, and instantly aggregated onto an interactive digital map. The digital map portrayed the data gathered by the participants as a layer that could be displayed with other layers showing locations of FIs or shadings according to various demographic variables.

Figure 1. Locations of FIs near school, atop map coloring showing median household income.

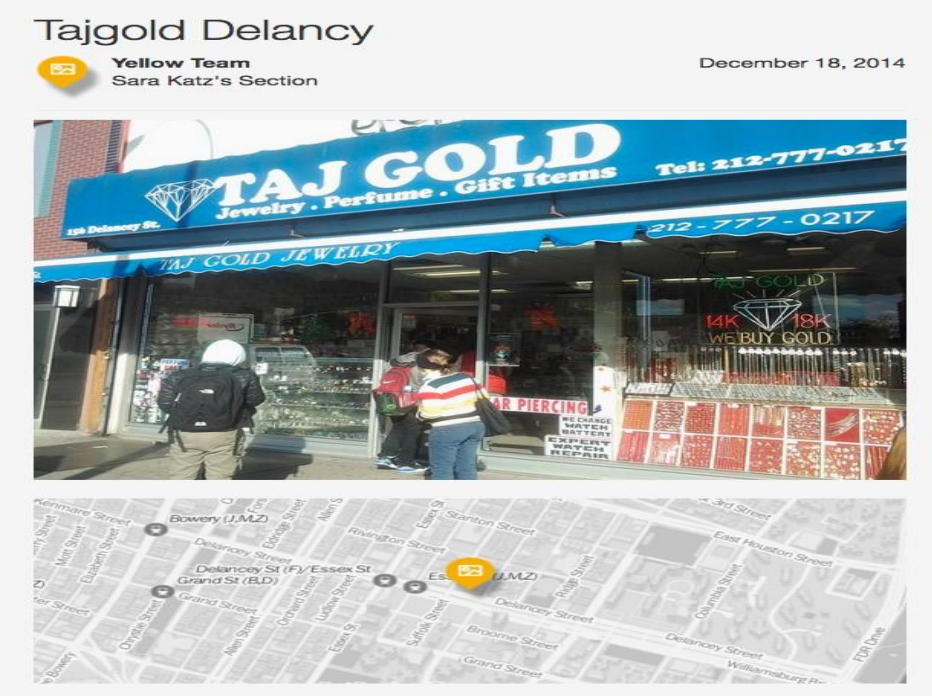

Figure 2. Photographs are automatically geolocated and uploaded on the project's maps.

Setting

This paper focuses on findings from the module's second iteration of piloting, conducted at a high school in New York City. The school identifies as "project-based" and is one of five small schools on the campus of a high school that had been closed because of poor performance, located in a gentrifying neighborhood that falls towards the bottom of the city's income distribution. The school largely serves students of color (identified by the school district as 45% Hispanic, 35% Black, 15% White, 5% or Asian or American Indian), and most (71%) students' families are considered low income. The collaborating teacher was a White, 8th-year teacher who had participated in three training sessions exploring the module's associated data, sociopolitical context, and technologies. She conducted the module in two sections of a class organized around financial mathematics serving 11th and 12th grade students who had not yet satisfied the school's mathematics requirements for graduation.

The school struggles with attendance; as reported by the teacher, 16 of the 37 students enrolled in these class sections had been classified as chronically absent the previous year. Nineteen students, a typical attendance rate, accompanied by six participant-observer adults, were organized in four groups for this iteration of PM. Groups followed distinct, prescribed routes and spent one hour in the neighborhood immediately surrounding the school to conduct PM, to learn firsthand about the role of FIs in that neighborhood in terms of where they are located, what services they offer, how they communicate their rates, as well as who seems to be engaging with the various FIs and for what reasons. The school's neighborhood, about 0.5 square miles in size, has a diversity of financial institutions, including ten AFIs and eight banks (see Figure 3a), and comprises a density of pawnshops, for example, in contrast with surrounding areas (see Figure 3b). Students participated in a teacher-led, 56-minute debrief discussion afterwards.

Figure 3. Locations and density of financial institutions near the school.

Data Analysis

To better understand student engagement with PM, we analyzed narrative field notes from each of the four PM groups as well as audio of the whole-class debrief. We looked for students' reflections about the impact of *Cash City* and, especially, the role of PM. In addition, we categorized the media gathered by each group in terms of type of media (photographs, audio

interviews), type of FI, and object of interview (employee or pedestrian). For this analysis, we focused specifically on the audio of the interviews conducted in the PM, looking for thematic narratives about FIs, and on the audio of the classroom debrief, looking for how students reflected about the PM. The collaborating teacher is a co-author of this paper and provided member-checking (Lincoln & Guba, 1985) about interpretations.

Results

Participatory mapping cut across the container-like boundaries of the classroom to recontextualize students' prior work in the classroom and reframe the local neighborhood from a perspective of spatial justice. Our results highlight how gathering media through PM engaged students in thinking about complex, local issues of spatial justice. Student-collected images illustrated the urban streetscape, while audio-recorded interviews with pedestrians and FI employees revealed various narratives from people in the neighborhood. Experiences through the PM included differential treatment of students at different types of financial institutions, introduced complications with regards to students' sense of place, and rendered the spatial justice issue more complex.

Media Gathered in PM

Groups contributed 46 pieces of media to the collaborative map. Thirty-three media objects were photographs, of the exterior and interior of AFIs (12) and banks (7), students (10), and street art (4). Thirteen media objects were interviews, with employees at various FIs (9), pedestrians (3), and with another teacher from the school (1). Students interviewed employees at banks (2), wire transfer stores (2), pawnshops (2), check cashers (2), and a buy-sell jewelry store that physically resembled a pawnshop (1). The interviews with employees focused on the nature of the services provided, their prices, and information about access.

Interviews with FI Employees

In general, students approached the interviews with employees at FIs more from the perspective of learning about each individual business as its own internal system, in terms of its services and fees, and less to uncover details about larger systems in which these businesses constellate, such as who owns a business, how long it has been at that location, and socio-cultural, historical, and political factors that might contribute to why it is located in that place. In some cases, students' discoveries through interviews with employees extended beyond matters of the institution as an internal system. For example, through interviews with employees and viewing signage in wire-transfer outlets, students discovered global connections by learning that people use these AFIs to send money to or pay bills for transnational family members.

Interviews with Pedestrians

Interviews with pedestrians surfaced narratives that went beyond details about the services and rates. While the classroom sessions emphasized the predatory nature of AFIs, the interviews with pedestrians cast light on greater complexity. One interviewee explained how he utilizes the neighborhood's entire array of FIs, banks and AFIs, to meet a diverse set of financial needs (Figure 4). A second interviewee related gentrification in the neighborhood in terms of the

increased bank presence, citing that "the only thing that can afford to open over here is drug stores, banks, and condos… where there is a bank going up, I'd prefer maybe a Boys Club or something like that, but banks can afford to pay the rent." A third interviewee contrasted the income gap between bank management, or "executives…getting billion dollar raises" with "people on the street who can't afford to eat." Interviews with pedestrians illuminated ways in which AFIs and banks interact with and are part of larger systems of spatial (in) justice.

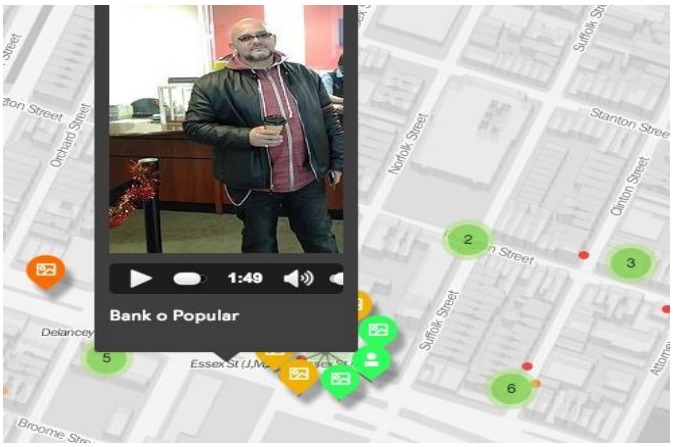

Figure 4. Audio of interview with pedestrian mapped by location.

Complexities

An unanticipated outcome of the PM was that it surfaced counter-stories that challenged the narrative of AFIs as predatory. Through the PM, students discovered that AFIs can feel welcoming, perhaps more so than banks. For example, one student shared that by visiting a pawnshop and interviewing an employee, she discovered that he "was a nice guy" and "gave discounts" (12/18/14). Even though she recognized that he might be making offers as a way for his business to ultimately profit, the student had discovered a sympathetic, approachable figure in this pawnshop representative.

In addition to experiencing comfort in some of the AFIs, some students experienced exclusion during the PM. In general, banks were less open than AFIs to students entering the business's premises, taking photographs, or conducting interviews inside, citing that these actions violate the bank's corporate policy. General feelings of alienation experienced by students in banks were heightened for some students who experienced racism and exclusion upon entering banks in specific locations across implicit racial boundaries. In one instance, for example, students were confronted by a bank manager who refused to speak with the students, despite an accompanying adult's intervention. One of these students later reflected that it seemed like "she (the manager) didn't even care" (12/18/14). The telling about this interaction in the debrief session prompted a student from another group to conclude that the bank where they had been excluded was "racist, because we all black" (12/18/14).

Discussion

Findings coincide with recommendations from the literature about the contextualization of mathematics learning with issues of local relevance. The financial literacy focus directly

motivated classroom learning about the concept of interest, and in turn, the mathematical comparisons of the costs of loans at various institutions contextualized the spatial analysis and the PM. Students were able to see firsthand the density of FIs in the school neighborhood in the physical streetscape, through a lens of their differing services and interest rates, and could experience how those interest rates are communicated differently by various FIs. The module's digital maps allowed students to observe the city-wide distribution of FIs with respect to socioeconomic demographics, but it was through PM that students became co-authors of those maps and could make connections between their lived experiences, the city-wide maps, and the associated mathematical concepts. Indeed, many students characterized the PM as a highlight of their experiences with the module.

Students reflected that they felt empowered with a sense of newfound mathematical agency with respect to negotiating future financial decisions. During the debrief, one student reported that she felt that she could calculate interest and "then tell them what I owe them instead of them telling me what I owe them" (12/18/14). Another student reflected that, "It's going to help me in the future to make better financial decisions" (12/18/14). However, we note that students' newfound mathematical agency was largely centered around functional mathematical literacy (Gutstein, 2006) as prospective, future consumers of these businesses rather than around systemic views about justice. In general, *Cash City* did not sufficiently support students toward an understanding of financial services as a right. Instead, students seemed to accept and at times even defend their city's inequitable distribution of financial services as limited by a single governing principle of maximizing profit per capitalism. Since the PM was limited to one neighborhood, there was no means to compare that neighborhood with a differently resourced one. Perhaps the limited focus on a single neighborhood helps to explain why students did not readily engage with social critique or with reimagining their neighborhood as fairer to more people.

Students' experiences of feeling welcome in AFIs or feeling excluded in banks during the PM foregrounded how spatial injustice around accessibility to FIs is constituted by and reinforces spatial injustice around race and class. In other words, experiences of exclusion or alienation from banks during the PM reflect the broader spatial patterns of underserved people being excluded by banks, a pattern that in and of itself reinforces the inaccessibility of capital and opportunity. In addition, the role of race, gender, or their intersections, was not explicitly explored in the demographic layers on the project's digital maps and was left unstated in the framing of the PM for students in this iteration. And yet the assertion that "race—in all of its complexity and ambiguity, as ideology and identity—is what it is and does what it does precisely because of how it is given spatial expression" (Delaney, 2002, p.7) makes clear the dangers of investigating a spatial justice issue without explicitly integrating questions of race and racism (Philip, Way, Garcia, Schuler-Brown, & Navarro, 2013). Insufficient support was given to students and the teacher in this iteration of *Cash City* to be able to anticipate or respond to these incidents in the moment and in place, or to contextualize or employ these exclusionary experiences as part of the spatial justice investigation.

Conclusions

This article has highlighted the potential of PM for teaching and learning in urban schools. Spatial themes can be investigated through multiple disciplinary lenses, such as social studies, literacy, science, or as shown in this paper, mathematics. Our analysis suggests that expanding the PM to investigate more than one neighborhood could deepen investigations and

enable comparisons across places, which might lead to consideration of systemic inequalities. Findings indicate that further consideration must be paid toward how to support PM in anticipation of the role of race, gender, and their intersections, so that students and teachers can contextualize racialized and gendered experiences in relation to systemic inequalities. These reflections highlight the importance of engaging critical race perspectives in future spatial justice projects (e.g., Vélez, Solórzano, & Pacheco, 2007). In subsequent iterations of *Cash City*, we have further emphasized the significance of mainstream banking resources for neighborhoods and their residents (e.g., Center for Urban Pedagogy, 2014) as a way to better contextualize the significance of accessibility. We have not yet connected students to existing social activism campaigns around the issue of equity in banking (e.g., Occupy Finance) but recognize that doing so would likely support students in further developing senses of agency (Gutstein, 2006).

Our findings support the hypothesis that rooting investigations of justice in students' places can motivate engagement in mathematical learning, as well as historical, socio-cultural and political learning. In particular, students viewed their contributions to PM as meaningful to a growing, shareable, and dynamic body of knowledge about their city. Such meaning lent a sense of purpose to students' participation in this school mathematics project, participation that transcended beyond learning mathematics to other disciplines including geography and social studies. Through PM, students were placed at the nexus of critical-mathematical perspectives, visualizations of maps and data, and the expansive complexities of urban space.

Author Note

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IMPROVING THE CONNECTION BETWEEN HEALTHCARE EMPLOYERS AND SCHOOLS TO INCREASE WORK-BASED LEARNING OPPORTUNITIES FOR URBAN HIGH SCHOOL STUDENTS

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Abstract

This study advances an experiential learning framework for educators to: (1) identify workforce-building strategies from key healthcare industry informants, (2) strengthen school-industry partnerships, and (3) shape urban high school students' career readiness experiences through curriculum and real life on-the-job training opportunities. Data was gathered from structured phone interviews with 21 healthcare industry leadership and management informants. Three key findings emerged. First, a financial burden and disengagement of leadership from the healthcare industry is a barrier. Second, creating effective partnerships as long-term investments is a challenge. Third, more needs to be done on aligning education and training with the healthcare industry.

Keywords: work-based learning, career readiness, health care, urban education

Introduction

The challenge facing the health care industry is the lack of a reliable pipeline of health care workers in place to meet an increased demand for a diverse and culturally and linguistically competent workforce. Failure to prepare an adequately trained health care workforce would result in serious consequences, putting at risk access to care, poor quality of care, and lack of patient safety (Carnevale, Smith, & Strohl, 2013). Investing in building a workforce pipeline could give healthcare employers a competitive advantage over other industry sectors that are competing for the same high school and postsecondary urban graduates (Loera et al., 2016). Such an investment allows healthcare employers to train and shape future employees, equipping them with the adequate set of skills to appropriately address the needs of racially and ethnically diverse populations. The impact or return on investment could be in reducing staff turnover and vacancy rates, and cutting cost in recruiting, orienting, and training new staff (Jones & Gates, 2007; Wilson & Holm, 2012). In other words, making improvements in staff preparation and retention, and creating a high-work-performance culture may also improve overall staff morale and motivation to work harder, even when facing new challenges. To achieve this, healthcare employers should build partnerships with schools and not miss the opportunity to recruit and shape a diverse workforce (Wilson-Stronks, Lee, Cordero, & Galvez, 2008). Building a well-trained healthcare workforce requires a long-term investment, commitment (Symonds, Schwartz,

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& Ferguson, 2011), and well-coordinated partnerships that involve policy makers, educators, healthcare leaders, and the urban community that the hospital serves (Alfeld, Charner, Johnson, & Watts, 2013). Healthcare employers are in a good position to engage their local urban communities and build long-term relationships that can help to alleviate social and economic inequalities (Mahmud, & Parkhurst, 2007), and the stigma and mistrust that currently exists among communities that have been historically underserved (Sullivan Commission, 2004; Zuckerman, 2013). Unfortunately, the liability of working with minors (Darche, Nayar, & Braco, 2009a, 2009b), and the lack of proper education and training prevent healthcare employers from offering urban students expansive work-based learning opportunities (Lewis & Stone, 2011; Stone & Lewis, 2012). The aim of this study is to identify risk factors for healthcare employers to provide urban youth enrolled in healthcare career academies with work-based opportunities. By building such partnerships between healthcare employers and urban schools a workforce pipeline may be created that could increase awareness of services and career options for urban youth.

Career Academies Model

Healthcare career academies, schools within schools, generally begin in the 9th or 10th grade and serve cohorts of students through the end of high school. Career academies combine academic and career technical education curricula around career themes (e.g., the healthcare industry) and provide students with work-based learning experiences through partnerships with employers in their communities (Kemple & Willner, 2008; Stern, Dayton, & Raby, 2010). As a part of academies, students complete work-based learning experiences at hospitals and clinics. Research (Kemple & Scott-Clayton, 2004; Kemple & Snipes, 2000), has shown that career academies tend to increase students' participation in work-based learning experiences.

Conceptual Framework

This study is rooted in Experiential Learning Theory (ELT; Kolb & Kolb, 2006) that explores the concept that learning is best conceived as a process of creating knowledge. In this study, experiential learning is defined as work-based learning experiences that are directly linked to classroom instruction that involves students' application of knowledge and skills to real-life scenarios and tasks. Gaining experience in their field of interest and having the opportunity to apply skills learned in the classroom in a real-world setting can increase students' employability skills, as they will have had practice performing job-relevant tasks in an applied environment. Findings from previous research indicate that possessing employability skills, such as problem solving, critical thinking, and the ability to collaborate with others, is critical to student success in transitioning to the workforce (Gysbers, 2013; Martin, 2008).

Method

Participants

The sample of 21 key informants was composed of healthcare providers and staff (n = 12) and healthcare executives (n = 9). The convenience sample consisted of 14 females and 7 males from six California Counties (i.e., Imperial County, Kern County, Los Angeles County,

Riverside County, San Joaquin County, Sacramento County). Of the 21 respondents, 18 were white, 1 African American, and 2 were Latino. The names, e-mails addresses, and phone numbers of the 21 industry key informants were obtained from several sources: (1) career academy coordinators from five high school campus who oversee the work-based learning component and have an industry partner identified the 12 healthcare providers and staff; and (2) individuals serving on a work-based learning project taskforce suggested the 9 healthcare executives.

Procedure

Respondents were contacted via email using addresses that school leader coordinators and other healthcare staff provided, and a 35-minute phone interview for each participant was scheduled. All participants were informed of the study's intent and purpose and confidentiality. All participants were presented with enough information to make an informed decision about their participation in the study. All participants gave a verbal consent to participate and for the interview to be recorded for accuracy. The data was collected via 21 phone interviews with healthcare staff and executives that occurred between November 2014 and March 2015. The interviews were audio recorded.

Measure

The interview protocol included questions about the employer's partnerships with schools and their perspectives regarding student work-based learning. All participants were asked open-ended questions during the interviews that evoked detailed narratives. Table 1 shows the interview protocol used to guide the phone interviews. To ensure content validation, the researcher conducted one expert review of the topics and items of the interview protocol with 29 healthcare providers, executive administrators, and educators with extensive experience with work-based learning to evaluate and reach consensus on the 11 guiding and 13 probing questions.

Table 1. Healthcare Staff and Executive Phone Interview Protocol

Thank you for taking the time to talk with me today and also allowing me to record the interview. I am interested in learning more about the activities that you and your [**name of agency**] participated in both this year and last year with the [**name of school**]. This phone interview will last about 35 minutes. Your comments will be kept anonymous.
Background and Partnership History
1. What is your position at [**agency**]?
2. How long have you been with [**agency**]?
3. How did you get involved with the [**school**]?
4. How long have you been involved with the [**school**]?
Work-Based or Work-Place Learning
5. What is your role with the school's team/pathway program?
6. What do the [**school**] students do at your agency?
□ What are the most meaningful activities? Why are they meaningful for students?
□ Would you define your partnership with the [**school**] teaching team as strong or weak?
□ What industry competencies are essential for students to have to be employable in your agency?

Workforce, Education, and Training Resources

7. What resources are your agency currently investing in the [**school**] to increase students' preparation for the healthcare industry?
   - How well is the [**school**] teaching team utilizing these resources?
   - What have been the barriers for your agency in recruiting high school graduates?
   - What are the barriers to training and employing [**school**] students?

Employer and Agency Value

8. How are the industry and education systems connected? Why is this partnership critical to meet the needs of the diverse communities?
9. As a leader in your agency collaborating (or wanting to partner) with a school, what is it that drives you to work with schools and students?
   - What is in it for you personally and professionally?
   - What is in it for the agency and industry?
   - What is the perceived value for doing this?
   - What would make you want to do more of this?
10. What are the risk factors for your agency in providing to students work-based learning opportunities?
    - What risk or burden do they present to you and your staff?
    - What factors may prevent you and your agency from working with schools and students?
    - What would make agencies do more with schools and students?
11. What would you say is the return on investment (ROI) for your agency, working with students?

Data analysis

All interviews were transcribed for data analysis. All respondents' names were excluded from the transcripts to ensure confidentiality. The interviews were coded using qualitative data analysis software (i.e., ATLAS.ti). Trustworthiness and credibility were ensured through triangulation. Data was collected from multiple sources, including participants with different perspectives, such as healthcare providers, staff and executives. The author also produced a draft template of the findings for each of the six topics. The template consisted of three categories: (1) statements and quotes, (2) codes, and (3) patterns and themes. The template also helped to engage three experts in qualitative research and career technical education in content analysis to confirm themes and organization of the data.

Results

Finding 1: The Financial Burden and Disengagement of Leadership

Theme 1: Financial burden. The majority of the participants described a financial burden of providing work-based learning experiences to urban students as being salient to their decision for not collaborating with schools. One executive emphasized, "There is no financial gain for [us]; we don't get money or grants for working with schools and students [in an urban setting]." Another executive said, "Without funding, it is nearly impossible to achieve a strong partnership . . . adequate funding is important." For most healthcare employers without a strong financial structure that can support schools and students with the necessary resources to ensure work

experiences are meaningful and beneficial to the organization, their partnership with schools is simply not a priority.

Another type of financial burden that executives mentioned was staff time to recruit, supervise, train, and motivate urban students. One direct service staff member emphasized the importance of teachers adequately educating and training students on technical skills (e.g., regulations and procedures handling patients and equipment) and soft skills (e.g., critical thinking, adaptability, and communication) prior to their work placement. This translates to less staff time and resources devoted to training students on basic core competencies. This finding is in accordance with Symonds and colleagues' findings (2011) that the development of student requires the time and commitment of qualified staff personnel to properly train urban students.

Theme 2: Disengagement from healthcare executives. Effective leadership engagement from healthcare executives emerged as a critical component to: (1) increasing and strengthening community partnerships with schools, and (2) ensuring positive influences of the work-based learning environment for urban students. However, several respondents highlighted the lack of engagement from their top leaders (i.e., chief executive officers). One informant described her frustration with her CEO not realizing the value of urban students benefiting the healthcare industry. "As an industry, we stand to lose a diverse workforce pool of bilingual and bicultural individuals to other industry sectors because we fail to act on these potential partnerships." This finding is consistent with the work of Alfeld and colleagues (2013), emphasizing that leadership set the direction and vision that guides the partnership and commits the resources needed to ensure that the partnership stays strong and that students' work experiences are positive. It is also possible that increasing the engagement of executives in the work that students do at their agency, may lead to them: (1) viewing students as relationship or cultural brokers between the communities and the healthcare agency, (2) increasing the visibility of the agency out in the community, and (3) leading to the community accessing healthcare services more readily. The return on investment for these executives would be more evident.

Finding 2: Effective Partnerships as Long-Term Investments

Theme 3: Industry and school partnerships. When asked why the partnership between the healthcare industry and education system continue to be a challenge even though there is strong evidence supporting the value of providing students from urban settings real-life work experiences, this statement from a former healthcare CEO highlights the partnership gap:

> The problem is the education system runs pretty much with its own rudders . . . it steers where it wants to go, not necessarily where industry wants to go, regardless of the industry . . . one of the reasons that industry often does not collaborate with the education system is . . . industry generally don't understand the system, because everybody in the decision-making level . . . are probably at least 30 years removed from their last encounter with the education system, so their concept of the system tends to be out of date.

A nurse supervisor added that executives "at the top don't know that there are career health pathways in high schools . . . that are medical-based . . . [and] they are blown away by the concept." This statement speaks to the ongoing gaps in healthcare-school partnerships. It is plausible that this partnership gap is due to the labor laws and other liability issues that have and

continue to make it difficult for healthcare employers and schools to work together, as Darche, Nayar, and Braco, (2009a, 2009b) pointed out.

The cost of not creating partnerships can be even more significant, as articulated by this healthcare administrator, "The cost of [urban] students dropping out [of school] is a cost to the entire community . . . we all feel it. We need to have a unified message on the impact using the voice of the industry . . . as an industry, we need to engage in the community [and partner with schools]." This speaks to the social and economical impact of the larger community (Mahmud, & Parkhurst, 2007).

Theme 4: Investing in a long-term purpose. Establishing trusting partnerships takes time, effort, and commitment from the interested stakeholders. When asked about the return on investment, the most common response given was long-term investment. "It is taking the long-term view versus a short-term view of what can be done this year for the next year . . . to build a future, may take 10 years," said one executive, expanding on the idea that most healthcare and school partnerships fail because they don't give it time to develop and work together to resolve new challenges. The impact of not investing long term, according to this executive, is not having "a better pipeline for young professionals . . . [and] when the supply diminishes, running out of people to provide the services." This finding is consistent with The Sullivan Commission (2004) and Zuckerman (2013) in that the healthcare industry is in a good position to generate partnerships to increase community engagement, but also recognize that it must be a long-term investment.

Finding 3: Align Education and Training With the Healthcare Industry

Theme 5: Industry-focused curriculum. Increasing industry involvement in incorporating industry-related competencies into classroom instruction was viewed as a critical barrier. The majority of the executive informants suggested the need to integrate more industry-driven competencies into the health career pathway program curriculum. When asked if the informants were invited to assist with curriculum development or alignment, they replied that their involvement was very limited or that they never requested to participate. Several informants expressed concern over staff time constraints and not being able to dedicate time to work with teachers to develop new curriculum. This finding with respect to industry's limitations in releasing staff time to work with teachers on curriculum development and integrating it with healthcare industry standards is consistent with the findings of Symonds, Schwartz, and Ferguson (2011). Urban students are not receiving industry-focused curriculum, and they are not getting enough exposure to the healthcare industry, which impacts their career choices.

Theme 6: Inadequate training. Healthcare industry employers that do not have a partnership with schools and do not offer high school students in an urban setting work-based learning experiences tend to view these students as less productive and less predictable because of inadequate education and training. Urban students without the proper education and training were not seen as an investment for healthcare employers. Several informants emphasized the importance for urban students to be properly trained and prepared to work with real patients prior to an internship. One informant said, "Students do not have sufficient exposure to the various roles that our [healthcare] staff have and the work that they do." Researchers (Lewis & Stone, 2011; Stone & Lewis, 2012) contend that the reason for this lack of proper education and training is the result of the lack of healthcare employer's participation in providing students work-based learning opportunities.

Discussion

The perceptions of healthcare industry executives on school-healthcare industry partnerships are at the forefront of this study. Several conclusions may be drawn from the findings of this study. First, healthcare executives are faced with challenges and barriers that prevent them from establishing and continuing partnerships with schools that provide their students with real workplace experiential learning opportunities. For example, the financial and human resources burdens combined with low engagement from executives seem to be associated with short-term and ineffective partnerships. Healthcare executives that are not engaged or familiar with school-healthcare industry partnership are more likely to consider these partnerships as risks than workforce development opportunities. Studies have shown that the lack of proper education and training from schools is linked to poor healthcare industry involvement (Lewis & Stone, 2011; Stone & Lewis, 2012), and this association reinforces the perception that school partnerships are not worthwhile investment. Second, when school-healthcare industry partnerships are not in place, students interested in healthcare are not learning industry-related competencies or exposed to real-life work-based learning experiences that increase their college and career readiness. This finding is consistent with previous research on the experiential learning approach (Kolb & Kolb, 2006), that the lack of industry-focused curriculum combined with career exposure prevent students from gaining current employability skills useful to the healthcare industry.

Overall, this study adds to the current literature on both the value of engaging healthcare executives and the impact on students' career readiness. First, it fills in the gaps in the literature noted by Wilson-Stronks, Lee, Cordero, and Galvez (2008) by providing details, from a healthcare industry perspective, about the impact of school-healthcare industry partnerships. Second, the research gives voice to the industry on the reasons why industry executives do not participate in providing students work-based learning opportunities. training and shaping the future workforce. Third, the findings help educators better understand the alignment gaps in their curriculum and classroom instruction with the needs of the industry. Fourth, this study highlights how schools might prepare and frame their message when recruiting and connecting with healthcare industry employers. Finally, through its qualitative lens, the current study provides a holistic perspective of the experiences of healthcare employers, thereby helping helping schools and educators better understand the experiences and workforce needs of healthcare industry employers.

Implications

As career academies continue to gain momentum in schools across the country, increasing school-industry partnerships by reducing the perceived challenges and barriers and increasing the perceived value of these partnerships is critical to our future healthcare workforce. Recently, President Obama called on all educators and employers to "Join me in a national commitment to train two million Americans with skills that will lead directly to a job." [citation?] The findings from this study highlight the challenges and barriers in President Obama's call for action, to prepare students with the skills for a challenging and demanding workforce.

The lack of school-healthcare industry partnerships prevents urban students from gaining adequate training prior to them entering the healthcare workforce. If students are not well

prepared to perform real-life work-place learning tasks, healthcare employers will not see the value in student workers. Pulakos, Arad, Donovan, and Plamondon (2000) point out that the development of employability skills can only be attained if students are provided with meaningful learning experiences and given frequent opportunities to practice and increase their capabilities. It is also critical that the healthcare industry recognize the value of long-term partnerships in order to sustain a workforce pipeline for the next 10 to 15 years. This means investing time, human resources and funding for the next 20 years to address the healthcare's future workforce diversity and shortages. A longitudinal research design that examines the impact of work-based learning components on high school students' career-readiness in healthcare industry is essential.

Limitations

There are two main limitations in this study. First, the current study did not utilize data regarding barriers from educators' perspectives that prevent schools from building partnerships with the healthcare industry. The data was collected from participants in the healthcare industry only. Finally, the sample of participants was not diverse or a representative of the population of California. Recruitment of healthcare informants with diverse racial and ethnical backgrounds could have been achieved by increasing the sample pool and asking the study participants to recommend other executives from diverse backgrounds. A sample of diverse participants might have provided different perspectives and experiences with regard to barriers that prevented urban students from having work-based learning opportunities at healthcare employers.

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EMPOWERING GIRLS OF COLOR THROUGH AUTHENTIC SCIENCE INTERNSHIPS

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Abstract

The underrepresentation of girls and students of color in STEM fields, particularly in science, is an ongoing issue that is very well documented. There is a limited amount of research that provides insight on experiences of girls, especially girls of color, who have been exposed to authentic science experiences. This article interrogates the effects of experiential learning on students' science identity and interest in pursuing a career in STEM, specifically for girls of color. This study provides insight into girls of color experience of authentic science internships where they followed a traditional working scientist schedule, the use of, or referencing of specific science knowledge, and use of traditional science lab equipment. Through this study researchers found that after participating in the authentic science internship, students became more confident to pursue careers in STEM-related fields and envisioned the field of science and STEM-related fields as approachable and accessible.

Keywords: science internship, girls in science, science education, urban education

Introduction

Kolb (1984) defines experiential learning as "the process whereby knowledge is created through the transformation of experience." He further argues, "knowledge results from the combination of grasping and transforming experience" (p. 21). In response, this article interrogates the effects of experiential learning on students' science identity and interest in

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pursuing a career in STEM (Science, Technology, Engineering, and Mathematics) for girls of color. We argue that truly enlightening and life changing experiences for urban youth, especially young girls of color, who "envision the field of science as distant and inaccessible" (Basu & Barton, 2007, p. 467) require a shift in traditional STEM education that supplements conventional instruction with powerful experiences doing and working in science.

Over the last two decades educators have been moving away from the traditional notion of the teacher being the sole provider of content knowledge and towards more cognitive, humanistic, social, and constructivist learning models and frameworks that stress opportunities for students to make meaning of content for themselves (Lewis & Williams, 1994). Following this trend, many science educators currently support the use of constructivist approaches to teaching and learning. In these approaches, students construct their own understanding and knowledge of the world and content by experiencing and reflecting on those endeavors. This new trend is a reincarnation of more classic ideas in teaching espoused by Dewey (1938). He emphasized that the creation of new knowledge, or the transformation of oneself through learning, was more fundamental than simply learning and being told how to do something.

Urban youth of color, in particular girls of color, lack encouragement to seek and access advanced learning opportunities, such as experiential learning, in STEM. Studies show that urban youth lack support and encouragement from science teachers and have erroneous preconceptions in regards to their ability, which diminishes their self-confidence, and frequently discourage and inhibits them from proactively seeking advanced learning opportunities (Marshall, McGee, McLaren, & Veal, 2011, p. 18). Therefore as many scholars suggest (Archer et al., 2010; D.M. Sadker, M. Sadker & Zittleman, 2009), girls, especially girls of color in K-12 education, do not identify with science regardless of test scores and success in science in the traditional classroom. Tan et al. (2013) suggest the cause for young girls' disconnect in science is due to the lack of attention addressing the science identity gap as it relates to girls in science.

The experiences of this population in science run counter to the recommendations of the National Research Council (NRC, 1996) and the American Association for the Advancement of Science (AAAS, 1993), both of which argue that science education should move towards providing students with "authentic" experiences to allow them to experience themselves as scientists. We argue that authentic experiences in science should involve providing students with the same or similar work tasks and responsibilities as individuals in science and science-related fields. Roth (2000) supported this view of authentic science experiences when he argued for instruction that considers solving real-world scientific problems, which are complex, but interesting to students. We argue that providing students, especially young girls of color, with authentic science work experiences allows them to envision themselves as scientists and view science as inquiry rather than just memorizing facts and theories, and encourages them to consider pursuing careers in science and STEM-related fields.

In this article we define authentic science internships as spaces where youth are able to partake in specific science tasks normally relegated to professionals with science degrees. These types of internships require a traditional working scientist schedule, the use of, or referencing of specific science knowledge and use of traditional science lab equipment. Furthermore, we suggest that if students are provided with opportunities to participate in authentic science experiences, they will be more likely to engage in science, pursue careers in science and related STEM fields, and identify as scientists. Given the statistics related to girls of color in science (e.g. Gibbons, 2011; Milgram, 2011) and the larger conclusions that can be drawn from existing research on their engagement in the discipline, this study was designed to provide insight into the

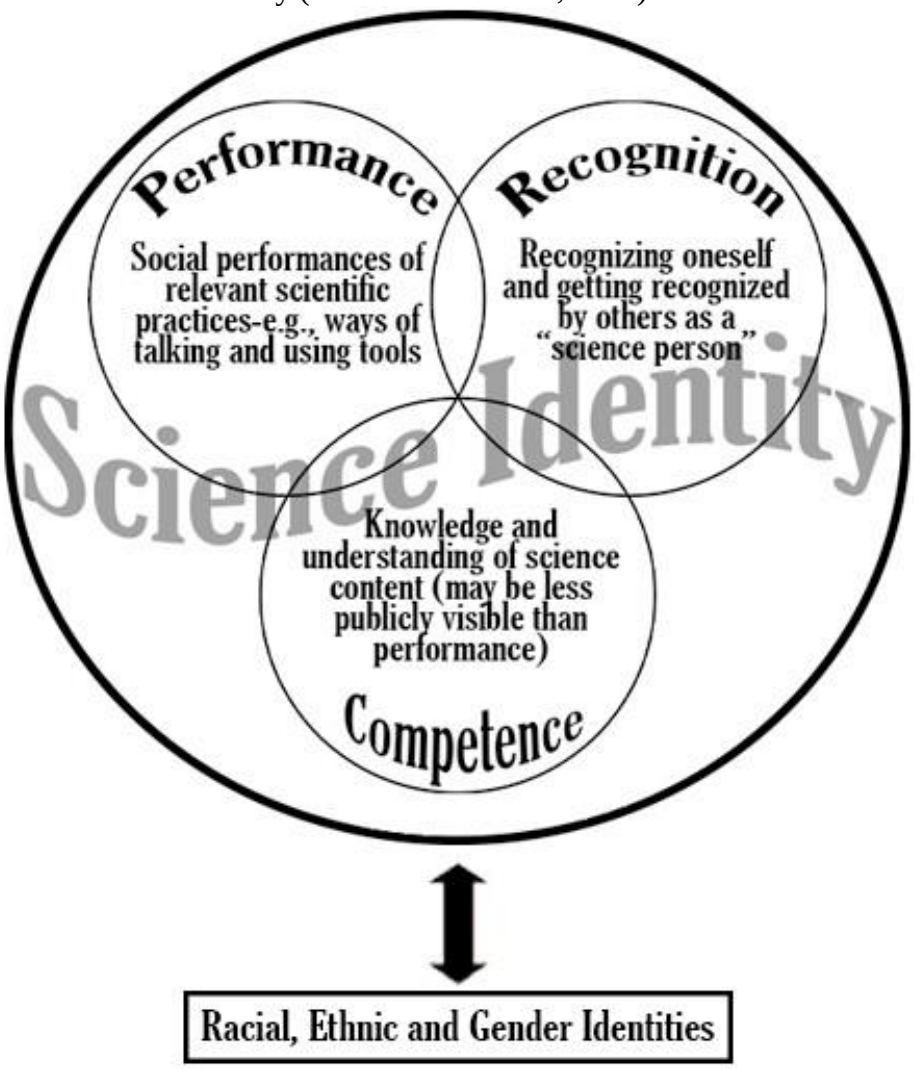
nature of students' experiences who participated in authentic science internships. In particular, we highlight the nature of the everyday experiences during science- work focused internships and students' responses to their engagement in experiential science work. We focus on the experiences of three girls of color who were part of what we define as authentic science internships.

Conceptual Framework

This study is rooted in a sociocultural framework that explores the concepts of culture and social capital as they relate to the experiences of female youth of color with access to authentic science internship experiences. We consider the science internship as experiences within social fields that the students who are a focus of the study are traditionally not privy to, and their experiences within these new fields and science as opportunities for an accumulation of new forms of capital. We draw insight from Bourdieu (2011), who describes capital and its varied forms as necessary for articulating the ways that humans exist in a social world. In particular, we focus on the forms of capital that are acquired in social fields like authentic science spaces where individuals develop a conscious or unconscious personal investment in an activity or process through participating and engaging in the same experiences as professionals in science-related fields. Through their experiences in science-work fields, the girls in this study gain "cultural capital," which in its embodied state, is both inherited and acquired as one engages with either new or familiar experiences. We argue that through participating in an internship in an authentic science space students will gain a new form of cultural capital that they did not have access to at their school or in other any other space. We suggest that students gain forms of cultural capital in the authentic science space ultimately by navigating and working in this new space. Then they can then use these new forms of capital to successfully navigate future science spaces more comfortably, if they choose to. In other words, by participating in their authentic science internship and gaining various forms of cultural capital, students are able to view themselves as scientists and learn how to successfully navigate science spaces. Over time, students have the opportunity to acquire new forms of science content knowledge through navigating authentic science spaces. In addition, the ease with which they engage in, and gain capital within, new science spaces (such as classrooms, science labs, or other science jobs) is increased as a result of their initial engagement within the authentic science-work experience. Although the participants in this study have not been traditionally trained as STEM professionals or in completing science tasks, their lack of traditional training does not inhibit them from successfully completing various tasks in their authentic science internships.

Tan, Calabrese, Kang, and O'Neill (2013) suggest that there is a lack of attention placed on addressing the science identities of young girls, which causes a disconnect for young girls as it relates to science. To define science identity in this study we used Carlone and Johnson's (2007) definition of science identity, which was informed by Gee's theory of identity (1999, 2000–1), to explain how an authentic science space can influence a student's science identity. Carlone and Johnson (2007) explain science identity as encompassing three overlapping dimensions: *competence, performance, and recognition.* These dimensions are informed by gender, racial, and ethnic identities (see figure 1).

Figure 1. Model of science identity (Carlone & Johnson, 2007)



Within this definition of science identity, *performance* relates to the scientific practices in which the student participates in their authentic science workspace. Within this space students are known to use scientific tools and "science colloquialism." *Recognition* refers to recognition of others and the students recognizing themselves as a "science person," by virtue of working *(performing)* daily in the authentic science space. Lastly, *competence* refers to the science-content knowledge that is gained by the student by *performing* authentic science tasks, and by shadowing an actual professional scientist in an authentic science space. One cannot enact a science identity unless they visibly *perform* their *competence* as it relates to science and in turn are *recognized* by others, especially by other individuals who identify as scientists (Carlone & Johnson, 2007). In this paper we argue that once provided with an authentic science internship space, students developed what Carlone and Johnson (2007) refer to as a science identity.

We argue that the goal for science educators is to create contexts that generate new forms of cultural capital that will eventually lead to the acquisition of science content knowledge (Adjapong & Emdin, 2015). This goal can be accomplished if and when students engage in the same or similar daily task completed by professionals who hold degrees in STEM related fields.

As students engage with professionals in STEM-related fields and are solving problems, completing tasks, and gaining experiences, they generate cultural capital that allows them to see themselves in these same authentic spaces in the future. Bourdieu (2011) describes cultural capital as having an unconscious and non-deliberate quality in terms of how the individual generates it. However, he also describes cultural capital as something gained as the result of "conditions of acquisition." The science experience becomes the context that generates the conditions of acquisition that the young people both consciously and subconsciously develop over time. Furthermore, by increasing the cultural capital for girls of color, through providing them with opportunities to comfortably navigate authentic science spaces, they develop a new view of science that shifts from distant and inaccessible to approachable and accessible (Basu & Barton, 2007).

Research Questions

1. Does the participation in an authentic science internship affect the science identity of girls of color?
2. Does the participation in an authentic science internship influence the pursuit of careers in STEM in girls of color?

Methodology

Research Context

Science Laboratory. "Science Lab" is a science-learning center that has been home to several Nobel Prize winners that is devoted entirely to genetics education. The center translates current biological research into hands-on learning activities for students and provides them with a more well-rounded science education experience than they would get in traditional schools. The participant at this site worked as a lab assistant to a science instructor who was responsible for implementing the Science Lab curriculum with secondary students in a hands-on science summer camp experience. The Science Lab is an authentic science workspace and laboratory that is equipped with the same science lab equipment used in college science laboratories and science industry. At this site, there was one participant who assisted the instructor in preparing all materials needed for the lab. The participant prepared stock chemical solutions and performed demonstrations for student campers on how to use science lab equipment.

Science Museum. The Science Museum actively engages its target population in educational and entertaining experiences through innovation and excellence in exhibitions, programs, and its animal and plant collection. The Science Museum encourages children to develop an understanding of and respect for themselves, others, and the world around them by exploring culture and the arts through science and the environment. Participants in this study interned in the science education department of the museum where they were in charge of maintaining animals such as insects and petting snakes. Participants also assisted in maintaining the museum's community garden and facilitated science workshops with visiting children, sharing with them scientific facts about animals.

Participants

Three girls of color participated in this study at one of the two authentic science workspaces described above. These girls are high school students who attend the same urban public school in the most densely populated city in the northeast region of the United States. Participants worked at the same site for six weeks during the summer, and were engaged in a number of tasks directly related to science work traditionally reserved to science professionals with either science degrees and/or some experience working in and with the discipline. All three participants were generally interested in science. They attended a school where exposure to science is limited, girls of color traditionally underperform in science, and the nature of the curriculum limits opportunities for youth to experience science or actively engage in science activities. Students at this school take a living environment course during their first year, earth science during their second year, and chemistry during their third year. There are no required science courses for fourth year students and no advanced science courses or science electives offered at this school. Students were selected based on interest in participating in a paid authentic science internship and had to complete an application, which included a resume and two professional references.

Erica. Erica is a first generation Haitian-American, who lives in a single parent household with two other sisters. Erica completed her second year of high school a few weeks before the start of her authentic science internship and self reported a 3.7 grade point average (4.0 scale). Erica was placed at the science museum to complete her six-week authentic science experience. Erica had no interest in pursuing a career in STEM, rather she was fixed on pursuing a career in the music industry as a recording artist. Erica saw the summer internship as an opportunity to gain experience that would look good for college applications and as a way to earn money during the summer.

Kim. Kim is also a first generation Haitian-American who lives in a two-parent household with two other sisters and one brother. Kim also completed her second year of high school a few weeks before the start of her authentic science internship and self reported a 3.5 grade point average (4.0 scale). Kim was not interested in pursuing a career in STEM before participating in her summer internship. On her application for the summer internship, Kim explained that she was familiar with the word STEM and that she understood that careers in STEM are secure and more profitable than other careers. Kim was also placed to complete her six-week authentic science experience at the science museum.

Tamara. Tamara is a first generation American who identifies as a Latina as her parents are Dominican and Puerto Rican immigrants. She began her senior year of high school upon completing her summer authentic science internship. Tamara self reported a 3.5 grade point average (4.0 scale). Tamara is different from the other two participants of this study, as she was interested in becoming a forensic scientist before her participation in the authentic science internship. Tamar completed her six-week authentic science experience at the science laboratory.

Data Collection

The primary data sources for this study were student interviews and students' weekly journal entries. All student interviews were transcribed in their entirety.

Interviews. Students who participated in the authentic science work experience were interviewed about their experiences at the end of the program. The goal of the interviews was to

understand the impact that the authentic science internship had on students' science identities and on their interest in pursuing a career in STEM. Among the questions asked during the interviews, the following questions are particularly significant for this study: What were your daily tasks as a student intern? What obstacles did you overcome during your internship? Explain whether or not you plan on pursuing a career in STEM after your authentic science work experience.

Student Journals. Students who participated in this study were encouraged to consistently reflect on their experiences throughout the duration of the program. Students completed weekly reflective journals answering the following questions/prompts: 1) Explain what you learned during this last week from your internship in regards to STEM, 2) What's one challenge you faced/overcame this week at your internship? and 3) Based on your experience at your internship do you plan on pursuing a career in STEM?

Data Analysis

Different data analysis strategies were used to efficiently and effectively analyze data collected during this study through student interviews and journal entries. The data was then studied and coded for emerging themes that highlighted students' experiences in the authentic science space. Qualitative coding techniques, including member checking and coding for recurring themes, were used to analyze all the data generated from this study (Guba & Lincoln, 1989; Creswell, 2013). All student interview data were entered into a word document for word-by-word coding for emergent themes by the first author. Once these emergent themes were identified the data was entered into Nvivo to be organized, and was then grouped into recurring emergent themes. The two themes that emerged from data analysis were (1) The influence of authentic science experiences on students' science identity and (2) students' increased interest in pursuing a career in STEM.

