# AFRICAN AMERICAN STUDENTS’ PERSPECTIVES ON THEIR EXPERIENCES IN THEIR MATHEMATICS CLASSROOM IN THE CONTEXT OF TEACHER TURNOVER IN AN URBAN SCHOOL 

## By

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# ABSTRACT <br> AFRICAN AMERICAN STUDENTS' PERSPECTIVES ON THEIR EXPERIENCES IN THEIR MATHEMATICS CLASSROOM IN THE CONTEXT OF TEACHER TURNOVER IN AN URBAN SCHOOL 

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Scholars of urban education suggest that African American students in urban settings are uniquely marginalized by schooling systems. Utilizing these student perspectives is an important starting point for supporting their learning, especially in mathematics (Martin, 2000; Stinson, 2008; Terry \& McGee, 2012). In this dissertation, I drew on critical theory (Giroux, 2008; Kincheloe \& McLaren 2008) to examine students' perspectives that offer insight into the oppressive structures that exist around African American students in mathematics classrooms in an urban school. This qualitative study examined five African American students' perspectives on their experiences in their $7^{\text {th }}$ grade Pre-Algebra classroom in the context of teacher turnover. Through interviews, written journals, and classroom observations, I elicited students' perspectives on their experiences in their mathematics classroom. This study showed students responded to teacher turnover by emphasizing the importance of a caring and trusting relationship with their teacher. Additionally, students described initial resistance to hegemonic practices, but eventually succumbed to those practices because they did not want to fail their mathematics class. Recommendations are made for all mathematics teachers to pay closer attention to concerns and perspectives of African American students in urban schools. I also suggest ways mathematics education leaders, specifically those who are responsible for preparing teachers, can support teachers who enter a mathematics classroom after the start of the school year.

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For my family,
My beloved grandmother and grandfather, And the roses that continue to grow from concrete.

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## CHAPTER 1: INTRODUCTION

I taught high school mathematics for six and a half years before returning to graduate school. I deliberately include the half-year because it speaks volumes to the type of mathematics educator, mathematics teacher educator and researcher that I am today. This section highlights the events that transpired during my first semester of teaching high school mathematics. I also highlight how this experience inspired my dissertation topic.

At the University of Arkansas at Pine Bluff, the College of Education required a semester-long student teaching experience. After I successfully passed teacher certification tests to teach mathematics for grades $7-12$, I began student teaching in a mathematics classroom at an urban middle and high school. The school enrolled predominantly African American students who came from low socio-economic backgrounds and most were eligible for free or reduced lunch. Student teaching was challenging, but with the support of my mentor teacher and field instructor I continuously grew as a future-practicing mathematics teacher. I successfully completed my student teaching in December.

After I completed my student teaching obligations, I planned to move back to California, await graduation, and search for teaching jobs that would begin the following school year. Approximately one week after I said my goodbyes to my students and mentor teacher, the superintendent called me to his office. He offered me a full-time job teaching five mathematics courses (Geometry and Algebra 2), beginning in January. He had one cautionary comment before I decided to take the job. He stated something like, "These kids have had two substitute teachers in one semester and they both quit." Because this position was at the school where I student taught, I had heard about these students but did not know any of them personally. I had so many questions in my head: "Will these kids respect me--I look so young? Am I really ready
to teach five mathematics classes all by myself?" After much thought, I agreed to take that position. I started with no mentor and a group of over 120 students. Similar to the school demographics, the majority of my students were African American students. To say the least, this position was a real challenge.

On the first day of school in January, students were not excited to see another mathematics teacher. The girls rolled their eyes and the boys attempted to take advantage of my lack of knowledge of the school rules. Some students used going to the restroom as an excuse to walk the halls. Many of the students did not seem engaged in learning in their mathematics classroom and refused to participate in the activities that I planned. About one month into the semester, my first period Algebra 2 students were not responding to any of the questions I posed about the lesson. In a calm voice, I asked students to place their books, pencils, and anything they had on their desks in their backpacks and to form a circle with their desks. At that moment, I had all of their attention. On this day, I had what came to be known as one of my famous heart-to-heart discussions (as named by the students) with them. These heart-to-heart discussions became a way that we spent time building a classroom community in which we could all learn about one another. I was able to get to know my students by learning about their lives and gained clarity on instructional practices that they thought worked best for them. I learned about many of the hardships my students faced that affected their performance in my class. Students mentioned that I did not take the time to introduce myself or to have the students introduce themselves when I first arrived. They only knew my objective was making sure they were prepared to pass the end-of-course examination. I also learned the students made bets on how long it would take me to leave. They repeatedly said to me, "You're not going to stay, everyone leaves." Due to previous teachers leaving, the students did not trust me from the start. I took a risk and spent
three days engaged in these conversations instead of teaching mathematics. I needed my students to know I was interested in learning about them as individuals and wanted them to know that I had their best interests at heart.

The classroom dynamics immediately changed when I made the decision to pay attention to my students' perspectives on their experiences in the classroom. After I reflected on the experience, I realized I had academic expectations of my students, but I had never tried to understand my students' experiences inside and outside the classroom. I learned about their learning preferences and how fed up they were with worksheets. When I gave them a worksheet, it sparked a negative reaction, but