Results and Findings

The findings of this study are organized by recurring themes that emerged during the data analysis process. Moments from transcripts that served as exemplars, and participant's journals that reflect students' experiences individually and collectively provided insight on the experiences of three girls of color who were provided authentic science internships. Consequently these exemplars are highlighted in the results and finding below. Through the analysis of themes from students' interview responses and journal entries, results indicated that the (1) authentic science space work experience positively influenced students' science identities and (2) students' showed increased interest in pursuing a career in STEM.

Authentic science space's influence on students' science identity

Through participation in their authentic science internship, each of the three student interns reported changes in their perceptions of their own science identities. All students reported self-doubt in regards to their ability to excel and succeed in the pursuit of STEM careers due to limited access to authentic science spaces, and perceived gender and racial identities. Students spoke in depth to the stereotypes, which exist both for women and people of color, which impact their ability to excel within STEM fields. For example, in an initial journal entry at the start of her science internship, Erica wrote:

> People of color are not usually found engaging within the subject of science but allowing them to get a feel of what a job that pertains to science feels like, breaks barriers. As a woman who is also kind of left out of the loop when it comes to pursuing science it feels good to take a step in breaking some more barriers.

In this response Erica shines light on two pieces of her identity, which she feels distance her from STEM fields. Erica specifically says, "people of color are not usually found engaging with the subject of science" and that "as a woman" she feels "left out of the loop" in regards to pursuing a career in science. Where traditionally Erica has found herself unable to fully engage in STEM subjects based on her race and gender, participating in this internship allowed her to "take a step in breaking some more barriers." It appears the internship has empowered her to push back against larger systemic issues that would traditionally distance her from pursuing a career in a STEM related field. In addition, another student, Tamara, affirms Erica's sentiment towards pursuing a career in STEM by stating:

> Science internships are important for people of color because it seems like everything is against us. We're told we're too dumb, too lazy, too uneducated to do what we can set our minds to do. Internships give us incentives to be better, it gives us the opportunities we never had.

Tamara reports that as a person of color, "it seems like everything is against" her. In past experiences attempting to engage in science, she felt as if the world was telling her she was "too dumb," "too lazy," or "too uneducated to do what [she] can set [her] mind too." However, this authentic science internship experience provided her with "incentive to be better," and "gave [her] the opportunities" she felt she never had. Overall, engagement in the authentic science internship has allowed Tamara to push back against the very pieces of her identity the world has conditioned her to believe. These beliefs have encouraged her to see the field of science as inaccessible and distant. A third student, Kim, stated:

> As a woman pursuing science, I feel like it's going to be very hard for me, but the rewards, be it the career that I choose, would be worth it, especially with all the hardships I probably would face.

Kim speaks here to the issues she faces based on gender. Similar to Erica, Kim feels stunted by the fact that she is a woman pursuing a career in science. Kim believes that being a woman makes her feel as if "it's going to be very hard" for her to successfully achieve her goal. However, her engagement in the authentic science internship gives her an opportunity to push back against "all the hardships," which she believes will function as "rewards" and make her journey "worth it." By participating in the authentic science work experience, Kim appears able to reframe the capacity in which she thinks about the obstacles she may encounter in science in the future. Whereas traditionally Kim's gender makes her feel as if she cannot be successful in science domains, the science internship encouraged her to work through those struggles in order to be successful. The authentic science work experience allowed Kim the chance to reframe this cognition.

Students increased interest in pursuing a career in STEM

Through participation in the science internship, each of the three student interns reported increased levels of interest in pursuing a career in STEM. Tamara reports that the internship:

> Opened my eyes to even more like different branches of science. Like I wanted pursue forensics and that's what I wanted to do but…[the internship] made me look like maybe I could be a chemist or a bioengineer.

In the aforementioned statement, Tamara mentions that the internship opened up her eyes to alternative STEM career options. Whereas she originally believed "forensics" was "what [she] wanted to do," her experience in the internship showed her that options such as "a chemist," or "a bioengineer" are potential career fields, which she can pursue. Erica seconds these sentiments explaining,

> My internship kind of encourages me to pursue a career in STEM because over the course of my internship I've gotten to see a hand full of careers that are in STEM that aren't too bad. I will say that this internship has opened my eyes to STEM careers and I wouldn't be surprised if 5 years from now I'd be graduating college with a masters in a STEM field.

In this statement, Erica, who in her initial journal entry stated that, "science is a subject that I am not too fond of," explains that the internship allowed her "to see a hand full of careers that are in STEM" which she perceived as not being "too bad." Erica goes on to explain that this exposure to alternative career options has her feeling as if "5 years from now [she'd] be graduating college with a masters in a STEM career." Kim expressed similar feelings, in her interview she reported that the internship:

> Does encourage me to pursue a career in STEM, because I see how interesting and fun it could be. I simply need to do more research on the different kinds of career paths that I could have. I learned that in STEM, there are so many subcategories, that I don't have to limit myself to biology.

Kim tells us that she felt encouraged "to pursue a career in STEM, because [she] sees how interesting and fun it could be." It appears her engagement in the internship stemmed from enjoyment, and allowed her to open her mind to new possibilities. Kim also mirrors the feelings of both Tamara and Erica, saying that "I learned that in STEM, there are so many subcategories, that I don't have to limit myself." All in all, each of the three participating students appeared to see new possibilities for themselves after participating in this internship. Each student felt as if there were various career paths available to them, which they had previously not considered.

Conclusion

The fact that girls of color from an urban setting, who did not find interest in science as a subject, could become encouraged to pursue a STEM career in the future is a testament to how beneficial and crucial authentic science work experiences are for them. The girls who participated in this study have increased their cultural capital through participating in the

authentic science internship as it relates to navigating science spaces and envision themselves able to successfully navigate similar spaces comfortably. These girls of color have developed a personal investment in science while engaging in authentic science work experiences, which encouraged them to identify as scientists and understand their potential in pursuing a career in a STEM-related field. Through their summer internship experiences, students have gained new forms of cultural capital in authentic science spaces, as they understand how to successfully navigate authentic science spaces. Also, by virtue of effectively working in an authentic science space, students are provided a space to develop a science identity, as defined by Carlone and Johnson (2007), as they are performing science duties, developing a new science competence through the performance of these duties all while being recognized as scientist.

This study provides insight on how girls of color are impacted by authentic science work experiences and is beneficial to understanding how to better engage them in science and STEM-related content. Although there was a small sample size of participants used for this study, the implications of creating and providing authentic science internships for urban girls of color are beneficial to positively influencing their science identities and creating a pipeline of girls of color to pursue careers in STEM. After conducting this study, we are not suggesting a complete overhaul of the education system, rather we want to draw attention to the importance of creating opportunities and authentic science spaces for students of color from urban communities, especially girls, to imagine themselves as STEM professionals and to develop science identities. This study demonstrates that through participating in the authentic science work experience, participants were able to envision themselves as scientists, claim a positive science identity, and better understand and reframe the capacity in which they think about the challenges that they may face as they pursue a career in a STEM-related field.

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TOWARD SOCIAL JUSTICE: THE CHARACTERISTICS OF AN EFFECTIVE MATHEMATICS INTERVENTION PROGRAM FOR URBAN MIDDLE SCHOOL STUDENTS

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Abstract

This two-part investigation (a) assessed the impact of the Jaime Escalante Math Program (JEMP), a structured summer mathematics intervention program, on the math achievement of urban middle school students, (b) identified the characteristics of the program that the administrators and teachers perceived to contribute to student achievement, and (c) compared the JEMP characteristics to those found in the literature on effective mathematics intervention programs. A mixed methods approach included analysis of two years of student math assessment data, administrator interviews, and teacher surveys. Quantitative findings indicate that student participants in the JEMP achieved significant growth in mathematics on two measures. Additionally, effective program elements are revealed in the qualitative data including specific classroom instructional strategies used in the JEMP. The results of this study will assist educators developing mathematics intervention programs, particularly for urban secondary students.

Keywords: summer mathematics intervention, voluntary middle school math summer intervention, urban middle school summer math, intensive summer math program

Educators have struggled for years to find solutions for increasing student achievement in mathematics, particularly in schools designated as low performing. These schools are often in urban areas and increasingly comprised of students of color who are living in poverty (Education Trust, http://edtrust.org; Strunk & McEachin, 2014). Despite efforts at the federal, state, and local levels, the literature on school reform acknowledges that an achievement gap continues to exist between these marginalized students and their White, more affluent peers (Schachter, 2013), particularly in math (NCES, 2013). Success stories of individual teachers who have challenged the status quo, raised expectations for students, and provided high quality math instruction demonstrate the potential for substantial increases in student math achievement

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(Battey, 2013). There are few examples, however, of programs that are widespread, serving large numbers of students in urban communities, and significantly raising mathematics achievement over long periods of time (Clarke et al., 2014; Escalante & Dirmann, 1990).

The Jaime Escalante Math Program (JEMP) has provided secondary mathematics intervention and enrichment to students of color and low-income students in urban communities of greater Los Angeles, California for over 35 years. The JEMP is a foundation sponsored by Los Angeles City College that is in partnership with 128 area urban high schools and middle schools maintaining Escalante's original mission of engaging "inner city disadvantaged youth in a demanding academic regimen of pre-college and college mathematics in order to improve matriculation into college" and math related careers (Fernandez, Nguyen, & East Los Angeles College (ELAC) Foundation, 2010, p. iii). Students who are behind in math have the opportunity, through intense summer intervention, to catch-up and excel in a subject that has often been unattainable. Furthermore, according to the JEMP administrators in personal communications, the goal of the program is to work individually with schools to create programs that address the unique needs of their students and, as a result, improve the math instruction in urban schools. Despite the perceived benefits of the JEMP, at the time of this study there had not been any research-based evaluations conducted on the effects of the program on the urban students it serves (F. Fernandez & G. Nguyen, personal communication, December, 31, 2015).
The current study investigates the effectiveness and characteristics of this mathematics intervention program for urban middle school students at one site in Los Angeles over a two-year period. The following research questions guided the study:

1. What impact does the JEMP have on 7th and 8th grade mathematics achievement (Pre-algebra and Algebra) as measured by growth on the diagnostic readiness tests from the Math Diagnostic Testing Project (MDTP) and California's standardized math tests?
2. What aspects of the program do the JEMP administrators and teachers perceive to contribute to student achievement?
3. How do these characteristics compare to the literature on effective mathematics interventions?

Literature Review

Characteristics of Effective Mathematics Programs

Various organizational, structural, and philosophical characteristics of effective mathematics programs are identified throughout the literature. Table 1 displays key characteristics of effective math programs, the characteristics identified in the JEMP, and research that corresponds to each characteristic. Despite the overlap in characteristics identified in the literature, there is limited research on effective mathematics intervention programs for urban youth, particularly those who are underserved in terms of resources at home, school, and within their communities (Gersten, et al, 2009) and even less alignment of practices used in the various programs.

Table 1

Organizational, Structural, and Philosophical Characteristics of Effective Mathematics Programs

Characteristics	The Jaime Escalante Math Program (JEMP) and Corresponding Research
Rigorous Curriculum	Structured curriculum with ability to adapt by school/student[a,b,c,d,f] Acceleration and remediation[a,b,d] High standards for participation[a,e,f] Daily homework[a,d,g,h]
Multiple Assessments	Diagnostic readiness pre/post tests[a,b] Formative assessment/summative assessment[a,b,i] State standardized tests[j]
Engaging Instructional Activities	Real life applications and technology[b,d,e,f,i,k] Hands on, manipulatives, visuals, models[a,d,e,j] Collaborative and cooperative learning experiences[a,b,e,f] Problem based learning/inquiry based learning[a,b,d,e,i,j,k,l] Discourse using the language of math[a,b,d,e,f,g,j,k,m] Purposeful questioning[j,l] Classroom community/team-building[a,b,e,f,k]
Extensive Program: Duration	6-weeks intensive 145-hour summer program[a,c,d]
High Poverty/Minority Participants	Predominantly low-income, minority student populations[a,c,d]
Higher Ed. Affiliation	Partnership with East Los Angeles Community College, Los Angeles, CA[a,b,d]
High Teacher Quality	Bachelor's degree in math and Teaching Credential with 5 years experience[a,c,d] Teachers have cultural awareness of students and/or similar backgrounds[e,j,l]
Targeted Professional Development	High expectations[e,k,l] 3-10 hours of professional development per teacher[c,f] Individualized teacher training based on classroom observations[c,f]
Strong Parental Commitment	Parental written commitment[b,l]
Ongoing Communication with Parents	Continuous communication with parents via phone calls home[f]
Substantial Student Support	College tutors and teachers in every classroom[a,b] Individual academic help and mentoring[a,b,c]

	Small groups[a,b,c,d,k]
	Small class size: 25 or fewer[b,c,d]
	Peer teaching[a,b,c]

[a](Edwards, Kahn, & Brenton, 2001), [b](Timme, Baird, Bennett, Fry, Garrison, & Maltese, 2013), [c](Siddiqui, Gorad, & See, 2014), [d](Tichenor & Plavchan, 2010), [e](Ruiz, 2011), [f](NCTM, 2014), [g](Mathews & Farmer, 2008), [h] (Cooper & Valentine, 2001), [i](Schachter, 2013), [j](Battey, 2013), [k](Bell & Pape, 2012), [l](Robinson, 2013),[m](House, 2005)

Supporting Students through Effective Instructional Practices

The use of appropriate instructional practices is the characteristic of effective mathematics programs found in most of the studies. Research has identified several teaching practices that can increase student achievement in mathematics as displayed in Table 1. Students in urban secondary mathematics classrooms, however, are rarely presented with engaging or challenging lessons. Ruiz (2011) states:

> Traditional pedagogy often bores students, thus turning them off to mathematics… Students are often in mathematics classrooms where low-level curriculum is designed around test-taking skills. Many more are in classrooms where teachers use worksheets, stressing drill, practice, and other 'mind-numbing' strategies (p. 303).

Effective classrooms, in contrast, have teachers who engage students through a variety of activities that facilitate meaning, encourage cooperation, and bring success to all learners.

Students, particularly those who have not had successful experiences in math, must first experience a sense of belonging in the classroom, which occurs through team-building activities. Then as they are engaged in problem-solving using real life applications, technology, manipulatives, visuals, and purposeful questioning they will be more willing to participate in collaborative projects and discourse. Mathematical discourse is identified throughout the literature as key to student understanding and growth in mathematics (Table 1).

Mathematical discourse includes the intentional exchange of ideas through classroom discussion in addition to other forms of visual, written, and verbal communication (NCTM, 2014). "Interactive approaches to instruction, such as class discussions, appear to be correlated positively with mathematics achievement, while less interactive approaches, such as lectures, are negatively associated with achievement" (Matthews & Farmer, 2008, p. 477). Students should be encouraged to talk about math assignments both inside and outside of the classroom because the more time they interact with peers about class assignments, the higher they will achieve (NCTM, 2014). The goal of this strategy is to empower students to participate in group discussions as they grapple with authentic questions and clarify understandings (Bell & Pape, 2012; Matthews & Farmer, 2008).

Methods and Data Sources

Stage 1 – Quantitative Evaluation of the JEMP Program on Student Achievement

Data were collected and analyzed from (a) Math Diagnostic Testing Project (MDTP) pre and post-diagnostic pre-algebra and algebra readiness tests for students who participated in the

study and (b) three years of standardized tests (2011, 2012, and 2013) for students (grades 6-8) who participated in JEMP and for control group students who did not participate. Participants whose scores were used were diverse in terms of race/ethnicity, primarily socio-economically disadvantaged, and came from the two middle schools in the district (see Table 2). The school the treatment and control group students attended during the two years of data collection had an average of 83% of the students who were eligible for free or reduce lunch and 39% of the students who were designated as English Language learners. Those participating in the JEMP attended summer classes at one school designated by the district.

Participants and data collection.

Table 2

Characteristics of Treatment and Control Group Students from the participating Two Urban Middle Schools during two academic school years.

Student Characteristics	2011-2012	2012-2013
African American	0.2%	0.3%
Asian American	57.4%	64.1%
Hispanic	40.7%	34.6%
White	1.7%	1%
Parent Educational Level		
No High School Diploma	27%	28%
High School Diploma	37%	40%
Some College	14%	14%
College Graduate	15%	11%
Graduate Degree	7%	7%
Total Entering 7th Grade	413	440
Total Entering 8th Grade	545	462

MDTP pre and post-diagnostic pre-algebra and algebra readiness tests. Students entering 7th grade (N = 136 for summers of 2011 and 2012) took a pre-algebra diagnostic readiness test at the beginning and end of the six week JEMP (pre and post). Likewise, students entering 8th grade (N = 108 for summers of 2011 and 2012) took an algebra diagnostic readiness test at the beginning and end of the six week JEMP. Reported data is only for students with both pre and post scores.

Comparison of California Standardized Test data (CST) for JEMP participants (treatment group) with non-participants (control group). Students' CST data were utilized for the study (summers of 2011 and 2012) who met the following criteria: (a) scheduled to take pre-algebra in the 7th grade and had end of 6th grade and end of 7th grade CST scores (N = 853) or (b) scheduled to take algebra in the 8th grade and had end of 7th grade and end of 8th grade CST scores (N = 1,007). Participants were assigned to the treatment group if they participated in the JEMP (n = 234 pre-algebra and n = 144 algebra) or control group if they did not (n = 619 pre-algebra and n = 863 algebra). Additionally, there were N = 248 students with CST scores for

grades 6, 7, and 8: n = 27 participated in the JEMP for two years (pre-algebra and algebra) and n = 221 in the control group who did not participate in the JEMP.

Data analysis.

MDTP. Field-tested for over 30 years and created with the support of Educational Testing Service, MDTP criterion-referenced tests are a valid and reliable indication of the extent to which a student's current mathematical proficiency matches the skills and knowledge needed for success in a course. Descriptive statistical analysis was utilized to compare the pre- and post-diagnostic pre-algebra and algebra tests for participants in summers of 2011 and 2012. According to the MDTP website, a score of 70% shows that a student is adequately prepared for the subsequent math course.

Standardized test data for JEMP treatment group and non-participants.

Pre-algebra. An ANCOVA was conducted to determine if there was a significant difference in grade seven Pre-algebra CST scores due to the main effect of the JEMP treatment, while controlling for grade six mathematics CST scores as the covariate. Because there was a significant difference in grade six CST scores among the grade seven Pre-algebra populations, there was a need to control for this variable.

Algebra. An ANCOVA was conducted to determine if there was a difference in grade eight Algebra CST scores due to the main effect of the JEMP treatment, while controlling for grade seven Pre-algebra CST as the covariate.

Two year participants. An ANOVA was conducted using the 2013 grade eight Algebra CST as the dependent variable, with treatment as the independent variable.

Stage 2 – Administrator Interviews and Teacher Surveys

Participants

The two (one Asian American and one Hispanic) administrators of the JEMP voluntarily elected to participate in one individual and one group semi-structured phone interview, and six (two Asian American and four Hispanic) of the eight teachers who taught in the program during summers of 2011 and 2012 completed the online survey.

Qualitative data collection and analysis

Interviews of 45-60 minutes were conducted with the two administrators asking them to explain the philosophy of the program, how teachers were selected, professional development provided to teachers, required elements of the program, and their perceptions about the curriculum and instruction that attributed to the students' success. From their responses a teacher survey was developed with 17 items (both Likert scale and open-ended). Survey items asked teachers to rate and/or discuss professional development, expectations, and classroom instructional strategies they used in the JEMP. Descriptive statistical analysis was utilized for Likert scale items on the teacher survey.

Interviews were tape-recorded, with tapes transcribed for analysis of content. The two researchers analyzed the two sets of qualitative data—administrator interviews and teacher open-ended survey items—using a constant comparison method to determine common patterns and

themes (Corbin & Strauss, 2008). The characteristics of the JEMP were also compared to effective program characteristics identified in the literature as shown in Table 1.

Findings

Stage 1 – Quantitative Evaluation of the JEMP Program on Student Achievement

MDTP. Data from the MDTP tests indicate that while students, on average, entered the summer JEMP below the readiness level deemed sufficient by the MDTP guidelines (70%), they left the program with the mathematical abilities to be successful in their upcoming pre-algebra or algebra classes. Table 3 illustrates the mean growth for 7th grade students participating in the pre-algebra intervention was from 62.15% to 75.48% readiness and for 8th grade algebra intervention students was from 61.10% to 70.08%.

Table 3

MDTP Pre and Post-diagnostic Pre-algebra and Algebra Readiness Tests out of 40 questions

est	*N*	Mean Score	Maximum Score	Std. Deviation	Percent Correct
Pre-algebra MDTP Pretest	136	24.86	40	7.14	62.15%
Pre-algebra MDTP Posttest	136	30.19	40	7.16	75.48%
Algebra MDTP Pretest	108	30.55	50	8.61	61.10%
Algebra MDTP Posttest	108	35.04	50	8.46	70.08%

Note. Scores for each course reflect data for both summers of 2011 and 2012 combined.

CST. The standardized test results show students who participated in the JEMP performed significantly better than students who did not participate. The ANCOVA pre-algebra results presented in Table 4 indicate a significant difference between groups, $F(1,848) = 17.69$, $p < .001$, $\eta^2 = .020$. The ANCOVA algebra results presented in Table 5 indicate a significant difference between groups, $F(1, 1002) = 4.33$, $p = .038$, $\eta^2 = .004$. The study also found that students who participated in JEMP for two consecutive summers had significantly higher mean scores $F(1, 242) = 9.99$, $p = .002$, $\eta^2 = .039$ on the 2013 grade eight Algebra CST scores than students who received no treatment (see Tables 6 & 7).

Table 4

ANCOVA for Grade Seven Pre-Algebra Single Treatment Study

Source	*df*	MS	*F*	*p*	ϵ^2
Grade Six Math CST scores (covariate)	1	3030217.85	1376.08*	<.001	.619
Treatment	1	38946.88	17.687***	<.001	.020
Within	848	2202.06			

Note. $*p < .05$, $**p < .01$, $***p < .001$

Table 5

ANCOVA for Grade Eight Algebra Single Treatment Study

Source	*df*	MS	*F*	*p*	ς^2
Grade Seven Pre-Algebra CST scores (covariate)	1	5566554.57	1598.721*	<.001	.615
Treatment	1	15084.96	4.332*	.038	.004
Within	1002	3481.88			

Note. **p* < .05, ***p* < .01, ****p* < .001

Table 6

ANOVA for Two-Year Longitudinal Study, Using 2013 Grade Eight Algebra CST as the Dependent Variable

Source	*df*	MS	*F*	*p*	ς^2
Treatment	1	82992.358	9.99**	.002	.039
Within	242	3296.864			

Note. **p* < .05, ***p* < .01, ****p* < .00

Table 7

Means and Standard Deviations for Two-Year Longitudinal Study

	2011 Grade Six Mathematics CST		2012 Grade Seven Pre-Algebra CST		2013 Grade Eight Algebra CST	
Variable	M	SD	M	SD	M	SD
Group						
Control	[a]361.50	67.84	[b]401.23	76.88	[c]394.20	93.41
Treatment	[a]348.48	40.35	[b]421.56	47.71	[c]455.26	69.68

Note. [a] The 2011 Grade Six Mathematics CST Proficiency Levels: Far Below Basic = 150-252, Below Basic = 253-299, Basic = 300-349, Proficient = 350-414, Advance = 415-600 (California Department of Education, 2012).

[b] The 2012 Grade Seven Pre-Algebra CST Proficiency Levels: Far Below Basic = 150-256, Below Basic = 257-299, Basic = 300-349, Proficient = 350-413, Advance = 414-600 (California Department of Education, 2013).

[c] The 2013 Grade Eight Algebra CST Proficiency Levels: Far Below Basic = 150-252, Below Basic = 253-299, Basic = 300-349, Proficient = 350-427, Advance = 428-600 (California Department of Education, 2014).

Stage 2 – Administrator Interviews and Teacher Surveys

Findings from the administrators and teachers reveal that the JEMP is in alignment with the effective characteristics of mathematics programs identified in the literature as shown in Table 1. The data collected highlight the importance of engaging instructional strategies, particularly collaborative learning and discourse. Student support is also seen as essential in the JEMP.

Interviews and survey responses suggest that effective mathematics teaching in the JEMP provides the support that students need to "*catch-up and excel in math*" (Administrator). The use of formative assessments, summative assessments, student engagement, and using data to inform instruction were common practices that emerged from the administrators and were confirmed by the teachers on the surveys as being used and effective. Both groups emphasized the importance of employing a variety of strategies with students including: engaging in hands-on and creative activities, providing practical applications, spending approximately 30% of the time practicing the material with two hours of daily homework, teaching students how to be thinkers, giving feedback, and emphasizing acceleration as well as remediation/high expectations. The strongest themes derived from the administrator and teacher data were the importance of collaborative group work and opportunities for discussion. Teachers shared: "*My students sit in groups every day and are allowed to work collaboratively."* And, *"Peer teaching helps students teach and learn from one another."* An administrator commented, *"The most effective aspect in JEMP for students is the collaborative learning environment. Students teach other students and speak using mathematical language."*

Students are also provided individual and small group support within the classroom from math tutors who are college mathematics majors assigned to each class. The tutors also assist teachers with grading so that students receive immediate feedback on their work. Finally, the classroom learning environment is enhanced as tutors support classroom management.

Discussion

The quantitative MDTP assessment data show that the majority of middle school students who participated in the JEMP entered the summer intervention class at a level in which they were not ready for the class they were assigned to take in the fall. After participation in the JEMP, the averages for the two years of the study show students had increased to a level of readiness to be successful in their next math class. Additionally, JEMP participants had significantly greater gains in their math achievement on standardized tests than their peers who did not participate. The interviews and surveys reveal the aspects of the program, particularly instructional strategies that the administrators and teachers perceive as key to students' high achievement gains through the JEMP summer intervention.

Effective Mathematics Intervention to Support Students

Traditional math classroom approaches in which the teacher does most of the talking and activities are primarily paper and pencil-based are ineffective (Lewis, 2014), especially with underserved urban students who have not been successful in math (Battey, 2013). JEMP teachers, in contrast, are trained to have classrooms that are student centered, where the students are doing most of the talking and are often collaborating in groups (F. Fernandez, personal

communication, December, 31, 2015). JEMP teachers engage students in the learning process by promoting discourse and the use of academic language. "Language plays an integral part in understanding and becoming proficient in mathematics" (Impecoven-Lind & Foegen, 2010, p. 32). Academic language allows students to conceptualize the lesson by working collaboratively with fellow classmates. Bell and Pape (2012) explain, "Dialogic episodes occur when participants in classroom discourse exchange ideas in a non prescriptive way, expanding on or modifying the contributions of others" (p. 426).

Many of the other classroom strategies identified by the administrators and teachers as effective in the JEMP correspond to those found in the literature displayed in Table 1. For example, Evans, Zeun, and Stanier, (2014), like the JEMP teachers and administrators, acknowledge the importance of using formative and summative assessments to guide instruction. It is the unique combination of the JEMP characteristics, however, that have resulted in the program's long-term success as evident in the findings of this study.

Educational Importance

Mathematical competence has been identified by countries throughout the world as one of the key proficiencies necessary for personal fulfillment, active citizenship, social inclusion, and employability in modern society (European Parliament and Council, 2006). The National Council of Teachers of Mathematics' (NCTM) website states: "Every student deserves an excellent program of instruction in mathematics that challenges each student to achieve at the high level required for productive citizenship and employment." Despite the importance of math education for an individual's future, many students, particularly those in urban communities, are denied the right to a quality math education (Education Trust, 2011; NCTM, 2014). It is time to invest in urban children's futures by providing them with opportunities and support to achieve high levels of mathematics learning that will eliminate the persistent ethnic, racial, and income achievement gaps.

The findings from this study reveal key characteristics of how the Jaime Escalante Math Program provides urban youth who have often been deprived of a quality educational experience in math an opportunity to succeed. School districts should utilize the attributes of this program as they seek to better educate not only underrepresented students but all students. Partnerships with local colleges can support these intervention efforts as outlined in the literature. This information can be of value to educators seeking justice through providing intervention programs to students, particularly those who have had few resources, so that they can also excel in math and life.

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ADDRESSING CHALLENGES IN URBAN TEACHING, LEARNING AND MATH USING MODEL-STRATEGY-APPLICATION WITH REASONING APPROACH IN LINGUSTICALLY AND CULTURALLY DIVERSE CLASSROOMS

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Abstract

This study examined the effects of using the Model-Strategy-Application with Reasoning Approach (MSAR) in teaching and learning mathematics in linguistically and culturally diverse elementary classrooms. Through learning mathematics via the MSAR, students from different language ability groups gained an understanding of mathematics from creating visual models, developing procedural fluency from using various strategies, and building competence in problem solving from real world application. The findings demonstrate that the MSAR results in improved diverse student mathematics learning in urban areas.

Keywords: model, strategy, application, reasoning, ELL learners, mathematics problem solving

Introduction

International assessments from TIMSS (1999 & 2007) and PISA (2010 & 2012) revealed that the disparity between U.S. students' mathematics, science, and reading achievement and those from other countries has not significantly improved. In the recent PISA (2010 & 2012), U.S. students' mathematics, science, and reading average scores were still below average among the 34 OECD nations, as in previous years (OECD, 2013). Locally, mathematics, science, and reading achievement levels of California's public school students in grades 4 and 8 on the *National Assessment of Educational Progress* (NAEP) have been below the national level in recent years (National Center for Education Statistics, 2013). The results of the recently released 2015 California Assessment of Student Performance and Progress (CAASPP) show that more than 40% of elementary students in grades 3-5 scored below standards in the areas of concepts and procedures, followed by more than 38% below standards in problem solving/Modeling and

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Data Analysis; in the area of Communicating Reasoning, more than 39% of students did not meet standards at grades 4 and 5 (California Department of Education, 2015). The recent international, national, and local assessment results also show that a significant achievement gap continues to exist for African American, Hispanic/Latino, low-income, and English-learner students in urban areas, compared to their peers **(**Orfield, Losen, Wald, & Swanson, 2004). Struggling students have a limited understanding of basic math concepts and they are notably deficient in their ability to apply mathematical skills to solve even simple problems (National Research Council, 2001).

Recent developments in the new Common Core State Standards for Mathematics (CCSSM) have heightened one of the key shifts toward "rigor" in mathematics education: pursuit of conceptual understanding, procedural skills and fluency, and application with equal intensity **(**National Governors Association Center for Best Practices, & Council of Chief State School Officers, 2010). The shift towards rigor provides a clear direction in mathematics instruction as well as assessment that requires students to achieve a balance in mathematics learning in the aspects of conceptual understanding, procedural skill and fluency, and the ability to apply mathematics to solve problems (An & Wu, 2014; Wu, 2008). However, this standard has posed a challenge to classroom teachers on how to balance mathematics instruction to meet the needs of the rigor requirements of the CCSSM. Although many professional development programs have sought to enhance teaching practice, little progress has been made in terms of supporting diverse student mathematics learning in urban areas.

The purpose of this research was to conduct an empirical study that addressed the challenges in urban teaching and learning by engaging classroom teachers in applying the Model-Strategy-Application with Reasoning (MSAR) in teaching mathematics and in assessing the effects of the MSAR model on their student learning in linguistically and culturally diverse classrooms in urban areas. The MSAR is defined as developing students' conceptual understanding using various visual **models,** building procedural fluency with different computational **strategies**, and developing problem solving skills with real world **applications** (An & Wu, 2014), while focusing on fostering **reasoning** skills throughout the three components of models, strategies and applications.

This project aimed at investigating the following research questions:

1. What are the effects of using the MSAR approach on improving ELLs' conceptual understanding, procedural fluency, application, and reasoning in mathematics?
2. What are the differences in student performance in MSAR tasks between diverse groups?

Theoretical Framework

The MSAR of Model-Strategy-Application with Reasoning Approach

Various studies suggest using rich mathematical tasks to develop students' capacity in reasoning and argument (Mok & Kaur, 2006; Shimizu, Kaur, Huang, & Clarke, 2010). Mathematical tasks are important vehicles for classroom instruction and aims to enhance students' learning. To achieve quality mathematics instruction, then, the role of mathematical tasks to stimulate students' cognitive processes is crucial (Hiebert & Wearne, 1993). One example of rich mathematical tasks demonstrated by Wu and An (2006) is employment of the Model-Strategy-Application (MSA) in developing teachers' pedagogical content knowledge and

assessing their progress, and its effects of children learning in diverse classrooms. This approach had the three aspects of Model-Strategy-Application originally, followed by explanations of reasoning in each aspect. The MSA approach has been taught in a mathematics education graduate program and used by classroom teachers in urban areas in Southern California. The positive effects of the MSA were demonstrated in mathematics classrooms in urban areas through various studies (e.g., An & Burson; 2010Wu & An, 2007). In recent years, this model has evolved through explicitly addressing the reasoning component, resulting in the Model-Strategy-Application with Reasoning approach in An and Wu's study (2014), in alignment with the needs of implementation of the CCSSM.

The new CCSSM not only challenges teachers to offer more relevant, practical and rigorous instruction with a set of focused content standards, but also requires students to solve math problems and think critically with a set of Mathematical Practice Standards (CCSS-MP). The key shift of "rigor" asks teachers to pursue conceptual understanding, procedural skills and fluency, and application with equal intensity. This pursuit of a balance within mathematics instruction is supported by research showing that effective classroom teachers always use multiple forms of instructional strategies and assessments that are meaningful and applicable toward the goal of supporting student learning (An & Wu, 2014; McMillan, 2000).

According to An and Wu (2014), the MSAR of Model-Strategy-Application with Reasoning approach includes four connected components aligned with the four categories of CCSS-MP standards in the teaching and learning process: 1) Learn and create various visual **models** to build conceptual understanding, 2) Develop procedural fluency to master multiple **strategies** of basic and complex computation skills in an accurate, efficient, and flexible manner, 3) Build strategic competence to **apply** knowledge in word problem solving, and 4) Focus on fostering **reasoning** skills throughout the other components. The MSAR is also aligned with the essential components of the five indicators of student math proficiency, as provided by RAND (2003) and the National Research Council (2001). In addition, they are supported by the NCTM Process Standards (2000) and the Guiding Principles of California Mathematics Conceptual Framework (2006 & 2013), which calls for a balance within mathematics by focusing on the three key components -- conceptual understanding, computational skills, and problem solving, for more effective math programs. Therefore, the MSAR model can be viewed as a fundamental framework for teachers to teach CCSSM and for students to learn CCSSM effectively and proficiently. This project focuses on engaging teachers in applying the MSAR approach in teaching mathematics, and also investigates the effects of the MSAR on student learning, especially on diverse students in urban areas. Such studies have become increasingly important in meeting the needs for CCSSM implementation.

English Language Learners and Role of the MSAR Approach

Balfanz and Byrnes (2006) called for closing the mathematics achievement gap in high-poverty schools in urban areas by focusing on shifting classroom practices, and providing relevant teacher training, which had a significant impact on raising student scores in their study. To support diverse students, such as English Language Learners, teachers need to provide them with an opportunity to learn the attendant English vocabulary words, in order to discuss and study the concepts they are learning in the second language (Cummins, 1981); this is especially important in order to support their learning in word problems because their difficulties are primarily on account of encountering word problems in an unfamiliar second language

(Bernardo, 2005). There are two types of language proficiency: 1) Basic interpersonal communication skills, and 2) Cognitive academic language proficiency (Cummins, 1981). The MSAR components provide students an opportunity to enhance their cognitive academic language proficiency because they are required to explain their reasoning in their models, strategies, and applications in problem solving. By engaging diverse students to work in groups to discuss and solve the MSAR tasks, the students participated and persevered in solving word problems while working in cooperative groups (Kroesbergen & Van Luit, 2003).

One of the NCTM Process Standards (2000) is representation. The model component of the MSAR encourages students to construct their own visual representations, such as pictures, tables, charts, figures, and symbols to demonstrate their conceptual understanding in a meaningful manner (Wu, 2008). The most notable part of the MSAR is that it provides and allows students to use multiple ways to show their mathematics proficiency. According to the NCTM Assessment Standards (1995), it is important to use multiple indicators for student assessment. "One assessment or one type of assessment should not be the sole measure of a student's achievement, because it is not likely to give an adequate picture of that student's learning. Nor should any one assessment be used to make decisions of any consequence about a student's educational future" (Koelsch, Estrin, & Farr, 1995, p.11). The MSAR assessment assists classroom teachers in gauging their students' learning in the four aspects of conceptual understanding, procedural fluency, and problem solving in real world application, along with an emphasis on reasoning throughout.

Methods

Site and Subjects

This study was conducted at three schools from three school districts, situated in urban areas, low-income neighborhoods in Southern California in fall 2013 and spring 2014. Table 1 shows the demographic information of student participants at three grade levels in the three schools.

Table 1

Demographic Information of Student Participants

Class	# of Students	Girl	Boy	ELL	Hispanic American	African American	Other
2nd	25	11	14	17	23	1	1
3rd	29	16	13	17	23	2	
5th	31	15	16	21	21		4

Table 1 shows that close to 60% of students were ELL learners, with close to 70% Hispanic Americans in each class. One hundred percent of students at these schools were considered socioeconomically disadvantaged and therefore qualify for free breakfast and lunch. The teacher participants were three classroom teachers at grades 2, 3 and 5, one teacher at each grade level. The three participant teachers were graduate students in the math education graduate program. They learned about the MSAR approach in the graduate study, and started to apply the MSAR in fall 2013 and spring 2014 in their classrooms. The participating teachers were selected based on the following criteria: 1) they volunteered to use the MSAR in their teaching, and 2) they had needs for learning CCSSM implementation and agreed to use the MSAR in their mathematics instruction and to provide the data relevant to the reliability and validity of the

MSAR study. The teachers' roles were to provide the MSAR interventions, collect and analyze the data for their action research projects with different areas of focus based on their interests. This combined the individual data sets to study the effects of the MSAR in diverse groups at different grade levels.

Procedure and Data Collection

The classroom teachers developed the MSAR student worksheets based on the CCSSM standards in five content standard areas. Figure 1 shows an example of the MSAR student worksheet for grade 3.

Table 2 shows the intervention of the MSAR and data collection by each teacher. The 2nd grade teacher used model, group, individual, and sharing strategies in applying the MSAR. She also used the language structure to guide her 2nd graders to learn how to reason and think in a structured manner. The third grade teacher used individual work, focusing on Cognitive Guided Instruction (CGI) lessons. The 5th grade teacher used model, group, and sharing approaches, focusing on peer support in groups. Both the 2nd and 5th grade teachers used the time series design, and the 3rd grade teacher used the pre- and post-test design in data collection

MSAR

Jill made 5 rows of blocks, with each row containing 7 blocks. How many blocks did Jill have altogether?

Modeling	Strategies of Computation	Creating and solving a similar word problem and solve it
Explain why:	Explain why:	Explain why:

Figure 1. MSAR example at grade 3.

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Table 2
Intervention and Data Collection

Class	Intervention	Design	Data Collection
2nd	Model, Group, Share; Individual Language Structure	Time series design	Baseline 5; Intervention 7; Post Intervention 1
3rd	Individual work CGI Lessons	Pre & Post Design	Pre 5 & Post 5
5th	Model, Group, Share; Peer Support	Time series design	Pre 5, Intervention 7

Instruments

The MSAR structure worksheets were used to measure the effects of the MSAR interventions. Each MSAR task has a different content area. For example, for the 3rd graders, MSARs 1, 2, 3, 4, and 6 all focus on Number Sense: i.e., understanding of place value, number understanding, and simple concepts of multiplication and division; MSAR 5 focuses on Measurement and Geometry; MSAR 7 focuses on Statistics, Data Analysis and Probability (a sample MSAR task can be found in Appendix 1). The student MSAR worksheets were evaluated by the teachers using the author-developed MSAR rubrics, which have four levels (See Appendix 2). Content validity was ensured, as all MSAR tasks were created based on Common Core Standards for Mathematics at each grade level. The MSAR tasks were also tested for reliability in this study. Cronbach's alpha for the 2nd Grade MSAR Items was .958, for the 3rd Grade MSAR Items was .898, and for the 5th Grade MSAR Items was .939, which indicates a very high level of internal consistency (Cronbach, 1951) for the MSAR items for all three grade levels in this study.

Data Analysis

Data was analyzed quantitatively in this study. To answer research question 1, Paired t-tests were used for comparing differences in model, strategy, application, and reasoning between baseline and intervention for grades 2 and 5, and between pre- and post-tests for grade 3. To answer research question 2, One-Within-One-Between Subject ANOVA tests were used for comparing differences between different language groups that include the English Language Learners (ELL) and the English Only (EO) groups for grades 2 and 3, and included an additional group of the Redesignated Fluent English Proficient (RDFEP) group for grade 5. Student MSAR worksheets were evaluated and scored using the MSAR rubrics in this study.

Results

The findings from this study show that the MSAR approach had significant positive effects on students' conceptual understanding, procedural fluency, application, and reasoning.

Student Improvement in Model, Strategy, Application, and Reasoning

The results of a Paired t-test demonstrate the significant differences in the 2nd graders' mean scores in four areas of Model (t (22) = -3.084, p = .005 < .05), Strategy (t (22) = -4.348, p = .000 < .05), Application (t (22) = -4.522, p = .000 < .05), and Reasoning (t (22) = -5.311, p = .000 < .05) between the baseline and the intervention. Figure 2 confirms the 2nd graders' growth in mean scores in the four aspects of Model, Strategy, Application, and Reasoning between the baseline and the intervention.

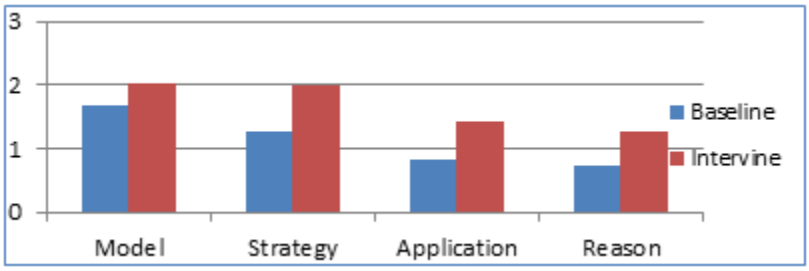


Figure 2. The 2nd graders' growth in mean scores in the four MSAR areas.

The results of a Paired t-test revealed the significant differences in the 3rd graders' mean scores in the four areas of Model (t (28) = -22.854, p = .005 < .05), Strategy (t (28) = -23.616, p = .000 < .05), Application (t (28) = -14.893, p = .000 < .05), and Reasoning (t (28) = -5.090, p = .000 < .05) between the baseline and the intervention. Figure 3 confirms the 3rd graders' growth in mean scores in the four areas of Model, Strategy, Application, and Reasoning between the pre- and post-MSAR assessments.

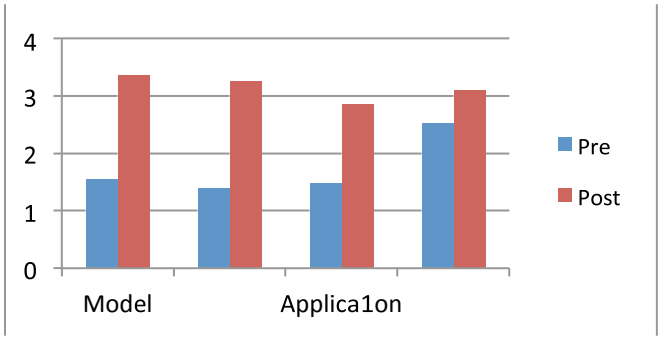


Figure 3. The 3rd graders' growth in mean scores in the four MSAR areas.

The results of a Paired t-test demonstrated the significant differences in the 5th graders' mean scores in the four areas of Model (t (27) = -4.861, p = .005 < .05), Strategy (t (27) = -4.170, p = .000 < .05), Application (t (27) = -2.921, p = .007 < .05), and Reasoning (t (27) = -4.233, p = .000 < .05) between the baseline and the intervention. Figure 4 confirms the 5th graders' growth in mean scores in the four areas of Model, Strategy, Application, and Reasoning between the pre- and post-MSAR assessments.

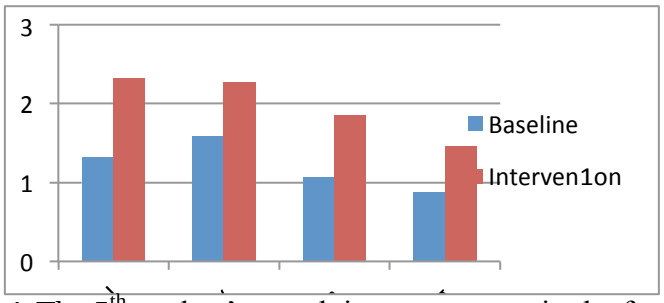
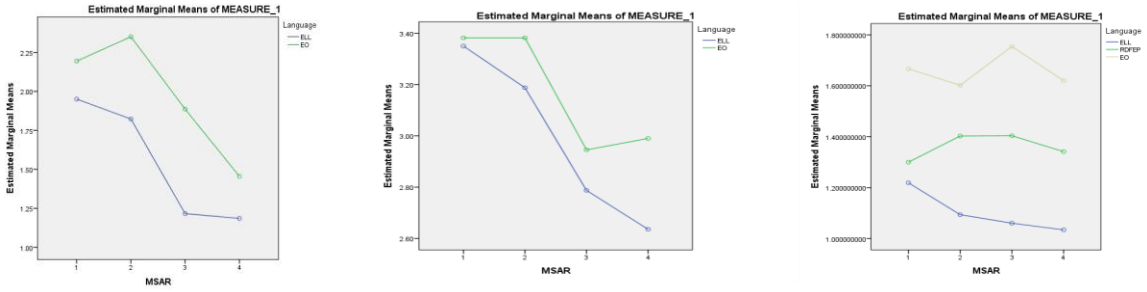


Figure 4. The 5th graders' growth in mean scores in the four MSAR areas.

Student Growth in MSAR between Diverse Groups

Student overall growth in MSAR between diverse language groups. The results of a One-Within-One-Between Subject ANOVA tests demonstrate that overall there was no statistically significant difference in mean scores in the four areas of MSAR between the English Language Learner and the English Only groups during the intervention at the 2nd grade level (F (1, 21) = 2.422, p = .135 > .05) and in the post tests at the 3rd grade level (F (1, 25) = 1.447, p = .240 > .05). The grade 5 group also had the same result among the three Language groups during the intervention (F (1, 24) = .496, p = .615 > .05).

Figure 5 confirms the results in the four areas of MSAR between diverse language groups at all three grade levels, but it indicates that the English Language Learner group is strong in the Modeling component compared to the other three MSAR components at all grade levels. They had almost the same mean scores in Modeling as in the English Only groups in grades 3 and 5. The largest gap between these two groups was Application at grade 2 (see Figure 5 (a)), Reasoning at grade 3 (See Figure 5 (b)), Application at grade 5 (See Figure 5 (c)).



Grade 2 Grade 3 Grade 5

(a) (b) (c)

Figure 5. Comparison of MSAR mean scores during intervention (2nd & 5th) and in the post-tests (3rd grade) in the four areas between language groups.

Note: ELL = English Language Learner; RDFEP = Redesignated fluent English proficient; EO = English Only

Student growth in each MSAR component between diverse language groups. To further investigate what progress the English Language Learner group made in each MSAR area during the intervention or in the post-tests, this study used a One-Within-One-Between Subject ANOVA test to examine each area of the MSAR in diverse language groups in each grade level. The results produced in SPSS output tables were confirmed by Figures 6, 7, and 8.

The 2nd graders' growth in each MSAR area between diverse language groups. The results of a One-Within-One-Between Subject ANOVA test show that there is no statistically significant difference in mean scores in Model (F (1, 10) = 1.304, p = .280 > .05), Strategy (F (1, 10) = .387, p = .548 > .05), Application (F (1, 10) = .449, p = .518 > .05), and Reasoning (F (1, 21) = .020, p = .891 > .05) between the English Language Learner and the English Only groups during the intervention in the 2nd grade group.

Figure 6 shows that the 2nd grade English Language Learner group had higher mean scores in the Model component than the English Only group in MSARs 2 and 4 (see Figure 6 (a)); they also had higher mean scores in Strategy in MSARs 2 and 6 than the English Only group (see Figure 6 (b)); in addition, they had higher mean scores in Application in MSARs 2 and 3 than the English Only group (see Figure 6 (c)); finally, they had higher mean scores in Reasoning in MSARs 1, 3, 4, and 7 than the English Only group (see Figure 6 (d)).

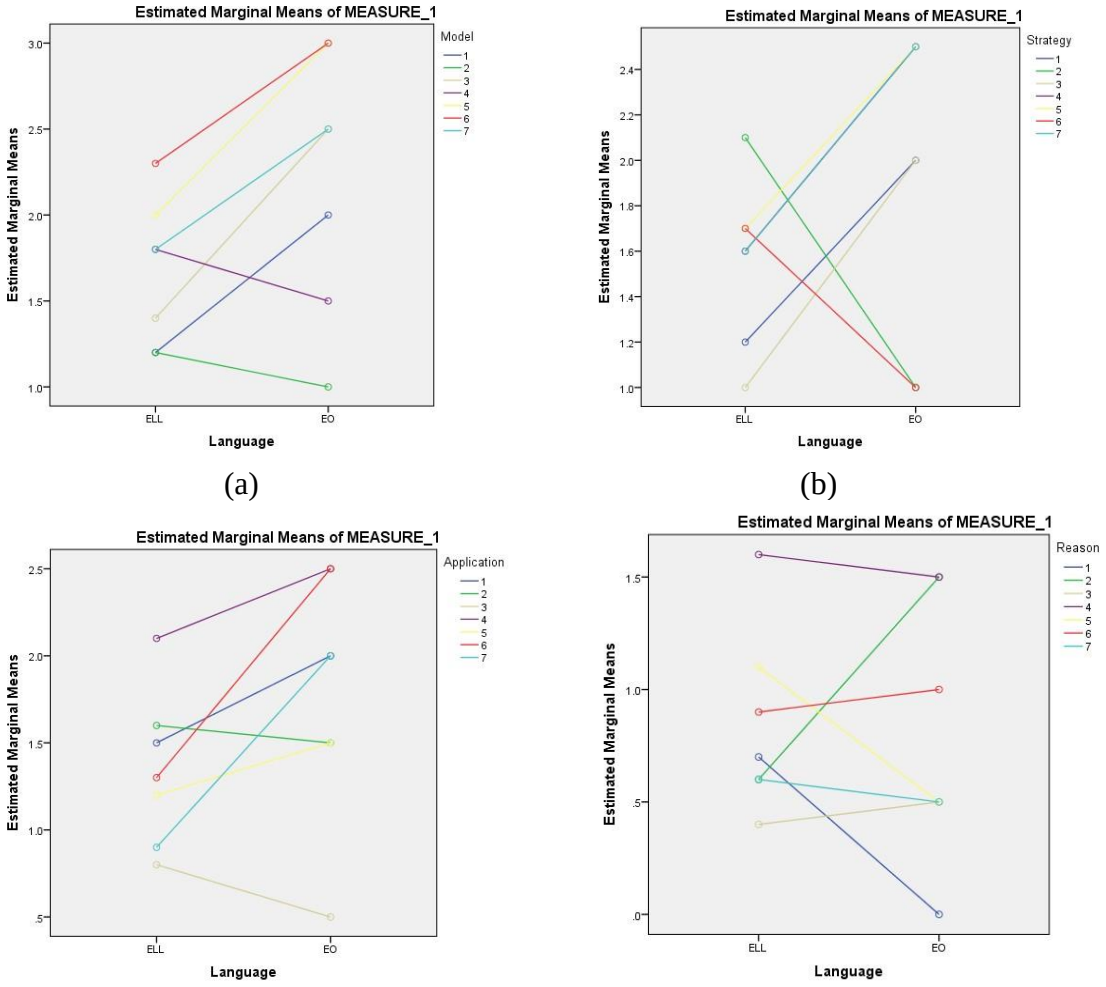


Figure 6. Comparison of each MSAR area between language groups at the 2nd grade level.
Note: ELL = English Language Learner; RDFEP = Redesignated fluent English proficient; EO = English Only

The 3rd graders' growth in each MSAR area between diverse language groups. Results from a One-Within-One-Between Subject ANOVA test show that there is no statistically significant difference in mean scores in Model (F (1, 27) = .051, p = .824 > .05), Strategy (F (1, 27) = 2.237, p = .146 > .05), Application (F (1, 27) = .717, p = .404 > .05), and Reasoning (F (1, 27) = 3.511, p =.074 > .05) between the English Language Learner and the English Only groups during the post-tests at the 3rd grade level.

Figure 7 shows that the 3rd grade English Language Learner group had higher mean scores in the Model component than the English Only group in MSARs 1 and 4 (see Figure 7 (a)); they also had higher mean scores in Strategy in MSARs 1 and 4 than the English Only group (see Figure 7 (b)); in addition, they had a higher mean score in MSAR 1 than the English Only group (see Figure 7 (c)); finally, they had a higher mean score in Reasoning in MSAR 2 than the English Only group (see Figure 7 (d)).

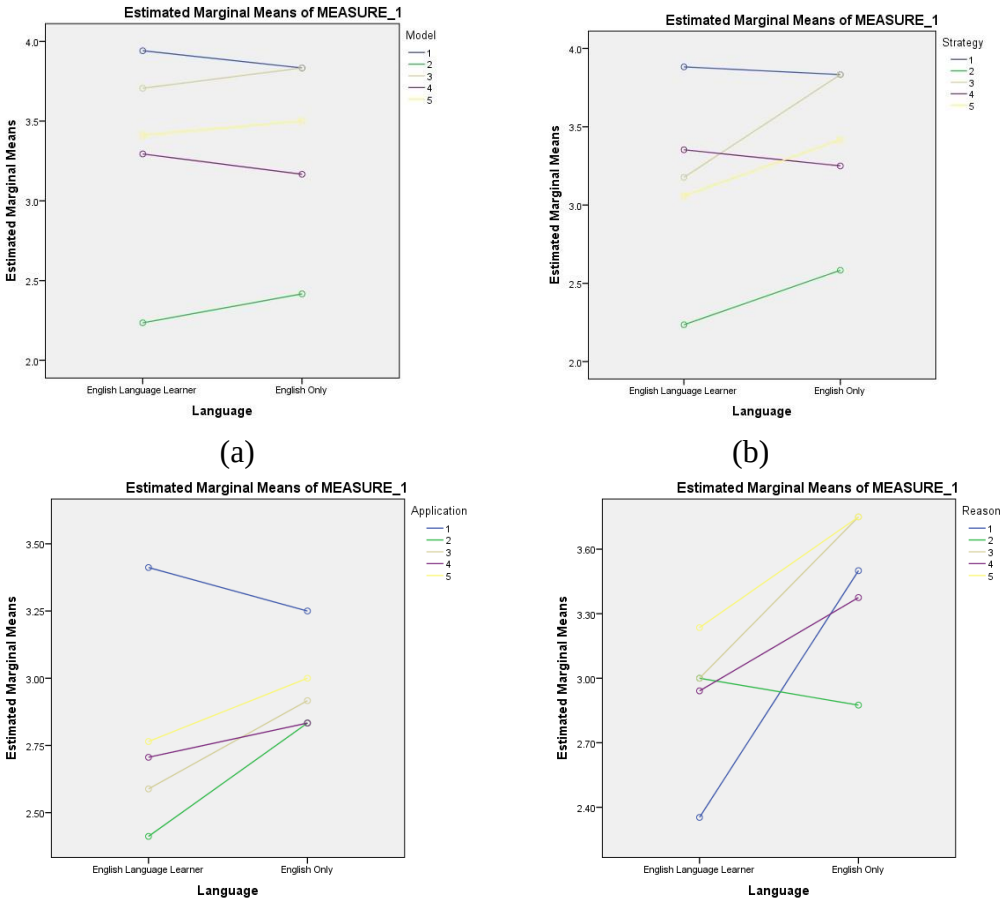


Figure 7. Comparison of each MSAR area between language groups at the 3rd grade level.
Note: ELL = English Language Learner; RDFEP = Redesignated fluent English proficient; EO = English Only

The 5th graders' growth in each MSAR area between diverse language groups. Results from a One-Within-One-Between Subject ANOVA test show that there is no statistically significant difference in mean scores in Model (F (2, 21) = .376, p = .691 > .05), Strategy (F (2, 21) = 1.556, p = .234 > .05), Application ((F (2, 21) = 3.399, p = .053 > .05), and Reasoning (F

(2, 21) =1.197, p = .318 > .05) between the English Language Learner group, the Redesignated fluent English proficient group, and the English Only group during the intervention at the 5th grade level.

Figure 8 shows that the English Language Learner group had higher mean scores in the Model component than the other two groups in MSARs 2 and 6 (see Figure 8 (a)); they also had a higher mean score in Strategy in MSAR 6 than the other two groups and higher mean scores in Strategy in MSARs 2, 4, and 6 than the Redesignated Fluent English Proficient group (see Figure 8 (b)); For Application, the ELL group had only one higher score in MSAR2 than the other two groups (see Figure 8 (c)); the same result was exhibited in Reasoning in Figure 8 (d).

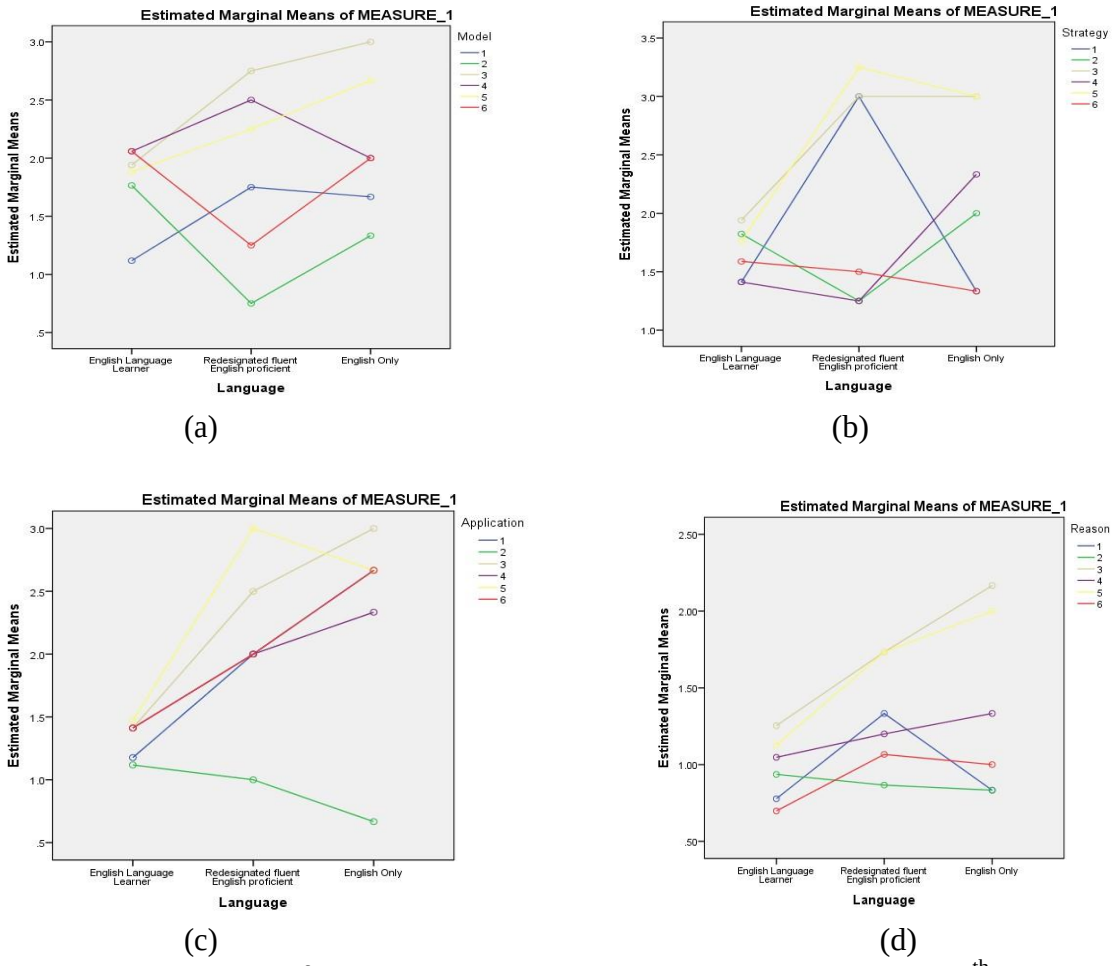


Figure 8. Comparison of each MSAR area between language groups at the 5th grade level.
Note: ELL = English Language Learner; RDFEP = Redesignated fluent English proficient; EO = English Only

Discussion and Conclusion

The results of this study show that the MSAR approach is a powerful instructional and assessment approach for achieving a balance within mathematics and for developing mathematics proficiency for diverse students. Overall, the students from three grade levels made progress in Model, Strategy, Application, and Reasoning, which is evident from Figures 2 thru 8.

The most important finding in this study was that the MSAR has improved diverse student mathematics learning. The results demonstrate that there was no significant difference in mean scores in all four areas of the MSAR components between diverse language groups at three grade levels due to the MSAR instruction; meaning that ELL learners performed as well in the MSAR areas as the other groups – English Only and Redesignated Fluent English Proficient groups. The most interesting finding was that the English Language Learner groups were stronger in Model compared to Strategy, Application, and Reasoning areas in this study, indicating that using visual representations may provide a meaningful opportunity to the English Language Learner groups to demonstrate their conceptual understanding despite their language difficulties. Therefore, multiple forms of assessment are necessary for accommodating diverse student needs (NCTM, 1995).

What is surprising is that the English Language Learner groups even outperformed the English Only groups in some MSAR tasks in Model, Strategy, Application, and Reasoning in this study, and at all three grade levels. In fact, the most predominant challenge was having students providing a written explanation to their results, as indicated by research (Cummins, 1981). For this reason different strategies were implemented by the 2nd grade teacher to help the students feel more confident and successful when solving mathematical word problems. The teacher used math sentence starters, math vocabulary charts, manipulatives, and different models to support ELL learners to represent their conceptual understanding, which is supported by Wu's study (2008) that various visual representations are important in supporting ELL learners' mathematics learning.

The 5th grade students also improved in their use of academic language from the MSAR intervention. This was most evident in the results of the MSAR tasks. Prior to the intervention, the students struggled with explaining their models during the baseline test. By the end of data collection, students were able to make connections between math academic language and its meaning, and their scores in the four areas showed significant improvements over their baseline tests. The 5th grade teacher also used cooperative groups in her MSAR intervention. In accordance with the cooperative group format (Kagan, 1985), students were required to discuss the math word problems together. This helped the 5th graders, especially ELL learners to use math academic language in dialogue, in spite of their language obstacles. Students were able to participate and persevere in solving word problems presented in the MSAR format while working in cooperative groups (Kroesbergen & Van Luit, 2003).

One underlying objective of the MSAR is the application of mathematics to real life scenarios. The word problems that were used were selected to reflect students' knowledge of real world experiences. Students are required to recreate the word problem to reflect the original word problem with the MSAR task. This allowed students to explore the word problems in a manner that encouraged more in depth understanding. In addition, it encourages students to create word problems according to their own experience (Wiest, 2000).

The results of this study imply that with a well-developed instructional tool such as the MSAR approach, diverse students in urban areas can improve their math learning. The MSAR approach requires students to receive instruction on how to analyze a problem, learn multiple visual representations to explain their understanding, and be given the opportunity and instructional strategies they may use to solve any given problems (An & Wu, 2014). The findings in this study indicate that it is possible to see struggling students, especially English Language Learners have a better outcome in representing their conceptual understanding through

models and using appropriate strategies to solve real world related math word problems with appropriate reasoning.

The findings in this study further support the idea of teacher knowledge growth (An & Wu, 2014) through learning and teaching mathematics by using the multiple components of MSAR. Teachers not only will gain rich mathematics content knowledge but also increase their pedagogical content knowledge from the inherent structure of the MSAR. The study indicates that applying the MSAR approach in teaching mathematics helps diverse students understand mathematics from visual models, develop procedural fluency from using various strategies, and build competence in problem solving from real world application.

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PERFORMANCE AND PREPARATION: ALIGNMENT BETWEEN STUDENT ACHIEVEMENT, TEACHER RATINGS, AND PARENT PERCEPTIONS IN URBAN MIDDLE-GRADES MATHEMATICS CLASSROOMS

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Abstract

The middle grades are a critical transition period in students' mathematics trajectories, as students move from arithmetic to the more complex and abstract concepts of algebra. Teachers' and parents' judgments of students' math abilities in these years are important to instructional planning and decision making for teachers, and can advise parents and students on future course placement. This study specifically examined teacher and parent judgments of students' performance and preparedness for the next grade level in 5th and 6th grades mathematics. Results demonstrate that teacher and parent perceptions of students' abilities are not calibrated to national norms, but to local contexts. Our findings are similar to other work suggesting that high poverty school contexts may provide teachers and parents a false comparative context for judging how well students are mastering mathematical concepts.

Keywords: teacher perceptions, student achievement, mathematics

The middle grades are a critical transition period in mathematics, as students move towards more complex and abstract concepts and from arithmetic into algebra (National Math Advisory Panel, 2008). Achievement in math in the middle grades is also an important factor for future academic success. In a study of students' P-12 math trajectories, Lee (2012) found that middle grades' math competency was a strong predictor of both college entrance and college completion. By the middle grades, differences could most particularly be seen in the math trajectories of racial minorities who are falling further behind desired course trajectories in middle and high school mathematics.

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Research focused on patterns of math achievement and trajectories across elementary and secondary schools has often been approached at a large-scale level, identifying trends in and predictors for performance through large-scale national data sets. What is missing from this previous research is how the most important adults, teachers and parents, in the lives of middle grade students see their academic ability, and how those perceptions might influence students' math trajectories as they move from the early grades into middle and high school.

Literature Review

The Value of Teachers' Judgments

Teacher judgments about students' academic ability are important to teachers' instructional decisions, classroom interactions, and expectations (Barbarin & Aikens, 2015; Borko & Cadwell, 1982; Hurwitz, Elliott, & Braden, 2007). Teachers use their perceptions of students' abilities to inform the way that they organize and teach their classes, and to make changes to their instruction over time (Jackson, Gibbons, & Dunlap (in press). Teachers and schools also use judgments to screen and assess students for special education, gifted education, and other educational decisions (Elhoweris, 2008; Gresham, MacMillan, & Bocian, 1997; Kettler, Elliott, & Albers, 2008). The assumption is that teachers' judgments of students' ability are accurate, and can be used to make good decisions for instruction, assessment, and student placement.

As students enter the middle grades, the accuracy of teachers' judgments may determine whether students are placed in appropriate courses in the future, especially in mathematics (Loveless, 2008). Several studies have found a relatively strong positive correlation between teacher judgments and student ability (Hoge & Coladarci, 1989; Kaiser, Retelsdorf, Südkamp, & Möller, 2013; Südkamp, Kaiser, & Möller, 2012). Correlations suggest that teachers' judgments of student ability may be useful for determining relative ability within a group of students (e.g., rank orders), but they do not provide any evidence of the overall accuracy of teachers' judgments of students' abilities.

In fact, research suggests that not all teacher judgments of student ability are accurate. Prior research examining the relationship between teachers' judgments and student performance has uncovered evidence that teachers are more accurate in their judgments for higher achieving students than for low achieving students (Begeny, Eckert, Montarello, & Storie, 2008; Begeny, Krouse, Brown, & Mann, 2011; Demaray & Elliot, 1998; Feinberg & Shapiro, 2009; Hoge & Coladarci, 1989). This body of work suggests that teachers' judgments may be problematic as indicators of students' absolute ability, even if they are sound indicators of relative ability. This is a particular concern in mathematics, where teachers may use inaccurate judgments of students' abilities to place students in courses for which they are unprepared.

There is also evidence that the decisions teachers and schools make, often based on teacher judgments, may be problematic as well. Findings from a study of the 2005 eighth grade National Assessment of Educational Progress (NAEP) suggested that large numbers of students were enrolled in algebra, geometry, and other advanced math classes for which they were not prepared (Loveless, 2008). Of the students identified in the study as misplaced, about half attended urban schools and nearly two-thirds attended schools classified as high poverty. Students in urban and high poverty schools may be at a higher risk of being placed, by teacher judgment or recommendation, in classes for which they are not prepared.

These findings together suggest a troublesome pattern: low-achieving students in high poverty schools are more likely to have their mathematical abilities inaccurately judged by their teachers and are more likely to be misplaced in math courses. Teachers may well have recalibrated their expectations of students in urban, high poverty schools because the teachers do not hold expectations that students can engage in rigorous mathematical activities (Jackson, Gibbons, & Dunlap, in press). Students' math trajectories in the middle and high school years may be influenced both directly by teachers' judgments of their abilities and indirectly through the course placement decisions in which these judgments play a role. Without any other factors to mediate their consequences, teachers' judgments could have a significant effect on students' later mathematics achievement.

Parent Perceptions and Involvement

One additional mediating factor that may be important to students' mathematics achievement and trajectories in the middle grades and beyond is parent involvement. Parent involvement, across ages and subject areas, has been identified as a small but positive predictor of students' academic achievement (Fan & Chen, 2001). Involved parents can serve as advocates for their children, to help ensure that they receive a high-quality education with appropriate support. In middle school, the most important aspects of parental involvement are related to the students' academic socialization: their expectations, aspirations, strategies, and preparation for the future rather than helping with homework (Hill & Tyson, 2009). Parents' perceptions of students' abilities can influence the ways that they get involved at school, including the expectations and aspirations that they share with their student.

Adult Perceptions and Students' Math Trajectories

Children from racial minorities and low-income families are more likely to attend high poverty schools (Kena et al., 2015; Saporito & Sohoni, 2007), and they also begin to fall further behind in math skills during the middle grades period (Balfanz & Byrnes, 2006). By the end of high school, many low-income and minority students have followed math trajectories that have not prepared them for college entrance, or college completion, at two- or four- year colleges (Lee, 2012; Long, Iatarola, & Conger, 2009). However, little is known about how teacher and parent judgments might lead to these differential trajectories. A recent study has demonstrated the puzzling finding that low income minority parents whose children attend high minority schools (mostly urban) actually have higher expectations for their children than those whose children attend low minority schools (Lawrence, 2015). For high SES families, school composition was irrelevant to their expectations. It is possible that in high poverty, high minority, urban schools, parents are not being provided accurate indications of their children's achievement.

This study examined the relationship between student performance on direct assessments of mathematics skills, teacher reports of students' math skills and preparation, and parent reports of students' math skills for a low-income, primarily minority urban population. This study also considers the implications of this relationship to students' math trajectories. The study was guided by the following research questions:

1. How do teacher reports of students' ability and preparation in math relate to students' directly assessed performance in a low-income, urban middle school population?

2. How do parent reports of students' performance in math relate to their children's directly assessed performance and to teacher reports of students' math ability and preparation in a low-income urban middle school population?

Methods

Study Design

This study was part of an ongoing longitudinal study (Farran, Rittle-Johnson, Price & McCandliss, 2014) focused on middle grades math achievement in grades 5 to 8 for children from high-risk families in an urban school district in the southeastern United States. The study was designed to examine students' mathematical competencies across a critical transition period from arithmetic to algebra. In the spring of each year, students were assessed on their math skills, and their math teachers completed questionnaires. Beginning in the 6th grade year, background data and student expectations were also collected from parents.

Participants

There are 519 students in the entire sample who were assessed during what was for most of them their 5th and 6th grade years. This study is restricted to those students who were on grade level — neither retained (76 in 5th grade year; 86 in 6th grade year) nor advanced (1 in 5th grade year; 1 in 6th grade year) and whose math teachers provided teacher ratings of their performance in class, resulting in an analytic sample of 401 students in the 5th grade year and 417 students in the 6th grade year. This sample was 41.1% male, 77.3 % African-American, and 9.2% Hispanic in the 5th grade, with an average age of 11 years and 0 months at the time of testing. In the 5th grade sample, 83.3 % qualified for free or reduced priced lunch and 10.7% were English Language Learners in pre-kindergarten. In the 6th grade year, this sample was 40.0% male, 78.4% African American and 8.9% Hispanic, with an average age of 12 years and 1 month. Of this sample, 84.7% qualified for free and reduced price lunch and 9.8% were English Language Learners in pre-kindergarten. The students attended 42 different schools in 5th grade and 50 schools in 6th grade, including charter and traditional middle schools. A subset of this group also had parental ratings. Some parents declined or were unreachable for an interview. Thus the 6th grade analyses including the parent interview involve a subsample 397 students who had both teacher ratings and parent interviews. The demographics for the subsample of parents who responded to the interview are very similar to the larger 6th grade sample (40.6% male; 79.6 % African American; 8.3% Hispanic, 84.9% FRPL in pre-k, 9.3% ELL in pre-k).

Measures

Key Math 3 Diagnostic Assessment (Connolly, 2007). Students were assessed in 5th and 6th grades using three subscales from the *Key Math 3 Diagnostic Assessment*: Numeration, Algebra and Geometry (Connolly, 2007). Trained research assistants individually assessed students at their schools in the spring of each year.

Teacher Questionnaire. Each spring, students' assigned math teachers were asked to complete a researcher- developed survey about the teacher's background, math classroom, and each

participating student. Two important variables were drawn from this measure: the teachers report of students' math skills compared to others in the same grade level, and the teacher's report of how prepared the student was for the next level in math. Students' math skills were rated on one of five categories: far below average, below average, average, above average, and far above average. Student preparation for future math classes was rated as: very unlikely to be prepared, somewhat unlikely to be prepared, may struggle but is prepared, mostly prepared, or highly prepared.

Parent Interview. In the winter of the students' 6th grade year, trained interviewers conducted parent interviews by phone. The parent interview addressed parents' perceptions of their student's performance in math, rated on the same scale as teachers, from far below average to far above average.

Analytic Approach

A descriptive, quantitative approach was used in this study to explore the relationships between student performance and adults' reports of students' ability in 5th and 6th grade math. For each year, student achievement subscale scores and teacher reports were correlated to examine the relationship between the teacher reports of mathematics ability and preparation and each of the math achievement subscales.

To compare the mathematics achievement of students according to their teacher reported ability and preparation, students were divided into subgroups by teacher rating level (e.g. far below average, below average, etc.), and the means for each of these subgroups were compared using one-way analysis of variance (ANOVA). Tukey's honest significance difference (HSD) test was applied post-hoc to examine the differences between the groups.

Parallel analyses were conducted using the parent reports of student ability in 6th grade mathematics, including correlations with students' assessed achievement, as well as analysis of variance for subgroups and multiple comparisons across subgroups.

Results

The zero order correlations using Pearson product moment correlations are presented in Table 1. As can be seen in Table 1, teacher reports of students' math performance were moderately correlated with students' tested math performance in both 5th and 6th grades, with slightly stronger correlations in 6th grade. The correlations ranged from .44 for Geometry in 5th grade to .62 for Algebra in the 6th grade. Parent reports, collected in the 6th grade year, were correlated with teacher 6th grade reports (r=.43) and correlated with 6th grade student math subscale achievement (r ranges from .37 to .44) slightly lower than the teacher correlations.

Tables 2 and 3 present the average scores of the students for each of the teacher rating levels. Comparing the average scores across teacher-reported math skills ratings indicates that teacher reports of math ability in both 5th and 6th grades align with student performance *within* the study population. An increase of one rating level on the teacher reported ability scale corresponds to an increase in grade-equivalence on each of the subscales in each grade. It is important to remember that the students were assessed in the late spring of their 5th and 6th grade years when, if their grade equivalent scores were average by national norms they would have been 5.8 and 6.8 respectively.

An analysis of variance (ANOVA) on the grade-equivalent scores for each subscale yielded significant variation among teacher-reported math skills groups (see Tables 2 and 3).

Table 1
Zero-Order Correlations among 5th and 6th Grade Direct Assessments and Teacher and Parent Ratings

	Fifth Grade		Sixth Grade		
	Teacher-reported Math Ability	Teacher-reported Math Preparation	Teacher-reported Math Ability	Teacher-reported Math Preparation	Parent-reported Math Performance
Fifth Grade					
KM Numeration	.56***	.55***	.56***	.50***	.42***
KM Algebra	.58***	.58***	.54***	.51***	.43***
KM Geometry	.44***	.41***	.46***	.44***	.38***
Sixth Grade					
KM Numeration	.54***	.56***	.59***	.53***	.42***
KM Algebra	.55***	.54***	.62***	.58***	.44***
KM Geometry	.48***	.44***	.49***	.46***	.34***

Note. The sample sizes for the correlations vary. Based on the year of the measure, and how many students were administered. Within 6th grade n=417, within 5th grade n=401, across 5th and 6th grade n=376, parent measure n=357.
***p<.001

A post-hoc Tukey test showed that in 5th grade all groups differed significantly except for the *far below average* and *below average* groups on the Numeration and Geometry subscales. In 6th grade the Tukey test showed that the *far below average* and *below average* groups differed on all but the Geometry subscale.

While teacher judgments of skills were accurate relative to others in this low-income urban population, they were not aligned with the norms for the Key Math assessment. As shown in Tables 2 and 3, the mean grade-equivalent scores of students reported by their teachers as having *average* math skills were well below what would be expected based on the normed sample. As noted above, based on the time of the year that students were assessed, we would

anticipate a mean of around 5.8 in the 5th grade year and around 6.8 in the 6th grade year. In contrast, the means in 5th grade were 4.32 (Numeration), 4.56 (Algebra), and 3.96 (Geometry). In 6th grade the subscale means were 5.35 (Numeration), 5.56 (Algebra), and 5.04 (Geometry). All of these means are a year and a half to two years below the normed expectations for students in the spring of fifth grade. Geometry is close to 2 years below the norm. In fact, only 36.9% (148) of the students scored *at or above* a grade equivalent of 5.8 (spring of fifth grade) on any subscale and only 10.7% (43) did so on all three subscales in 5th grade. In 6th grade, only 38.4% (160) of the students scored at or above a grade equivalent of 6.8 (spring of sixth grade) on any subscale and only 9.8% (41) did so on all three subscales.

Table 2
One-Way ANOVA Results of Grade-Equivalent Scores on Key Math Subscales by Teacher-Reported Math Skills in 5th Grade

Math skills		Numeration		Algebra		Geometry Mean	
	n	Mean (SD)	F	(SD)	F	Mean(SD)	F
Far below average	28	2.54 (1.04)	44.95***	2.40 (1.21)	49.46***	2.80 (1.44)	24.20***
Below average	103	3.44 (1.41)		3.62 (1.15)		3.25 (1.49)	
Average	131	4.32(1.57)		4.57 (1.57)		3.96 (1.78)	
Above average	109	5.43 (1.86)		5.54 (1.66)		4.91 (2.16)	
Far above average	30	6.78 (2.04)		6.49 (1.72)		6.05 (1.53)	

***p <.001, N=401

Table 3
One-Way ANOVA Results of Grade-Equivalent Scores on Key Math Subscales by Teacher-Reported Math Skills in 6th Grade.

Math skills		Numeration		Algebra		Geometry	
	n	Mean (SD)	F	Mean (SD)	F	Mean(SD)	F
Far below average	33	3.18 (1.52)	55.54***	3.27 (1.25)	63.74***	3.50 (1.72)	33.36***
Below average	121	4.22 (1.56)		4.30 (1.50)		4.19 (1.59)	
Average	154	5.35 (1.75)		5.56 (1.79)		5.04 (1.89)	
Above average	92	6.85 (1.88)		7.22 (2.08)		6.17 (1.81)	

Far above average	17	8.02 (1.31)	8.57 (1.68)	7.86 (1.76)

***p <.001, N=417

Teacher ratings of student preparation for the next grade level are presented in Tables 4 and 5 along with the students' actual scores for each rating category. When 5th grade math teachers reported their students' level of preparation for the next level of math, 75.6% of the students were described as *highly prepared, mostly prepared, or prepared even if they might struggle*. In 6th grade, teachers are somewhat more realistic and the percentage is reduced to 67.1%. The average actual achievement of students who were considered to be mostly prepared suggests that teachers may have recalibrated their expectations, lowering them to meet the performance of the group. In both grades, the mostly prepared group is between half and a full grade level behind the national norm. The group that teachers reported as *prepared, but may struggle* is even further behind at nearly two grade levels behind across subscales and years.

Table 4
One-Way ANOVA Results of Grade Equivalent Scores on Key Math Subscales by Teacher-Reported Math Preparation in 5th Grade

		Numeration		Algebra		Geometry	
Math preparation	n	Mean (SD)	F	Mean (SD)	F	Mean(SD)	F
Very unlikely to be prepared	31	2.68 (1.23)	44.00***	2.44 (1.13)	52.61***	2.78 (1.40)	20.73***
Somewhat unlikely to be prepared	67	3.22 (1.31)		3.64 (1.21)		3.29 (1.46)	
May struggle, but is prepared	101	3.95 (1.48)		3.99 (1.30)		3.57 (1.76)	
Mostly prepared	132	4.98 (1.76)		5.17 (1.70)		4.57 (1.96)	
Highly prepared	70	6.17 (1.99)		6.16 (1.62)		5.39 (2.04)	

***p <.001, N=401

Table 6 presents the average scores for the students by rating level of their parents. Overall, students whose parents rated them as *much below* or *below average* performed worse on the direct assessments than students whose parents rated them as *above* or *much above average*. Similar to the ratings of the 6th grade teachers, within each rating group, there was considerable variability, especially at the high end of the rating scale. In addition, all of the parent-rated groups had means below the normed expectations except for the *much above average* group on

the Algebra subscale. An analysis of variance (ANOVA) on the grade-equivalent scores for each subscale yielded significant variation among parent-reported math performance groups (see Table 6). A post-hoc Tukey test indicated that the subgroups were not as distinct as in the teacher reports. Tukey's HSD identifies 2-3 homogenous subsets, with the average group overlapping heavily.

Table 5
One-Way ANOVA Results of Grade Equivalent Scores on Key Math Subscales by Teacher-Reported Math Preparation in 6th Grade.

		Numeration		Algebra		Geometry	
Math preparation	n	Mean (SD)	F	Mean (SD)	F	Mean(SD)	F
Very unlikely to be prepared	46	3.77 (1.80)	43.83***	3.68 (1.49)	55.189***	3.96 (1.78)	31.53***
Somewhat unlikely to be prepared	91	4.24 (1.57)		4.73 (1.60)		4.06 (1.65)	
May struggle, but is prepared	117	4.94 (1.88)		5.07 (1.80)		4.82 (1.86)	
Mostly prepared	118	6.17 (1.79)		6.47 (1.96)		5.56 (1.84)	
Highly prepared	45	7.55 (1.68)		8.15 (1.92)		7.27 (1.69)	

***p <.001, N=417

Table 6
One-Way ANOVA Results of Grade Equivalent Scores on Key Math Subscales by Parent-Reported Math Performance in 6th Grade.

		Numeration		Algebra		Geometry	
Math performance	n	Mean (SD)	F	Mean (SD)	F	Mean (SD)	F
Much below average	6	3.27 (0.85)	24.23***	3.37 (0.60)	24.67***	3.27 (1.20)	15.83***
Below average	35	3.46 (1.70)		3.66 (1.89)		3.59 (1.93)	
Average	198	4.85 (1.78)		4.99 (1.86)		4.68 (1.77)	
Above average	125	6.26 (2.00)		6.42 (2.11)		5.76 (1.94)	

Far above average	33	6.46 (2.09)	7.14 (2.50)	6.22 (2.50)

***p <.001, N=397

Discussion and Implications

In this longitudinal study of the math achievement of a large urban sample of middle grade students, we compared teacher and parent ratings of achievement and preparation for the next grade level to the actual achievement of the students in three different areas of mathematical competence. The majority of the students were a full grade or two grade levels behind national norms. What this means in practical terms is that for every year students had attended schools in this high poverty urban district, they were making 2/3 the progress they should have been making. Teacher ratings mirrored the distribution within the sample but not national norms; students were perceived by their teachers to be average achievers and prepared for the next grade level despite being at least a grade level or two behind the national average. Parent ratings were modestly correlated with teacher ratings but showed the same distributional effect – inflated ratings for the actual achievement of the children.

Teacher judgments of students' ability are important to instructional planning decisions, and student placement in courses. Our findings confirm prior research suggesting that these judgments are not accurate for all students (Begeny et al., 2008; Begeny et al., 2011; Demaray & Elliot, 1998; Feinberg & Shapiro, 2009; Hoge & Coladarci, 1989). The misalignment we found between students' scores, national norms, and teacher ratings of math skills is consistent with the previous literature. Specifically, teachers overestimate students' math skills when students are at or below grade level (Eckert, Dunn, Codding, Begeny, & Kleinmann, 2006).

Teachers' reference points are critical to understand the differences between student achievement and teachers reports of their math skills. First, it must be acknowledged that the teachers may have interpreted the question as asking about each student in comparison to other students *at their school.* For example, teacher ratings from the Early Childhood Longitudinal Study (ECLS-K) data from Kindergarten to Grade 5 indicated that teachers evaluated students' performance relative to others in their school (Martinez, Stecher, & Borko, 2009). By this metric, teachers have done a good job of ranking students in relation to other students that they know and work with regularly. Second, the teachers working with the students in our study may have worked primarily with other low-income and racial minority urban students throughout their career. This type of experience is likely to affect their understanding of students' ability and skew expectations of what it means for a student to be prepared for the next grade level in math.

The results relating teacher reports of student preparation and student achievement suggest that teachers are not referencing national norms. Students whose teachers rated them as prepared were a year or more behind the norms. This trend persists between 5^{th} and 6^{th} grades, suggesting that many students are not prepared for the math at the next grade level, although their teachers believe they are.

Parent reports of student performance in math are less differentiated than teachers' reports of student ability. This may be because parents do not have the professional experience or skill necessary to differentiate their students in nuanced ways. Parents were most likely to rate their children as *average* or *above average.* Parents may be basing their judgments of their children's mathematical progress on how teachers perceive the students. In these high poverty,

high minority schools, lowered expectations for performance from teachers may permeate the schools and be communicated to parents as average, meaning average for this group of students. Parents may not be aware of this recalibration nor therefore of the need to advocate for additional educational support to improve their child's mathematics achievement.

This study had several limitations that must be considered along with the findings. First, the full sample of students who were assessed was not included in analyses presented here. Each year, students were excluded who had been retained or, in one case, promoted early. The potential is that these students were different from the overall sample. The demographics suggest that these students may be somewhat different demographically. In both, 5th and 6th grades, the excluded students were more likely to be male (51.7% in 5th grade; 56.9% in 6th grade) than their on-grade level peers. In 5th grade a higher percentage of excluded students were African American (83.9%) while in 6th grade a slightly lower percentage (77.5%) were African American. The differences in the retained students suggest that our findings may not hold for students who were retained.

However, including the retained students would muddle the question under investigation. We don't know why these students were retained (or promoted). The math scores for these students may be at variance from their grade placement if they were retained primarily for reading delays. In addition, since we asked about teachers' perceptions in that grade level, including teachers from another grade level could confound the results further.

In addition, the analysis sample was limited to those students for whom we were able to collect teacher and parent reports. Extensive efforts were made to reach teachers and parents and to encourage them to participate; however, some declined or were unable to be reached. Out of 426 students who were enrolled in 6th grade in the second year of the study, 397 parents were reached, for a response rate of 93%. This missing data may be responsible for some non-response bias, but the high response rate is encouraging for the generalizability of the results.

In addition, our surveys of parents and teachers' expectations were conducted by telephone (parents) or online (teachers). We did not interview either group about the bases for their judgments and so we do not know how much either group really knew about math achievement expectations for children in these grades, though teachers should have known more.

Finally, we only have a highly impoverished, primarily minority sample of children attending high poverty schools in an urban district. We do not know whether recalibration of teacher expectations happens in schools serving a different population of children. Other research suggests that higher SES parents, at least, make their judgments about their children based more in line with individual child characteristics and are less influenced by the characteristics of the schools (e.g., Lawrence, 2015). But we do not know if the same is true of teachers in different types of schools.

The results of this study suggest that students considered to be average and prepared by both their teachers and parents are actually at least a year and mostly much more behind national norms in learning math content. In low-income urban schools, teachers may *recalibrate* their expectations for the population of students they are working with. If instructional decisions and students' future placements are made with reference to teachers' judgment of ability and preparation, then misalignment with national norms could have far-reaching implications for students' future achievement in mathematics.

In order to support low-income and racial minority urban students in middle-grades mathematics and beyond, more attention to the calibration and recalibration of teachers' judgments to local and national norms may be necessary in future research and teacher

professional development. As Jackson et al. (in press) argue, in order for students to be exposed to more rigorous mathematical activities, it may be necessary to force urban teachers to reframe their expectations.

More research is needed to identify how extensive recalibration is among teachers in urban schools, particularly in grades 4-8, when the mathematics achievement gap seems to expand most quickly (Lee, 2012). Second, research could be used to identify factors that are associated with the recalibration of teacher judgments, from individual and classroom characteristics to school and district policies. In addition, future research could explore situations in which using teachers relative judgments within a population is beneficial and sufficient for supporting student success in mathematics and situations when accurate or normed judgments of student achievement are critical.

It is also important for teachers and other practitioners to have knowledge about the merits and uses of relative and absolute judgments of student achievement. Based on the findings of this study and others, it is likely that professional development work will be needed to support teachers in using their information and data about students in their classrooms to promote productive student placement and mathematical development.

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TOWARD A RADICAL PRAXIS FOR OVER-AGE, UNDER-CREDITED AFRICAN AMERICAN STUDENTS

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Abstract

The "over-age, under-credited" (OA/UC) student population is defined as high school students who are at least two years behind their peers in terms of age and credits earned toward a high school diploma. To date, few studies have examined the schooling of OA/UC students. The purpose of this study is to use the insights of six African American OA/UC high school students to define strategies for improving educational outcomes at their school. The specific research question explored is: What recommendations, rooted in participants' race, gender, and age, do they offer for improving the educational experiences of OA/UC students? Data analysis for this case study incorporates critical race theory, adult learning theory, and culturally relevant pedagogy as a comprehensive theoretical and analytic framework. The findings serve to provide a foundation for realizing a radical praxis that leads to substantive changes in the education of OA/UC African American high school students.

Keywords: African American students, over-age under-credited, student voice

Efforts to increase the number of African American students graduating from high school include expanding alternative education opportunities, specifically establishing more transfer high schools expressly designed to meet the needs of older, academically under-performing students. Due in part to its established history of transfer high schools, New York City has been looked at as a model for this approach by some stakeholders interested in innovative ways to reduce dropout rates (Burrow, Smith, & EGS Research & Consulting, 2007). In New York City, transfer high schools serve a student population referred to as "over-age, under-credited" (OA/UC). The OA/UC population is defined as high school students who are at least two years behind their peers in terms of age and credits earned toward a high school diploma (Cahill, Lynch & Hamilton, 2006). Nearly half (48%) of all entering ninth grade students become OA/UC during their high school careers, and "there are 14% more African Americans and Hispanics in the OA/UC student population than in the general population of New York City high schools" (Advocates for Children of New York, 2007, p. 2).

Despite efforts to provide a substantially different educational experience for students in transfer schools, the long established grammar of schooling (Tyack & Tobin, 1994) remains unaltered and unchallenged in many transfer high schools; the institutionalized framework of public education that perpetuates racial inequalities and a dominant culture of schooling are

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inescapable in alternative settings. When educational reform efforts lead to incremental changes in schooling experiences, improvements for African American students are often slow in coming if they occur at all (DeCuir & Dixson, 2004). Thus, African American students attending transfer high schools are likely to experience similar barriers to their academic achievement as they would in other school settings.

Complicating efforts to improve educational outcomes for African American students is the underlying assumption that policymakers, practitioners, and scholars who advocate specific reform strategies can know and do what is best for students without engaging them in conversations about reform. A growing body of literature calls for consulting students and incorporating their voices in improvement efforts (Friend & Caruthers, 2015; Mitra, 2008; Yonezawa & Jones, 2009). A reason for this is the acknowledgement that students possess unique insights about their schools that teachers and administrators cannot fully anticipate in the absence of listening to students (Cook-Sather, 2010).

While policy initiatives aimed at increasing the academic achievement of African American students are advancing, the specific needs of OA/UC students are rarely considered, and the voices of these students are silenced. To date, few empirical studies or education reform efforts have examined the experiences of students who are considered OA/UC and choose to persist in high school. When race, gender, and age are ignored, reform efforts that focus solely on the experiences of African American students in the aggregate will likely be limited in their ability to help OA/UC students who face unaccounted for obstacles on their path to a diploma.

The purpose of this study is to add the experiences of six OA/UC African American high school students to school reform conversations and use their insights to define strategies for improving educational outcomes at their school. The specific research question explored in the findings is: What recommendations, rooted in participants' race, gender, and age, do they offer for improving the educational experiences of OA/UC students?

Conceptual Framework

This study combines tenets of critical race theory (Delgado & Stefancic, 2012), adult learning theory (Knowles, 1984; Knowles, Holton & Swanson, 1998), and culturally relevant pedagogy (Ladson-Billings, 2009) as a framework for understanding the schooling experiences of the participants and evaluating the curricula, instruction, and culture of the school. Taken together, these three frameworks become a united analytic tool to explore avenues for better educating over-age, under-credited African American students by utilizing their raced, gendered and aged subjectivities to positively influence their educational experiences.

The integrated framework I constructed for this study accounts for diversity within African American student populations in terms of learning styles, experiential knowledge, cultural assets, and schooling experiences while directly linking students' educational experiences to inequitable structures of schooling that are rooted in institutionalized racism. Figure 1 represents key elements from critical race theory (CRT), culturally relevant pedagogy (CRP), and adult learning theory (ALT) applied in this study and how they intersect with one another as an integrated framework.

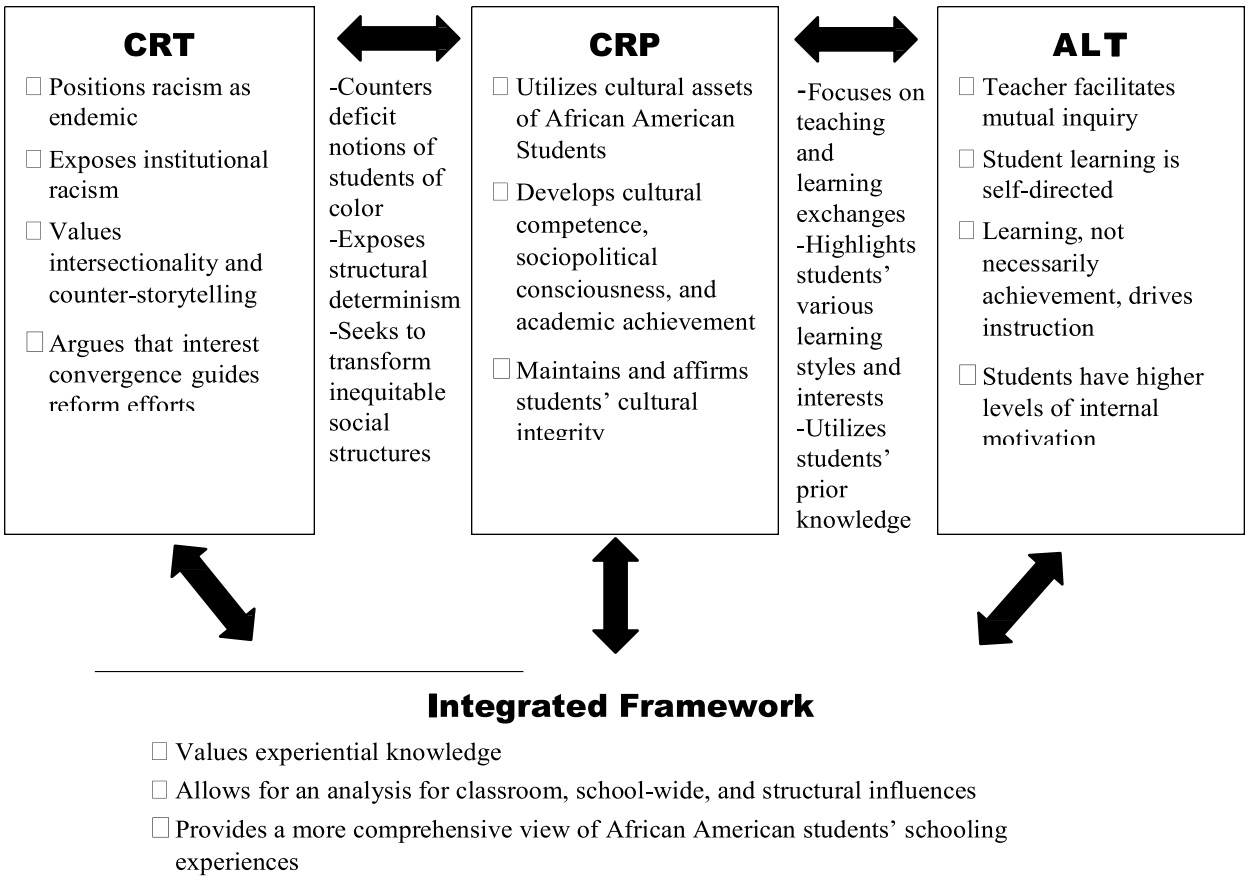

Figure 1. Key Elements from CRT, CRP, and ALT. This figure demonstrates areas of overlap and convergence between CRT, CRP, and ALT.

Methods

The findings below are part of a larger study conducted over an eight-month period from November 2013 to June 2014 at a transfer high school in New York City. The high school, referred to here as SPHS, is one of 49 transfer schools in the city's District 79, which is specifically dedicated to alternative schools and programs (New York City Department of Education, 2012). The reported African American student population was approximately 40% in 2013-2014 with young women accounting for slightly more than 50% of the total student body (New York State Department of Education, 2015).

Participants

For this study, I selected six participants. They were chosen as the result of a recruitment meeting facilitated by flyers posted on campus and word of mouth from the school principal. Eleven students attended the meeting; three young women and eight young men. Eligible students had to meet the following criteria:

- Self-identify as U.S. born African American
- 18-21 years old
- Enrolled at SPHS for at least one full academic year at the start of the study
- In their expected last year of school (due to anticipated graduation, age/credit combination, or academic standing)
- Willing to participate and openly discuss their schooling experiences and be shadowed in their classes

All of the young women met the criteria and are included in the study. One young man was under 18 and therefore excluded; another did not agree to participate in the interviews and was excluded. Six young men were invited to the initial focus group meeting, but only three attended. After several attempts to contact the three absent young men, they were later excluded due to perceived unwillingness to participate. Therefore, the six remaining students, three young men (Amir, Shaun, and Wayne) and three young women (Evelyn, Karma, and Monica), became my participants. All students' names are pseudonyms.

Due to Amir and Monica leaving the school before all data were collected, they are not represented in the findings reported below. Table 1 provides additional participant demographic data for the four remaining participants. Age and years completed at SPHS are based on information provided at the beginning of the study.

Table 1
Participant Demographic

Name	Age	Years completed at SPHS	Expected to graduate by the end of the study
Evelyn	20	2	No
Karma	18	2	Yes
Shaun	20	3	Yes
Wayne	19	1	Yes

Data Collection

Data were collected in four distinct phases. Phase 1 consisted of 22 school setting observations recorded in a research journal. This phase began at the start of the study (November, 2013) and continued through the end of data collection (June, 2014). All observations were informal (Gagnon, 2010) in the sense that I did not use a strict observation protocol to guide or limit what I looked for during the observations. Instead, I recorded descriptive notes of spaces within the school and participant interactions in the hallways as well as reflective notes that captured my thoughts and questions. Phase 2, which took place from December through May, included 10 classroom observations (using the same informal approach as described above) and round 1 focus group interviews. Individual interviews, which began in May and concluded in June, were conducted in Phase 3. Phase 4, the last two weeks of data collection, was dedicated to a second focus group interview and opportunities for member checking. All interviews took place at the school site during lunch and lasted between 45 and 65 minutes.

Data Analysis

Coding in and around the conceptual framework began with tentative coding families based on themes from CRT, CRP, and ALT. The coding families (Appendix A) each comprised a coding context and a priori codes based on my integrated framework. For example, the coding family "participant perspectives" includes the context "the influence of race, gender, age" and a priori codes such as "deficit notions, life-centered learning, intersectionality, and supporting cultural competence." Consistent with Bogdan and Biklen's (2003) assertion that coding families often overlap, I initially placed several pieces of data in multiple families because they represented multiple contexts. For example, in a particular exchange between Monica and the school's technology coordinator, the observation note was coded as both relationship and setting/context because there was a clear teaching and learning exchange that also included reinforcing school policies.

Next, I engaged in open-coding to generate second-level codes (Charmaz, 2006) based on the nature of the specified coding families. For example, I combined every instance coded "teaching and learning exchange" first by participant. The combined data was read to better understand how individual participants experienced certain exchanges. Codes such as "student initiated interaction with teacher," "class participation," and "teacher initiated interaction with student" helped me to fracture the coding families into component parts (Charmaz, 2006).

In order to generate themes, this fractured data was first analyzed across participants by gender. I collapsed this data into categories such as "curricula," "instruction," and "school culture" for the young men and women separately. The data was finally read and synthesized across all participants to make meaning and write findings.

Discussion of Findings

Young Women's Recommendations for Curricular and Extracurricular Activities

Both Karma and Evelyn wanted opportunities for young women to take part in rigorous, experiential curricula that would enhance their interests in science:

> I think extra curriculum like, science—more science, hands-on stuff—cause I'm a geek so it's like more or less I like science everything. (Evelyn, Focus group 2, June 16, 2014)

> I feel like for science…maybe you could get more lab equipment, maybe people would actually experience what science is before leaving high school. I never…what is it? dissected a frog? But I feel like this is something I wanted to do for the simple fact that I want to do autopsies when I get older. (Karma, Focus group 2, June 16, 2014)

Their interests in science with a lack of opportunity to fully participate in the subject matter as desired (hands-on, bigger projects, with more lab equipment) calls attention to a structural deficit that can hinder OA/UC African American girls and women from accessing STEM careers in the future. CRT calls attention to the lack of such curricular and extracurricular opportunities as an additional structural deficit that places students at transfer schools like SPHS as a perpetual educational disadvantage; they enroll in a transfer high school seeking an alternative to their previous experiences but are overwhelmingly met with similar structures that plagued their

previous schooling. In this sense, transfer schools "allow the current system to replicate itself" (Tate, 1997, p. 222) with institutional oppressions intact under the guise of change.

As I discuss in previous work (Jackson, 2015), there are very few opportunities within the curricula for students to learn about issues directly related to African American students. Given this and following students' comments about not having enough opportunities to study African American history, I asked participants if they would recommend more programs specifically relating to African American students and history. Evelyn was most vocal, speaking against such programs:

> Programs [related to African American history] I don't think [the school needs them], but we do need a little bit more on Black history. But I say [not programs] because—like we don't wanna just sink all of our thoughts into Black history without adding the knowledge of everything else that we're supposta learn. We all come from different cultures. (Evelyn, Focus group 2, June 16, 2014)

The distinction Evelyn made between programs and a need for "a little bit more on Black history" is significant in the context of SPHS for two reasons. First, the school has what they call Heritage Day, during which, as Karma explained:

> We actually have different classes. We have dance class, we have movies, you know. We have crocheting and stuff…it's a good way to actually celebrate and it's a good way to actually motivate the children to actually prepare yourself for where you come from. (Karma, Focus group 1, December 10, 2013)

A common misconception about CRP is that it means celebrating ethnic holidays and using popular culture including movies and songs to teach course content (Irvine, 2010). However, this approach often fails to meet the real educational needs of African American students, particularly those who are OA/UC. Karma and Evelyn admit that they enjoy Heritage Day, especially the food, but Evelyn's quote emphasizes that such programs are not what she needs to enhance her learning at SPHS. She explains that she would not recommend more of these types of experiences that focus on Black history (used interchangeably with African American history). Consistent with intersection of ALT and CRP, Evelyn articulates a desire for an education that attends to her career aspirations as well as her racial heritage.

Second, without using the language of CRP, Evelyn's unfavorable reaction to the thought of "sink[ing] all of our thoughts into Black history without adding the knowledge of everything else" speaks to the importance of cultural competence. Cultural competence is the ability to participate meaningfully in one's own culture while simultaneously learning to effectively navigate other cultures (Ladson-Billings, 2009). Any program that would center Black history without including a connection to content such as economics, sociology, politics, or legal studies would likely leave students inept at navigating dominant cultures of our society and/or participating in transforming them.

"It's 'You Shouldn't Do This, You Shouldn't Do That' but it's Not Enforced": Young Men's Reflections on Discipline Policies and Practices

Several studies have reported and examined an overrepresentation of African American students, particularly males, in exclusionary school discipline practices such as suspension and expulsion (Fenning & Rose, 2007; Monroe, 2005; Skiba et al., 2011). These works expose the dangers of zero tolerance policies in schools where teachers and staff harbor racial stereotypes that position African American students as violent, aggressive, or otherwise threatening. Much of this research, however, reports on discipline practices in racially mixed or predominantly White schools, and few studies include student perceptions of school discipline policies. The young men in this study present a counter-story (Delgado & Stefancic, 2012) to the narrative of schools as hyper-policed, surveillance states in which school professionals wait for a chance to punish African American students for any and every violation of school rules. Wayne described a lack of rule enforcement at SPHS:

> It's 'You shouldn't do this; you shouldn't do that' but it's not enforced… you know, there's no serious consequence. But, you know, if you are gonna do it, like if it's not cool, then don't tell them it's okay to do it, you know? That's what I mean. Like, I feel like, it's a lot of threats but no—like a lot of bark but no bite. (Wayne, Individual interview, May 8, 2014)

Instead of providing a portrait of a school in which African American students are criminalized or overly policed at school, Wayne's depiction is one of students who are told how to behave based on the school's standards but are not made to conform through any discipline measures. Shaun echoed this view:

> This school, it doesn't have that many rules. It's just like, non-violence. That's like the only rule…[No cellphones] is not a school rule. That's a board of ed rule—no cellphones in any school, so. We get to have cellphones out. They don't take it so you might as well. So it's not a rule; they let us get away with it. (Shaun, Focus group 2, June 16, 2014)

Based on these comments, I asked if the school needs more discipline in terms of holding students accountable for their behavior. Wayne's responded:

> Yeah…I think more students would be uncomfortable because it's like people, especially this generation hate being told what to do and it's like, even though it's beneficial, you feel like you can't control me. You know? And it—it doesn't end well that way. (Wayne, Individual interview, May 8, 2014)

As young adult learners, Shaun and Wayne realize that a lack of rules and not enforcing rules that do exist makes students feel more comfortable. Arguably, school professionals rely on students' internal motivation to behave appropriately rather than punishing every act that is contrary to defined expectations. Ways of being associated with youth culture in the example of using cellular phones are accepted, and structural barriers to educational opportunities such as suspending students for non-compliance are reduced in this example.

"You Can Actually Like Dig Deep into Their Personal Life": Participant Recommendations for Teachers and Their Teaching

Wayne and Karma were the only participants to offer recommendations for school professionals, particularly teachers and their teaching styles. Their recommendations relate to teacher attitudes towards the African American students they teach and the delivery of course content. Culturally relevant caring requires school professionals to act in the best interest of students (Parsons, 2005) while creating classroom environments that are conducive to learning (Gay, 2002). For OA/UC African Americans, teachers need to understand students' actual best interests from a critical consciousness that avoids deficit notions or attempts to infantilize older students. Wayne reflected on how this is lacking at SPHS:

> I would honestly say that our young men are coddled…they kinda give us stuff, you know? They kinda write our papers for us and suggest—you know suggest but it's actually telling us what to do. (Wayne, Individual interview, May 8, 2014)

Culturally relevant educators push students of color toward high levels of academic success (Howard, 2001; Ladson-Billings, 2009; Ware, 2002). However, the practices described by Wayne demonstrate educators' uncertainty about African American male students' ability to perform academically unless they are guided by teachers every step of the way. Underlying Wayne's insight is a desire for students to have more autonomy in their learning, positioning them as young adults who need to understand the practical components of the content yet are able to self-direct their learning experiences (Fogarty & Pete, 2004). Later, Wayne voiced the following recommendation for teachers to modify their instruction:

> I'm not sure. I don't think there's much to be changed about [instruction]. But what I would say is like more passion. Like I—to me if—if the person delivering the information to me is passionate about it, enthusiastic about it, then I'm gonna be interested. It's almost like monkey see, monkey do like if I see you're excited about this, it gets me excited. (Wayne, Individual interview, May 8, 2014)

Wayne's specific suggestion extends common notions of both CRP and ALT to include passionate instruction as paramount. At the same time, student-teacher relationships will still influence how instruction is perceived and received by students. Karma illustrated this point:

> [Teachers] should at least like build connection with the students. When you build a connection with the students, you can actually like dig deep into their personal life where if the student starts lacking motivation, you could at least say, 'Oh hey, such and such and such is going on with your life. You should maybe do something to better it.' You know? (Karma, Focus group 2, June 16, 2014)

Because Karma believes that motivation directly impacts student achievement, she is calling for all teachers to build a connection with all students. Though ALT argues that adult learners have a level of motivation that would allow them to persist, the theory supposes life-centered, student driven curricula and instruction. For adults in educational settings where these elements are absent, students look to their teachers for additional motivational support. A key

recommendation, therefore, is to create a school-wide climate in which constructive relationships are established between every school professionals and every student.

Conclusions and Implications for Radical Praxis

Consistent with student voice literature (Cook-Sather, 2010; Jones & Yonezawa, 2002; Mitra, 2004), Evelyn, Karma, Shaun, and Wayne engaged in a sophisticated critique of their schooling experiences in terms of what was present as well as what was lacking. Students at SPHS face similar barriers to their academic success as they did in traditional high schools mainly due to an institutional structure that does not account for their intersectional realities as young adult African American high school students. At the center of participants' experiences is the importance of creating a supportive school culture for OA/UC African American students. Simply put, the young men and women are calling for an educational experience that is relevant to every aspect of their lives. Based on my analysis of the experiences and stories of Evelyn, Karma, Shaun, and Wayne, I define a supportive school culture for this student population as one that provides culturally relevant and sustaining learning opportunities, requires consistent culturally relevant care from school professionals, and acknowledges older students' need for age-appropriate curricula including life-centered learning and open-ended projects.

For education stakeholders concerned with ensuring that educational outcomes for all students are improved there is a need to engage in radical praxis. I draw from Yamamoto's (1997) notion of the performative dimensions of praxis to define and posit a radical praxis for OA/UC African American students. Radical praxis is action that is engaged, responsive, and transformative for those on the subordinating side of group power. It requires collaboration between those empowered to act and those in need of transformative action. The findings from this study serve to define the "what" of action in terms of the context and subtext of SPHS as well as practical steps for change as articulated by Evelyn, Karma, Shaun, and Wayne. While student voice can be the basis of meaningful school reform efforts, alone it is not sufficient to effect change. Thus, moving toward a radical praxis for OA/UC African American students is a process that merges student voice with intentional and direct action by educators and policymakers in collaboration with youth to improve the educational outcomes for this student population.

A radical praxis to benefit young adult African American students who are being educated in transfer schools will require the creation of new approaches to understanding the schooling experiences of this student population. In devising and implementing a theoretical framework that integrates critical race theory, culturally relevant pedagogy, and adult learning theory, I propound one such approach. The combined framework underscores the need to view the OA/UC African American student population as adult learners with specific learning requisites and styles related to their race, genders, and ages. As applied in this case study, the framework also provided a means to analyze the ways in which the "predicament(s) of intersectional individuals" are structured by larger, institutional inequities evident in their transfer school (Delgado & Stefancic, 2012, p. 55).

As long as over-age, under-credited learners are housed in environments that cannot fully support them in achieving academically and gaining skills necessary to successfully pursue post-secondary options including college, there is work to be done. Currently, the extent to which transfer schools like SPHS can improve outcomes for OA/UC students whose race, gender, and age are rarely considered as coterminous factors of their schooling is called into question.

Further research is needed to continue to solicit and implement the voice of this student population in realizing a radical praxis that leads to substantive changes in the education of OA/UC African American high school students.

Appendix A

Coding Families

Coding Families	Coding context	Sample of Potential Codes	Theoretical Relationship
Setting/ Context	SPHS as a research site	Structural determinism	CRT CRP
		Institutionalized racism	CRT
Participant perspectives	The influence of race, gender, or age	Endemic nature of racism	CRT
		Deficit notions	CRT CRP
		Life-centered learning	ALT
		Supporting cultural competence	CRP
		Intersectionality	CRT
		Internal motivation to learn	ALT
Activity	Participant and school faculty recurring behavior inside and outside of classrooms	Teaching and learning exchanges	CRP ALT
		Unique learning styles	CRP ALT
		Promoting academic achievement	CRP ALT
		Developing sociopolitical consciousness	CRP
		Intersectionality	CRT
Event	Salient instances mentioned by participants and/or observed by researcher	Teaching and learning exchanges	CRP ALT
		Seeking to transform inequitable social structures	CRT CRP
		Structural determinism	CRT

Relationship	Participant interactions with and relationships to peers and school faculty	☐ Deficit notions	☐ CRT CRP
		☐ Endemic nature of racism	☐ CRT
		☐ Intersectionality	☐ CRT
		☐ Teaching and learning exchanges	☐ CRP ALT
		☐ Maintaining cultural integrity	☐ CRP
		☐ Promoting academic achievement	☐ CRP

Note. Critical Race Theory is abbreviated CRT; Culturally Relevant Pedagogy is abbreviated CRP; Adult Learning Theory is abbreviated ALT.

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THE (IM)POSSIBLE PURSUIT OF THE COLLEGE DEGREE: EXPLORING THE EXPERIENCES OF A SMALL URBAN HIGH SCHOOL'S ALUMNI

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Abstract

Bridges Institute is a small public urban high school founded in 1994 as part of the restructuring of a failing comprehensive high school. Part of a network of "critical" small schools in New York City, Bridges aims to interrupt the educational neglect of their students through carefully designed student-centered instruction and authentic assessment, as well as through active engagement in relevant social issues. While the school has experienced success at helping students "beat the odds," a previous study hinted that students faced considerable challenges in pursuing college degrees. The present study explores the issue more fully through an explicit examination of the college experiences of a group of Bridges alumni. Their perspectives on the challenges they faced, along with possible areas for action and further study, are discussed.

Keywords: small schools, college persistence, college drop-out, urban high school alumni

Bridges Institute [2] is a small urban high school founded in 1994 as part of the restructuring of a failing New York City comprehensive high school. Located in one of the poorest Congressional districts in the country, Bridges is a zoned public high school, open to the predominantly Black and Latina/o students from the local community. Staffed primarily by a small group of veteran educators who had previously worked with Deborah Meier in the legendary Central Park East Secondary School in Manhattan, the founders were dedicated to interrupting the educational neglect of their students through carefully designed student-centered instruction and authentic assessment, as well as through active engagement in relevant social issues. Committed to providing a high-quality education to historically marginalized youth,

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[2] With the exception of Deborah Meier, a public figure, the names used throughout are pseudonyms.

Bridges continues to aim to prepare students for college. The staff capitalizes on the small size to create meaningful relationships with their students, and the word "family" is often used to describe the school community.

Still, Bridges is not immune to the realities facing many urban schools. Teacher turnover has been a persistent issue over the years as committed staff members move on to grow their families, pursue other opportunities, or simply to cope with burn out. Entering students continue to be woefully underprepared when they begin their freshman year, often reading multiple years below grade level, with their basic numeracy skills equally lacking. Challenging social issues, such as homelessness, high unemployment rates and violence in the community, impact their students' ability to physically and emotionally attend to the work of school.

In spite of these challenges, Bridges continues to demonstrate success when compared to similar schools, and was recently honored for "beating the odds" with their students. In 2014-15, 65.7% graduated in four years, while 77% graduated in six, and post-secondary enrollment six-months after graduation rose from 41% to 47% between 2013 and 2014. Yet, previous research on the school hinted at challenges students faced in pursuing and completing college degrees (Rivera-McCutchen, 2012a, 2012b). The present study took up the issue through an explicit examination of the college experiences of a small group of Bridges Institute alumni and asked to what extent were the alumni successfully prepared for college? This article presents their perspectives on the successes and challenges they faced and suggests possible areas for action and further study.

"Critical" Small Schools

Reducing school size has been central to many reform efforts for over twenty years (Meier, 1999; Sizer, 2004). In New York City, a network of "critical" small schools, Bridges Institute among them, have worked for over ten years to form a strong coalition, the New York Performance Standards Consortium (Consortium), in order to resist policy mandates that are at odds with their collective vision, especially in the area of high stakes standardized assessments. After the implementation of the statewide high-stakes Regents exam mandate in the mid-1990s, Consortium schools successfully earned a waiver that allowed the schools to use performance-based assessment in lieu of all but one Regents exam, the English Language Arts exam.

Spurred on by the successes of these early small schools, in the early 2000s New York City served as the epicenter of small school reform. Mayoral control over the NYC Department of Education, bolstered by substantial funding from the Bill and Melinda Gates Foundation, paved the way for creation of over 123 new small schools in an effort to go to scale with the successes of previous small school reform efforts (Bloom, Thompson & Unterman, 2010; Stiefel, Wiswall, Schwartz & Debraggio, 2012). However, proponents of earlier small school reform, led by visionaries like Deborah Meier, charged that the rapidly created themed small schools in historically underserved communities like Bronx, NY in the early 2000s, were fundamentally different from the earlier generation of small schools (Fine, 2005). Unlike the newer schools, the "critical" small schools that emerged in the 1990s were more than simply small (Fine, 2005; Hantzopoulos & Tyner-Mullings, 2012); what critical small schools held in common was a commitment to "democratic participation, complex forms of assessment, social justice and equity" (Hantzopoulos & Tyner-Mullings, 2012b, xx).

While outcomes of the newer wave of small schools have been mixed and somewhat controversial, at best (Bloom, Thompson, & Unterman, 2010; Kahne, Sporte, de la Torre, &

Easton, 2008; Stiefel, Wiswall, Schwartz, & Debraggio, 2012), a recent Consortium study indicated that outcomes of the critical small schools belonging to the group is generally positive (New York Performance Standards Consortium, 2012). In comparison to city, state and national outcome measures on graduation rates of general and special education students, English Language Learners, as well as in the areas of college readiness and persistence, Consortium schools appear to have better outcomes:

> Of those [Consortium graduates] in the sample who entered college within one year of high school graduation, 78% overall enrolled for a second year. Of those attending four-year colleges, 84% enrolled for a second year. Of those attending two-year institutions, 59% enrolled for a second year. In comparison, nationally only 73% of students who enter four-year colleges and 56% of those who enter two-year institutions return for their second year (Foote, 2007, p. 362).

The study emphasizes that the performance-based assessments employed by the schools in lieu of the high stakes Regents examinations, in particular, play a key role in the graduates' successful outcomes.

The Consortium's report offers an encouraging counter-narrative to the dominant discourse around the primacy of high stakes testing as the quintessential form of accountability. This trend in testing has had well-documented negative impact on curriculum, teacher morale and student persistence (Au, 2011; Hagopian, 2014; McNeil, Coppola, Radigan, & Heilig, 2008). While the Consortium's study shows promise in their alternative approach to schooling, one shortcoming of their report is that it fails to disaggregate the data in order to better understand the specific experiences of graduates from the different Consortium schools. Given their schools' unique hyper-local contexts, important distinctions in the experiences of students may have been obscured by this form of reporting. The present study begins to fill these gaps by exploring Bridges' alumni experiences with college more deeply, with an understanding that addressing the limitations in the Consortium's study is critical in order to achieve greater success.

Conceptual Framework

Historically, schools have been organized in ways that reproduce inequality (Anyon, 1980; Sizer, 2004; Willis, 1981). Rather than being the great equalizer, schools often solidify the narrow trajectories of students who have already been victimized by under-resourced schools and communities. In particular, depersonalized large high schools typically sort and condemn students to fulfill destinies too often predetermined by their race and/or class backgrounds (Sizer, 2004).

Many of the founding schools that make up what are now Consortium schools, emerged in the late 1980s and early 1990s, in order to disrupt these negative reproductive forces and create new possibilities for urban schools (McDonald, 1996; Sizer, 2004). Founded expressly on the principles of providing quality education for all students, these "critical" small schools sought to provide academic experiences for students that would teach critical thinking through authentic and project-based learning, providing individualized and rigorous academic experiences for all their students. Beyond the academic elements, Fine (2012) notes that small schools are "designed and constructed with a rich sense of justice and democracy; a place where educators, parents, community and youth…come together to build knowledge, capacity and community power" (p. ix).

Critical small schools, then, are poised to counter the deterministic and subtractive nature of traditional schools (Valenzuela, 1998), by providing an alternative school setting in urban communities, often with the goal of preparing students for a college education. Yet research on college persistence among Black and Latino students (O'Keeffe, 2013; The JBHE Foundation, Inc., 2005) suggests that inequities persist beyond the high school years. Though prior academic preparation is generally accepted as a key factor for increasing retention of all students, regardless of their racial or ethnic background (Swail, Redd, & Perna, 2003), other sociological and psychological factors have been highlighted as critical determinants (Bean & Eaton, 2000; Tinto, 1993).

One dominant theory on student attrition (Tinto, 1993) has been a foundation for a great deal of empirical research on the topic, yet there has been some debate as to the model's applicability to Black and Latino student experiences (Baker & Robnett, 2012; Carter, 2006; Palmer, Davis, & Maramba, 2011; Rodgers & Somers, 2008). Tinto's framework posits that student departure is likely to occur when they are not successfully integrated into the academic and social climate of the college. Critics have argued that Tinto's framework does not go far enough in acknowledging the impact of external factors, such as family and work responsibilities, on retention (O'Keeffe, 2013; Rodgers & Somers, 2008; Swail et al., 2003). As a result, other research has highlighted how improvements in campus environments might lead to greater retention of Black and Latino students (Carter, 2006; Lehmann, 2007; Museus & Ravello, 2010; O'Keeffe, 2013; Swail et al., 2003).

Taking into account the existing research on the challenges of college persistence, particularly for Black and Latino students, the present study locates Bridges within a tradition of critical schooling (Hantzopoulos & Tyner-Mullings, 2012a) with the potential to interrupt hegemonic reproductive forces in education. As such, the study explores both the long-term promises and limitations of critical schooling through the experiences of Bridges Institute's alumni. Specifically, the research examines their perceptions about the extent to which Bridges prepared them for the multiple challenges they faced in college, and what factors supported and/or hindered their progress.

Methods

Bridges Institute alumni who graduated between the years 1997-2013 were recruited to participate in interviews using social media (i.e. Facebook) and snowball sampling (Merriam, 2009). Additionally, a link to an electronic survey was posted on the Bridges' Facebook alumni group page. Citing concerns about possible coercion, the New York City Department of Education's IRB board rejected a proposal for recruitment within the school, and the school's faculty members were not allowed to assist with recruitment (i.e. they could not reach out to alumni they remained in contact with to inform them of the study). As a result, recruitment efforts were limited to first posting and then frequently re-posting information about the study and the survey on the alumni group's Facebook page.

Although recruitment efforts were inhibited by the IRB's decision, nine alumni, all of whom attended or completed college at some point, volunteered and participated in the semi-structured interviews, which ranged from thirty minutes to two hours in length. Follow up questions were asked to explore and clarify ideas as they arose during the interviews (See Appendices A and B). Survey participation rates were very low (n=25), and five of the survey respondents were also interview participants. As a result, those five sets of survey responses

were used in conjunction with the participants' interview data, rather than being treated as separate survey data.

The online survey consisted of forty closed and open-ended items. In addition to demographic questions, other items asked respondents to indicate the extent to which they agreed or disagreed with statements such as "Bridges Institute felt like a community" and "I did not get a good education at Bridges Institute." Alumni who indicated that they had attended college, were then asked to respond to items related to specific skills associated with college success, such as "defend a point of view with evidence" and "ask for help." On these items, alumni were asked to indicate whether they had learned the skill before or while attending Bridges, while at Bridges, during college or if they had never learned the skill. Open-ended questions for those indicating that they attended college included, "What did you like best about your college?" and "What did you like least about your college?" Alumni who indicated that they did not either apply or attend college were asked to indicate a reason in an open-ended question, however, only a few did so.

The transcribed interview data and, where applicable, participants' corresponding survey data were coded over multiple cycles (Foss & Waters, 2007; Miles, Huberman, & Saldaña, 2013). During the first cycle of coding (Saldaña, 2012), transcripts from the earlier interviews were analyzed using NVivo qualitative data analysis software to begin to make meaning of the data. Coupled with analytic memos, the first cycle coding informed subsequent interview data collections. Additional cycles of coding led to the distillation of the major themes that came up in each in each interview. They included: barriers to college persistence; extraordinary support, and unlikely successes.

Given the limitations of the survey, the data for the twenty respondents who did not participate in interviews were hand-coded individually and organized thematically alongside the interview data. Throughout the coding process, themes and emerging analyses were shared with an external reader to ensure trustworthiness.

Results

Barriers to College Persistence

At first glance, an analysis of the data collected for this research tells a simplistic and perhaps, unfavorable story about Bridges' ability to prepare students for college: only three of the nine alumni who were interviewed were successful in their attempts to persist in college. While the numbers are disconcerting, the alumni interviews, augmented by the survey responses, reveal a complex and layered backstory that illuminates the "whys."

Not surprisingly, alumni often experienced the hardships highlighted frequently in the research literature as barriers to student success (Roderick, Nogoaka, & Coca, 2009). The financial burden of college was cited as a challenge frequently among the alumni that were interviewed, particularly those who attended private residential colleges. It was not limited to them, however. Several of the students who attended college within City University of New York (CUNY) system noted the hardships incurred by the costs of tuition, materials and commuting, as well. The alumni were wary of the loans they had to take out in order to cover their expenses, and were especially concerned about the long-term implications of college debt.

A more revealing pattern among most of the study participants who did not complete college, however, was a persistent belief that they were incapable of succeeding. This is

noteworthy, since research suggests that self-confidence and self-efficacy are non-academic factors predicting college persistence (ACT, 2007; Lehmann, 2007). When reflecting about his first experience at the community college, Orlando, a Latino who now has a successful career in the culinary arts, recalled, "I walked into college…feeling like I was dumb, like I didn't belong." This sentiment was echoed by four of the interview participants, regardless of the type of institution they attended, and was further reinforced by the fact that the alumni were often required to enroll in remedial courses, a theme that was also evident in the survey data. All of the students interviewed who attended public colleges and one who attended a private college had to take remedial math courses, sometimes more than once. Hector, a Latino who was also in the first graduating class recalled his experiences at a private college in Massachusetts,

> I had to take a few remedial courses. I remember taking math and … I think I actually didn't pass the first time and I had to take it again. I remember that being like a downer. I think I was also in the, I don't know, I think there was another sort of remedial class that I had to take. I guess I wasn't as, I don't know if - I felt like I didn't quite measure up to everyone else.

Here, Hector's feelings of inadequacy when compared to his peers at his private institution were compounded after he failed the remedial course. This was a common theme among the other interview participants as well, and seemed to be echoed in the survey data. In addition, several survey and interview participants indicated that they were required to enroll in costly non-credit bearing remedial courses that failed to move them closer to their goal of completing their degree. This further underscores the aforementioned concerns over money.

For the two participants who had attend private residential colleges, "culture shock" greatly shaped their experiences in school. Julissa, a Latina, recalled her experiences at the school she attended in Massachusetts,

> I had A's in my psychology class and that was a graduate class. I was standing out with everybody. Leaving [Bridges] I walked into [the college] confident that I could stand up. It was just mentally I wasn't ready for the culture shock that I think that when I walked into [college]. I was looking for people who were like me because I always … I felt confused. I don't know … When I would come home I felt at home.

Though she was thriving academically and did not echo other participants' feelings of being underprepared for college, the culture shock was disorienting and very challenging for Julissa. This is a common barrier cited in the literature, especially for students of color attending predominantly White institutions, as these two students did (Museus & Ravello, 2010; Rodgers & Somers, 2008). Not surprisingly, the culture shock Julissa experienced, coupled with her fears about taking out school loans led her to decide not to return to the college after her first year. Though she affirmed that she felt very well prepared for the academic challenges in the private college, after returning home and transferring to a CUNY institution, Julissa dropped out. She recalled feeling lost in the large CUNY classes after having attended a small liberal arts college. In a sense, Julissa experienced a second kind of culture shock: a kind of depersonalization that was vastly different from her experiences both at the private college as well as at Bridges Institute.

Extraordinary Support and Unlikely Successes

While the experiences of participants who ultimately left college underscore key challenges they faced, the "success" stories in this research are equally as illuminating. Interviews with the three students who persisted in college and completed their degrees suggest that they had an extraordinary degree of post-graduate support in varying forms. While not explored in the survey, this was a noteworthy common thread that weaves across the three interview participants who successfully completed their college programs.

Chiqui, a Latino who was in a relationship and had fathered two children by the time he graduated from high school, was interested in attending college but was conflicted because he had a responsibility to support his family. Accepted into a residential community college two hours away from New York City, Chiqui had decided at the last minute that he would not attend. However, on the eve of the start of the semester, a former high school teacher who had learned of Chiqui's decision not to go to college called and informed Chiqui that he would be picking him up to take him to school the next morning:

> He came and picked me up like 4:00 or 5:00 in the morning. I packed my clothes, TV in garbage bags. And we drove up to [the college], went into the financial aid office, filled out whatever paperwork, whatever needed to be handled, my room and board, my high school teacher-basketball coach paid for it. And that's how I got to [college].

Chiqui's former teacher went to extraordinary lengths to play the role of surrogate parent, supporting him financially, academically and emotionally throughout his time in college. As a result, Chiqui persisted and successfully completed his associate's degree. Now, sixteen years later, he has returned to college and is pursuing his bachelor's degree at a four-year CUNY institution.

Rayna, a Latina who graduated with Chiqui, describes herself as self-directed, but noted that having a baby near the end of her senior year of high school presented a significant challenge. Though she recalled that support from her teachers at Bridges played a critical role in helping her graduate from high school, she credited her husband and mother-in-law's support as being instrumental in completing high school and college. Their unwavering support propelled her through the public four-year college where she completed her undergraduate degree, and later went on to complete an advanced graduate degree in nursing.

Steve, a more recent graduate of Bridges, completed his associate's degree at a public community college in Manhattan. Steve's experiences in college were not unlike many of the other alumni that noted struggling with the financial costs of college, and he highlighted the significant expenses he incurred while commuting. Similar to the others, Steve, who is Black, was enrolled in remedial courses and struggled to successfully complete them. During the interview, he noted that he was in his third year at the two-year college, explaining, "I messed up my first semester. I tried to do a bunch of everything at once and I ended up crashing." Though Steve's experiences mirror others' in the study who ultimately left college, he persisted because had the support of his advisor at the college. While students typically have access to an advisor in their respective colleges, Steve's experience is noteworthy because he was in the inaugural class of a new community college. As a result, Steve received an exceptional degree of support from an advisor who had fewer students assigned to him than he might typically in another

public two-year college. Furthermore, he had the fortune of attending college at a new institution that had a vested interest in demonstrating early success.

Unlike Steve, Chiqui and Rayna's experiences highlight that relationships outside of the school (i.e. friends and family) proved to be instrumental to their ability to persist despite research suggesting that external social relationships can be distracting for students of color and may therefore pose a barrier to college success (Baker & Robnett, 2012). On the contrary, Steve identified his college advisor as the person who played a key role in supporting him through challenging times, rather than someone external to the school. This is more consistent with the literature on research that highlights the critical role college advisors (and by extension, the institution) play in supporting the success of students of color (Museus & Ravello, 2010; Swail et al., 2003).

Discussion and Conclusion

While all of the alumni interviewed for the research shared comparable backgrounds and faced similar challenges, critical support from one or two people seemed to be essential to the success of those who completed their degrees. Though faced with seemingly insurmountable barriers, including teen parenthood and repeated failure in remedial courses, these three students were able to persist in their respective colleges.

Notably, the other alumni interviewed did not identify any such support person. While all of those interviewed noted key Bridges' mentors who supported and, at times, cajoled them to successfully complete high school, not all appeared to have had the benefit of sustained support after graduation. Several, in fact, lamented their failure to reach out to their advisors and mentors at Bridges when they struggled in college. One alumna wondered aloud if the outcome might have been different had she reached out to her Bridges' advisor when she was first contemplating leaving her private college.

Though the study is limited in size, these findings suggest that in schools like Bridges where students "beat the odds" and finish high school, much more must be done to ensure their continued success beyond 12th grade and into college. It is highly unlikely that Bridges completely filled the academic gaps left by years of previous systemic educational neglect; of course, it is critical to close the opportunity and resource gaps for students like the ones featured here well before they reach high school. In the meantime, however, this study indicates that students like the ones described in this study can be successful even when they face sustained academic, financial and social challenges prior to and during their college years, if they are provided with appropriate, and perhaps extraordinary, supports.

Schools like Bridges continue to be sites of promise, through their disruption of the reproductive cycles of subtractive schooling (Valenzuela, 1999) that limit opportunities for historically marginalized low-income students of color in urban schools. However, to make good on that promise, a careful and honest exploration of the limitations must be undertaken to avoid the pitfalls that many of the alumni in this study faced. To that end, additional and more expansive studies examining the themes illuminated in the present research should be undertaken. Further, studies examining realistic and sustainable models of support mechanisms that have been most meaningful for graduates is critical and timely. Finally, understanding how these supports might vary across different types of institutional contexts within higher education is also an important area for further exploration. Consortium schools are sites of great promise;

fulfilling their potential, however, is contingent upon better understanding and addressing their limitations.

Appendix A

Study Participants

Name	Gender	Race/ Ethnicity	Graduation Year	College Type/Degree	Completed College
Julissa	F	Latina	1998	Private Residential/BA	No
Arelis	F	Latina	1998	Public Commuter/BA	No
Orlando	M	Latino	1998	Public Commuter/AA	No
Chiqui	M	Latino	1998	Public Residential/AA	Yes
Hector	M	Latino	1998	Private Residential/BA	No
Rayna	F	Latina	1998	Public Commuter/BS	Yes
Nathan	M	Latino	2012	Private Commuter/BS	No
Steve	M	Black	2012	Public Commuter/AA	Yes
Greg	M	Black	2012	Public Commuter/BA	No

Appendix B

Interview Protocol

1. After finishing at Bridges Institute, did you attend college? or What college are you attending? or Did you attend after graduating from Bridges Institute?
2. What academic skills did you learn while attending Bridges Institute?
3. In what ways did the portfolios help (or not help) you academically?
4. If you attended college: What kinds of assignments were easy for you and what challenged you?
5. If you did not attend college: What factors contributed to your decision not to attend college?
6. In what ways would you say that Bridges Institute prepared you for college and/or work?
7. In what ways would you say that Bridges Institute did not prepare you for college and/or work?

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LEGACY, LOYALTY AND LEADERSHIP: CREATING A PIPELINE OF INDIGENOUS BLACK EDUCATIONAL LEADERS

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Abstract

Educational leadership plays a vital role in improving the academic outcomes of underserved and minority students. The leadership practices of Black educational leaders have contributed to the theorizing of effective, culturally responsive practices to improve student outcomes. This article uses portraiture to look at how one former Black principal leans on his indigenous understanding of his school and community to build a generational legacy of Black educators and educational leaders. Indigenous, in this context, is used to describe this principal's connection to the community from birth to his retirement and beyond. The article ultimately asks, what contribution does being Indigenous to a space and place add to our understanding of educational leadership and the educational leadership of Black administrators?

Keywords: Black educational leadership, indigenous educational leadership, portraiture, urban school contexts

The literature on Black administrators is limited (Henderson, 2008; Tillman, 2009), with the literature on Black male administrators being even more scant. Part of the challenge of conducting research on Black male administrators is that they are essentially "an endangered species" (Henderson, 2008, p.1), resulting from the educational epidemic of low achievement and academic failure among young Black males (Duncan-Andrade & Morrell, 2008; Howell, 2010; Noguera, 2003). Yet in order to address the academic disparities of young Black males and other underserved minority students, the leadership practices of successful Black male educational leaders needs to be researched, particularly considering that many of these educational leaders work in urban contexts (Henderson, 2008; Tillman, 2009). Lomotey (1989) found that Black administrators positively influence the academic outcomes of Black students. While focusing on four basic components of educational leadership – developing goals, harnessing the energy of the staff, facilitating communication, and being involved in instructional management – Lomotey documented three additional components that related to Black administrators success. These three components include a "commitment to the education of African-American children, a compassion for and understanding of their students and the communities in which they work, and a confidence in the ability of all African-American children to learn" (Lomotey, 1989, p. 131).

Similar to African American students, Indigenous students both domestic and abroad are also faced with an achievement gap between them and their non-Indigenous counterparts

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(Hohepa, 2013; Hohepa and Robinson, 2008; L. J. Santamaría, A. P. Santamaría, Webber, & Pearson 2014). Indigenous educational leadership is seen as crucial to improving education and educational outcomes for Indigenous students (Hohepa, 2013) and as a response, the development of Indigenous educational leaders has been undertaken in Australia, New Zealand and Canada as well as other domestic and international contexts (Hohepa, 2013; Fitzgerald, 2003; Fitzgerald, 2010; White, 2010). Whether looking at the educational leadership practices of indigenous leaders abroad or of educational leaders of color domestically (L. J. Santamaria et al, 2014), the need for educational leaders to make deeper connections beyond culture and into the funds of knowledge that students gain at home is highlighted (Moll, Amanti, Neff, & Gonzalez, 1992). By emphasizing the specific knowledge of a community that relates to its functioning, well-being and development, educational leaders have greater access to educating the whole child as they develop connections between the home and the classroom (Moll et al, 1992).

This article attempts to make a connection between the leadership practices of a former Black male administrator ("Mr. Blackshire") and indigenous educational leadership using the methodology of portraiture. Towards that goal, I asked three questions:

1. What does it mean to be a Black Indigenous leader?
2. How/Why did Mr. Blackshire create a lineage of Black Indigenous leaders at Heights High?
3. What understandings of Black educational leadership can I learn from talking to an elder a.k.a. "the O.G. Pacer"?

Though Mr. Blackshire may not be considered indigenous based on our traditional conception of Indigenous people, he was indigenous to the community/neighborhood and school that he led as an administrator. His capital within the community as well as his intimate knowledge of the people and systems of knowledge (historical and present) unique to the community helped to inspire academic success and create a legacy of Indigenous educators who would return to the community.

The Study

This article is based on a larger qualitative study investigating the leadership and discourse practices of Black male administrators in urban contexts. In this study, three of the administrators were indigenous to the community they worked in, with two of the administrators working at the high school they graduated from. The administrator who is the subject of this article was not part of the larger study, but was consulted because of his mentorship to two of the administrators in the larger study. Mr. Blackshire[2] was the former principal at Heights High, located in an urban community in Northern California. While he is no longer a principal, he is still very active both in the community and working with the school district. As an unofficial mentor, he served in the role of elder, i.e., someone with no formal authority but power of influence through his wisdom, for the community of the Black educators in the school district and beyond (Marshall, 2005). He also works as a substitute administrator, which keeps him in contact with the schools and students in the community. The two administrators in the larger study openly talk about the influence that Mr. Blackshire had on them as students, educators, administrators, and as Black men. They frequently commented on how their approach to

[2] Pseudonyms were given to all identifiers, including the participants, name of the school and the school's location.

leadership is heavily influenced by Mr. Blackshire, and that in order to get a more complete understanding of them, Mr. Blackshire should be contacted. Following their advice, I conducted an interview with Mr. Blackshire as well as shadowed him for a day while he substituted at the feeder middle school for Heights High, which ironically was the site of his first principalship.

Portraiture is the methodology chosen for the study. Portraiture, as a qualitative methodology, requires an intimacy between the researcher and the participants, and focuses on the core elements of voice, context, emergent themes, relationships and the aesthetic whole (Lawrence-Lightfoot & Davis, 1997). While the portrait may be of the participant, it is not the sole creation of the researcher. Portraits are co-constructed by the participants and the researcher as the researcher listens *for* the story that is being told (Lawrence-Lightfoot & Davis, 1997; Watson, 2012). This leads to research that focuses on what Lawrence-Lightfoot and Davis (1997) call, "goodness." As described by Lawrence-Lightfoot and Davis (1997):

> Portraiture resists this tradition-laden effort to document failure. It is an intentionally generous and eclectic process that begins by searching for what is good and healthy and assumes that the expression of goodness will always be laced with imperfection (p. 9).

The data for this article is based primarily on a 75-minute interview with Mr. Blackshire as well as informal conversations held with the administrators he has mentored and his former students. The transcript was reviewed for emergent themes with an "impressionistic record" written on the subject after the initial pass-through (Lawrence-Lightfoot, 1997; Lynn, 2006). The "impressionistic record" is a "ruminative, thoughtful piece that identifies emerging hypotheses, suggests interpretations, describes shifts in perspective" and "allow(s) [the researcher] to become increasingly focused and discerning" in the pursuit of developing ideas and phenomenon (Lawrence-Lightfoot & Davis, 1997, p. 188). After completing the "impressionistic record," I then began constructing themes by reviewing the transcript for repetitive refrains, resonate metaphors and themes expressed through cultural and institutional rituals, finally using triangulation from supporting sources to verify themes. These themes highlighted the importance of lineage and legacy in Black educational leadership.

From Lineage to Legacy

The fist time I spoke with Mr. Blackshire on the phone his soft baritone voice along with the straightforwardness of his tone and the lack of "play" in his speech put me on alert, as I knew he wasn't about games. With a deliberate pace as he talked, Mr. Blackshire didn't waste time getting to the point and getting me to the point. This was reinforced on the day that we met. In an attempt to buy a little more time so I could finish doing what I was doing, I texted Mr. Blackshire to see if we could meet a half hour later. His response, "I'm currently en route. I will be there early. Don't make me wait more than 15 minutes." He was direct and straight to the point, no room for a misunderstanding. I immediately began moving with haste, had to get there before he did because after all I did ask to meet with him.

When I pulled up to Panera Bread, I drove past the front hoping to get a glimpse of the man I had already heard so much about. Hoping he hadn't been waiting for too long I quickly parked and jumped out of the car, going over potential excuses for being late in my mind. I didn't see him immediately in the front of the restaurant, so I went inside. As I walked around looking for him, I had no idea what he looked like, but I knew I would know him when I saw him.

Relieved that he wasn't there I sat down outside. It was a beautiful fall day, the weather was still warm and the sun was shining bright. It was the perfect day for eating lunch outside. After a few moments of sitting and watching people walk in and out of Panera and the Panda Express next door, I look up to see a monument of a Black man walking towards me. Tall and slender with a little lean to his right side, Mr. Blackshire was a dark skinned man with salt and pepper hair and a smoothly shaved face. I quickly stood up to shake his hand and was greeted by that soft deep baritone, "Hello, how are you doing?"

We decided to head inside and get our lunch before sitting down to eat. I ordered first and then went to find a good table that was clean, had lots of space, and was isolated, or as isolated as was possible considering we were meeting at the peak of rush hour. As we got our food and sat down, I was still in awe of this man who had been described to me as "the Godfather of Heights High." Even though it was my first time meeting him, I already respected him. He was "ole school" Black like my grandfather. The kind of Black that carried a hard and worn exterior that let you know the inside was a treasure chest of wisdom and experience. So now that I had an opportunity to sit and commune with the Godfather himself, I was awestruck. His first words as we started the interview, "I'm the O.G. Pacer," with his baritone seeming to echo off the window next to us.

Lineage as Philosophy

Considering that Mr. Blackshire was affectionately referred to as the Godfather, I was eager to learn about his educational philosophy. When I asked him, he first paused before saying, "I don't know if I can do that," he then went on to say:

> I believe we have to do everything we can to help kids succeed. I believe in putting kids in the least restrictive environment… And we have to help each other as professional educators to change some of the things. And not be afraid to try new and different things.

Though this is Mr. Blackshire's official response to the question, as he continued talking he organically began to reveal more and more about his philosophy, beginning with its core.

Mr. Blackshire is committed to the success of his students. Though retired, in our interview he didn't speak like a man who was out of "the game," but as someone who is still active in producing positive outcomes for students. He is committed to change, and he uses his position as an Indigenous educational leader to inform how he educates while inspiring change. Born and raised in The Ville, an urban community in Northern California, Mr. Blackshire spent all but nine months of his youth in the community. Graduating from Heights High in 1963, he proudly bragged that his mother, at 101 years old, still lives six blocks from the school. While in high school he played basketball, which earned him a scholarship to go to college and after graduating from college in 1968 with a degree in English, he returned home to The Ville and began teaching in the community. In 1971 he returned to Heights High as the vice principal. Of the 84 years that Heights High has been in existence, Mr. Blackshire has been a student, teacher, or administrator for 30 of those years. He is the living embodiment of the school motto "Pacer for life," hence his comment that he is "the O.G. Pacer" and it is this lineage of being a Pacer that speaks directly to the core of his educational philosophy. It's not enough to just teach content, but there is a responsibility to teach lineage, to teach history, to teach a responsibility to one's community.

"Pacer for Life"

In 1971, the students at Heights High walked out in protest that they didn't have any teachers or administrators of color. The principal and one of the vice principals were removed from the school and replaced by another White principal and Mr. Blackshire, who was 25 years old with no experience, no training, or a credential. He had to learn how to do the job himself. In his own words, Mr. Blackshire said:

> I became the vice-principal with no experience. No form of training. I didn't have a credential, but they were desperate. They knew that they needed somebody big & black in there that could help control these kids. They didn't think I was that smart though I just happened not to be anyone's fool. And I love kids. And it was my 'hood.

Mr. Blackshire provided three key elements to his success, his intelligence, his love for students, and his loyalty and commitment to his "'hood." Yet, in addition to providing these three keys, he criticized the outsiders, "they," as being desperate and ignorant to how to effectively reach and teach students of color. He also critiqued the derogatory and diminutive view that he knew "they" had of him and his community. In his words, he wasn't "anyone's fool" and it wasn't as simple as putting a non-intelligent Big Black man in front of Black children to get them to behave in the way "they" wanted them too. He was going to love those kids and love his 'hood and in the process take ownership over something that he felt was theirs. He was going to give the students what they wanted, more Black teachers and administrators.

The Pied Piper

The legend of the Pied Piper of Hamlin presents an individual who, despite his quirky style of dress, was able to deliver a town from its plague of rats and mice. In addition, the legend also states that this individual was able to make a connection so strong with the youth of the town that he was able to lead them away in the night as their parents were distracted. Despite the legend not portraying the Pied Piper in the best of lights, noting the unusual style of his clothes, disparaging his profession as one not respected by the townspeople, and depicting him as a kidnapper, Mr. Blackshire sees the Pied Piper, and his ilk, in a different light. He describes "pied pipers" as individuals who "make things change, make systems change" and "figure out a way to get you through hurdles." As he said to me in our interview, "schools need them because our kids are failing and we need to do something different." Yet, in saying that schools need "pied pipers," he also acknowledged that their beauty and their value are not always easily recognizable or accepted.

In the legend of the Pied Piper we find an individual, who like Mr. Blackshire noted, is able to problem solve and figure out a way through a hurdle. We also see someone who, maybe because of how he dressed, or because of the job he did, or for any number of other reasons, was different than everyone else, and thus, was taken advantage of and dismissed. Lastly, we see an individual who was able to reach and make a connection with the youth to where the youth willingly followed his lead. Mr. Blackshire saw "brothas" (Black men) as having these same qualities and noted that because they may not have a credential or may not fit the mold of a traditional educator that they are often overlooked for their ability to change systems and connect with students. Yet, he prided himself on providing opportunities for "pied pipers" to work at his

schools and boasted that when he was principal he had twenty "brothas" on staff with degrees, noting that there are plenty of Black men with degrees who could come do the work that needs to be done.

As he talked about the importance of having "pied pipers" on his staff, I took the opportunity to ask about his two mentees, the current principal (Mr. Henderson) and vice principal (Mr. Martin) of Heights High, who were both students and teachers under his stewardship. Mr. Blackshire was quick to identify both Mr. Henderson and Mr. Martin as pied pipers, but focused in on Mr. Henderson as our conversation proceeded. Throughout his tenure as an administrator, he had a number of former students return as pied pipers to work at the school, but Mr. Henderson was different; he was like a son. Mr. Blackshire made sure both his biological and fictive sons attended Heights High, and his eldest son and Mr. Henderson were best friends growing up. As the friendship grew, Mr. Henderson eventually moved in with Mr. Blackshire when his family fell on difficult times. Mr. Blackshire convinced his son and Mr. Henderson to go to college together on a buddy system. Both applied to the same school, but only Mr. Blackshire's son was accepted. Mr. Blackshire, receiving the letter first, proceeded to call the school and lobby the admissions director for Mr. Henderson's acceptance. Denied, Mr. Blackshire hung up the phone and began to cry. As he recounts this story its almost as if the restaurant became empty and all I could hear was the emotion in his voice. Mr. Blackshire said that after the phone call ended "all I could think about was how I was going to tell him he didn't get in. He was going to be crushed." As Mr. Blackshire prepared to walk out the door, the phone rang; the admissions director changed his mind.

As Mr. Blackshire recounted this moment I saw and felt his vulnerability. For him, it wasn't just about changing systems or finding a way to get Mr. Henderson accepted into school. It was about him caring for Mr. Henderson as if he was his own son to the point that he became vulnerable for him. He became his pied piper, someone who figured out a way to get through the hurdle. As a result, Mr. Henderson is now a pied piper for the current generation and a steward over the legacy he started. When I asked Mr. Blackshire about this, about these men picking up and carrying the torch he simply said, "That's what they suppose to do. That's why I helped him get into school. I knew we needed some help… Somebody got to come back to help us."

Conclusion

Black people are not native to the soil on which they now live in the UnitedStates. Yet, not being native to the land has not inhibited the organic creation of Black communities, communities such as The Ville, which have produced three, four, and in some cases, five or more generations of Black people and Black families. These communities, despite their relative newness, have developed unique cultures, traditions and knowledge structures that help connect the people and their identities to the place. In the framework that Fitzgerald (2003) presents for indigenous leadership, she identifies the *legitimation of authority from the Indigenous community* and *accountability to the Indigenous community* as two of the primary values of effective leadership. This is what made Mr. Blackshire such a transformational leader. He held capital in the community he was from because he understood the culture, tradition, and knowledge as only someone from The Ville could, and it was this capital that legitimized his authority but also made him accountable to the educational outcomes of the youth who were under his care.

As we continue to challenge traditional educational leadership by theorizing on the leadership of Blacks and other leaders of color, we must ask: What role does being indigenous

play in our initiatives for stronger school-community relations, the achievement of Black and Brown youth, as well as any attempts to recruit a more diversified teacher and administrator pool? Moll et al. (1992) talked about the value of home-based teachers seeing the whole child and looked at strategies for helping teachers gain access to students "funds of knowledge" so that these funds can be more readily used in classroom teaching. However, in Mr. Blackshire we find a possible alternative strategy. What are the possibilities of identifying "pied pipers" who already have access to the "funds of knowledge," yet only lack the training to be educators and educational leaders? Mr. Blackshire demonstrates that while this strategy may be the least explored, it quite possibly may be the most effective.

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NEW TEACHERS FOR CHANGE: CONSIDERING THE PERSPECTIVES OF PRE-SERVICE URBAN TEACHERS

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Abstract

This study presents the perspectives of a group of pre-service teacher candidates with a commitment to teach in urban public schools. Nineteen new teachers participated in this study and 14 of them identified as new teachers of Color. Their reflections on entering the teaching profession, teaching in urban schools, and qualities of good teaching are presented to showcase their power, creativity, and focus to bring about change in public education through effective teaching and attention to community organizing. Results are presented to show the importance of listening to teachers' voices in the scholarly pursuit of social justice education and the critique of proposed federal regulations that attempt to standardize the evaluation of teacher preparation programs.

Keywords: urban education, pre-service teachers, teachers of Color, social justice

Given the proposed federal regulations for teacher preparation programs across the United States (U. S. Department of Education, 2015), it is clear that the era of standardization and testing in public education is gaining force. In fact, the Department of Education is pursuing an evaluation system that not only rates teachers based on their K-12 students' state-mandated standardized test scores, but now will rate the teacher preparation program each teacher attended based on these scores. While the lack of empirical and theoretical research to support such an approach is well documented (e.g. Kumashiro, 2015), it appears that pre-determined, standardized outcomes will continue to infiltrate the evaluation of teacher preparation programs (Dover, Schultz, Smith, & Duggan, 2015). As policy makers, teacher educators, and educational researchers weigh in on the importance of and problems with the standardization of teacher preparation, the voices of actual classroom teachers are missing.

The absence of teachers' perspectives not only showcases the bureaucratic distancing of policy from actual K-12 classrooms, but it represents the silencing effect of pre-determined academic outcomes that fail to account for the cultural and contextual factors of education that lie at the heart of meaningful learning (e.g. Apple, 2006; Lipman, 2011). While teachers—and particularly teachers of Color in urban schools— are excluded from the debate, their work with youth is front and center in the Department of Education's proposed regulations. Specifically, there is a claimed focus on programs that support teachers to work in "low-income" schools in "states with eligibility for TEACH grants" (U. S. Department of Education, 2015). Thus, new

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urban teachers are directly implicated in this proposed policy, and their voices need to be heard. The current study attempts to include the voices of a diverse group of new urban teachers through presenting their perspectives on and reasons for entering the profession. The research questions guiding this inquiry of new teachers are: Why do you want to be a teacher? Why do you want to teach in urban schools? What makes a good teacher?

Theoretical Foundations: Teaching for Equity and Access in Urban Schools

The proposed federal regulations for teacher preparation discussed above are reflective of a larger agenda in public education today—the commodification of teaching and learning. As educational researchers with a focus on urban schools, we must work in solidarity with students, teachers, families, and communities to disrupt the narrative in our country that blames communities of color for the supposed "failure" of urban public schools (e.g. Delpit, 1995; Nieto, 2002). This narrative reflects a short sighted belief in culturally biased standardized testing procedures (e.g. Hilliard, 1984; 1995; Perry, Steele, & Hilliard, 2003) while also neglecting to acknowledge nearly half a century of empirical research on the structural complexities and inequities in public schools (e.g. Deschenes, Cuban, & Tyack, 2001; Rist, 1970). One way to counter this narrative is to build upon existing scholarship with youth, teachers, and communities of Color to portray cultural strengths and successes (e.g. Yosso, 2005). This is important for students and teachers alike, as their voices are too often lacking in the political, legislative, and scholarly discourse in education.

New Teachers in Urban Schools: An Asset Approach

Attempting to portray the assets of a community is not as simple as having a positive outlook or seeing potential in a given context. It involves methodical, sophisticated, and relational understandings of the cultural values, traditions, behaviors, and knowledges of communities. Research on funds of knowledge (Moll, Amanti, Neff, & Gonzales, 1992), developmental assets (Benson, Leffert, Scales, & Blythe, 1998), community cultural wealth (Yosso, 2005), and cultural assets (Borrero, 2011) help to frame the theoretical approach of the current study. Namely, new teachers entering a teacher preparation program with a focus on urban schools need to develop an understanding of their students' (and their students' communities) cultural assets. Part of doing so requires a true commitment to teaching in schools that have historically lacked resources (Duncan-Andrade, 2007).

As teacher educators, we must model this approach to cultural assets through the active recruitment and support of working class pre-service teachers of Color into the profession (Kohli, 2012) and attempt to build programs that foster their cultural assets as new teachers. This work is purposeful, historically grounded, and essential for the future of the profession and the mentoring of K-12 students of color (Boutte & Jackson, 2013; Villegas, Strom, & Lucas, 2012). From this stance, the current study is grounded in a theoretical tradition of transformative education in which teaching and learning co-exist in culturally relevant and responsive exchange (Camangian, 2010; Freire, 1970; Spring, 1990).

Valuing the Perspectives of New Teachers

Building on a theoretical approach to teaching and learning that values the cultural assets of teachers and their K-12 students, this study utilizes sociocultural (e.g. Nieto, 2002; Vygotsky, 1978) and ecological (e.g. Bronfenbrenner, 1994) learning theories. Lived experiences—inside and outside of school—are vital to learning, and the navigation of multiple, diverse cultural contexts is a central facet of teaching in urban schools (Borrero & Yeh, 2010). For the current study, the lived experiences of pre-service teachers with a commitment to teaching in urban schools are seen as essential resources that will guide these new teachers in their vision for the teachers they want to become. In these ways, their perspectives about teaching—and why they want to teach in urban schools—are part of an ecological approach to teaching, teacher preparation, and educational research in which multiple, related, dynamic ecological systems inform pedagogy (Lee, 2008).

This ecological approach is not only important in its acknowledgement of and desire to foster the complex cultural identities of teachers as a part of building effective pedagogy, but it also provides a theoretical foundation to counter a standardized and formulaic approach to teaching and learning (e.g. Yosso, 2005). For example, the proposed federal regulations for the evaluation of teacher preparation programs rely on standardized test scores of K-12 students regardless of school or community context. At the same time, these regulations claim to be promoting an agenda for more highly qualified teachers in "low-income" schools. Ecological theory (Bronfenbrenner, 1994; Lee, 2008) helps to provide a foundation to show that the data to be collected (test scores at school) do not match the desired outcome (more qualified teachers in "low-income" schools) because of a failure to recognize the complex and inter-dependent ecological systems impacting students and teachers in real life classrooms. Meaning, for example, a student's test scores at school (a part of a student's "microsystem") cannot be completely separated from her/his interactions with peers, communities, families, etc., ("mesosystem") and the larger sociopolitical ("macrosystem") and historical ("chronosystem") factors of these multiple contexts (Bronfenbrenner, 1994).

Method

Given these theoretical foundations, participants in this study represent purposeful sampling (Galloway, 2005) of a group of pre-service teachers who were entering a teacher preparation program with a deliberate focus on urban education and social justice (see Borrero, Flores, & de la Cruz, 2016). Aligned with the asset-based, ecological approach to teaching and learning presented above, the program attempts to recruit and support working class candidates with experiences in urban schools. The program is a two-year combined Masters and certificate program and candidates complete their classroom observations and student teaching in urban public schools. Candidates enter the program as a cohort and travel through the course sequence together. For the current study, participants were 19 pre-service teachers that comprised the entirety of an entering cohort. Of the 19 participants, 15 identified as female, two identified as male, and two identified as queer. Five participants identified as Asian American, four as Latina/Latino, four as mixed race, one as African American, five as White, and the average age of participants was 25.6 years.

At the start of the orientation meeting to begin the program, participants completed a survey with demographic information and three open-ended questions: Why do you want to be a

teacher? Why do you want to teach in urban schools? What makes a good teacher? Candidates were given approximately twenty minutes to complete the survey. This survey was developed to create baseline information for each incoming cohort. For the current study, only responses to the three open-ended questions were analyzed, and foundations of grounded theory (Strauss & Corbin, 1998) were employed for data analysis. Independently, the author and one research assistant (who was not involved in any aspect of data collection) read all of the surveys to get an overall sense of candidates' responses (Merriam, 1988). Then, the surveys were re-read independently and each reader began to underline units of data (Lincoln & Guba, 1985) in the form of recurring words and phrases. The identification of these units started a process of open coding in which all possible data were explored for potential themes. Next, the two readers met, compared codes, and began a discussion of possible themes to which the codes related (Glaser & Strauss, 1967). The readers then read the surveys again independently and began to underline specific sentences that reflected the possible emergent themes that were identified. In a final meeting together, the readers shared chosen sentences and agreed upon emergent themes.

Results

The emergent themes presented below are organized under each of the research questions: Why do you want to be a teacher? Why do you want to teach in urban schools? What makes a good teacher?

Why do you want to be a teacher?

Emergent themes from candidates' perspectives about becoming teachers were: *to build community* and *to be part of a movement*.

To build community. Candidates shared that much of their interests in becoming teachers stemmed from their own experiences in schools and the mentors they had. This ranged from comments about parents and family members who were teachers to specific teachers that they had in specific grade levels. Candidates also expressed their desires to support students through teaching and mentorship. For example, Kim wrote, "I want to be a role model for others (youth and adult alike) and become a teacher who stands with students in their struggles in middle and high school." This sentiment of working alongside students through difficult times was expressed by multiple candidates, as they wrote about some of their own experiences as youth and the teachers who supported them.

Candidates also wrote about the process of choosing to become a teacher, and their reasons for doing so. Carmen wrote:

> I want to be a teacher for my community. In my community, oppression is a tool that controls people. I've seen this oppression in the classroom and I became frustrated with teachers and administrators. I've seen too many students lose faith in themselves. I want to be a teacher because I am tired…tired of what I see in the classroom and outside of it. To make a change, I decided it was time to get out of my comfort zone and take the step to becoming a teacher…for my students.

Candidates expressed wanting to become mentors for students who may not have other supports. Further, they wrote about building community with extended networks of people in support of students. Ellen wrote that she wanted to be a teacher "to stand in solidarity with my community, my students, and their families."

To be part of a movement. Related to the theme of building community through their teaching, candidates wrote about teaching to create change. As discussed above, this was in large part from their own experiences in K-12 schools and work in their local communities. This idea of teacher as change agent was expressed in different ways. Alma wrote that she wants to be a teacher "because education plays a huge role in social change," and Anna wrote, "I want to work with children with careful intention and purpose in a way that will rectify a lot of the injustices that pervade our shared worlds." In writing about change, and the inequities they want to confront as teachers, there was a commitment to justice as a part of teaching. Alex wrote, "I believe in the power of/potential for radical social justice. I believe that another world is possible. And I believe that education and critical thought are key elements to creating this sort of radical change." This political awareness was a part of candidates' vision for becoming teachers.

Further, the idea of bringing about change through teaching was expressed as community organizing and being part of a movement for more equitable schooling. Mia wrote, "I want to be a teacher because I believe education is an important place to build movements to change this system." Building on this idea, Val focused on her work with students in the classroom as a part of a larger movement to bring about change:

> I want to be a teacher who can bring transformative ideas to groups of students in hopes of building social consciousness for a better world…the education system can be both oppressive and liberating. My goal is to identify the oppressive traits along with my students and use education and a means for liberation.

Brian expressed his vision for becoming a teacher involving work both in the classroom and beyond: "To organize students and teachers to become changemakers. To fight for progressive policies to change the state of education. To be a bridge for organizations and people in the movement fighting for social justice, equity, and change." These examples showcase the urgency in candidates' responses and their belief in teaching as a political act.

Why do you want to teach in urban schools?

When candidates focused more specifically on their desires to teach in urban schools, two themes emerged: *to help change education in my community* and *to be a role model*.

To help change education in my community. As with the themes presented above, there was urgency in candidates' responses to bring about change through their teaching. More specifically, candidates wrote about their own experiences in urban schools and how teaching was a way for them to give back. Alec wrote: "I want to work in schools that are under-resourced like my own schools growing up…It needs to change and I want to be a part of it!!" Similarly, Rica expressed a sense of hope in thinking about the power and potential of the schools she attended and now plans to teach in: "urban schools gave me my education. They are challenging,

complex, uncomfortable, and this is where transformation in the education system will occur." Alex added to this idea by writing:

> I want to teach in urban schools because of my own experience within/without urban school systems. Because I believe urban schools are the sites of massive institutionalized oppression against communities of color. And as a teacher I want to disrupt that process to build with communities and turn the systems upside down and build new ones.

This sense of change was deeply rooted in students' experiences as K-12 students.

To be a role model. As with the examples above, candidates sought change through their teaching and possibilities for changing the schools and communities they grew up in. Maria wrote:

> I am a product of this district. As a student, I was labeled ELL…and I felt that teachers assumed and placed me there because of my color. I also feel that teachers place blame on children for being disruptive, loud, etc. instead of identifying the issue/problem and looking for solutions to serve the student. My goal as an educator in urban schools is to approach issues in the education system with an open mind and heart.

This response reflects her own experiences and her commitment to teach in the local district. This sentiment was also expressed by Brian: "The problematic elements in the urban community I grew up and live in have deep roots in our education system. Thus, in order for me to help manifest a healthy, more equitable community, I feel it is crucial that urban students have powerful insights and a sense of agency. I want to be a part of that." This quote shows an awareness of the historical legacy of inequitable educational opportunity in this community and a desire to be a leader for change.

What makes a good teacher?

Two emergent themes from candidates' perspectives about good teaching were: *being a life long learner* and *listening*.

Being a life long learner. Candidates' responses were generally shorter for this prompt. Many listed words or phrases of teacher qualities and some wrote short sentences. As with the themes above, candidates' responses reflected their own experiences as K-12 students and their desires to bring about change through teaching. Prominent among responses was a sense that a good teacher is always learning—not just about content, but about self and pedagogy. Laurie wrote that a good teacher is "someone who continues to grow and who constantly reflects on themselves and their teaching style." Carissa added to this idea of self-reflection by connecting it to students and the reciprocity of teaching. She wrote, a good teacher is "someone who understands they are as much the student as the student is the teacher." Again, the focus on bringing about change and community organizing was present in candidates' thoughts on this topic. Alma wrote about a good teacher as "someone who builds community with parents, other organizations, staff, and students. Someone who teaches students in a way that breaks down

oppressive barriers in our culture." This focus on community and equity was present across all three research questions.

Listening. To expand upon candidates' attention to community building as a part of good teaching, there was a strong focus on the importance of listening and believing in every student. Arian wrote, "A good teacher is one that does not stop learning and listening to others." Further, Robin wrote that a good teacher has "flexibility in pedagogy, respect for and belief in every student's ability to learn." Again, the importance of self-reflection was a part of candidates' responses as Alec wrote about "a willingness to step back, listen, and learn." The importance of community building was also present in these responses. For example, Carmen wrote that a good teacher is, "a person who builds relationships with everyone in the community: teachers, students, parents, etc. Most importantly, I feel that a good teacher understands why they are doing their work the way they do." The purposeful, asset-based responses reflect candidates' desires to make classrooms equitable spaces for all students.

Discussion

The themes presented above—*to build community*, *to be part of a movement*, *to help change education in my community*, *to be a role model*, *being a life long learner*, and *listening*—reflect this group of pre-service teachers' perspectives on urban teaching as they begin their first day of classes in a teacher preparation program. Collectively, these themes show that this group of teachers is committed to something new in urban schools—they are committed to change. This change is articulated through their writing about their own experiences as K-12 students and their purposeful desire to teach in urban schools that have been historically under resourced.

Implications and Conclusions

These teachers' perspectives are important and must be part of the national discussion about teacher preparation and evaluation. In the context of the current study, it is necessary to note the limitations and possibilities for this research. Regarding the limitations of this study, this is a small sample of new teachers in a specific teacher preparation context in California. Results are not generalizable. Further, the reported perspectives of this group of teachers are limited to their responses on an in-class survey at the very start of the program. Thus, they represent a snap shot in time for these candidates. Their predisposition to issues of equity in urban schools is seen in their quotes and their perspectives are not meant to be representative of other new teachers in different contexts. It is also important to note that the program these students are entering is in continual development and improvement and is not presented as a model.

Given these limitations, these new teachers' words are powerful. They reveal a deep and authentic commitment to making a difference in the lives of urban students—something that all of us in the field need to honor. In this era of high stakes testing and standardization, and given the framing of this study within the proposed federal regulations for teacher preparation (U. S. Department of Education, 2015), these teachers' perspectives offer new possibilities for the future of our urban schools and how we assess students. These teachers did not enter the profession to administer state mandated tests or to move their students from "below basic" to "basic" on pre-determined outcomes. They want to teach to change lives (Camangian, 2010) and

be part of an educational era that provides equitable access to quality education for all students—especially those in urban public schools.

As researchers, we have a lot to learn from these new teachers (Kohli, 2012). They are critical, socially conscious, and hopeful for a teaching career in which they continually learn from and stand beside students, families, and communities. To honor their experiences and perspectives, we must listen to them. Providing opportunities for dialogue and community-building within teacher preparation programs is vital to fostering change in the system (e.g. Borrero et al., 2016; Villegas et al., 2012). We also have to develop strategies within teacher education that give candidates opportunities to connect their lived experiences with pedagogical and curricular development for K-12 schools (e.g. Camangian, 2010). Further, we must include the voices of new teachers in our research and we must develop teacher preparation programs that not only support new teachers like these to achieve their goals, but also provide them access to research experiences during their teacher education so that their voices and experiences are a part of the scholarly and political movement for equitable, transformative education in this country (Lipman, 2011; Yosso, 2005). They are the future leaders of this movement and we cannot let pre-determined, static measures of success determine where they will lead us.

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REEXAMINING PITFALLS OF EXPERIENCE IN URBAN TEACHER PREPARATION

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Abstract

Over 30 years ago, Feiman-Nemser and Buchmann (1985) wrote about "pitfalls of experience" in teacher education. In the current study, I share vignettes of three student teachers engaged in an urban teacher preparation program to highlight how these pitfalls are still operating—and are arguably even more problematic—as we prepare teachers to work with minoritized youth. I add additional detail to the familiarity pitfall and also suggest the existence of a new *standardization* pitfall. I end with cautions for teacher educators and a call for reimagined student teaching experiences as we consider these and other pitfalls in the preparation of teachers for urban settings.

Keywords: pre-service teacher education, urban education, Praxis

I am constantly trying to instruct students who are more concerned about the latest athletic shoe than the fact that they cannot multiply and divide. – Jennifer's week 6 post

I am sitting in a huge classroom with over 100 middle schoolers, watching Yolanda teach… I look around and see black and brown children learning that mathematics is about rote memorization... – Stephanie's field notes

Each student will be given a bag of fruit snacks. Students will open the fruit snacks and group them by flavor. The students will proceed to determine the ratios shown in the package. – Excerpt from Michaela's lesson plan

Introduction

The excerpts above come from a larger study focused on teacher candidates' experiences throughout student teaching. Jennifer, Yolanda, and Michaela[2] are struggling, to varying degrees, to create and enact engaging curriculum for their students—primarily Black and Brown youth—who are attending urban intensive or urban characteristic schools (Milner, 2012). Utilizing Feiman-Nemser and Buchmann's (1985) "pitfalls of experience" in teacher education, I first make sense of the struggles these student teachers face in the field, and then further explicate the notion of pitfalls of experience in *urban settings.*

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Conceptual Framework

Student teaching is a widely accepted component of pre-service teacher education (Anderson & Stillman, 2011; Darling-Hammond, 2006). Some researchers, however, question the role that practicum plays in pre-service teachers' learning. For example, Grudnoff (2011) found that "although first-year teachers consistently viewed the practicum as a very important part of their preparation for teaching, their practicum experiences did not always prepare them adequately for entry into the profession" (p. 229). Learning to teach in urban settings may be even more complex; in their review of studies on the role of field placements in learning to teach, Grossman, Ronfeldt, and Cohen (2011) found that "learning to teach in urban schools can be extremely challenging, in some cases perpetuating negative attitudes and even reducing the likelihood that teachers will continue to work in similar kinds of settings" (p. 318).

These complexities in learning to teach may be related, in part, to the "pitfalls of experience" in teacher education (outlined in Table 1) that Feiman-Nemser and Buchmann (1985) wrote about more than 30 years ago.

Table 1: Pitfalls of Experience (Feiman-Nemser & Buchmann, 1985)

Pitfall	Description of experience
Two-worlds pitfall	The two-worlds pitfall arises from the fact that teacher education goes on in two distinct settings and from the fallacious assumption that making connections between these two worlds is straightforward and can be left to the novice (p. 63).
Cross-purposes pitfall	The cross-purposes pitfall arises from the fact that classrooms are not setup for teaching teachers (p. 63). The legitimate purposes of teachers center on their classrooms, which generally are not designed as laboratories for learning to teach (p. 62).
Familiarity pitfall	The familiarity pitfall stems from the tendency to trust what is most memorable in personal experience…. Ideas and images of classrooms and teachers laid down through many years as a pupil provide a framework for viewing and standards for judging what [is seen] now (p. 56).

Paying careful attention to these pitfalls is still useful today, especially as we consider placements in urban settings. In fact, in a recent review of studies centered on student teaching, Ronfeldt (2015) found that "schools that were lower performing, harder to staff, less collaborative, and had more historically marginalized students were more likely than other schools to be used as field placements" (p. 311). If this is the case, it seems especially important to consider, and expand upon, pitfalls of experience in these settings.

Context and Methods

Data for this study comes from 23 written reflections and lesson plans from student teachers enrolled in a teacher certification program committed to preparing teachers to teach in urban settings. Faculty teaching in the program, including me, take seriously the college's mission to prepare educators who are "empowered to serve as change agents; committed to and respectful of all learners; and engaged with learners, their families, schools, and local and global communities." Course readings throughout the program include Freire (1970) and Ladson-Billings (1997), in addition to texts that focus on multicultural education (i.e., Spring, 2008), white privilege, the school-to-prison pipeline, bilingual education, power and politics in school, etc. In addition to course readings, students engage with local foundations (for example, all of our students work with an organization that supports students of incarcerated parents), write about the impact of their own ideologies on their teaching practices, and create lesson plans with critical pedagogy at the center. Most teacher candidates appear to "talk the talk" around issues of equity and critical pedagogies prior to student teaching, but I was particularly interested to see how things played out in practice.

Preliminary analysis across the entire set of data revealed that most student teachers did not write about problems of practice related to critical pedagogies and most often did not implement these strategies and lessons in the field (see: Cross, Behizadeh, & Holihan, in review). In order to look more closely at what these results meant for teacher education, I identified three student teachers who appeared to struggle with the pitfalls of experience as outlined by Feiman-Nemser and Buchmann (1985) and wrote vignettes—"narrative snippets that crystalize illustrative issues in the field [that are] framed by the writer to make an interpretive point" (Graue & Walsh, 1998, p. 213)—based on their reflections and my field notes to further flesh out their experiences. Below I share a small portion of those vignettes and then discuss what their experiences might mean for pitfalls in urban teacher preparation.

Student Teaching in Urban Settings

Vignette #1:

I just observed Michaela teach her second lesson for the semester. Her lesson plan had three stated goals for students: to know three ways to write ratios, to understand scale up and scale down, and to use ratios to make accurate predictions. After a 10-minute lecture she gave students fruit snacks and asked them to answer questions like, "What is the ratio of lemon to grape?" and "What is the ratio of orange to the entire bag of fruit snacks?" The girls (all students of color in a gender-divided charter academy) listened, took notes, and then did their work with the fruit snacks. The bell rang and they filed out for their next class.

I sit and wonder what feedback to give. Michaela thought the lesson went well. I made some comments about good classroom management and good repertoire with the girls as she walked me to the door. But as I sit here now I know I need to say more and I put this note on her observation form: "Think back to your curriculum class. What other contexts might be more relevant to your students? Why fruit snacks? Could you, instead, look at population data in our city by race and gender, ask your girls to predict who gets pulled over more frequently by police, and then take a look at the real data? This helps them think about ratios and proportions…*and*

racial profiling in their communities." I am left wondering if what we are doing in our coursework around critical pedagogies is enough…

Vignette #2:

It is a few weeks later and I am sitting in a long, narrow computer lab—one classroom space where four had been previously—watching another student teacher, Yolanda, teach. She is placed in a school that utilizes computer-based, self-paced mathematics curriculum for instruction. I watched Yolanda teach a 30-minute review lesson to 7 Black boys and 2 Black girls; she told me earlier that she only knew one of them. I looked out at approximately 100 other students in the lab space and wondered how many others Yolanda did not know. How could she possibly get to know everyone in this room?

Yolanda's 9 students had been "flagged" based on a printout Yolanda received last night at 5pm, as needing additional instruction on dividing decimals. I see two other teachers with groups of students at whiteboards across the room and I wonder about their flags….I watch as Yolanda demonstrates how to divide decimals and then prompts students to practice. I am unsure what to type on my observation form. Yolanda is doing what the other teachers in this space have been asked to do. But is this what is really best for her students?

Vignette #3:

A few weeks later I sit down to read through my student teachers' dilemmas of practice. One of their assignments this semester was to post concerns to a shared online space and then meet virtually in small groups to talk through their dilemmas. I do not participate in the bi-weekly calls, but I do respond to the posts. I am late with my feedback, again, so I scan Jennifer's post quickly:

> *I've been in the classroom for three months. Seeing the day-to-day realities of the educational system have been disheartening, to say the least. I am constantly trying to instruct students that are more concerned about the latest athletic shoe than the fact that they cannot multiply and divide. The students also come from extremely difficult home environments. Rather than striving for a way out, they seem content to continue the cycle of their families. Granted, they are only 11 and 12 years old, but they have to realize that their futures are very dim if they do not put forth any effort towards their education…*

I type this first: "What in your lesson plan makes your students want to engage? You don't have a textbook, so make your lesson about athletic shoes. Have you talked to your students? Do you know their families? Do you know their communities? Do you really know them?" I want to type more, but I delete it instead. I close my computer and think about my own course: What am *I* doing to help my pre-service teachers understand the importance of getting to know their students? And even if they understand the importance, are we providing them with time and space for that work during student teaching?

Discussion

Difficulties Learning across Two Distinct Settings

As Feiman-Nemser and Buchman (1985) describe, pre-service teachers need guidance in recognizing how what they have learned as university students can help shape their perspectives and practices as teachers (the two-worlds pitfall). My student teachers struggled to make these connections. For example, Michaela appeared to be teaching just as she had been taught (and modeling the moves of her mentor teacher), even though she had designed more critical lessons in courses with me. Jennifer similarly struggled as she moved from coursework to the field. In class with me, Jennifer talked about things like the myth of meritocracy and spoke out against the deficit views of children that some teachers bring to the classroom; once in the field, she appeared to fall back into deficit views of her students, quite possibly without even realizing it.

Urban Classrooms not set up as Sites for Teacher Learning

The "cross-purposes" pitfall suggests that there is a frequent disconnect between the responsibility of teaching and the need for critical reflection on teaching, and that classrooms are not set-up for teaching teachers (Feiman-Nemser & Buchman, 1985). This pitfall is evident in all three cases shared above. For example, during my debrief sessions with Michael and Yolanda, neither talked about what their students might be learning beyond the discrete mathematics standards they were asked to cover. Thinking about critical pedagogies and opportunities for students to develop critical consciousness were absent from these spaces. Similarly, Jennifer did not appear to be critically reflecting on her teaching, on her relationships (or lack there of) with her students, or on her own ideologies and past experiences that might be impacting how she views children and families. There appeared to be little time and space available for this work.

Missed Opportunities to Challenge what is Familiar and Unfamiliar

Feiman-Nemser and Buchman's (1985) "familiarity pitfall" highlights the idea that people, including future teachers, "do not recognize that their experience is limited and biased" and that we tend to "trust what is most memorable in personal experience" (p. 56). The pre-service teachers in my study experienced the familiarity pitfall as they brought ideas and images from their own schooling experiences to practicum work. We see this in Michaela's case; she was not given a set of curriculum materials to use so she drew upon her experience as a student in past mathematics classrooms, along with images of her mentor teacher's instruction, to design and implement very traditional mathematics lessons absent of culturally relevant or sustaining pedagogies (Ladson-Billings, 1997; Paris, 2013) and lessons that might provide students and teachers opportunities to develop critical consciousness (Freire, 1970).

I further argue that some student teachers placed in urban settings and working with minoritized youth also experience an "unfamiliarity" pitfall. For example, Jennifer, a mid-30's White woman, felt frustrated when her students were not engaged in her lessons in order to "strive for a way out." It is likely that Jennifer's notion of engagement and classroom participation looks and feels different based on her own past schooling experiences. Digging more deeply into some of Jennifer's posts across the semester, it became clear that she was not familiar with her students, or their families, or the community within which she was teaching. This "unfamiliarity" pitfall appeared to contribute to her deficit views of children and families. Although we provided a space for Jennifer to read about these things during coursework, there

appeared to be limited opportunities for her to come to know families and communities in authentic and deep ways during her fieldwork.

A New Pitfall: Standardization

My work points to one final pitfall—the standardization pitfall. This data indicates that pre-service teachers are placed in urban classrooms where processes and curriculum are standardized. One could argue that this *could* be useful if mentor teachers in placement schools are using an innovative curriculum or engaging in a lesson plan development process that leads to culturally responsive/sustaining teaching. My student teachers, however, found themselves using either a whole-school reform curriculum/process that had been standardized and had very little to do with students funds of knowledge (Yolanda), or were faced with county mandates that dictated which standards each teacher should be teaching each day, week, or grading period (Michaela and Jennifer). Pacing charts such as these decrease teachers' autonomy and ability to create longer units based on students interests and aimed towards sustaining students' varied cultures and languages. Our student teachers additionally faced standardization of the teacher education curriculum. All three teacher candidates were very concerned about their upcoming edTPA portfolios and spent much of their time planning for and thinking about that standardized assessment, leaving little time for much else. As Michaela suggested when discussing an upcoming seminar associated with student teaching, "if it doesn't have anything to do with edTPA, I will not be listening."

Conclusion and Implications

The pitfalls of experience in teacher education, as highlighted by Feiman-Nemser and Buchmann (1985), are still operating today. The stories shared above highlight that these pitfalls of experience are operating in urban settings, and may in fact be more troubling and problematic. As urban teacher educators, we need to be extraordinarily alert to the two-worlds pitfall and continue to consider ways to engage our pre-service teachers in critical pedagogies that they find immediately applicable; we want these critical tools to be employed during student teaching and not viewed as a latent theory of critical pedagogy that may or may not manifest during and after student teaching. Similarly, we need to ensure that our student teachers have a chance to reflect critically on their own teaching and ideologies, especially when placed in urban schools. What was noticeably absent from Jennifer's experience in particular was what Conway and Clark (2003) term an "inward" journey, a shift from concerns related to personal capacity towards concerns about growing as a teacher and person. The cross-purposes pitfall within teacher education speaks to this lack of time and space for the critical reflection needed when working with traditionally minoritized students. Finally, as suggested above, teacher candidates may not push back against traditional forms of instruction, especially if that is what they are familiar with from their own K-12 experience, and therefore miss opportunities to develop lessons that respond to and sustain students' cultures.

In addition to the pitfalls suggested by Feiman-Nemser and Buchmann (1985), I suggest that student teachers in urban placements, particularly privileged White female teachers teaching youth of color, may also struggle with an "unfamiliarity" pitfall; their lack of knowledge of the children they are teaching, along with their families and communities, may further perpetuate deficit views. Most student teachers are heavily burdened by university coursework and part-

time *paying* jobs outside of schools on top of very demanding student teaching schedules. If we do not consider this, and make more room for teacher candidates to get to know their students and communities, this "unfamiliarity" pitfall (and the damaging views of children and families that go along with it) will continue during student teaching. We must ask ourselves what we can do to create space for student teachers to engage with students and families in different and more meaningful ways. Finally, I suggest that we are additionally faced with a standardization pitfall in teacher education, particularly in urban settings. Teacher candidates are increasingly placed in schools where a standardized curriculum or pacing chart has been adopted. These restrictive curriculums not only impact the professionalism of practicing teachers, but also severely limit pre-service teachers opportunities to learn with and about their students. Alongside this, teacher candidates are additionally faced with standardized teacher education assessments (edTPA) that dictate much of their focus during student teaching. It is not surprising that teacher candidates cannot enact the critical pedagogies they learn about in their teacher education coursework. We must consider, as teacher educators, what it means for teacher candidates to operate within increasingly standardized spaces in K-12 and higher education. This may mean reconsidering placements where very standardized or scripted curriculums are in place and also introducing earlier field placements that are not connected to edTPA. When selectivity and flexibility regarding placements is not an option, we then need to open up time and space for curriculum development and enactment *outside* of classrooms in spaces like after-school clubs and community-based organizations.

In the end, these pitfalls, no matter what we name them, appear to get in the way of teacher candidates really getting to know their students and then drawing on what they have learned throughout their teacher education coursework to design innovative and relevant curriculum for *their particular students*. So, I leave you with this: These pitfalls of teacher education still exist, more have been added, and likely more are still to come. We need to fully understand how these pitfalls operate in our teacher education spaces; be explicit about these pitfalls with one another, with mentor teachers, and with our teacher candidates; and then make the necessary changes to the overall structure of student teaching to try to avoid them. As suggested above, good *first* steps include providing more time and opportunities for student teachers to (1) reflect on their own ideologies while in the field (and not just during coursework), (2) come to know students and families in more intimate and deep ways, and (3) search out curriculum development opportunities outside standardized placements. However, my guess is that we need to think *way* outside the box when attempting to address these pitfalls and reconsider the entire structure of student teaching. I will be thinking… and I hope you will join me.

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STUDENTS AND TEACHERS CO-CONSTRUCTING IDENTITY

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Abstract

This paper examines how pre-service teachers were able to explore their own beliefs and build meaningful relationships with elementary school students in an after-school context. After school programs provide an opportunity for teachers and students to get to know one another in a way that is not typically possible during the regular school day. Through observations and review of pre-service teacher journals, insights about the value of after-school programs as a sight for self-appraisal, challenging biases, and confirming (or reconsidering) the choice to become a teacher are revealed. Results suggest that combining the after-school practicum experience with selective readings and class discussions allowed pre-service teachers to take a critical look at their choice to become a teacher and their disposition toward typically marginalized children and schools.

Keywords: *teacher identity, urban education, teacher bias, after-school programs*

Given that the teaching force has become increasingly White, female, and middle class while concurrently the student population has a growing representation of children of color in under-resourced urban communities, teacher education programs and accreditation bodies (e.g., formerly the National Council for the Accreditation of Teacher Education, which is now known as CAEP – Council for the Accreditation of Educator Preparation) have placed greater emphasis on diversity and working with diverse student populations. As this trend is unlikely to change, we argue that both pre-service teachers and students benefit from having a designated safe space for identity exploration. In particular, teachers need to explore their beliefs and preconceptions about diverse student populations. After-school programs are uniquely suited for this kind of exploration. After-school programs provide an opportunity for teachers and students to get to know one another in a way that is not typically possible during the regular school day. Additionally, while there is often academic work happening—often in the form of homework help—it is a more of a low stakes environment than the typical classroom. Thus, schools in general, and after school programs in particular represent a rich opportunity to strategically

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engage emerging adults (teachers) and youth (students) around multiple aspects of identity development. The purpose of this paper is to examine how after-school programs can be used as strategic social spaces to positively shape pre-service teacher and student identities. This article highlights outcomes from two urban after school tutoring programs that were staffed by pre-service teachers.

Theoretical Framework

This study was framed using an ecological systems perspective. We applied the Phenomenological Variant of Ecological Systems Theory [PVEST] (Spencer, 1995) as a way to capture the dynamic interactive processes that exist between and among teachers and students. PVEST is a process oriented identity development model comprised of five components and provides a way to specifically consider context from the perspective of the teacher. More specifically, Spencer's PVEST (1995) helps to explain the dynamic bi-directional influences between teachers' self-appraisal processes and risks and the way they cope and form identities. Additionally, PVEST provides an identity-focused cultural ecological (ICE) perspective that effectively and explicitly links thinking about identity and context. PVEST is presented with five components; net vulnerability, net stress, reactive coping strategies, emergent identities, and life stage outcomes. In this study, the component of vulnerability is particularly relevant for both the teachers and the students with whom they work. In the case of students from low SES or urban contexts net vulnerability consists of an often culturally incongruent pedagogy, low expectations, an over focus on testing and mistrust in schools and teachers. And, from the teachers' perspective vulnerability exists because many of them have had a mono-cultural education and privilege that has led to a lack of self-reflection. For many teachers, what some may see as a privileged existence could actually be a detriment to their ability to teach all children. PVEST challenges us to see the bidirectional influences of this vulnerability and attempt to reframe how we view the *other*. According to PVEST, teachers and students serve as bidirectional influences (contexts) one to another. Through teachers' expectation students are not only informed about who they are currently but also about their maturational prospects in the future.

Similarly, Beijaard, Meijer, and Verloop (2004) determine that identity is dynamic and ever changing. As, a dynamic process, identity development is influenced by experiences. Beauchamp and Thomas (2009) consider the personal and professional aspects of identity as multidimensional, including; *how to be, how to act, and how to understand*. With each experience that students and teachers encounter, they have the potential to make profound changes in the "kind of person" they are within a particular context (Gee, 2000).

Self-appraisals play a similar function for teachers as they work closely with others who may view them much differently than they view themselves. As a teacher's identity is constantly reshaped, the narrative they hold of themselves may also be affected. Aslup (2006) examines how teachers' view of themselves is challenged and transformed through interactions that force teachers to confront their own assumptions. The after-school program allows pre-service teachers and students to experience disequilibrium in the self-appraisal process. That is, preconceived notions are about the self and others are often challenged. Participants learn to recalibrate their ability to connect and communicate across self-imposed identity boundaries. Smith and Van Egeren (2008) note that social interaction and engagement has been shown to correlate with positive youth outcomes. Still, that is only part of the picture. We argue that when knowledge regarding the self-appraisal process is thoughtfully deployed in after-school programs, positive identity outcomes are experienced for students and teachers alike.

The next section will describe the after-school program sites in which we worked, the on-campus course activities, and the methodology we used to look closely at our participants and their experiences.

After-school Program Descriptions

The after-school programs in this study are offered at the elementary, middle and school levels. Youth are paired with pre-service teacher education students to positively impact both youth and teacher identity development. The first school in which we work is in a small but densely populated urban school district [7 square miles and ~ 84,000 people] in New Jersey. The majority of students in this district are overwhelming minority and poor with 21.4% of the population living below the poverty level. More than half of those living below the poverty level are under 15 years of age. These racial and economic characteristics stand in sharp contrast not only to the pre-service teacher student body at our college but also to the existing teacher workforce statewide and nationally. Thus, a major goal of the program was to demystify *urban*. For many white middle class pre-service teachers, the term connotes something that is dramatically foreign to their conceptualization of the "normal student."

Methods

At the elementary level, a comprehensive content analysis of teacher journals, observation field notes, and student interview data were analyzed using negative case analysis approach. This qualitative approach calls for the researcher to develop general typologies or themes and actively seek to identify and explain disconfirming cases (Creswell, 1998). All names have been changed to protect the anonymity of respondents.

Elementary After-School Program

Two elementary schools in a small urban district in New Jersey were the sites for this portion of the study. In each of the schools the population is primarily African-American and at least 60% of the student population received free or reduced lunch. The after school programs were funded in part by a statewide grant program and worked in conjunction with a large non-profit organization. This after-school program is primarily focused on homework help and informal mentoring. It is not a particularly well run or effective program. To be sure, it is just the kind of program that could serve to reinforce negative stereotypes that our pre-service teachers have about low income schools and the children in them. However, this is the unfortunate reality in many schools and we want to continue to be a presence in these programs and help to support the students if they want us there. We believe that since sites like these are often unavoidable, it is up to teacher educators to help our students process these experiences in adaptive ways so that they can still be valuable field experiences. Pre-service teachers and other college students have been volunteering in these programs for many years. However, this paper only addresses two years of data.

The groups of college students examined for this study volunteered at the after-school program one afternoon per week as part of the 13-week field experience related to an Introduction to Urban Education course. Of the 17 pre-service teachers, all were women, 5 were from urban areas and 12 from suburban areas. After each visit, students recorded journal entries

that documented their experiences and corresponding reflections. Cochran-Smith and Lytle (1993) write" journals stand as a written record of practice, as they provide teachers a way to revisit, analyze, and evaluate their experiences over time and in relation to broader frames of reference." Journaling became a powerful way for the teacher candidates to record and search for meaning over the course of their time at the after-school program. Open coding helped identify the initial categories and then the data were reviewed again by systematically coding the data to concentrate on the core concepts that were gleaned from the initial round of analysis.

Our class read books such as, *The Children of Room E4* (Eaton, 2009) that discussed both the local realities of a classroom in an historically underperforming school and the larger funding and legal issues that impact those and other students. In class, we compared the court case from that book to one that is on-going in our own state. We also read *Multiplication is for White People: Raising Expectations for Other People's Children* by Lisa Delpit (2012) and related Delpit's narrative to their field experiences and as a conceptual starting point to challenge biases as they arise in discussions and journal entries. One of the last books we read is *Racism in the Classroom from Kindergarten to College* by Ann Berlak and Sekani Moyenda. Berlak and Moyenda (2001) offer a case study of their work with pre-service teachers and the realities of facing one's own bias. During one of the semesters covered in this paper, we Skyped with Moyenda. Pre-service teachers asked frank questions about her views and shared their experiences. The goal was to provide pedagogical supports to assist pre-service teachers in making asset driven developmentally informed meaning of their after-school experiences.

Findings

As a result of reading and coding 143 journal entries written by 17 pre-service teachers over the course of two semesters, four main themes emerged. They include: 1) *guilt vs. anger,* 2) *examining the "why,"* 3) *learning to stay, and 4*) *shifts in perspective.* The first theme, *guilt vs. anger,* refers to the difference in perceptions experienced by pre-service teachers with suburban and urban backgrounds. This theme reflected the reactions that pre-service teachers expressed concerning the after-school program more generally.

Another emergent theme was categorized as *examining the "why."* This theme was related to instances where pre-service teachers had to confront their own biases about urban schools and students who attend urban schools. Pre-service teachers were encouraged to actively engage in analysis of their own thinking and this code captured many of those struggles.

The third major theme was *learning to stay.* Journal entries that were coded in this category reflected pre-service teacher's dissonance toward the school or the students themselves. Clear frustration was evident. However, the pre-service teacher was obligated to stay and face their discomfort. The experience of facing their discomfort and *staying* even when it was uncomfortable yielded valuable insights.

Last, the theme of *shifts in perspective* was assigned to data where a clear shift in ideology was evident. These shifts were most often seen over time. The more days the pre-service teachers spent in the after school program, the more likely it was to see a change in thinking or a realization that was not evident in the beginning of the semester.

Guilt vs. Anger

As stated, this code indicates journal entries that documented the disparate experiences of pre-service teachers with different backgrounds. The pre-service teachers in this study represented both urban and suburban backgrounds and their experiences of the after-school program seemed to fall into two categories related to that aspect of their own culture. For example, pre-service teachers from suburban backgrounds often expressed feelings of guilt, anxiety, and powerlessness when describing their time at the after-school program whereas, pre-service teachers from urban backgrounds typically wrote about feelings of anger and frustration:

> *…it was also incredibly frustrating to see all the disorganization and the lack of anything planned especially for the very young kids because they really can't be expected to behave when they are not doing anything constructive.*

The quote above was a common sentiment among our pre-service teachers from urban backgrounds. Those who had themselves attended historically underperforming schools were keenly and immediately aware of the structural inequities that existed and expressed a profound sense of frustration at the conditions under which the students in these contexts were expected to learn. It was particularly interesting that many of the pre-service teachers from similar schools admitted that they were not cognizant of these conditions when they were students themselves. However, when given the opportunity to reflect on their own developmental experiences, they were able to see the systemic failings in the urban public school system. For example, a Latina pre-service teacher writes:

> *When I was in school I thought teachers who gave you a lot of space were cool. There is a teacher at the after-school program who reminds me of a teacher I loved in high school. But, now I see him through a new lens and I don't like the lack of attention [he] gave the children. He plays around with them, but I do not feel he is really paying attention to their schoolwork. It seems like he was doing his taxes…I just wish [he] paid more attention to the kids and their homework.*

In addition to the reflections from the field, class discussions were integral in helping the PTs process their experiences. Often our discussions in class led to comparisons among classmates. Sometimes, those comparisons manifested in feelings of anger and frustration for those with urban backgrounds. However, for the students from suburban backgrounds feelings of guilt surfaced quite frequently. One student wrote, "*It really hit for the first time that maybe what I thought was a normal education would be considered privileged by others."*

Examining the "Why"

Related to the feelings of guilt and anger that were evident among the pre-service teachers is the examination of why structural inequalities exist. Pre-service teachers spent quite a bit of time reflecting on how "kids are all kids," "they all want to learn and do well," and other similar sentiments. However, the data does not bear out that kids are all the same. The truth of the numbers is that students in urban settings are doing considerably less well academically. So, as teacher education students actually meet the children, they must confront their own biases and

re-examine what they may have thought they knew. In many instances, pre-service teachers found themselves framing their school experiences with the children with a deficit perspective. Further, pre-service teachers were encouraged to actively engage in analysis of their own meaning-making as documented by their journal entries:

> *It was very evident to me today that the kids were not prepared for the homework that they are given to do at home. The time problems are repetitious and they aren't learning anything. They were asking me if they needed to write two 00s or a 30 after the colon and when I asked them what that meant, they just shrugged.*

The pre-service teacher quoted above was critiquing and challenging the types of assignments that are given to the students. Interestingly, she later wrote about how she had given these types of assignments to students as well when she was in her practicum and never gave them a second thought. However, seeing that type of assignment through the lens of a child trying to complete it changed her mind and caused her to question whether certain aspects of schooling were serving to reproduce inequalities rather than supporting student success.

Learning to Stay

This theme arose after noticing that many pre-service teachers wrote about their time with the after-school program in a way that suggested that they were learning about themselves, in-spite of themselves. Stated differently, because teacher candidates were required to attend each week and were assigned to particular grade levels, teacher candidates had to face students over and over again. This level of continuity is particularly meaningful when the initial experience with a student was not pleasant or positive. The consistency with which the pre-service teachers showed up at the program also allowed the students to take risks with trusting unfamiliar adults. Through this consistent and systematic intervention, both pre-service teachers and students were confronted with the choice to either confirm the stereotypes they hold for one another or challenge them. A case that characterizes this well is below:

> *At one point when she [the student] wasn't understanding what I was asking her she said, "I don't want your help ugly" and was kind of taken aback when I said that I didn't like being called names and that it hurt my feelings when someone says something like that to me.*

The pre-service teacher quoted above was deeply affected by this experience. She brought it up in class many times. She said that if she did not have to go back and work with this same student, she definitely would have quit. However, in the fact that she did continue to work with this student each of them was forced to take risks with one another. The young girl was confronted with difficult work and tried her best to avoid it. Her avoidance included trying to alienate herself from the person trying to help her with this work. And, the pre-service teacher had to embrace her attachment to being liked. She expressed how hard it was for her to face this little girl who called her "ugly." Being called a name hurt and she was not completely sure why it hurt so much and why she couldn't let it go. She spent a lot of time reflecting on why she found herself thinking about it so much and what the implications were for her as she entered her career with hundreds, maybe thousands of name-callers in her future.

Over the course of the next eight weeks, this teacher kept coming back and the young girl let her guard down a little more each week. They learned to trust one another and at least this one young student learned that insulting someone wasn't going to be a good method of avoiding work – at least not with this adult.

Shifts In Perspective

The last major theme to be discussed is a result of pre-service teachers being asked to reflect early and often about whether teaching is indeed a good fit for them. We pushed our pre-service teachers to move past the idealistic ideas that they are going to set into their own classroom and produce a Hollywood movie about teaching in the city.

> *It was challenging to work with two students. Noah was very interested and wanted to write and get finished. "D" just wanted to get done. She said several times that she didn't want to do it! This opened my eyes to having a class of 18-20 students and having to teach grammar rules, etc. These are tough concepts. I hope other classes and student teaching help me become more confident, because right now, I would not want my own classroom.*

Each of the pre-service teachers began the semester expressing absolute certainty that they had chosen the right profession. Further, they were all interested in making a career of teaching in urban schools. Yet, two hours per week at an after-school program had them questioning their ability to handle a classroom of their own.

Discussion

In many ways, the challenges experienced and views expressed by the pre-service teachers in this study are not surprising. Most often, we find statements confirming what we already know about White, middle class women when they teach in under resourced and underperforming schools. On the other hand, these are not in-service teachers. They are mostly first and second year college students and are beginning their self-exploration and growth before they ever have the opportunity to take over their own classroom.

These two seemingly disparate groups (White pre-service teachers and Black and Hispanic students) each engage in discovery about self and the other. In this paper, we begin to see the process of identity development with the pre-service teachers. After-school programs that have direct experience with children force pre-service teachers to acknowledge and confront their assumptions. For instance, when Katie found herself feeling hurt and angry with a child who called her "ugly" she did not feel like she could express her anger for fear it would be read as being racist. Katie was forced to think about the implications of how she chooses to deal with behavioral issues with her students.

The after-school program allows the pre-service teachers to experience disequilibrium in the self-appraisal process. The pre-service teachers come into our program with a very idealistic orientation. But, they also often enter believing that our society is a meritocracy and that they can make a difference in every child's life as long as they work hard and care. Volunteering in the after school program is unique in that the pre-service teachers do not have to plan and implement lessons, they just have to show up and provide academic and social support. Consequently, pre-

service teachers are able to focus primarily on relationships. Many future teachers imagine that after-school programs will be easy – they do not realize that it is easier to hide behind a lesson plan and not really get to know the students. In the after-school program, we are one to one with the students. We get to know them and they get to know us. Our beliefs about the students, and their beliefs about us, are constantly challenged.

In addition, pre-service teachers had to either reconfirm or reconsider their choice to teach in urban schools. While they all began the course with a positive outlook about their choice, by the second or third weeks of the program they began to express dissonance about both the urban context and their ability to teach and manage children. Ideas about student knowledge, values, behavior, and the type and quality of interactions with children were continually explored.

The self-appraisal process is the essential developmental feature that we as educational leaders attempt to manage in order to bring about positive identity development among pre-service teachers and students. For pre-service teachers, this means challenging many of their assumptions (often deficit driven) regarding students from urban and urban realm districts. We do this not only through selective reading, lecture, and discussions but also through structured experiences in after-school settings that allow pre-service teachers to experience cognitive disequilibrium concerning themselves and urban students as well.

The literature suggests that there is strong bias on behalf of pre-service teachers that urban students are incapable of rigorous academic engagement (Rideout & Morton, 2010; Ulluci & Howard, 2015) Given that urban students are allegedly incapable of rigorous academics and that there are so many "other challenges," teachers are afforded multiple opportunities to escape from dissonance provoking self -appraisals. Thus, as the bias purports, those that are in urban districts (students and teachers) that manage to achieve do so in spite of rather than because of. This is not to suggest that there are not serious structural, familial, and contextual factors beyond a teacher's control. We are clear that these barriers and challenges exist and that they are formidable. Rather, we are suggesting that in order to preserve a positive sense of self-efficacy, many teachers dismiss their own assets or protective factors (as well as their students). Accordingly, the challenges of teaching in general and in urban districts in particular have been used as a scapegoat to prevent innovation and the more rigorous dissonance provoking self-appraisals required by the profession.

Framing this from a PVEST perspective, attributes such as ethnicity, class, culture, and gender only become either risk or protective factors in relation to a context. So personal attributes or features can only be evaluated in relation to a context. Thus, there is nothing inherently deficit about geographic designation (urban or suburban). These designations only become meaningful in relation to context. Teachers may cope with culturally incongruent school settings (stress engagement) by underestimating the capacity of urban students.

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BECOMING A CULTURALLY RESPONSIVE TEACHER: THE IMPACT OF CLINICAL EXPERIENCES IN URBAN SCHOOLS

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Abstract

This study focuses on elementary and secondary teacher candidates' perspectives of how their clinical experiences influence their preparedness in becoming effective culturally responsive educators. Clinical experiences in urban schools embedded within teacher preparation programs have the potential to develop students' ability to become culturally responsive educators, yet it is unknown how these experiences contribute to teachers' development in enacting culturally responsive pedagogy. Qualitative data was collected through open-ended survey responses and focus groups with teacher candidates in urban focused elementary and secondary teacher education programs at one college of education. Findings indicated that connecting with students' cultures and communities, the school/classroom context, and university-school partnerships and alignment impacted teacher candidates' feelings of preparedness on becoming culturally responsive educators.

Keywords: culturally responsive pedagogy, urban teaching, clinical experiences

Introduction

Urban teachers who approach teaching and learning with a culturally responsive pedagogy (CRP) are more effective in bridging the cultural gap that often exists between teachers and students (Gay, 2010; Ladson-Billings, 1995, 2009). This gap is widening as American students are increasingly ethnically and racially diverse and teachers remain chiefly White and female (Lewis & Toldson, 2013) making teacher preparation programs that stress the importance of culturally responsive pedagogy ever more important. This urgency is heightened in urban areas where high concentration of poverty coupled with limited school resources create additional challenges for teachers and students. Consequently, it is of the utmost importance that teachers are well prepared to combat deficit thinking and disrupt the cycle of poverty by

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legitimizing students' cultures and enacting culturally responsive pedagogy to highlight student and community strengths and assets. Clinical experiences in urban schools embedded within teacher preparation programs have the potential to develop students' ability to become culturally responsive educators, yet it is unknown how these experiences contribute to teachers' development in enacting CRP.

The university in which this study took place has a strong commitment to preparing educators to teach in historically underserved urban schools. With this in mind, the teacher preparation programs emphasize culturally responsive pedagogy and placements in urban schools for clinical experiences to best prepare educators who better understand the complexities of urban education. Teacher candidates (TCs) who participate in extensive clinical experiences coupled with university coursework are better able to apply educational theory to support K-12 student learning in their classrooms (Koerner, & Rust, & Baumgartner, 2002; Darling-Hammond, 2006; Goker, 2006). While we know that clinical experiences are an essential aspect of teacher education (Cochran-Smith & Zeichner, 2005; Darling-Hammond, 2006), there is little clarity of how clinical experiences contribute to developing culturally responsive pedagogy. This study aims to highlight TCs' perspectives of how clinical experiences impacted their preparedness in becoming effective culturally responsive educators.

Conceptual Framework

This study draws upon sociocultural learning theory and culturally relevant pedagogy as theoretical frameworks. Sociocultural learning theory claims that the process of learning is shaped by social and cultural contexts and experiences (Vygotsky, 1978). The human mind, from the sociocultural perspective, is mediated by people's use of tools and signs as they engage in social activity to make sense of the world. The shared experiences that occur during such activities contribute to identity formation and perceptions of the self. The social and cultural factors, such as the school context, mentor teacher support, and interactions with students, greatly influence TCs' learning process. Ultimately, these experiences impact the teachers they become and how they perceive themselves as future educators. Teacher candidates have an active role in this learning process, and it is important that they recognize the unique aspects of their clinical work that may contribute to their feelings of preparedness as an educator.

Culturally responsive pedagogy aims to meet the needs of students by building on background, experiences and prior knowledge and welcoming this into the classroom and curriculum (Gay, 2010). Also known as culturally relevant pedagogy, Ladson-Billings (1995, 2009) highlights three critical principles of CRP: Teachers must support students in achieving academic success, developing and/or maintaining cultural competence, and developing a critical consciousness through which they challenge the status quo of the current social order. To implement such a teaching approach, educators need to recognize the many assets that students have that can enhance the classroom learning environment and make learning meaningful. While all three of these principles are equally important, for many beginning teachers, a starting point for CRP is developing the first tenet as they focus on building relationships with their students and highlighting student and community assets in their curriculum. Clinical experiences provide an opportunity to observe and develop these necessary practices.

Methods

This article draws upon data from a larger mixed-methods descriptive study that employed surveys and focus groups to discover what aspects of clinical experiences influenced TCs' preparedness in becoming culturally responsive educators. Qualitative survey and focus group data are used to highlight their experiences and address the following research questions:

- What impact do clinical field experiences have on teacher candidates' feelings of preparedness in becoming effective culturally responsive educators?
- From the perspective of teacher candidates, what aspects of clinical field experiences contribute to or hinder their preparedness in becoming effective culturally responsive educators?

Participants and Context

This study is situated within a Midwest state university with a mission to collaborate with urban communities, schools, and families to provide a high quality education for all students. While urban education is often limited by inequitable allocation of resources, this college of education's vision is to prepare educators who understand the complexities of urban education, acknowledge and address the problems of inequality, and build on the assets that students bring to the classroom from their homes, families, and communities so all children may succeed academically. The university emphasizes a teaching philosophy that is both responsive and relevant to diverse students and their lived social, cultural, and economic realities.

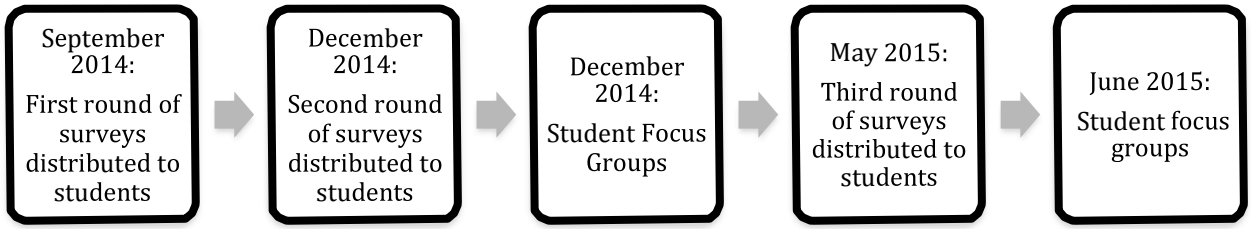
The university partners with an urban school district largely comprised of low-income African American and Latino students for teacher candidate school placements. Teacher candidate placements for Fall term clinical experiences and Spring term student teaching are carefully coordinated with schools and mentor teachers to provide the best match possible between TC and mentor teacher with regards to pedagogical approach aligned to university coursework, disposition, and commitment to meeting the professional growth and development of TCs. With these myriad factors to consider, TCs are placed in classrooms across the district for fall clinical experiences and spring student teaching. All elementary education candidates remain with the same mentor teacher for the academic year allowing them to develop relationships with their mentor teachers and students. Secondary education students have different mentor teacher and school placements for fall clinical experiences and spring student teaching, allowing them to experience varied school contexts across the academic year.

All university TCs (n= 80) in elementary and secondary education programs completing pre-student teaching in Fall 2014 and student teaching in Spring 2015 were eligible and recruited to participate in the study. A total of 21 chose to participate, including 13 secondary education TCs and eight elementary education TCs. Of these participants, eight were male and 13 female. Participants included 12 White students, three African American students and six Latino students. Beyond these gender, racial and ethnic demographics, the participants represented a diverse range of backgrounds and experiences.

Procedures

Qualitative data were collected during the 2014-15 academic year. A survey was developed to assess teacher candidates' perceptions of how clinical experiences impact their preparedness to enact CRP practices in the classroom. They completed the same survey three times throughout the academic year: before their clinical field experiences commenced in September 2014, after their field experiences in December 2104, and again in May 2015 after student teaching was complete. These three surveys gave TCs the opportunity to reflect on how their clinical experiences impacted their development of CRP over the academic year. Focus groups were employed to discuss initial survey findings in December 2014 and again in May 2015, allowing participants the opportunity to refute or support findings and add further insights. Figure 1 outlines the data collection procedures.

Figure 1: Data Collection Procedures



Data Analysis

Focus groups were transcribed and identifying information was masked to protect TCs' identities. Participants were given the opportunity to review transcripts and make any corrections providing accuracy and credibility to the qualitative data (Creswell, 2013). With the theoretical framework as a guide, focus group and survey data were explored to locate and assign codes to text segments in an effort to "form descriptions and broad themes in the data" (Creswell, 2013, p.243). These themes were then analyzed to reflect TCs' experiences in the field.

Results

Data analysis revealed noteworthy results regarding how TCs' clinical placements impacted their feelings of preparedness in developing culturally responsive pedagogy. In relation to Ladson-Billings' three tenets of CRP (1995, 2009), it was evident that TCs viewed culturally responsive teaching as emphasizing relationships with students and creating an asset based curriculum and instructional approach to obtain academic success. While they did not explicitly discuss the development of students' "cultural competence," many of them alluded to this concept. However, TCs did not mention the importance of facilitating the process of critical consciousness and becoming social change agents. TCs' focus on the first tenet was evident in the essential themes within the data, which include: connecting with students' cultures and communities, school and classroom context, and university coursework and field placement alignment. These themes are discussed in detail below.

Connecting with Students' Cultures and Communities

If the goal of CRP is to support urban youth through cultural connections, academic achievement, and personal empowerment, then TCs need to learn how to place student culture at the center of their teaching practices. Within this study, TCs highlighted the importance of having opportunities to make connections with K-12 students in authentic ways and better understand students' backgrounds and cultures. As one participant noted, "I feel like finding ways to relate to their lives and make the lessons relevant to them is the key to actually get any kind of interest in class." Another TC echoed this sentiment talking about how his field experiences gave him the time to connect with his students, "You actually have the time to get to know your students…All their interests and their needs. Being able to have the time to figure it out and to get to know them first. For me, that was helpful." TCs were able to make connections between students' lives and their teaching practice and recognized this critical component of CRP, as they developed understanding of students' cultures and experiences. Furthermore, TCs recognized that putting students' backgrounds at the center of their teaching contributed to successful teaching and learning experiences.

Other TCs took it a step further and discussed how connecting with their students gave them the opportunity to learn about integrating the community into student learning. "We talked about personal assets, community assets, all those kinds of things." A secondary Spanish teacher candidate agreed, noting how she made connections between her students and the surrounding community, "There's so many opportunities to go out and speak Spanish and do cultural things. It's easy to make those connections for me, to my students, because we live in an awesome city to speak Spanish." Opportunities to connect with students was of the utmost importance in their feelings of preparedness in enacting CRP as TCs learned to place their students' cultures, assets, and interests at the center of their teaching. Likewise, the school and classroom context proved to be an important factor in their ability to implement CRP.

School & Classroom Context

School and classroom context contributed to or hindered TCs' feelings of preparation in becoming culturally responsive teachers. Being provided with the right space with opportunities to practice and implement CRP and embed social justice practices into TC's teaching was highlighted as an important theme throughout this study.

Placement decisions. Teacher candidates were placed in schools by program faculty based on university-school partnerships. Participants reported that their lack of control over the school context was an important factor in their experiences. One TC noted, "It would have been good to be at a school that I had chosen so I could have felt comfortable during the experience." Another TC agreed, as she explains, "I wouldn't have chosen where I was placed. First of all it's hard for me to get there. The neighborhood wasn't so safe for me to walk in there." This overwhelming discomfort she felt inhibited her ability to connect with students and the community, which made it difficult for her to recognize and develop culturally responsive teaching practices. While program faculty's intention is to expose TCs to communities that will best prepare them to teach in historically underserved schools, some TCs struggled with the value and importance of their purposeful field placements.

Conversely, some participants appreciated being pushed "out of their comfort zone" and found that they had more opportunities to develop culturally responsive practices, as they

recognized the importance of familiarizing themselves with their students, their backgrounds, and experiences. One TC pointed out, "I wouldn't have chosen that school, but I learned so much from teaching in a diverse environment where social justice issues really matter." Another concisely noted, "Having the right mentor-teacher really can make the difference." Another TC respected the placement decision and said:

> I'm so glad that they placed me there because I was able to get rid of ... of that fear and just getting into an unknown neighborhood and just knowing, you know, how to navigate the whole community made me feel a lot more prepared now if I am ever placed at a school that's similar demographics. And I'm going to be okay.

It is clear from the TCs' comments that the context of the school and classroom had an impact on their opportunities to develop culturally responsive practices by using knowledge of students and their communities in their planning and teaching.

The "right" space. TCs voiced that they wanted to be deliberatively positioned in the "right" classrooms to experience and practice CRP. All TCs were placed in urban sites, yet urban schools span a wide spectrum and some TCs felt that their school context did not reflect the realities of teaching in urban schools. TCs highlighted the importance of completing their field experience in settings where they had the opportunity to be in a classroom that represented "a real urban school" as one participant described it. He went on to discuss the distinctions among placements, as even though all schools were in the same public district, some were more resourced than others and had more experienced teachers, which may not help prepare TCs if they secure teaching positions in less resourced schools with high teacher turnover. Another TC noted:

> My placement school had a lot of challenges, but I got to experience so much and learn about connecting with students and create curriculum that connects to students. Being at that school helped me think about how to connect with students, really get to know them, and talk with them.

In order for teacher candidates to be best prepared to teach in urban schools, they need to be intentionally placed in classrooms that represent the diverse spectrum of urban students, giving them the opportunity to get to know their students, recognize their distinct assets and interests, and become familiar with the community. TCs who were placed in such schools described how this time gave them the opportunity to develop culturally responsive practices. One TC suggested, "I had the opportunity to connect with diverse students and highlight their culture and experiences in my curriculum." There are distinct facets of teaching in urban schools, and some asserted that experiencing these during their field practicum helped them to construct their teaching practice as urban educators.

University Coursework and Field Placement Alignment

When there was a disconnect between TCs' and mentor teachers' pedagogical approaches, TCs' learning experience was hindered. While university coursework highlighted the importance of culturally relevant curriculum, some TCs found themselves in classrooms

where that wasn't the norm. This circumstance did not permit TCs to authentically enact CRP because their mentor teachers did not support them. One participant explained:

> The field experience was ultimately not in a classroom that I controlled, so I could not always teach the way I would like and implement a lot of learned methods of inquiry. Without that application and experience, the understanding was greatly lessened.

While all TCs in this study completed a teacher education program emphasizing a teaching philosophy that is both responsive and relevant to diverse students and their lived social, cultural, and economic realities, not all TCs found themselves in schools that were aligned to this university mission.

Learning to teach in urban schools requires bridging theory and practice through thoughtful and purposeful school placements. Beyond appropriate school choice, mentor teacher selection and alignment to college mission and coursework is even more critical to allow TCs to develop pedagogical practices that empower students. If they are not in spaces where such practices are observed, they will not be able to authentically enact CRP. Culturally responsive teaching empowers students intellectually, socially, emotionally, and politically by using cultural connections to impact students' knowledge, skills and attitudes. When TCs were given the opportunity to complete clinical experiences in urban settings and create a bridge between coursework and fieldwork, students were more likely to feel prepared to enact these culturally relevant practices.

Implications and Conclusion

The results from this study provide insight into a small group of teacher candidates' perspectives and experiences in urban schools and the impact on them becoming culturally relevant educators. These findings may illustrate how programs can provide clinical experiences that support the development of culturally responsive pedagogy. CRP cannot be learned informally or haphazardly, but instead must be learned in schools and classrooms that value students' diverse cultures in connection with university programs that hold a strong commitment to educating students in historically underserved urban schools. With this in mind, it is necessary for teacher education programs to consider how to partner with urban schools and teachers to best prepare pre-service teachers to enact culturally relevant practices. It is critical that both parties (the university and K-12 placement school teachers) are on the same page and believe that the key to successfully teaching any student is to view their backgrounds and experiences as assets that can enhance and contribute to teaching and learning. Partnering with mentor teachers who have graduated from these elementary or secondary education programs is one step toward ensuring alignment. Spending more time in schools and classrooms observing teachers and providing thorough training opportunities for mentor teachers are additional ways to work toward better synergy. These strategies will create more successful opportunities for TCs to develop the necessary skills in becoming culturally responsive teachers.

A key finding in this study was teacher candidates experiencing what some call "praxis shock" (Kelchtermans & Ballet, 2002; Gold, 1996) or the discrepancy between teachers' expectations and the realities of teaching. These incongruities between TCs' own schooling experiences and university coursework and their school placement site are crucial to understanding not only how the context of school placements can impact TCs' ability to develop

and enact CRP practices, but also how teacher education programs can contribute to preparation prior to clinical experiences. Teacher educators need to consider how to best prepare teachers to teach in urban settings before placing them in schools and classrooms where they are likely to experience praxis shock. While clinical experiences are at the crux of developing CRP, embedding CRP throughout university coursework is also key in providing TCs with the necessary skills to teach in student centered classrooms and employ CRP in today's diverse classrooms. Additionally, incorporating time and space at the university for TCs to examine their own attitudes, beliefs, histories, and biases gives TCs the opportunity to acknowledge differences and come to a greater understanding and appreciation of diversity within a classroom.

Another key finding in this study emphasized the incomplete understanding and application of CRP, as TCs only alluded to and did not acknowledge the second and third tenets: developing and/or maintaining cultural competence, and developing a critical consciousness through which students challenge the status quo of the current social order. Because TCs and beginning teachers are on a learning trajectory, it is important that they expand their definition of CRP to expand beyond building relationships with students and teaching with curriculum and strategies that build off of student assets. While these are vital to ensuring student success and learning, the latter tenets are just as critical. Early career teachers must continue their learning by having an effective mentor that exemplifies CRP, observing veteran teachers that enact complete culturally responsive pedagogy, and attending professional development that contributes to development of truly inclusive and empowering teaching practices.

The educational and political debates over the effectiveness of teacher preparation programs are far from new. It is widely recognized that there is a need to reexamine such programs to best prepare teachers for high needs urban schools as many teachers in urban settings often report that their teacher education program did not fully prepare them to meet the needs of their diverse students (Ladson-Billings, 2009). In the current political context of education reform, the urgency to improve teacher education programs cannot be ignored and the nation's changing demographics demand that teacher education programs meet the needs of an increasingly diverse student body. This study adds to the discussion of how teacher education programs can best prepare future educators to be effective teachers in urban schools and emphasize culturally relevant pedagogy. As such, this study can give clarity to this complex issue, and suggests the need to engage in future research that emphasizes TCs' perspectives to inform how to best prepare educators to meet the demands of teaching in our urban schools.

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HIDDEN CASUALTIES OF URBAN TEACHER TURNOVER: BLACK STUDENTS SHARE THEIR EXPERIENCES

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Abstract

Although teacher turnover affects many schools to some degree, it is especially problematic in urban settings (Ingersoll & Smith, 2003). This qualitative study examined the perspectives of five Black urban students who experienced a mid-year teacher change in their 7th grade mathematics classroom. Findings suggest that these students were able to identify instructional strategies that support their learning, and describe the importance of positive student-teacher relationships in the classroom. Specifically, the data indicated that students wanted better support from their new teacher after they experienced losing their first teacher during the school year. Concluding recommendations emphasize the importance of attending to the needs of students in urban schools, from their perspectives, in cases of teacher turnover.

Keywords: Black students' perspectives, urban schools, teacher turnover

Introduction

Teacher turnover remains a consistent problem for all schools (Ingersoll & Merrill, 2012; Keigher, 2010) and for urban schools in particular (Hanushek, Kain, & Rivkin, 2004; Simon & Johnson, 2015). Teacher turnover is defined as "major changes in a teacher's assignment from one school year (or within a year) to the next" (Boe, Cook, & Sunderland, 2008, p. 8). Teacher turnover encompasses situations in which teachers leave the classroom for a minimum of one year (Grissmer & Kirby, 1997), transfer to another school (Ingersoll, 2001), or leave the classroom after one year and never return (Borman & Dowling, 2008). It can describe when teachers move from one classroom or subject area to another, from one school to another, or out of the profession altogether. No matter the reasons teachers leave, support for the students who experience teacher turnover needs to be established in order to improve students' learning and classroom environments. In a perfect world, when teachers leave, there would be ample opportunity for an incoming teacher to read lesson plans, observe classroom interactions, and ask questions of the departing teacher and students. New teachers—mostly substitute teachers—who

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enter classrooms after the start of the school year must find ways to support students in the classroom.

This article investigates Black students' perspectives on their experiences with teacher turnover in their mathematics classroom. The specific question I address is: What key challenges do Black students describe related to their experience of losing their mathematics teacher during the school year? I define and situate the experience of teacher turnover in urban settings, particularly as it relates to student achievement, discuss the importance of building positive student-teacher relationships, share Black students' perspectives that illuminate their experiences with teacher turnover, and offer some insight for teachers and school leaders who work with teachers in order to help students and teachers navigate the beginning stages of losing their teacher during the school year.

Teacher Turnover and Student Achievement

Many large-scale, quantitative studies on teacher turnover focus on reasons why teachers leave, including poor working conditions (Loeb, Darling-Hammond, & Luczak, 2005), low salary (Quartz, 2003), and perceived lack of safety (Smith & Smith, 2006). Studies that consider the effects of teacher turnover on student achievement reveal that it is most often harmful (Guin, 2004; Ingersoll, & Smith, 2003), especially in schools where there are large populations of low performing and minority students (Ronfeldt, Lankford, Loeb, & Wyckoff, 2011). It is important to note, however, that the relationship between teacher turnover and student achievement is not a causal one; there is no evidence that teachers who leave schools caused lower student achievement (Ronfeldt et al., 2011).

In contrast to large quantitative studies on teacher turnover, there are fewer qualitative studies that provide nuance for this phenomenon. There are some studies that investigate teachers' experiences related to teacher turnover (Guin, 2004; Loeb, Darling-Hammond, & Luczak, 2005; Luther & Richman, 2009), but fewer studies illuminate students' experiences. Kloss (2013) examined high school music students' perspectives of this experience. He found that students reach to new teachers in different ways and students experience a wide range of emotions. He goes on to argue that more studies need to be conducted with students who experience teacher turnover.

Positive Student-Teacher Relationships

Researchers have indicated the importance of examining relationships between students and teachers in the classroom. Students who attended urban schools revealed positive student-teacher relationships as a vital part of their success (Nieto, 1994). Researchers have found that Black elementary and middle school students preferred teachers who cared for them and wanted to develop positive relationships with their teachers (Brown, 1999; Howard, 2001). Student-teacher relationships are important and we have limited understanding of these relationships at the middle school level, especially from the perspectives of African American students.

The qualitative study reported here adds nuance to this literature by investigating students' perspectives on their experiences in the context of teacher turnover in order to support students in the classroom. The findings in this article highlight students' perspectives that point to the importance of gaining a better understanding of the ways they experience learning in the context of teacher turnover.

Methods

The study reported here took place in Westside School, which is located in a small urban Midwestern city of about 120,000 people. At the time of this study, Westside School had about 1,800 students, with about 700 students in grades 7-8 and 1,100 students in grades 9-12. Students who identified as Black comprised 73% of the school population and 78% of students were eligible for free and/or reduced lunch.

Data Collection

I observed a 7th grade mathematics classroom with 28 students, three times per week during the 2014-15 academic year for a total of approximately 110 hours. In addition to classroom observations, I conducted hour-long semi-structured interviews with five 7th grade Black students who were all 13 years old. The students' names were: Medina, Jasmeen, Caron, Aliyah, and Tariq[2]. Each student had high aspirations, which included becoming a nurse practitioner, nurse, scientist, chef, and engineer, respectively. Student interviews occurred every two to three weeks for nine months throughout the school year to have them discuss their experiences in their classroom. Students who participated in the study were also asked to write journals to document their experiences in their classroom. Students were encouraged to write in their journal at least three times a week on any of the topics provided or could choose to write something that was not associated with the journal prompts.

Mrs. Brown was the full-time teacher of this class at the beginning of the school year. In November, she chose to teach in another school for personal reasons. The new teacher, Mrs. Edwards, entered the classroom two weeks later, replacing a substitute teacher. As this final transition to Mrs. Edwards took place, I witnessed several students' behavioral shifts (i.e., being repeatedly asked to leave during instruction) in the classroom. These observations prompted me to examine student perspectives of their experience with teacher turnover because it also became a central theme in what they talked about in our interviews. From my experiences as a teacher in an urban context, I was aware of how common an experience this was for many urban students. I thought it was important to investigate how students experienced teacher turnover. Although the study took place in a mathematics classroom, the findings reported are relevant to all classrooms.

Data Analysis

I started the data analysis by looking for recurring themes in student interviews. I audio recorded and transcribed student interviews and read through students' written journals after interviewing all five students. During these iterative analyses, emergent themes (Patton, 2002) were used to organize the data into categories. Emergent themes require coding and forming categories after data collection (Patton, 2002).

I examined the data guided by the research question, which led to an establishment of three themes. First, students discussed the effects of teacher turnover on their learning and performance. I coded comments as being instructional strategies when students discussed the challenge of adjusting to the different types of instruction. I coded comments as learning and

[2] All names and identifiers recorded in this study are pseudonyms.

performance when students discussed the effects of teacher turnover on their learning and performance in the classroom. Second, I coded students' comments related to student-teacher relationships when students worked to build a relationship with their teacher.

Findings

Instructional Strategies That Students Think Support Their Learning

Students expressed a challenge to teacher turnover because they had to adjust to different instructional strategies when learning mathematics. Caron stated, "I had to get used to it [instructional strategies], which is why my grades got bad. It [the teaching] was different, so I had to get used to it." Once Mrs. Edwards was in the classroom for about a month, some students realized their grades were negatively affected. Jasmeen mentioned her poor grades were a result of the difference in instructional strategies between the teachers. She posited,

> I think getting a new teacher messed me up. When Mrs. Edwards came in it kind of switched up with what Mrs. Brown was doing because they teach differently. Mrs. Edwards talks all the time and Mrs. Brown let us work in groups so we could talk. Talking to people helps me understand what I'm doing.

Jasmeen recognized the misalignment between her learning preferences and Mrs. Edwards' teaching style. Jasmeen wanted her teacher to provide opportunities for her to talk to her peers in order to understand the mathematics concepts, but Mrs. Edwards taught using teacher-centered instructional approaches.

Medina also noticed differences in her teachers' instruction. Medina described specific differences when Mrs. Edwards taught mathematics. She stated, "With Mrs. Brown, she let us solve problems any way we wanted. But, Mrs. Edwards makes us solve the problems exactly like her. It's like we are copying everything she is doing. I am not used to that." Medina described Mrs. Edwards' approach as "following steps." Jasmeen focused on small group work and the need to talk with other students to help her understand mathematics content and Medina focused on the ability to solve problems in ways that made sense to her. Jasmeen and Medina described direct instruction with low cognitive demand. Many studies have found that these approaches are common for low socio-economic status students of color (Anyon, 1980; Ladson-Billings, 1997), yet these students recognized that the practices Mrs. Edwards used were not best for their learning.

Students not only recognized differences in instructional strategies when they compared their experiences with Mrs. Brown versus Mrs. Edwards, but they also made suggestions about what teachers could do to help students adjust to differences if they lost a teacher in the middle of the school year. For example, Caron suggested, "Like, I think she should ask us what we were doing before she came instead of just coming in and teaching her way." Teachers might be inclined to teach content in a way that makes the *teacher* feel comfortable. Sometimes the teaching methods chosen by teachers do not align with the learning preferences of their students (as seen in Jasmeen's and Medina's contributions above). If teachers had strategies for asking students about their prior experiences, then the students' new teacher would be better informed about instructional strategies that work for those particular students.

Students even pointed out that Mrs. Edwards spent time reviewing concepts they had previously learned. Caron stated, "I already learned that stuff. We [referring to himself and other students] tried to tell her, but she doesn't listen." I observed that Mrs. Edwards ignored Caron and his peers--even when they overtly registered their concerns about the content she taught when she first entered the classroom. If Mrs. Edwards took the time to listen to students' perspectives on their mathematics experiences when she first entered the classroom, she would have had a better sense of what they had learned. Even if Mrs. Edwards thought it was best to review concepts to ensure a better understanding, that rationale could have been explained to the students.

In this section, students described differences between Mrs. Edwards' and Mrs. Brown's instructional practices, identified which instructional strategies were helpful to their learning, and pointed out that they tried to communicate some of this information to Mrs. Edwards. I am not arguing that the new teacher must only adopt all of the instructional strategies of the teacher who left the classroom. Rather, it is important for mathematics education leaders to explicitly support teachers to get an understanding of the instructional practices that existed in the previous classroom as well as students' perspectives about the instructional practices they feel supported their learning. If the new teacher's instruction differs, then it might be helpful to explain to students why certain instructional strategies would be utilized.

Quality Student-Teacher Relationships are Important for Students' Learning

Students especially struggled with the fact that Mrs. Edwards did not try to get to know them as individuals, not only when she first entered the classroom but also as the school year progressed. Similar to other findings in research literature, students described the importance of a quality and/or caring teacher-student relationship and its effect on their learning. Caring student-teacher relationships were identified by students as critical to supporting students' opportunities to learn in classrooms (Ladson-Billings, 1997; Noddings, 1992). Noblit, Rogers, and McCadden (1995) found that caring student-teacher relationships encouraged students' academic development. In order to cultivate positive caring relationships, intentional interactions must occur between teachers and students.

Medina noted, "I want to get to know Mrs. Edwards better." I asked Medina to explain why she wanted to get to know Mrs. Edwards. Medina noted, "Well, if I am in class with a stranger, I don't really want to be there, so I may not pay attention like I should." When learning new content, it is imperative for students to pay attention to the instruction. In this case, Medina said she had little interest in learning because she considered her teacher to be a stranger. Medina seemed to indicate that knowing her teacher helped her be excited to come to class and to learn mathematics. For example, she said, "I don't know her [Mrs. Edwards] so I am not excited about coming to class to learn math. If I knew her, it would help me learn math."

Although students wanted Mrs. Edwards to know them, they also wanted to know her, Ty stated, "Mrs. Edwards is my math teacher, but we don't talk much. I just ask her questions about math and that's it. She is just somebody that teaches me math and that's it." He acknowledged that Mrs. Edwards did answer his questions about mathematics, but he did not have an opportunity to get to know Mrs. Edwards' other identities. I asked him to describe some things he wanted his teacher to do. He stated, "Students and teachers should do things that bring us closer. I think every teacher should try to have a relationship with the students." Tariq had expectations that teachers should get to know their students and attempt to build a relationship

with them. The information, learned throughout that process, he seemed to indicate, would bring the students and teacher closer. To echo previous statements, students' relationships with their teacher may impact their mathematics learning.

As with the first finding, students not only recognized the importance of a quality student-teacher relationship, they also gave suggestions for what teachers could do to facilitate such a relationship. For example, Medina gave a suggestion about what Mrs. Edwards could have done when she first entered the classroom:

> When Mrs. Edwards first came in, she didn't say, "Tell me two or three things about you." She just came in and started teaching us. She still does not talk to us at all. I think she likes teaching math, but not getting to know us.

Medina suggested a practice that Mrs. Brown deliberately did at the beginning of the school year: Mrs. Brown wanted to establish a caring relationship with her students, so she would occasionally ask her students to tell her about themselves. Medina acknowledged that Mrs. Edwards enjoyed teaching mathematics; she thought Mrs. Edwards did not want to get to know her students as individuals.

Discussion

This study provides new insight into the phenomenon of teacher turnover in urban classrooms by positioning students as stakeholders with voice in the teacher turnover conversation. More specifically, it highlighted challenges students faced when they experienced teacher turnover in their mathematics classrooms. Educators and school leaders need a better understanding of the ways students perceive and respond to teacher turnover with regards to its influence on students' learning and emotional support in the classroom. This information can inform school leaders as they prepare mathematics teachers who enter these classrooms after a teacher leaves in the middle of the school year.

Researchers have argued that teachers who moved into classrooms after a teacher leaves mid-year teacher turnover need better support (Ronfeldt et al., 2011). The lack of support for teachers may affect students learning experiences in the classroom. The students in this study experienced feelings of disruption and alienation from the learning process. Although Mrs. Edwards' instructional style was drastically different from their previous teacher, these findings showcase the difficulty students faced when they get a new teacher after the start of the school year.

Students also focused on the importance of building positive student-teacher relationships. The findings serve as a good reminder that students need to believe their teacher cares for them (Noddings, 1992). The contextual reality of urban schooling might make it difficult for urban teachers to build positive student-teacher relationships. Institutional and structural barriers might limit teachers' ability to "to connect with students" (Milner & Tenore, 2010, p. 568). These barriers include, for example, a focus on preparing students for standardized tests and the lack of administrative support. However, these barriers should not impede working to support students in these kinds of situations.

School leaders must provide intentional support for teachers who navigate their professional duties in ways that support their students. Because teacher turnover may jeopardize relationship building, due to the unstable environments in which teacher and students must

engage, it is important to begin to formulate positive relationships with students as soon as possible. In fact, Katz (1999) explicitly identified teacher turnover as a structural condition that precludes the development of positive "relationships with students" (p. 809). Although developing positive student-teacher relationships is important, teachers who enter the classroom in the middle of the school year should be explicit about building relationships with students.

Students are experts on their own experiences (Erickson & Shultz, 1992). In the literature on students' perspectives, minority students often go unheard (Lee, 1999). Martin (2012) suggests that researchers should explore the various intricacies of what it means to be an African American student in various contexts. Cook-Sather (2006) noted students are active participants in school and society: "Students insights warrant not only the attention but also the responses of adults; . . . they should be afforded opportunities to actively shape their education" (p. 359-360). If school leaders and teachers listen to students, they are able to consider experiences that are important to students and the ways they talk about those experiences. It is also important to promote academic and interpersonal continuity for students who experience teacher turnover. The most accurate way to receive this information would be to have authentic conversations with students to hear their experiences in the classroom prior to the new teacher's presence.

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THE RELATIVE INFLUENCE OF FORMAL LEARNING OPPORTUNITIES VERSUS INIDICATORS OF PROFESSIONAL COMMUNITY ON CHANGES IN SCIENCE TEACHING IN URBAN SCHOOLS

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Abstract

Previous research has shown that professional communities have the potential to be a powerful lever for continuous improvement in school settings. This research seeks to extend previous research by investigating the indicators of professional community that influence science teaching practice. This study took place in a network of urban neighborhood high schools, where low student achievement and high teacher turnover present barriers to professional community. Science teachers were surveyed on the extent to which they participated in a variety of formal learning opportunities and engaged in collaborative practices that are indicative of professional community over the course of a school year. The teachers also indicated the extent to which they changed their teaching practices during the same time frame. The results indicate that teachers engaged in a variety of collaborative activities such as advice seeking and collaborative discussions about curricula and student work. These conversations were associated with changes in teaching practice.

Keywords: professional community, professional development, science teaching, high schools

The existence of strong professional community among urban teachers can play a significant role in reducing teacher turnover (Allensworth, Ponisciak, & Mazzeo, 2009), improving teacher content knowledge (Fulton, Doer, & Britton, 2010), and sustaining teaching improvements gained through professional development (Parise & Spillane, 2010). In addition, schools with a strong professional community focused on curriculum alignment significantly increase the probability of sustaining long-term growth in student learning (Bryk, Sebring, Allensworth, Luppescu, & Easton, 2010, p. 116). The development of professional community requires shared visions, ample time for collaboration, stable settings, and the development of teacher leadership capacity (Fulton & Britton, 2011; Panizzon, Barnes, & Pegg, 2007; Roehrig, Kruse, & Kern, 2007). However, the limited experience and high turnover of teachers in low-achieving, urban schools creates unstable settings that impede the development of these key ingredients of successful professional community (Allensworth et al., 2009; McLaughlin & Talbert, 2006). Much of the literature base on professional community has been focused on research projects that intentionally supported the development of professional community in

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schools (Fulton et al., 2010). We know little about the extent and impact of professional community in urban settings that are not part of professional development program.

Conceptual Framework

"*We need to know more about STEM PLCs that are naturally occurring in the field.*"
(Fulton et al., 2010, p. 9)

This work is anchored in the literature on professional community. Given the breadth of conceptual frameworks in the literature on professional community, I do not seek to develop a operating definition of what is and what is not professional community. My approach is consistent with several recent reviews of the literature on professional community that have attempted to synthesize the breadth of published professional community frameworks in general (Bolam et al., 2005; Vangrieken, Dochy, Raes, & Kyndt, 2015) and in science specifically (Fulton et al., 2010). Given the diversity of approaches that schools have taken to form professional community supported by researchers, none of the reviews were able to synthesize a coherent framework. The terminology for professional community comes in many forms, such as, professional learning community, lesson study, communities of practice, teams, and groups (Vangrieken et al., 2015). Regardless of the specific terminology or structure, the reviews have identified some common elements of professional community (Bolam et al., 2005; Fulton et al., 2010). Teachers develop shared goals and collective responsibility for connecting teaching to student learning. There is a stance of inquiry through group norms, expectations, and processes, which leads to increased levels of informal collaboration. There is strong leadership outside of the professional community that supports and holds the community responsible. This leadership is both internal to the school (e.g., the principal) and, as most often characterized in the literature, leadership also comes from outside of the school (e.g., university researchers).

By way of example, I present two representative initiatives that provided external support for the development of professional community among a collection of schools. In the first example, the Getting Results project worked with nine low-performing elementary schools in Los Angeles (Saunders, Goldenberg, & Gallimore, 2009). In the initial two years of the project, external researchers worked only with the principals at each school, who in turn attempted to support the development of grade level teams. However, the researchers realized that grade level teams needed direct support, so in the final three years of the project, the grade level teams received direct support from the external researchers (McDougall, Saunders, & Goldenberg, 2007).

The grade level teams followed a series of protocols to engage in an inquiry cycle about teaching and learning. Teachers first identified a common student need to work on together and formulated a clear objective through analysis of representative student work. The team then identified a promising instructional intervention to address students' needs and collaboratively planned the intervention. Each team member then implemented the intervention. The team analyzed the resulting student work to see if the objective was met and then determined whether to the repeat cycle or move on to another area of need.

Over the course of the final three years of support, the standardized achievement of students in Getting Results schools moved from well below the district average to slightly above the district average (Saunders et al., 2009). In addition, Getting Results schools outperformed a matched set of low-performing schools that implemented a district-mandated school reform program. The project leaders cite five key factors for the success of Getting Results: (a) goals

were set, shared, and articulated explicitly by the school community; (b) there were meaningful indicators that measured progress toward goal attainment; (c) teachers received assistance from capable others both within and outside the school; (d) school leadership both supported and pressured goal attainment; and (e) there was a dedicated time and space to meet on a regular basis.

The second example comes from the Bay Area School Reform Collaborative (BASRC) (McLaughlin & Talbert, 2006). BASRC supported 86 Leadership Schools in its first five years. These schools were accepted into the program through an application process and remained in the program through an annual portfolio review. BASRC provided supplemental funding to Leadership Schools. The primary use of the supplemental funds was to provide release time for a teacher at the school to serve as the reform coordinator. The remaining funds were used at the discretion of the schools. To provide support to the schools, BASRC developed tools and resources as well as hosted workdays and affinity groups.

Successful Leadership Schools engaged in regular cycles of inquiry, similar to Getting Results. However, in the case of BASRC, schools focused specifically on standardized achievement data as the lens for defining student needs. In addition, BASRC allowed schools to develop their own approaches to forming professional community and accomplishing the reform goals. School teams developed questions, collected and analyzed data, and took action. Through the process of inquiry, teachers at Leadership Schools developed shared language, fostered collective responsibility, became adept at managing data, were strategic about use of outside resources, and were better able to manage external pressures.

This distributed approach resulted in tremendous variability in approaches and accordingly variability in success at fostering the development of professional community (McLaughlin & Talbert, 2006). An MRDC outside evaluation of the overall set of Leadership Schools showed no main effect of BASRC on student achievement (Porter, Snipes, & Eisberg, 2006). However, the overall evaluation did not take into account the spectrum of implementation quality. Some Leadership Schools remained stagnant with weak professional community. Other schools developed to an intermediate stage, where data was used to identify problems, but the inquiry cycle did not influence the way in which solutions were identified, implemented and evaluated. Advanced Leadership Schools were able to undertake the full inquiry cycle of using data to identify needs and then implementing strategies to address those needs. These advanced schools did show evidence of improvement in student achievement (McLaughlin, Talbert, & et. al., 2002).

The challenges of fostering professional community faced by these two example projects are representative of the challenges commonly described in the literature. At the same time, these two examples are representative of the literature for the successes that can be achieved at impacting student learning when the challenges to fostering professional community are overcome with the help of external experts. However, these successes can be tenuous. "School-based teacher learning communities often fall apart in the face of local shifts in leadership and changing political tastes." (McLaughlin & Talbert, 2006, p. 114) Shifts in local leadership and changing political tastes are characteristic of schools in urban settings. In addition, schools in the poorest urban neighborhoods tend to have the lowest levels of external social capital that can provide outside experts for facilitating the development of professional community (Bryk et al., 2010). Therefore, to better understand the potential of fostering professional community in urban settings, it is important to investigate contexts with shifting leadership and lack of outside facilitators to support the development of professional community.

By way of contrast to what is typically reported in the literature on professional community, I focus in this study on a network of low-income, urban high schools that are not receiving external support. Within that context, it is not feasible to measure the prevalence of specific elements of professional community, such as certain types of meetings or use of certain types of protocols. Rather, in this work I seek to study the impact of professional community by measuring the levels of collaborative activity as an indicator of the presence of professional community, in whatever professional community support structure the school is using. These indicators are the frequency of collaborative discussion, peer observation, and advice seeking. I examine the prevalence of these indicators of professional community relative to the prevalence of formal learning opportunities and the relative impact of these professional learning opportunities on changes in teaching practice.

Formal Learning Opportunities

This work is also anchored in literature on teacher professional development. Some evidence of the features that support professional growth has been identified in prior research. In a recent review of professional development research, Desimone and Garet (2015) present a conceptual framework highlighting key features for designing professional development to positively impact teacher knowledge and changes in teaching. One of the professional development features highlighted in their review is the extent to which the professional development activities focus on active learning, which means engaging participants as active adult learners. The characteristics of active engagement in professional development include planning instruction and giving professional presentations. In addition, active engagement in professional development includes characteristics often associated with professional community—peer observation and collaborative discussion of student work. The Desimone and Garet conceptual framework for professional development aggregates the prevalence of these four characteristics of active engagement into a single active learning scale. This active learning scale aggregates both individual and group activities. In addition, this active learning scale does not make a distinction between teachers collaborating with colleagues in their school or teachers collaborating with peers from other schools participating in the professional development.

In a national study of professional development features, Garet, Porter, Desimone, Birman, and Yoon (2001) found that the extent to which professional development included active learning significantly predicted improvements in teacher knowledge, but did not have a direct effect on changes in teaching practice. To be successful at shifting teacher practices beyond changes in routine instructional strategies, professional development must be coherent with teachers' school context, be long in duration, and encourage collective participation of all school staff (Desimone & Garet, 2015). Desimone and Garet (2015) also highlight the challenges of conducting research on professional development in urban settings where there is minimal documentation of professional development offerings and participation. In addition, frequent staff turnover makes it difficult for schools to maintain coherence and support teachers in applying what is learned from professional development.

Parise and Spillane (2010) extended the findings of Garet et al. (2001) by investigating how changes in teaching practice are differentially influenced by the indicators of professional community that are related to the Desimone and Garet (2015) active learning scale. Parise and Spillane (2010) labeled these indicators of professional community as on-the-job learning opportunities (i.e., peer observation, collaborative discussion, and advice seeking). They compared these indicators of professional community to formal learning opportunities, including

professional development, coursework, and network participation. Their study investigated these indicators for elementary math and English teaching in an urban setting, but not for science teachers. Of the various types of formal learning opportunities, content-specific professional development significantly predicted changes in teaching practices, which is consistent with Garet et al. (2001). In contrast to Garet et al. (2001), Parise and Spillane (2010) found that a subset of the indicators of professional community directly predicted changes in teaching practices, specifically collaborative discussion and advice seeking. While the impact of professional learning opportunities on student learning is not a focus of this investigation, similar research has shown that these self-reported changes in teaching practice are predictive of improvements in student learning in English and math (Supovitz, Sirinides, & May, 2010).

In this study, I seek to extend the findings from Parise and Spillane (2010) into the discipline of high school science. Since there was not any outside support for these schools, this research will begin to address Fulton et al. (2010)'s call for more research on indicators of science professional communities that are "naturally occurring in the field." How prevalent are the indicators of professional community in the absence of a specific program to support professional community? To what extent do the presence of indicators of professional community predict changes in teaching practice among urban high school science teachers? What is the relative impact of the prevalence of formal learning opportunities vs. indicators of professional community on changes in teaching practice?

In this research project, I investigate the characteristics of formal learning opportunities and indicators of professional community that predict self-reported changes in science teaching for 15 high school science departments in the same high school network in Chicago. With the Chicago Public Schools' (CPS) experiencing the kinds of "shifting leadership" that creates challenges for professional community as described by McLaughlin and Talbert (2006), the recent period of rapid turnover in superintendents and subsequent policy ambiguity (Kennedy, 2015) makes the district a worthwhile subject of study for how professional learning opportunities influence teaching practice in urban schools that are not receiving external support. This setting contrasts with previous research that has examined these questions in the context of ongoing external professional development and support for the development of professional community (Fulton et al., 2010; McLaughlin & Talbert, 2006). At the time of this study, there had not been a coherent science program of external teacher support in these high schools for several years.

Methods

During the months of May and early June 2013, I attended a science department meeting in fifteen of the sixteen schools in one out of a half dozen high school networks in Chicago to administer an online version of the *School Staff Questionnaire* used in Parise and Spillane (2010). During the 2012-13 school year, there were 102 science teachers across the fifteen schools in the network, 22 special education science teachers, and 20 special education teachers assigned to teach at least one science class out of multiple content area assignments. After inviting teachers to participate in the research at the science department meeting, participants had the opportunity to indicate their willingness to participate by signing an informed consent form. A total of 94 science teachers (92%), 15 special education science teachers (68%), and 3 special education teachers assigned to multiple content areas (15%) agreed to participate and completed the online survey during their science department meeting (n=112 teachers). The survey sample includes almost all of the science teachers and a majority of the special education science teachers in the

fifteen high schools in the network. There is low representation of special education teachers assigned to multiple content areas, as it is difficult for those teachers to attend the weekly department meetings for all of their content area assignments.

Measures

The survey instrument comes from previous research on teachers' professional learning opportunities (Goldring, Huff, Pareja, & Spillane, 2008; Goldring, Spillane, Huff, Barnes, & Supovitz, 2006; Supovitz et al., 2010). Questionnaire items are primarily closed-ended and ask about the teachers' work in and out of the classroom. In one open-ended question, respondents are also asked to describe their in-school social networks by listing the names of people from whom they seek advice about science. The following sections detail the dependent variable of changes in teaching practice, the independent variables related to the types of professional learning opportunities, and the control variables related to teacher demographics. The survey contained twenty-six questions, which took about 15 minutes to complete during the departmental meeting.

Changes in science teaching practices scale (dependent variable). The dependent measure is a scale comprised of eight questions about the extent to which teachers changed their science teaching practice in the past year. On a 7-point scale ranging from *not at all* to *a great deal*, participants were asked to indicate how much they changed their science teaching during the past year for the following eight aspects of teaching: (1) student assessment, (2) student grouping, (3) materials used, (4) topics covered, (5) teaching methods used, (6) kinds of work students do, (7) kinds of questions asked, and (8) understanding the needs of individual students in their class. The items were averaged to create the changes in science teaching practices variable, which served as the dependent variable for this study. The alpha reliability of the changes in science teaching practices variable was 0.93.

Since these questions are Likert self reports, there is no information to characterize or validate the actual changes that teachers made to their teaching practice. However, Supovitz et al. (2010) have shown that this changes in teaching practice scale can be a useful indicator for positive changes in teaching practice. Their research indicated that this self-report changes in teaching practice scale is a strong predictor of growth in student learning outcomes. In addition, both Supovitz et al. (2010) and Parise and Spillane (2010) have shown that this changes in teaching practice scale can be impacted by the prevalence of different types of professional learning opportunities. I seek to explore that same relationship between the prevalence of professional learning opportunities and self-reported changes in science teaching practice.

Formal professional learning opportunities (independent variables). There were three questions about formal professional learning opportunities, including science professional development, science courses in the past year, and outside network participation. Given that there was not a uniform program of formal professional learning opportunities for this network of schools and the general lack of documentation of formal learning opportunities in urban settings (Desimone & Garet, 2015), it was not feasible to attempt to characterize the nature of the professional learning opportunities. Instead, the survey documents the frequency of teachers' self-reported participation in three types of formal learning opportunities. The alpha reliability of the formal professional learning opportunities scale was 0.30, which indicates that each of the questions addresses different components of formal professional learning. Therefore, each question will be used separately as an independent variable.

Science professional development. On a 4-point scale ranging from *none* to *8+ sessions,*

participants were asked to indicate the number of professional development sessions they participated in during the past year.

Science courses. On a 5-point scale ranging from *none* to *4+ classes,* participants were asked to indicate the number of undergraduate or graduate level courses they had taken in science or science teaching in the past year.

Outside network participation. On a 6-point scale ranging from *never* to *10 or more times,* respondents were asked to indicate how often they participated in a network with other teachers outside of their school in the past year.

Indicators of professional community (independent variables). There were ten questions about the prevalence of indicators of professional community. These questions were organized by three categories of indicators: collaborative discussion, peer observation, and advice seeking.

Collaborative discussion and review of student work. The collaborative discussion dimension contains seven questions that measure the self-reported frequency with which teachers' engage in conversation with colleagues regarding teaching and learning. The scale does not capture the nature or quality of the conversation, but rather the topics of conversation. On a 5-point scale ranging from *never* to *more than 2 days/week,* participants are asked questions regarding the frequency of their conversations with colleagues around issues of teaching and learning: (a) what helps students learn the best, (b) development of new curriculum, (c) the goals of this school, (d) managing classroom behavior, (e) science instruction, and (f) content or performance standards in science. On the same 5-point scale, respondents are also asked to indicate how often they had engaged in collaborative review of student work. The alpha reliability of the collaborative discussion scale as a whole was 0.87.

Peer observation and feedback. There were three questions about the frequency with which teachers engage in peer review and feedback. On a 5-point scale ranging from *never* to *more than 2 days/week,* participants are asked to indicate how often they participated in three different observation and feedback activities around instruction: (a) how often the teacher observed someone else, (b) how often someone else observed the teacher, and (c) how often the teacher received feedback based on someone's observation. The scale does not capture the nature or quality of the peer observation, but rather the frequency of peer observation and feedback. The alpha reliability of the peer observation and feedback scale was 0.80.

Science advice seeking. There was one question related to science advice seeking. Teachers were asked, "To whom do you turn for advice or information about science instruction?" Respondents could list up to ten different individuals who served as sources of advice. As an indicator of strength of the relationship with each advice giver, teachers were also asked to indicate how often they turned to each source for advice, ranging from *yearly* to *daily.* The science advice seeking measure is created by totaling the frequency with which advice was sought from all sources listed.

Teacher characteristics (control variables). There were five questions about individual teacher characteristics, which were included as control variables in my analyses, including age, number of years as a teacher, number of years teaching at the current school, gender, and race.

Population

The teachers in this study come from 15 of 16 schools in a particular network of schools in Chicago. While there was no external support for specific professional community, schools generally provided a time and space for teachers who taught the same course to meet as a course

team on a weekly basis. These weekly course team meetings provided opportunities for teachers to collaboratively plan and reflect on instruction, but there was no explicit guidance or accountability on how teachers were to use that time. The lack of guidance and accountability suggests that there was likely great variability in the extent to which teachers took advantage of those opportunities to collaborate. Moreover, in smaller schools, there was typically only one teacher for a given course, so there was no opportunity to collaborate as a course team. This research did not directly measure what occurred during these meetings, but rather provides measures of the frequency with which teachers engaged in the kinds of collaborative discussions that would be occurring in high functioning course teams.

A total of 112 teachers responded to the survey. Over half of the teachers identified as Caucasian (56%), around one-fourth identified as African American (26%), about one-tenth identified as Hispanic (12%). The remaining teachers identified as Asian (7%) or other (6%). Almost two-thirds of the teachers were female (64%). The distribution of overall teaching experience is somewhat uniform (see third column of Table 1). The average number of years of teaching was just over 12 years. However, the average number of years teaching at the current school was around 7.5 and the distribution was skewed toward the lower end. Almost half of the teachers were at their school for five years or less. This discrepancy between overall teaching experience and experience at the current school suggests that the population reflects the high turnover rate within CPS as a whole (Allensworth et al., 2009).

	At School	Total
1-5 yrs	55	31
6-10 yrs	23	18
11-15 yrs	16	26
16-20 yrs	9	18
> 20	5	18

Table 1: Years of Teaching Experience

Results

Descriptive Results

Table 2 presents the descriptive statistics for the primary dependent and independent variables included in this study. The number of participants that responded to each question, sample means, and standard deviations are listed. Also, the scale label for the average value is listed. The dependent variable—changes in science teaching—indicates that, on average, teachers were slightly above the midpoint on the scale, which suggests that teachers implemented a fair amount of changes in their classroom practice and there was substantial teacher-level variation in the amount of change implemented. In terms of formal professional learning opportunities, teachers on average participated in 3-7 workshops during the school year and participated in a network with science teachers outside of their school a couple of times per year. The average rating for taking a graduate class in science or science teaching in the last school year was a little less than 1. During the 2012-13 school year, CPS provided tuition subsidies for math and science teachers to take graduate courses in science and math.

Variable	Label Associated with Average Value	Mean	SD	N
Dependent Variable				
Changes in science teaching		4.3	1.4	112
Formal Learning Opportunities				
Science professional development	3-7 sessions	2.7	0.9	110
Outside network participation	1-2 times	2.2	0.9	110
Science courses this year	1 class	0.7	1.3	110
Indicators of Professional Community				
Science Advice Seeking:		*12.2*	*8.0*	*109*
Number of Advisors	5 Advisors	4.6	2.9	109
Average Frequency of Advice	Weekly	2.9	0.7	98
Conversations about:	1-2 days/wk	*3.5*	*0.8*	*112*
What helps students learn best	1-2 days/wk	3.9	1.0	110
Your science instruction	1-2 days/wk	3.9	1.1	110
Content or performance standards	1-2 days/wk	3.7	1.0	109
Managing classroom behavior	1-2 days/wk	3.6	1.2	109
The goals of this school	Few times/month	3.3	1.1	109
Development of new curriculum	Few times/month	3.3	1.1	110
Review your students' work	Few times/month	2.5	1.0	110
Peer Observation and Feedback:	*Few times/year*	*2.2*	*1.0*	*112*
Observe another classroom teacher teach	Few times/month	2.5	1.4	112
Another classroom teacher observe you teach	Few times/year	2.3	1.2	110
Another classroom teacher give you feedback after observing you teach	Few times/year	1.9	1.0	111

Table 2: Descriptive statistics for the dependent and independent variables

Teachers participated in collaborative activities more often than formal professional learning opportunities. Advice seeking was the most frequent behavior. Teachers on average sought advice weekly from about five colleagues. Recall that the overall advice seeking metric combines the number of advisors and the frequency of seeking advice. In addition to advice seeking, teachers engaged in collaborative conversations with their colleagues on average a couple of times per week. They more frequently discussed how students learn best, science instruction, classroom behavior, and performance standards—a couple of times per week. A little less frequently, teachers discussed the goals of the school, developing new curricula, and student work—a few times per month. Teachers engaged in peer observation and feedback a few times per year. They more frequently observed other teachers (few times per month) than they themselves were observed by other teachers and received feedback (few times per year).

Regression Results

As indicated above, this research seeks to extend the findings of Parise and Spillane (2010) to the setting of high school science. Therefore, I followed their analytic strategy for modeling the impact of formal learning opportunities and indicators of professional community on changes in teaching practices. To analyze the extent to which changes in teaching practice were associated with formal learning opportunities and indicators of professional community, I developed three multiple regression models. The first model examined the influence of formal learning opportunities on changes in teaching practice. The second model examined the influence of the indicators of professional community of changes in teacher practice. The third model examined the influence of both formal learning opportunities and indicators of professional community on changes in teaching practice. For each of the models, the teacher demographic variables were used as controls. Race and gender were included in all three of the models, but they were not statistically significant in any of the models. Age, total years of teaching experience, and years of experience at the current school were all highly correlated and showed evidence of multicollinearity. Thus, when more than one of these factors was included in the models, none of the factors were statistically significant, even though individually each factor inversely, statistically predicts changes in teaching practices. In other words, the older or more experienced teachers made fewer changes to their teaching practice. In order to select which of the three variables to include in the models, I examined the amount of variance in changes in teaching practice that each factor independently explained. Experience at the same school explained 12%, total experience explained 6%, and age explained 8%. Therefore, experience at the same school was selected as the indicator for experience across all three models.

Table 3 shows the results of these multiple regression analyses. The cell values are the standardized betas. The statistically significant variables are bolded. All three models were statistically significant. The first model examined the effect of formal learning opportunities on changes in teaching practice ($F(8,89) = 3.69$; $p < 0.01$; $R^2 = 25\%$). The model included the frequency of participation in the three types of formal learning opportunities as well as the demographic variables. Of the three formal learning opportunities, the only characteristic that was statistically significant was the number of science or science teaching classes teachers completed in the current school year. About 25% of the teachers in the sample indicated that they had taken one or more classes. It is possible that several of these teachers took advantage of tuition subsidies and stipends that the school district provided for the 2012-13 school year to encourage science and math teachers to deepen their content knowledge through university coursework.

The second model examined the effect of the indicators of professional community on changes in teaching practice ($F(9,87) = 7.69$; $p < 0.001$; $R^2 = 44\%$). In analyzing the indicators of professional community, I sought to unpack the characteristics of teachers' conversations that were associated with changes in teaching practice. I first analyzed each of the topics of conversation separately. I then included in the final model those conversational topics that were statistically significant. The statistically significant indicators of professional community are frequency of conversations about curriculum, collaborative review of student work, and science advice seeking. The frequency of peer observation and feedback was not a statistically significant predictor of changes in teaching practice. It is worth noting that the indicators of professional community model explained almost two times as much of the variance as the formal learning opportunities model.

The third model examined the combined effects of formal learning opportunities and

indicators of professional community on changes in teaching practice ($F(12,78) = 6.29$; $p < 0.001$; $R^2 = 49\%$). Adding the formal learning opportunities variables to the indicators of professional community model only adds 5% additional explanation of variance in the Full Model. However, none of the formal professional learning variables are statistically significant in the full model. The length of time that a teacher had been at a particular school is statistically significant in all three models. It is associated with fewer changes the teacher made to his/her science teaching practice.

	Changes in Science Teaching Practice		
Independent Variable	Formal Opportunities Only	Indicators of Professional Community Only	Full Model
Formal Professional Learning			
Science Professional Development	0.12		0.08
Science Courses (School Year)	**0.28****		0.15
Outside Network Participation	0.04		-0.11
Professional Community			
Conversations about:			
Student Work		**0.30****	**0.32****
Curriculum		**0.29****	**0.24****
Science Advice Seeking		**0.25****	**0.27***
Peer Observation and Feedback		-0.02	-0.03
Teacher Controls			
Years Teaching at Current School	**-0.20***	**-0.20***	**-0.21***
Gender, Race	NS	NS	NS
R-square	25%	44%	49%
Observations	98	97	91

Significance Levels: 0.05 = *; 0.01 = **; NS = not significant

Table 3: Results of Multiple Regression

Discussion and Conclusion

Previous research has shown that professional communities have the potential to be a powerful lever for continuous improvement in school settings. However, these previous research studies have taken place in the context of ongoing professional development programs and external support for professional community. Garet et al. (2001) found that professional development with active learning components (i.e., actively engaging adult participants with specific activity structures) increased teacher content knowledge of science, but did not influence teaching practices. Their research results, however, are confounded by the fact that their active learning dimension aggregated several of the indicators of professional community. The current research has shown that these indicators have differential influences on changes in teaching practices. The fact that Garet et al. (2001) did not find an influence of active learning on teaching practice may be due to aggregating the effects of different indicators into one scale. Parise and Spillane (2010) found that both formal learning opportunities and indicators of professional community have a significant influence on changes in teaching practice in English and math. In

contrast, this research found that the influence of the indicators of professional community explained the vast majority of the variance in changes in teaching practice. None of the formal opportunities were statistically significant within the model that included indicators of professional community. I do not believe that these findings suggest that formal learning opportunities are unimportant. It is important to recall that there was not any coordinated science professional development intervention occurring. These findings might suggest that in the absence of a coordinated formal professional development program, the resulting haphazard professional development lacks coherence as defined by Desimone and Garet (2015) and therefore, has limited influence on changes in teaching practices. What this current research does suggest is that conversations about curriculum and student work are commonly occurring in urban high school settings without external support despite the changing district leadership and policy ambiguity in the district. These conversations about curricula and student work have a significant influence on changes in teaching practice. Science educators who are supporting implementation of science curricula in urban settings would be well advised to consider how to support these ongoing conversations about their curricula and resulting student work products as a way to increase the probability that the intervention will sustain after the professional development component comes to end.

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EXPLORING AN INTEGRATIVE LENS OF IDENTITY FOR A HIGH SCHOOL MATHEMATICS TEACHER

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Abstract

Driven largely by societal discourse regarding the underrepresentation of African American males pursuing science, technology, engineering and mathematics (STEM) majors, careers and professions, it becomes salient to understand how African American males experience mathematics in K-12 public schools in relation to their mathematics identity development. Mathematics teachers play a critical role in developing African American male mathematics identity. Utilizing an integrative lens of identity, this study examined one teacher's mathematics identity development and its influence on her teaching of students. The analysis focuses on how mathematics teachers' identities shape mathematics instruction for African American students, ultimately impacting their emerging identities as learners of mathematics. I argue that foregrounding teacher identity in mathematics within an integrative lens of identity can enhance our current understanding of how K-12 mathematics instruction impacts career trajectories in STEM for African American students.

Keywords: African American students, mathematics, teacher, identity

In the current state of K-12 public schooling in the United States only 14% of eighth grade African American students nationwide scored at or above proficient in mathematics, in comparison to 21% Latina/o and American Indian/Alaska Native students, 45% of White students, and 60% of Asian/Pacific Islander students (NCES, 2013). Data further show at the high school level, only 7% scored at or above proficient in mathematics (NCES, 2013). African Americans have historically received inferior public schooling due to structural and institutional racism, and specifically African American males endure collective stereotypes that impact their mathematics achievement and participation (Anderson, 1998; Stinson, 2006). Participation in mathematics at the high school level becomes problematic as only 7.6% of African American males enrolled in at least one advanced placement course, in comparison to 18.4% White males (Schott Foundation, 2015). Therefore, I argue, that K-12 public schooling is not adequately preparing African American male students to identify math as their major for college (Maple & Stage, 1991) thus impacting their ability to pursue science, technology, engineering and mathematics (STEM) majors, careers and professions (National Science Foundation, 2014).

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Despite the rich diversity of our world, the culture of mathematics education in the United States remains steeped in White, middle class traditions along with Asian Americans being considered the "model minority" in mathematics achievement (Ladson-Billings, 1997; Lee & Zhou, 2015; Noguera, 2009). This myopic view of mathematics achievement continues to marginalize African American youth from seeing themselves as STEM participants. The culture of mathematics can have tremendous impact on African American males as learners of mathematics since their marginalization in the discipline gives rise to a collective identity for African Americans in mathematics. According to Appiah (2005), collective identities are manifested in the following ways: 1) terms in public discourse used to describe bearers of the identity where some people are recognized as members of a group, 2) the internalization of those labels as parts of the individual identities, and 3) the existence of patterns toward a group – i.e. discrimination, media imagery, mass incarceration, and poverty. Since African American males experience structural and institutional racism in public schooling, are stereotyped and remain marginalized in the cultural positioning of mathematics, this collective identity can impact their identity as learners of mathematics as well as social relations within public schooling. While mathematics serves as a gateway subject to STEM participation and males are often privileged (Riegle-Crumb & Humphries, 2012), mathematics learning and achievement becomes problematized when the collective identity of African American males positions them at a disadvantage (Howard & Reynolds, 2013; Jett, 2011).

McAdams (2001) describes identity as "internalized and evolving narratives of self" which are reflective of cultural values and norms, which includes assumptions regarding gender, race and class. Since images of African American mathematicians are not prioritized in public school spaces, this can impact how African American males view themselves as learners and participants in mathematics, ultimately impacting identity development (Picker & Berry, 2000). Even though research has shown African American male agency in public schooling to resist oppressive mathematics positioning (McGee & Pearman, 2014; Stinson, 2008), the vast majority of African American males still occupy space in K-12 public schools where inferior mathematics instruction remains an everyday occurrence (Guiton & Oakes, 1995).

Socio-cultural research on identity development helps to understand the importance of social interactions that enable individuals to construct emerging identities based on relationships with significant others (Chen, Boucher & Tapias, 2006), group identification (Postmes, Spears, Lee & Novak, 2005) and everyday language (De Fina, Schiffrin & Bamberg, 2006). Teachers in K-12 public schools are positioned as significant others since they interact with African American males on a daily basis. Because of this significant interaction, it is necessary to understand how mathematics teachers of African American males developed their mathematics identity and how this formed identity impacts African American male learners of mathematics.

The necessity of studying the identity of a mathematics teacher, is because an integrative lens of identity manifests itself in the way an individual leads students', makes decisions about mathematics instruction, engage mathematics students and negotiate responsibilities within the mathematics classroom. In operationalizing an integrative lens of identity, Vignoles, Schwartz & Luyckx (2012) believes that in understanding identity one must go beyond the singular focus of personal identity, and also include the relational, collective and material components of identity. In deconstructing a mathematics teacher's identity development, investigation into how she defines her own mathematics skills (personal), what she believes the role of a mathematics student is (relational), how she views African Americans in mathematics (collective), and what mathematics means to the African American community (material) represents the four

components of identity. Utilizing an integrative lens of identity will foster an understanding on the impact a teacher's own experiences in developing her mathematics identity shapes her approach to teaching mathematics to African American students.

Conceptual Framework

In this article I use an integrative framework of identity to understand a high school mathematics teacher's identity development in mathematics in her own K-12 schooling (Vignoles, Schwartz & Luyckx, 2011). Cullingford (2006) found the process of recollection beneficial, because it allowed children to uncover the daily events of schooling. Combining the integrative framework of identity with recollection, provides the opportunity to uncover how teachers experienced mathematics learning as a student, to gain insight into how these experiences shape mathematics instruction in their role as teacher. An integrative framework of identity encompasses four components – *individual/personal identity, relational identity, collective identity and material identity.* An *individual/personal identity* represents the self-definition of the individual person. The *relational identity* refers to one's role in relation to others. The *collective identity* is a person's identification with a group and social categories to which they belong. *Material identity* refers to identification with treasured material possessions and sense of where she belongs in geographical space.

Employing recollection through an integrative framework of identity provides a deeper understanding of teacher identity both as a mathematics student and mathematics teacher, and proves salient as teachers play a critical role in developing African American male mathematics achievement (Clark, Badertscher & Napp, 2013; Milner, Pabon, Woodson & McGee, 2013, Tate, 1995). Lortie (1975) concluded that teachers teach the way they were taught – apprenticeship of observation; however, more inquiry is needed to explore how teaching practices get replicated (Mewborn & Tyminski, 2006), and how one's own mathematics identity development and agency is consciously or subconsciously transmitted to students through everyday classroom practices. Understanding ways in which mathematics teachers construct their disciplinary identities, particularly the relational, collective and material aspects of identity become critical if the goal is to have mathematics teachers who provide mathematics instruction that is caring, culturally relevant and responsive (Gay, 2000; Ladson-Billings, 1995; Noddings, 1988).

Methods

Case study methodology (Miles, Huberman & Saldana, 2014; Yin, 2013) was used to examine one high school mathematics teacher mathematics identity development as a K-12 student, and how her formed identity impacts mathematics instruction for students, particularly African American males. Two questions guided this case study: 1) What were the experiences and supports of a high school mathematics teacher as a K-12 student that shaped her mathematics identity? How does a mathematics teacher identity impact classroom instruction and relationship with students as it relates to mathematics, particularly for African American males?

Participant and Context

Linda (pseudonym), is a high school mathematics teacher at a magnet school, and was selected from a larger research study aimed at understanding how African American males at a research university developed mathematics identities in K-12 schooling. Linda was selected because she is a white, female teacher, which represents the majority of schoolteachers in K-12 schools in the United States (NCES, 2013) and because of her experience teaching mathematics to African American males in K-12 public schools. Linda grew up in a two-parent, middle-income, military family and as a result moved to different cities quite frequently. Linda's parents divorced when she was seven years old, and her father retained full custody. Linda attended both public and private schools during her elementary, middle and high school years. Linda held a corporate position before entering into the teaching profession. Linda has been teaching for five years. Linda currently teaches Algebra I, Geometry intervention, and advanced placement statistics. At the time of the study, Linda was the mathematics teacher for three African American males, Donovan, Sean and Trevor (all pseudonyms) all Algebra I students. Currently, the magnet school has an enrollment of 700 students and is predominantly Latin@ and Asian, followed by African American, Filipino and White. The African American population at this school is 6.5%.

Data Collection and Analysis

An audio-recorded face-to-face semi structured interview in a conversational tone was conducted to build rapport with Linda to elicit depth and detail regarding her K-12 experiences learning mathematics as a student and her role as a mathematics teacher (Creswell, 2013; Rubin & Rubin, 2011). Linda completed a two-and-a-half-hour interview; at the time of the interview she was on maternity leave. Linda's interview provided important themes that correspond to understanding a teacher's mathematics identity development and its impact on African American male learners of mathematics.

Data was analyzed using an integrative lens of identity by labeling Linda's interview data based on the integrative framework of identity which consists of personal/individual identity, relational identity, collective identity, and material identity. Once Linda's interview data and sample lesson plan were labeled, in vivo coding was used to contextualize data within the integrative framework of identity to prioritize and honor the participant's voice (Saldana, 2013).

Findings

In this section I contextualize the integrative framework of identity and recollection, to understand how Linda's personal, relational, collective and material identity as both a K-12 mathematics student and as a mathematics teacher impacts mathematics instruction for students, specifically African American males.

Integrative Framework of Identity	Theme	Brief Description	Example
Personal identity	Natural Ability	The self definition at the level of the individual person as a mathematics	"I had a natural ability in mathematics. I am naturally wired to be good

		student	at mathematics."
Relational identity	Good student	The aspect of identity that refers to one's role in relation to others, as a mathematics student	"I am good at mathematics because I can do it fast, I work independently, and I never received a grade lower than a B."
Collective identity	Student Responsibility	The aspect of identity that refers to an individual's identification with a group, as a mathematics teacher	"I set up my mathematics classroom that it is the student's decision to fail. I introduce the concept, give them group work and they have to work their way through it."
Material identity	Location matters	The aspect of identity where an individual belongs in geographical space, school location and demographics	"I have taught in an inner city school in predominantly African American neighborhood, realized that's not the area I wanted to teach in."

Personal Identity Represents Natural Ability

During the interview, I asked Linda to describe her mathematics interest and ability. Linda described herself as an individual who has a "natural ability" in mathematics. In recalling her K-12 schooling experiences, mathematics learning required minimal help from teachers and she saw the role of the mathematics teacher simply as someone who could push her natural ability further. Linda's self-definition of "natural ability" impacts the way she thinks about mathematics instruction in her classroom, which causes tension in her role as a mathematics teacher. She said,

> Now that I teach Common Core (Mathematics), like this is what I did in my head to understand. You know if someone gave me a direct lecture, and if they tell me this is how it works, I am over on the side like drawing the picture making the connection and thinking that's how a Ferris wheel would go. I am naturally doing that so I guess I must be wired to be good at it and now we are trying to teach everyone to think like that even if they wouldn't naturally.

Linda's self-ascribed personal component of her identity is embedded in the concept of "natural ability". She positions her self-ascribed personal identity to make meaning of the mathematics curriculum and instruction used to teach mathematics to her students. In positioning "natural ability" within the context of mathematics learning, Linda has the potential to marginalize students that may not fit her "natural ability" standard of mathematics acquisition.

Relational Identity and the Role of a Good Student

In discussing her K-12 mathematical experiences as a student, Linda characterized herself as a good mathematics student in relation to her peers. Linda's relational identity in mathematics consisted of: 1) completing mathematics problems quickly, 2) working independently, 3) receiving a mathematics grade no lower than a B, and 4) challenging mathematics teachers if she did not understand a mathematics concept. Linda explained,

> I never questioned that I could do it (mathematics) or could figure it out. In fact, this is interesting and very culturally different than my students. If I didn't understand what the teacher was saying (regarding mathematics), then it was his fault. He wasn't explaining it well. I told a teacher to, "Wait, wait, wait, go back and explain how you did this one again." I remember being annoying and flabbergasted that I didn't understand. Me and my fellow classmate made him explain it better until we understood.

Linda's four-tiered self-ascribed relational identity included mathematics performance, agency, achievement, and questioning authority. Linda's self-ascribed relational identity is thrust upon her students, as she questions why her students do not challenge her by asking her to re-explain mathematical concepts. She states that this is culturally different, however her response is not one of trying to adapt her teaching to meet the needs of her students, but rather indicating it is a deficit of her students.

Collective Identity means Student Responsibility

Linda acknowledges that she is a mathematics teacher who establishes a high school classroom environment that places the responsibility to achieve academically in mathematics on her students. Her collective identity of student achievement in mathematics is a direct reflection of her relational identity where she admits that as a mathematics student she never received a grade less than B in mathematics. She states,

> I set my classroom up in a way that I would have appreciated. I really want to make sure I set up my classroom in a way that it is their decision that they are going to decide to fail. This is why it is hard to identify with my inner city students because for me, the F [grade]. I think they genuinely choose an F.

In explaining the collective positioning of her students as it relates to math, Linda designs her mathematics classroom the way "she" would have wanted it, which exhibits power, and privileges her voice and way of learning over her students. To establish culturally relevant teaching, students must be co-constructors of knowledge. She has not asked for input of her students on ways in which may empower them in mathematics, instead, she defers to the type of classroom environment that she would have thrived in.

Material Identity where Location Matters

Geographical space matters to Linda. Linda began her teaching career in urban public schools with predominantly low-income African American students. Through this experience

Linda realized that this was not the type of school environment she wanted to teach. Linda explained,

> At a (predominantly low income African American high school) was my realization that that's not what I want to teach, like that's only teaching how to be a citizen. You think you are teaching any mathematics you are out of your mind. Ability wise it was way too low for me. God bless the teachers that are there and I hope that they are teaching them to love themselves and be confident and that they can do it, but it is not my skill set. It is not why I came into teaching.

The current school that Linda teaches in is a magnet school that has a diverse student body, including African Americans. While the geographical location of Linda's current school is different, African Americans comprise 6% of the population of her current school setting and may exhibit the same mathematical characteristics that African American students in her previous school held due to the culture of mathematics in K-12 public schooling.

Formed Identity and its impact on African American Males

After discussing her formed mathematics identity, I asked Linda to recollect her experience teaching mathematics to African American students, specifically African American males. Linda discusses her perception of the collective identity of African Americans and the three African American males that she currently teaches. Linda said,

> Black students always the lowest, not always, but definitely the lowest in the class, and Algebra I is where our Black population are. My experience is the same approach to every student. The three Blacks in my Algebra I class, all friends, all want to work together, all failing, all never do their homework, and want to fight each other. The three students that I am thinking of [Donovan, Sean, Trevor] all are quite earnest, all of them are always kind of looking for the easy way to do mathematics, always looking for the shortcut. They definitely prescribe to the notion that if you can do mathematics faster, you are good at it, so if you can't do mathematics fast, you are not good at it, so stop trying to do it. Black students are more prone to a constructivist approach; they glaze over direct instruction. One thing that I do instructionally different for Black males is that when talking with Black mothers I start with my grading structure, because their sons have faced discrimination in the past.

Linda's collective identity of African American students is deficit based. In her remarks that "Black students are always the lowest", Linda has positioned the collective identity of African American students in mathematics as underperforming, and her self-ascribed personal as well as relational identity structures her mathematics instruction on natural ability and taking student ownership, which will not support a constructivist approach which she believes supports African American mathematics student learning.

Discussion

Cullingford's (2006) recollection research proved useful in understanding how a teacher's formed mathematics identity impacts the everyday experiences of learning mathematics for African American males. By utilizing an integrative framework of identity, I was able to understand the details of Linda's mathematics identity and how this is transmitted to her mathematics instruction and classroom environment. Linda's mathematics identity is embedded in natural ability, independence, and accountability. Linda's primary reason for entering the teaching profession, is to teach mathematics and not to teach how to be a "citizen". This supports Lortie's (1975) work that teachers teach the way they were taught, as Linda uses primarily direct instruction. However, it also problematizes Lortie's work in that Linda's mathematics identity informs the way she teaches and expects her students to understand mathematics.

Since educational research shows that African American students benefit from culturally relevant and responsive teaching that demonstrates care and building learning communities, Linda's mathematics instruction reinforces oppressive mathematics teaching and learning by placing accountability solely on the student as the "controller" of their own mathematics learning. In describing the collective identity of her three African American male students, Linda refers to her students as holding a certain viewpoint of mathematics which includes doing mathematics fast. Linda's mathematics teaching does nothing to challenge or disrupt this view of mathematics as she makes it evident that she does nothing instructionally different for her African American students outside of grading rationale.

Therefore, before Linda can undertake culturally relevant teaching which emphasizes academic success, cultural competence and challenging the status quo, Linda must first understand how her identity coupled with the deficit view of African American males in mathematics limits her ability to successfully teach mathematics to African American males. Therefore, I argue, that an integrative view of teacher identity provides an opportunity to understand how a mathematics teacher's identity can impact and shape mathematics instruction for African American males as they develop their mathematics identity in K-12 schooling.

Implications and Conclusion

Educational scholars have provided foundational and groundbreaking research on what good teaching looks like, in the areas of culturally relevant pedagogy, culturally relevant teaching, and culturally sustaining pedagogy (Gay, 2000; Ladson-Billings, 1995; Paris 2012). However, before culturally relevant teaching can occur, it is important to understand how a teacher's math identity within an integrative framework impacts mathematics instruction for African American students. I argue further research is needed utilizing an integrative framework of identity to understand how teacher mathematics identity impacts learners of mathematics in K-12 public schools. I believe additional research on teacher identity will help uncover the barriers African American males experience in obtaining a quality mathematics education, as well as address the reasons for their limited participation in STEM.

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Connor, D.J., Ferri, B.A., & Annamma, S.A. (2016). *DisCrit Disability Studies and Critical Race Theory in Education*. New York, NY: Teachers College Press.

Reviewed by Tara Schwitzman
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DisCrit Disability Studies and Critical Race Theory in Education is an essential read for educators, researchers, and practitioners in urban schools. The book's touchstone text defines and theorizes dis/ability critical race studies, or "DisCrit," at the intersections of race and ability. Connor, Ferri, and Annamma emphasize intersectionality in discussing how racializing ability and disabling race become normalized across educational and societal institutions. In schools, the exclusion of students of Color from general education settings is legitimized on the basis of ability. Similarly, the overrepresentation of students of Color in high incidence special education categories, such as emotional disturbance, is attributed to individual deficits that are naturally attributed to Black and Brown bodies. This is especially important to consider in the context of urban schools that serve many students of color and many students assigned to high incidence special education placements.

DisCrit also speaks to the legitimization of excluding people of Color in society on the basis of ability. The theoretical framework draws a historical connection between the criminalization of laziness post-slavery and to the criminalization of wearing a hoodie in contemporary society. In both cases, exclusion is legitimized via an inability to culturally assimilate to Whiteness.

Furthermore, this theoretical framework challenges and questions the hegemony of normalcy, while also leaving space to discuss how other forms of identity interact with race and ability. Connor, Ferri, and Annamma propose seven tenets of DisCrit that address this intersectionality. Specifically, DisCrit: focuses on how racism and ableism circulate interdependently to uphold notions of normalcy; values multidimensional identities; simultaneously recognizes the social constructions of race and ability and the material and psychological impacts of being labeled as raced or dis/abled; privileges the voices of marginalized populations; considers the ways in which legal and historical aspects of dis/ability and race have been used to deny rights to citizens; recognizes Whiteness and Ability as property; and requires and supports activism and resistance.

The studies in this book use DisCrit as their theoretical framework and address its tenets in unique ways. While the studies are divided into five parts—Race, Class, and Ability; Achievement/Opportunity Gap; Overrepresentation; School-to-Prison Pipeline; School Reform; and Race, Disability, and the Law—they all speak to each other and to prior work in both disabilities studies and critical race theory. A strong case is made not only for DisCrit as its own framework, but also for the importance of an intersectional approach for other theories that address marginalization and oppression.

In chapter two, Broderick and Leonardo use a story from Broderick's son's classroom to demonstrate how the "material-ideological system of 'goodness'" (p.55) legitimizes smartness and contributes to "racialized ability profiling" (p.61) in schools. As young as age eight, Nicky, the only White child in a class with a White teacher, learned that his skin was the wrong color to get a detention. In chapter eleven, Collins uses DisCrit to draw a powerful parallel between the boundary work that happens in society and in schools. She discusses how Trayvon Martin was deemed "out of place" (p.96) in his condominium community and how her son was deemed "out

of place" in his classroom. In both contexts, normal is bound by and legitimized via racist ableism and ableist racism.

At the heart of this work is a call to understand both the processes and the consequences for the social construction of differences. The goal is not the eradication of all difference. Rather, this work carefully considers the normalized discourses that result from the social construction of difference. General education cannot exist without special education, and White bodies cannot exist without Black bodies. Furthermore, DisCrit emphasizes the human responses to difference. With the social construction of the Black body comes its subsequent criminalization, the consequences of which are. In our society, the consequences of this criminalization are often a matter of life and death.

DisCrit might also consider how the language of urban schools" characterizes certain students, families, and educators in racialized and ableist ways. Discourses underlying urban school reform position students of Color who are "behind" and performing at "low" achievement levels. Families are sometimes positioned as not being "able" to support their children in school. Educators are positioned as extra "able" for working in urban schools. As DisCrit destabilizes the language of urban schools, it also presents a case of reformulating difference, a case that should be considered by all educators, regardless of where they teach. This book is an important text toward the development and growth of a social justice orientation toward schools and society.

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Harris, D. M., & Kiyama, J. M. (2015). *The plight of invisibility: A community-based approach to understanding the educational experiences of urban Latina/os*. New York, NY: Peter Lang.

Reviewed by Elizabeth Gil
Michigan State University

The Plight of Invisibility: A Community-Based Approach to Understanding the Educational Experiences of Urban Latina/os, a book in the Peter Lang series Critical Studies of LATINOS/AS in the Americas, documents findings of a community-based research study in Rochester, New York to explore the high school persistence of Latina/o[1] students. The authors aim to provide educational researchers, policymakers, practitioners, and advocates with a strengths-based frame through which to view students and families and to recognize the resources that exist within the community in order to establish effective policies for Latina/o students. While the study is focused in Rochester, the authors note ways in which the local situation in the study reflects regional and national concerns.

The authors clearly set the stage of the study, situating the problem of Latina/o underachievement in schools by citing dropout and graduation rates from the State of New York, as well as from the United States. The second chapter, written by contributors to the book, highlights a 30-year history of Latina/os' challenges in Rochester, helping outline the context for the subsequent chapters and familiarizing the reader with the origins of Latina/o "invisibility" as noted in the book title. Similarly, the third chapter provides a theoretical context, describing community-based research and the authors' choice of frameworks: funds of knowledge (Moll, Amanti, Neff, & González, 1992) community cultural wealth (Yosso, 2005), and Latina/o family epistemologies (Hidalgo, 1999, 2005), all of which recognize that families and students possess insights and strengths.

Among the strongest chapters are those in which the authors present the voices of Rochester students and their families. One of the study's findings is the importance of school- and community-based programs, which were often the only safe, linguistically and culturally affirming places where students developed trusting relationships with adults and where students based their reason to persist in high school. When asked what school would be like without the school-based program in which they were involved, students responded that "School would be hell," and that "I would drop out. To be honest, I would drop out of school if [Latino Youth Development] wasn't here." The voices of the students and their families also underscore the unintended consequences of district policies that undermined students' sense of safety, and the out-of-school contextual factors, such as unsafe transportation, that threatened high school persistence. While the chapter on Advanced Placement and college readiness reveals major discrepancies in enrollment, this chapter could have benefited from student voices as well, to show how these inequities directly affect the quality of their experiences.

While the authors highlight the importance of local research and action, they consistently tie this work back to the state of Latina/o education nationally, pointing out that the experiences in Rochester reflect those of Latina/os in other parts of the country, and noting that this study "echoes the crisis" (p. 143), described by Gándara and Contreras (2009), of low academic

[1] I have chosen to use Latina/o and Latina/os throughout this book review, as the book authors do.

opportunity and performance of Latina/o students that can lead them to become a "permanent underclass of American society" (Gándara & Contreras, 2009, p. 304)

Harris and Kiyama explicitly view this community-based study as a call to action and precisely provide tangible actionable points, such as assessing bilingual program policies and exploring opportunities to expand programs to more high schools in order to address dropout rates. They connect their recommendations for policy and practice back to the content of each chapter of the book, making it very clear to the reader how their findings are aligned to policy and practice recommendations.

While the authors mention challenges with community-based research, further discussion about obstacles and how they were managed would benefit another researcher interested in taking on a community-based approach. Overall, however, the structure of the book and the important findings it highlights, as well as the way the authors situate this local story within national trends, make it a useful resource for those interested in improving education in an increasingly diverse nation, and for those interested in conducting community-engaged research in urban areas where students are more susceptible to living in concentrated poverty. The issues the authors illuminate and the recommendations they provide regarding dropout, student persistence, and transition (due to student mobility, but also from one educational stage to another) are also useful for urban school leaders and educators seeking to support students and their families and to increase likelihood of greater educational attainment.

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Hill, M.L., & Petchauer, E. (Eds.). (2013). *Schooling hip-hop: Expanding hip-hop based education across the curriculum*. New York, NY: Teachers College Press.

Reviewed by Khalilah Ali
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Although traditional pedagogues have attempted to dismiss hip-hop studies as a trend and relegated any contribution of hip hop researchers to the margins of sanctioned educative knowledge, proponents of Hip-Hop Based Education (HHBE) have challenged the dominant script (Hill, 2009; Morrell & Duncan-Andrade, 2002; Stovall, 2006). As HHBE emerges beyond the realms of School House Rock-esque raps, beat-boxing teachers, and dabbing principals, the intrinsic worth of hip-hop's contributions to community funds of knowledge continues to be studied. In support of this endeavor, in *Schooling Hip-Hop: Expanding Hip-Hop Based Education across the Curriculum,* Hill and Petchauer (2013) argue, that it is crucial for educators to probe hip-hop culture beyond textual production (rap songs), engage students outside the English classroom, "move beyond teacher-researcher accounts in urban schools" (p. 3) and mine underexplored dimensions of hip-hop, specifically the pedagogies and epistemologies that exist within the culture.

In Part I, "Aesthetics, Worldviews, and Pedagogies of Hip-Hop," scholars and practitioners move beyond the examination of the products of hip-hop including rap songs, videos and graffiti. Scholars attempt to create solid connections between hip-hop culture, the spaces in which hip hop products are constructed and academic theory and practice. Emdin, invoking the epic rap battle between Nas and Jay Z in the essay's outset, builds on these seemingly contentious spaces of the academy and hip-hop culture and contends that the cypher and battle dimensions of hip-hop allow for argumentation practices that are mirrored in the science classroom. Although seemingly contradicting the collection's central focus of moving away from simply mimicking hip-hop texts and practices and adapting them to classroom use, Emdin incorporates an often underutilized aesthetic form to allow students to compare their out of school practices with their in school practices. Other pieces that explore these spaces of tension include Petchauer's essay, which interrogates "aesthetic forms, ways of doing, or cultural logic produced by hip hop culture" (p. 28) and how understandings of these aesthetic forms enable students to conceptualize social justice education. Representative of the section, these scholars are moving toward developing a hip-hop theory rather than limiting themselves to "specific linguistic, kinesthetic, auditory and visual elements of hip-hop expressions" (9).

Part II contributors to "Curricula, Courses and Pedagogies with Hip-Hop" discuss putting HHBE tenets and methods into practice. Low, Tan and Celemencki investigate what students believe constitutes an authentic hip-hop identity and tackle the issue of the "female" and "bitch" constructs. Wilson's essay centers southern hip-hop's aesthetic practices and its potential to enhance student leadership capacity. Many of the pieces in this section suggest that aspects of students' performances of their subaltern identities are heavily shaped by practitioners' ideas of student home culture. Although essays in this section offer a compelling argument for validating youth culture, hip-hop is fluid and consists of subcultures, which researchers only cursorily note without examining the implications of those differences for teaching. Practitioners' notions of what constitutes "real hip-hop" culture place subjective boundaries on student identity.

Although contributors perfunctorily address the various funds of knowledge that inform student epistemologies, the collection relies heavily on the assumption that urban youth culture is

synonymous with hip hop culture and more must be done to explore the multidinous identities of urban youth of color. Researchers should continue to pay attention to the diverse forms of hip-hop dependent on geo-political location, gender, sexual identity, and age. Furthermore, what constitutes the teacher/researcher's hip-hop, does not represent, in all cases, the student/subject's conceptualizations of hip-hop. The generational and geo-cultural chasms that exist amongst the diverse voices within the genre do not mean the form possesses a dichotomous nature. Instead, the deeply embedded grooves represent the transformative nature of the form and reflect the roots from which it sprang. The collection indeed allows for more exploration of the very ideas they begin to peel back—hip-hop is a body of knowledge, both dependent on and exclusive of the urban youth culture it germinated from and deserving of further interrogation into its pedagogical implications—not *just* for teaching urban youth of color, but for its epistemological merit.

Kozleski, E. B., & Thorius, K. K. (2014). ***Ability, equity, and culture: Sustaining inclusive education reform.*** **New York, NY: Teachers College Press.**

Reviewed by Kelly McNeal
William Paterson University

Ability, Equity, & Culture: Sustaining Inclusive Urban Education Reform is an edited volume in the Teachers College Press Disability, Culture, and Equity Series. This volume is edited by Elizabeth B. Kozleski, Chair of the Special Education Program at the University of Kansas, and Katherine King Thorius, Assistant Professor of Urban Education in Indiana University's School of Education. The chapter contributors represent multiple voices, including a mother, teachers, specialists, and administrators from pre-k – 12 settings; higher education faculty and administrators; and research analysts.

Seasoned scholars and graduate students contribute to the five sections and ten chapters comprising this text. The purpose of this text is to further disseminate scholarly information relating to both policy and practice in order to support inclusive urban education reform. As a whole, the text offers recent research, theoretical frameworks, historical interpretations, and literature reviews relating to the crucial area of inclusive urban educational reform. The motivation for this edited piece is an acknowledgement that, while there has been significant attention on both urban education and special education reforms, specifically inclusion, the intersection of these areas still needs to be investigated critically.

This book reasonably contends that the history of special education in urban areas—particularly the overrepresentation of students of color in special education, as well as other groundwork that supports inclusive education in the United States—has been color blind and often ignores the multitude of other experiences that can marginalize students in urban schools, such as the current sociocultural, political, and economic systems in urban schools. The volume models itself on the National Institute for Urban School Improvement's Systemic Framework. Students are at the center of this framework, and the five activity systems (students, practitioners, schools, districts, and local/federal government) work within it.

This research-based framework led to a thoughtful division of the text into five sections including Part I - Examining a Theory and Framework for Systemic Change; Part II - Centering Students and Families in Urban School Reform; Part III - Teacher Efforts in Transforming Urban Learning Environments; Part IV - Building and District Leaders' Roles in Urban Reform; and Part V - Intersections of Macro, Meso, and Local Policies for Urban Reform. Each chapter opens with a narrative and then carefully focuses on relating this narrative to research, theory, and policy. This narrative aspect, thoughtfully grounded in research methodology, is the most noteworthy aspect of the text in that it assists the reader in comprehending and appreciating the intricacies of inclusive urban education on a more personal level before discussing theory, policy and practices. For example, in Chapter Five, Creating Classrooms for all Learners, Gonzalez and Mulligan open the chapter with two opening day of school narratives. These contrasting narratives thoughtfully demonstrate how a classroom community can be planned and structured to be more inclusive and welcoming.

This text presents a theoretical framework, cultural historical activity theory (CHAT) (Cole, 1996), for inclusive urban educational reform and the chapters present practices that are grounded in intersectional theory (Crenshaw, 1991) and complexity theory (Lemke, & Sabelli, 2008). Additionally, it offers practical lessons to in-service teachers, administrators,

policymakers, or researchers studying inclusive urban education. In such, this book is a must-read, as it offers critical information about the contexts of inclusive urban education, which are often unknown or ignored. A thoughtful companion text to this book is David J. Connor, Jan W. Valle, and Chris Hale's *Practicing disability studies in education: Acting toward social change.* Both texts focus on the imperative of moving beyond a deficit model of schooling for all learners and this companion text further explores disability studies and its related history, theories, and practices.

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Laura, C. T. (2014). *Being bad: My baby brother and the school-to-prison pipeline.* New York, NY: Teachers College Press.

Reviewed by Kendra Lowery
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Being bad: My baby brother and the school-to-prison pipeline, by Crystal T. Laura is a rigorously researched part-narrative and part-manifesto about her brother Chris' and her family's experiences as he navigates his journey from parochial and public school, to dropping out of school and joining the Job Corps, to prison. Laura explains the school-to-prison pipeline as the ways in which "kids get funneled from systems of education to systems of criminal justice" (p. 13). The research question is fundamentally personal and universal: "What I have been asking myself over and over again is how in the world my brother got into such a mess to begin with, and what, if anything, could someone have done to keep him out of it" (p.xi).

The strength of this book is three-fold. First, Laura's personal storytelling is compellingly transparent as she wrestles with whether and how much to tell about her personal family story. Her frustration with current practice results in a hint of manifesto. Take, for instance, this passage: "If I meet one more Nice White Lady or another Superman swooping in to rescue the downtrodden, I am going to be sick . . . What we really need to do is check ourselves, consider the global alternatives to deficit thinking, and make more conscious choices for our practice" (p. 69).

Second, *Being Bad* is a meticulously researched contribution to literature on the causes and impact of special education labels, teaching practices, and schools' institutional responses to marginalized students. Special education served as a self-fulfilling prophecy in which Chris initially rejected but ultimately believed. When Laura encouraged Chris to take a class while in prison, he said, "he was too dumb to function in a classroom" (p. 64). Several times Laura recounted how the school responded to Chris' behavior based on what was difficult or frustrating for the school - not what Chris needed. For example, when their mother went to the pediatrician to see about an ADHD diagnosis, she reported, "He is not being successful at school and the teachers are frustrated with him." (p.44). In the chapter "The tipping point," Laura describes when Chris overheard a teacher say, "I don't have time to deal with so many that have issues." He stated later, "That made me want to drop out" (p. 55). Although the reader does not know if Chris had a desire to drop out prior to that incident, the teacher's words were clearly a contributing factor.

Third, *Being Bad* includes research-based, promising practices for how educators might address this pattern of school exclusion through teaching and learning. In the last chapter, Laura identifies essential dispositions and skills for meeting and reaching students so they are more likely to stay engaged in education and less likely to end up in the pipeline. In short, Laura advocates that teachers commit to "intimacy" (p. 76) by teaching with love through witnessing and understanding, justice by becoming activists, and joy by creating communities of experiential learning. She describes teaching methods that engage students through genuine relationships and by making students' interests and experiences the focus of learning, as a bridge to learning about the world around them because they become part of a learning community of collaborative inquiry, discovery and critical thinking. These practices are similar to the concept of caring developed by Geneva Gay in *Culturally responsive teaching* (2010), which requires educators to get to know their students and incorporate that knowledge into their teaching.

Although Laura does not reference research on culturally responsive teaching, her chapter on educator practices, establishes first, that it is our responsibility to create change, and second, culturally responsive (Gay, 2010), or culturally relevant teaching (Howard, 2003; Ladson-Billings, 1994) as a school-wide practice which has the power to save the educational lives of traditionally marginalized students. I cannot help but wonder what would have happened if Chris' interests, curiosity and talents had been engaged in an academic community of inquiry rather than the community promised to him by the gang leader who recruited him while in a school bathroom.

In the ultimate form of trust given to educators, Chris' mother "looked to the school to evaluate her son's academic progress" (p. 50), hence why it is imperative that educators treat children with the same respect, regard, and "love" (p. 75) as they do their own children. As Johnson (2002) argues about educators' moral responsibility, "When asked what they would want for their own children, most educators inevitably say they expect the highest level of education. Do other people's children deserve any less?" (p. 33). *Being Bad* makes the case that the answer is a resounding no, and that all children deserve the love that is "inextricably connected to the world of education and schools, teaching and learning" (p. 77).

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Leonardo, Z. (2013). *Race frameworks: A multidimensional theory or racism and education*. New York: Teachers College Press.

Reviewed by Marcus Croom
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Why should teachers and administrators in "characteristically urban" schools develop richer understandings of race? As Tatum & Muhammad (2012) explain, characteristically urban schools "have become synonymous with predominantly African American or Latino populations from lower-middle- to lower-class communities besieged by violence and other illicit behaviors primarily committed by male youth of color" (p. 436). Rephrased, "urban" is typically used as a racial description of schools and districts despite the fact that "urban" should be a topographical description of schools and districts. Teachers and administrators in characteristically urban schools are urged, then, to develop racial literacies[1] in order to demystify common sense notions of race and to bolster the human development and learning of "urban" children, especially Black children, in racialized, compulsory schooling (Murrell, Jr., 2009; Pascale, 2008).

Race Frameworks: A Multidimensional Theory of Racism and Education is an excellent book that provides teachers and administrators much-needed opportunities to develop racial literacies. In five, occasionally dense chapters, Leonardo provides explanation and appraisal of Critical Race Theory (CRT), Marxism, Whiteness Studies, and Cultural Studies, along with a concluding chapter that introduces his own brand of post-racialism, "race ambivalence" (p. 154). Leonardo is not attempting to dismiss the four frameworks he reviews, instead he travels among each, making the most of what each can offer, while moving beyond what he identifies as the limits of all of these race frameworks.

For example, Leonardo reports that CRT "provides a deep critique of racism" (p. 5), but he also points out that CRT is incomplete when it comes to defining the "Race" portion of Critical Race Theory (chapter 1). Also, Marxism explains race as a "class antagonism found within capitalism" (p. 5), but is limited with regard to offering a race-centered or intersectional, irreducible to class, explanation of race reflective of nonWhite experience surplus of class (chapter 2; also see West, 1988). Likewise, Whiteness Studies explains that Whites are racialized with an invented "structural valuation of skin color" (p. 7), but does not adequately address two crucial tensions: re-centering Whiteness and the possibility of White self-indulgence for the sake of racial advancement (chapter 3). Finally, Cultural Studies excellently explains that race involves "issues of representation, language, and meaning, [with the result that] race takes on a properly symbolic status" (p. 8). But Cultural Studies (chapter 4) meets its boundaries when asked to explain the link between represented and real: "It is ultimately not clear how race representations, while certainly forceful, do their work in limiting actual living conditions, particularly for people of color" (p. 8). As he argues throughout, there is much to be gained from each of these race frameworks, but none is flawless. Where current "urban" schooling in the U.S. is concerned, each of these race frameworks (though flawed) offers a view of race that can illuminate how the structures, persons, and processes involved with schooling either maintain or interrupt the racialized status quo. For example, many teachers and administrators in "urban" schools are racially White. Whiteness studies offers a way to interrogate White superordinate assumptions whether these manifest as unnamed privilege or being an un(der)critical White ally.

After discussing and appraising the four race frameworks prominent in our field of education, in chapter 5, Leonardo proposes a "Multidimensional Theory of Racism and

Education" (p. 145). According to Leonardo (2013), his "post-racial project" is aspirational and is not descriptive of our current society (p. 9). At the core of his brand of post-race theory is this argument:

> A post-race perspective is not the attempt to elide and evade race in order to imagine its disappearance. Quite the opposite. Post-race discourse makes race visible, maps its operations, and enters its interpellations. It is ambivalent not about these commitments but on the issue that racial distinctions should be an endless ride without a destination. *If all good things come to an end, surely bad ones ought to*. (p. 157)

My criticism of this book is that Leonardo's "post-race" theory assumes that race is an inherent feature of human bodies, despite acknowledging a discursive understanding of race (e.g. he cites Warmington, 2009 on page 10). It is crucial to dissent from such an assumption to break the spell of race in our lives. I warrant my critique of such an assumption with the work of Happe (2013) who interrupts the assumption that genes are the subcellular "material" of race: "Genes are but one corporeal artifact called upon in iterated claims that the body 'reveals' race in ways that compel the common sense conclusion that [race] exists" (p. 137).

Race is not in our bodies, then, even at the subcellular level. Race is our social thought and practice where bodies are concerned, and the consequences of such thought and practice. Make no mistake, however, race *does* exist but only because humans create and consume race through social practice.

In one example where race and body are made equivalent in this book, Leonardo (2013) alleges a "moment when White bodies began thinking they were White people" (p. 155). Such language perpetuates common sense understandings of race. The common sense thought and practice of race misappropriates the human body as "evidence" of race. That is, erroneously, we assume race is a feature of bodies, when race is actually a feature of racialized human culture. In fact, then, the body has no trace of "race" which would permit corroboration of common sense racial claims. Therefore, today race should be defined as consequential D/discourse (Gee, 1990; Happe, 2013; Mirón & Inda, 2000; Pascale, 2008). All forms of common sense racial reasoning should be rejected and excised.

Teachers and administrators will gain an expanded toolkit through which to conceptualize race and will also find a treasure chest of sources to reference for further reading. With richer conceptualization of race comes support for teachers and administrators to practice success-demanding instruction and to prevent failure-permitting instruction in the day-to-day work of "urban" (and "non-urban") schooling (Ladson-Billings, 2002).[2]

Notes

1. Racial literacies defined: the critical, human cultural toolkit, developed after the invention of race, that supports human well-being amid the social thought and practice of race (i.e. the human creation and consumption of race); enables the reading, critiquing, and rewriting of race. This term and definition synthesizes and expands the construct "racial literacy" according to my own research and the various uses found in archival literatures. For example, see Guinier, 2004; Horsford, 2014; Rogers & Mosley, 2006; Sealey-Ruiz, 2011; Skerrett, 2011; Stevenson, 2014; Twine, 2004.

2. Based on Ladson-Billings' (2002) study, I define *success-demanding* instruction as teaching that implicitly or explicitly requires student practices that result in academic, social, cultural, and personal advancement. On the other hand, *failure-permitting* instruction is defined as teaching

that implicitly or explicitly authorizes student practices that result in academic, social, cultural, or personal demise. I argue that conceptualizations of race influence teacher efficacy, student identification, instructional practices, and other aspects of teaching and learning.

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Michael, A. (2015). *Raising race questions: Whiteness and inquiry in education*. New York, NY: Teachers College Press.

Reviewed by Karen L. B. Burgard
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Events over the past four years and changes in the country's demographics have demonstrated that issues of race, equality, and justice must be at the forefront of U.S. discourse. Ali Michael's *Raising race questions: Whiteness & inquiry in education* (2015) advances timely strategies for empowering White teachers in multiracial settings to work toward building antiracist classrooms. Michael's ethnographic case study focused on six White teachers from a variety of backgrounds and educational settings involved with her in inquiry groups regarding race. The purpose of these groups was to challenge teachers' racialized frameworks, to develop their own positive racial identity, and ultimately, to create antiracist classrooms. As a participant researcher and facilitator using an action research model, Michael was able to create a space where participants felt comfortable enough to ask honest, difficult, and complex racial questions that led to a more reflective practice and move from a multicultural, colorblind, and nonracist standpoint to an antiracist position and practice. Michael's work can assist teachers in multiracial settings with their own personal journey while providing them specific suggestions and strategies for teaching students in urban schools.

In this robustly cited and personal five-chapter book, the first three chapters focus on race questions raised by her White teacher participants, the development of their positive racial identity, and their questions around moving beyond multicultural classrooms to antiracist ones. In each of these chapters, Michael used interviews, inquiry sessions, and classroom observations from her participants to argue that White teachers must develop their own positive racial identity in order to understand the racial identity of others. This process is a critical step toward building effective classroom instruction and successful relationships with students and communities of color. She explained that, in order to build a classroom that works for all students, teachers must take control of their own thinking on race and develop their own self-awareness that can only come from an understanding of their own racial identity. To Michael, "The concept of racial identity is not simply another tool for our toolboxes—it *is* the toolbox. The larger, stronger, and more robust my racial identity is, the more tools I will be able to carry around with me. If I do not have a strong and positive racial identity, it does not matter how many tools I learn; I will not be able to carry them or use them when needed" (p. 44).

When discussing the transition from a multicultural classroom to an antiracist classroom, Michael argued that using a curriculum that champions the accomplishments of people of color is not enough. Specifically, she explains, "I use the term 'antiracist' classroom rather than 'racially just' or 'racially proficient' classroom because I want to emphasize that an antiracist classroom is a stance of resistance. An antiracist classroom is one in which teachers understand and take seriously that role of resistance to racism" (p. 81). To successfully meet the needs of students, teachers create classrooms that become safe spaces where students feel they are treated fairly, equally, justly, and without limitations. Beyond that, antiracist White teachers use inclusive curriculum, focus on clear and democratic communication between the teacher and the students, and are open to challenging and honest interactions with parents and community members. Michael explained that the dominant approach White teachers use to teach in diverse classrooms is to be colorblind or colormute, which "renders all students, including White

students, less capable and less competent in a racially diverse society" (p. 74). In the remaining two chapters, Michael builds from her work in professional development settings to outline strategies and suggestions for practice that disrupt the colorblind narrative through inquiry groups where teachers study and discuss their own practice around race. These inquiry groups allow White teachers to tackle issues of race and create meaningful dialogue and discourse. Michael also provides numerous practical applications for the classroom blending theory and practice.

Michael's readable, yet challenging style is beneficial to teacher educators, classroom teachers, and professional developers. Michael's positionality is clear and honest. As a White woman whose research focus is on race and equity, she openly discusses her own journey and development with racial identity and how this development has provided her with a perspective that allows her to aid other White educators in their own discovery. The presentations of her participants are real, authentic, and relatable, giving them a voice that resonates with teachers. Michael enables the participants to have a forum in the final chapter where they reflected on their thinking and emotions during the study. They also commented on how they were portrayed throughout the book. This member checking, continually allowing the participants to respond to the ways their actions and comments are represented, provides a rich analysis for the reader and a deeper understanding of the participants.

Even with all of the strengths of this work, a critical reader will notice that many of Michael's examples come from one teacher in a charter school and two teachers from Quaker independent schools. While these are urban schools and Michael describes the demographic makeup of both sites, the reader would benefit from more specific examples from additional urban public schools. Also, Michael does not address a concern that some district administrators could misuse this book as a professional development *quick fix* and not invest in the deep commitment it takes for school personnel to participate in this type of inquiry.

Ali Michael's *Raising race questions: Whiteness & inquiry in education* is an interesting and engaging book and one that could be a useful tool to spark discussions and provide a framework and foundation for professional development for today's urban classroom educators. As long as the teaching force, including teachers in urban schools, remains overwhelmingly White and from middle class backgrounds Michael's work will provide a meaningful resource for teachers and researchers concerned with improving urban education (Kena et al., 2015). It provides White teachers in multiracial classrooms with questions for themselves and their colleagues, allowing them to engage in discussions of racial identity while providing insight and useful tools to build their own positive racial identity. In turn, these discussions and positive racial identity, will assist teachers in creating positive, supportive, and culturally relevant classroom spaces for their urban students.

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Posey-Maddox, L. (2014). *When middle-class parents choose urban schools: Class, race, and the challenge of equity in public education*. Chicago, IL: University of Chicago Press.

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As more attention is being given to the neoliberal ideologies that are fuelling policies and conversations regarding school choice and charter schools in urban centers, Posey-Maddox offers a timely discussion about the impact of choice on urban school reform in the United States. Maddox notes that, in major cities like New Orleans, Chicago, and most recently Detroit, new tactics have been engaged to further the agenda of a particular "urban strategy." Often coded in phrases such as "urban renewal," this strategy sits squarely at the intersection of white and middle-class flight to the city center, a rise of white students in urban schools, and exclusionary practices that disenfranchise Black and working class inhabitants. *When Middle-Class Parents Choose Urban Schools* is an important addition to this trending topic that gives readers powerful insight into the converging issues associated with school reform and the "rebirth" of many urban cities.

Posey-Maddox begins with defining the major concepts, including what it means to be "middle-class," the intersections of race and class, and a nuanced conversation about "school gentrification" (p.12). The author then introduces the context for understanding these concepts: her in-depth, ethnographic case study conducted in one urban elementary school called Morningside.

The second chapter explores the broader conversations around the politics and demographic shifts in urban cities. It presents a dynamic discussion of what urban school reform looks like, such as a contemporary housing inversion where affluent, white citizens are flocking to cities as people of color and working class citizens seek solace from the challenges of city living in the suburbs.

Chapter three explains the role of middle-class parents in "urban school transformation." Here, Posey-Maddox explores the equity implications of middle-class parental engagement on the neighborhood-school community. In particular, she finds increased volunteerism and fundraising from middle-class parents as they take the lead in school-community change, ultimately replacing the existing culture.

Chapters four challenges the dominant markers for school success, such as test scores. The author explains how accountability scores create a limited narrative of success that can be complicated when considering the demographic shifts and sociocultural contexts of urban schools.

In Chapter five, she posits that solely relying on middle-class parents for resources and school improvement efforts have a way of privileging middle-class and white student groups. The author mentions, "increased economic role played by parent teacher organizations may exacerbate status positions and the marginalization of low-income parents within school settings (p.114)."

Chapter six explains the results of a follow-up study that shows how the original intent of the school's socio-economic mixing is not self-sustaining. Morningside, which was traditionally working-class Black, was becoming increasingly white and middle class, as the original population became increasingly excluded. The author suggests that this occurs as a result of the

"fragility of free market diversity…driven by middle-class parent choices …which may threaten the very demographic mix and school organizational features that many of them desire (p.147)."

The final chapter presents some alternative understandings of urban school reform. The author asserts that future research should consider exploring urban school reform through lenses that are beyond traditional accountability measures, such as political and historical contexts.

Overall, Posey-Maddox's primary argument is that the neoliberal ideology that promotes individualistic characteristics of parent-school engagement, volunteerism and fundraising (traditionally associated with middle-class parents), although important, cannot be utilized as a substitute for large-scale reform that addresses the structural barriers that exist in urban school districts. She powerfully suggests that, without addressing these barriers, minoritized and working-class groups are disenfranchised, displaced, and experience exclusionary practices. This book is a primary example of the problems with parent-driven school reform in the age of "urban renewal" and the increase of middle-upper class families in urban spaces. Posey-Maddox's critique of "common sense" reforms provides a dynamic and welcomed counter-narrative to the neoliberal school reform conversation.

The limitations of this book are in its scope. This book focuses on one elementary school that can be considered a highly specialized case. Much of policy and school reform research is in search of replicable models and generalizable knowledge that can be applied to large urban centers. This book doesn't offer that, but it is a great conversation starter for researchers concerned about nuanced approaches to urban school reform that ensures equity for all children. This book is recommended for those who are interested in taking up equity concerns in urban school reform. In light of the trending improvement efforts across urban centers, Posey-Maddox offers important insight into the complexity of school improvement and cautions scholars to consider how accountability markers can be misleading without consideration of school-community transformation and demographic seizure. This work pushes us all to think of more holistic forms of urban school reform and the impacts that they can have on future education policy.

Sleeter, C., Neal, L., & Kumashiro, K. (Eds.). (2015). *Diversifying the teacher workforce: Preparing and retaining highly effective teachers.* New York, NY: Routledge.

Reviewed by Tonya B. Perry
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Why is it important to diversify the teacher workforce? How do providing students with diverse teachers impact learning? What impact does an 83% White teaching force have on 45% of the student population comprised of children of color? This ongoing conversation is addressed in *Diversifying the Teacher Workforce: Preparing and Retaining Highly Effective Teachers,* edited by Christine E. Sleeter, La Vonne I. Neal, and Kevin K. Kumashiro. In the 13 chapters, the authors highlight programs and initiatives that address the need for diverse teachers who are recruited, instructed, and retained in the profession, particularly in urban areas. The four sections of the book create a comprehensive look at a culturally diverse teaching population from multiple perspectives. The entire book is an endorsement for a diverse teaching population, particularly in urban schools, and examples that support that need in straightforward, no-nonsense language.

This book would be an outstanding resource for educators, teacher education faculty, university administrators, community activists, and secondary school teachers. The first part highlights achievements and trials of programs that prepare and support culturally diverse teachers in the profession with the cooperation of the community. When discussing the community-university supported Teach Tomorrow in Oakland (TTO) program, for example, Rachelle Rodgers-Ard and Kimberly Mayfield Lynch mention the challenges that culturally diverse teacher candidates experience, such as comparing credentials of TTO candidates to Teach for America (TFA candidates), stereotyping TTO teachers as non-traditional "looking" candidates, desegregating the physical teaching space, and creating advocacy narratives for themselves and their students (p. 43). This chapter is of particular interest because it highlights pertinent and often unaddressed generalizations related to teacher candidates from non-traditional spaces.

The second section continues to highlight teacher education programs that are university-supported. One such program focuses on the targeted recruitment of diverse students as high school seniors to become urban teachers. The primary recruitment pool, but certainly not exclusively, consists of local urban high school students. Omiunota N. Ukpokodu describes the recruitment process as "deliberate, systematic, intentional, and innovative" (p. 75). Students who qualify for the cohort earn a four-year scholarship and commit to a four-year service agreement in an urban school.

The third section explores university partnerships with K-12 public schools. The chapter written by Madhavi Tandon, Margarita Bianco, and Shelly Zion describes a pre-collegiate program that was created to engage urban high school students of color in exploring the teaching profession through a critical lens as a series of classes. The focus of this set of high school coursework is not only pedagogical but also critical, emphasizing the importance of teachers of color and the social justice enacted around this movement.

The final section, a hodgepodge of topics, primarily addresses the challenges and obstacles for securing a diverse teacher candidate contingency, such as developing a diversity plan in teacher education and including a strong diversity component in accreditation requirements, for recruitment, preparation, retention, and certification that schools of education

must address to change the landscape of the future teaching workforce. As Doykin Coker-Kolo argues, "Teacher education programs have a moral responsibility to prepare pre-service teachers to become competent in facing the challenges of today's diverse classroom settings" (p. 187). This entire text emphasizes just how imperative it is to develop culturally diverse teachers through the implementation of targeted, smart, purposeful, thoughtful approaches at all levels.

Diversifying the Teacher Workforce certainly addresses the need for a culturally diverse teaching profession by using a powerful historical perspective to explain why the profession remains predominantly White. Neal, Sleeter, and Kumashiro posit that, "low teacher salaries, lack of prestige afforded to teaching as a profession, and pressure from parents to pursue other careers" (p. 8) impact minority students' decisions to consider teaching as a profession. For students of color who do contemplate the profession, "the financial barriers, the long time span spent in non-income generating work, culturally biased practices for recruitment and admissions, cultural norms that privilege White students and teachers, Eurocentric curriculum and assessments, weak connections to local communities, and dismal number of mentors and role models" negatively impact their decision to enter the teaching workforce (p. 8) Throughout the text, different authors discuss one or several of these concerns within the chapters, which allows the reader to learn about programs that are successfully retaining culturally diverse teacher candidates, but at the same time, addressing the realities head-on that culturally diverse students face.

While the book showcases programs from a number of schools, communities, and institutions, perhaps a list of additional programs that do similar work could be added as an appendix with a short description of each. This would allow the reader to research other programs that also may be examples worthy of study but are not expounded upon in the text.

Overall, the book is an excellent compilation of examples that demonstrate balanced approaches to diversify the teaching workforce, particularly in urban contexts. As stated as support for diversifying the teaching force, two research-based notions are that teachers of color "contribute to the education of students of color by reducing the acute shortage of educators for high-minority urban schools" and by serving as role models. (p. 7). It is a well-constructed text that defends the importance of diversity in the teaching workforce in urban areas and its potential influence on education when fully enacted.

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Smith, S.C. (2015). ***Against race- and class-based pedagogy in early childhood education.*** **New York, NY: Palgrave Macmillan.**

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Research focused on closing the achievement gap between middle to upper-class students and the urban working-class and poor has been ongoing for decades. Stephanie Smith's book, *Against Race- and Class-Based Pedagogy in Early Childhood Education,* explores the history of early childhood education and how the pendulum of access and focus has swung back and forth across this chasm over time. She discusses the history of the Cultural Deficit theory (Hess & Shipman, 1965) and how this has led to the predominant use of teacher-directed, authoritarian practices in early childhood education for poor and working-class children. Smith acknowledges, and challenges, the White cultural biases behind visible pedagogies that assume children and families from outside the dominant culture must learn these cultural values through explicit instruction to be successful.

Smith explores the discrepancy between current educational norms in which affluent children receive child-directed, implicit instruction while working-class and poor children receive explicit, teacher-driven instruction. She argues that similar or better child outcomes can be expected for children of low socioeconomic status (SES) when they are exposed to the diverse experiences and classroom learning of the tuition-based programs available primarily to students of Smith's two preschool centers in urban communities in the south side of Chicago. Child outcomes are measured at each center, over a 5-month period. One of the centers is more traditional in its teacher-directed pedagogy, while the other more of a progressive child-directed pedagogy. Results indicate that progressive, child-directed pedagogies more effective in developing academic skills and whole child development than traditional, teacher directed methods. This, Smith argues, is an important consideration in closing the achievement gap between working-class/poor, and middle-class/affluent children. Although seemingly dense at times, brief history of early childhood education and overview of visible and invisible pedagogies provide a cohesive and logical framework for understanding the approach and methodology behind this study. She thoroughly and clearly describes the history that has led to separate theoretical models of pedagogy based on race and class. She goes on to challenge these assumptions while also pointing out that gains made by teacher-directed pedagogies have not demonstrated significant maintenance. The thoroughness of data collection and evaluation is impressive, and allows for a legitimate and important contribution to the research literature around implementing appropriate pedagogies in early childhood settings that could reduce the achievement gap.

While the data appears solid, Smith's bias child-directed programming is apparent from the beginning. Throughout the book her descriptions of classrooms, teachers, and interactions seem to be filtered through a lens of opposition toward the teacher-directed centers. For example, when describing one, Smith makes the observation that "the children almost mindlessly went through the sequence each day" (p. 81). The book is also lacking a comprehensive discussion on the differences in race and culture between the two centers (predominantly Hispanic versus all Black teachers and staff) and the implications this may have on teaching practices. While she does briefly acknowledge this difference in her paragraph addressing limitations of the study, the potential implications for the study are not thoroughly addressed.

Overall, this book provides readers such as teachers, principals, and practitioners, a thought-provoking way to reconsider the use and effectiveness of child-directed, exploratory learning. Smith identifies how this type of pedagogy can be used to individualize instruction for all students while simultaneously maintaining active engagement and advanced skill development in the classroom. Although the author's biases are evident, she does provide solid data demonstrating the power of recognizing children from working-class and poor families as eager students capable of directing their own learning. In doing so, she challenges assumptions in the field of urban teaching and learning that maintain that some students require direct, explicit teaching of cultural norms to be successful in school.

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Wadhwa, A. (2015). ***Restorative justice in urban schools: Disrupting the school-to-prison pipeline.*** **New York, NY: Routledge.**

Reviewed by Marjorie Roth Leon
National Louis University

"More African American men are in prison or jail, on probation or parole than were enslaved in 1850, before the Civil War began."
(Alexander, 2010, cited in Wadhwa, 2016, p. 17)

Anita Wadhwa's nine-chapter book, *Restorative Justice in Urban Schools: Disrupting the School-to-Prison Pipeline*, explores the potential of restorative justice to derail the school-to-prison pipeline, end "racial disproportionality in school discipline" (p. 17), and enable every schoolchild to "feel valuable, powerful, and needed" (p. vii). Though definitions of restorative justice differ widely (Hurley, Guckenburg, Persson, Fronius, and Petrosino, 2015), Wadwha defines it as a process through which "individuals who commit harm are not conflated with the 'destructive act that sundered' their relationship with others, and after being reprimanded, they may ultimately be embraced and reintegrated into the community" (p. 10). Using ethnographic portraiture, with its emphasis on mobilizing "goodness" in individuals and institutions to promote positive social change, the author investigates how restorative justice practices inform two urban high schools that mete out traditional school suspensions. Proactive, responsive, and restorative infrastructure components of restorative justice are examined, including (respectively) talking circles (designed to promote relationship building, empathy, trust, cohesion and caring), healing circles (which enable communities to "reflect on a problem in a class or a relationship and make a commitment to repairing the harm," p. 49), and following up on agreements to ensure accountability of community members.

Chapters 1 and 2 detail historical antecedents of the racially-skewed school-to-prison pipeline and the central role played by punitive school discipline practices. Chapter 3 focuses on outlining the book's research methodology. Rich case study data presented in Chapters 4 and 5 illuminate successes and challenges related to stakeholder buy-in, professional development, curriculum design, sustainable infrastructures, and engendering change in student lives and behavior. Chapter 6 highlights the insights of Janet, a community member deeply involved in school-based restorative justice efforts. She opines that professionalization of the movement can produce community alienation and disenfranchisement. Janet further cautions that over-reliance on evidence-based measurement of program effectiveness may overlook qualitative outcomes vital to the program success. Chapter 7 explores how power-sharing between adolescents and adults (denoted as "turning the paradigm on its side") in talking and healing circles enables students to express themselves eloquently, but can also lead to "reified traditional power hierarchies between men and women, straight and gay students, immigrant and American-born students, and differently-abled students versus those without disabilities" (p. 125) that necessitate adult intercession to restore equity and order. In chapter 8, the author addresses the lack of student follow-through on restorative agreements as a problematic element of restorative justice programs, while Chapter 9 synthesizes guiding principles for implementing restorative justice programs in urban schools.

Because restorative justice practices do not, in isolation, always produce timely and/or desired changes in student attitudes and behavior, Wadhwa notes that many urban schools use a

blended model of restorative justice and school suspension. In an interesting counterpoint, educators such as New York City high school principal T. Elijah Hawkes regard suspension itself as a restorative justice practice: "…there are few more powerful punishments than exclusion from a group to which you feel you belong…for if our schools feel like communities, then exile can have its place, provided time and love are invested in the return." (Hawkes, 2010, p. 274).

While the author alludes to potential ways to measure the impact of restorative justice practices (reducing school violence and suspensions, building community and communication skills, enhancing student personal growth and leadership skills), systematic presentation of data regarding these and other relevant outcome variables would be a welcome addition. Also desirable would be insights from more community members involved in school-based restorative justice efforts. A strength of the book is Wadwha's astute observation that restorative justice efforts focused solely on person-to-person harm will remain disingenuous because they "fail to address institutional norms and practices that perpetuate inequity in schools—including high-stakes testing, scripted curricula, and cyclical school reform efforts fueled by corporate entities and curriculum companies" (p. 153). Some readers might be disappointed that this book represents a contextualized case study of a promising school discipline approach as opposed to a step-by-step praxis manual for establishing restorative justice programs in urban schools. However, *Restorative Justice in Urban Schools* is well-worth perusing for its balanced depiction of this emerging approach to school discipline that, with time, patience, and informed practitioner research, has real potential to instill justice, compassion, and empowerment into the disciplinary practices of our nation's urban schools.

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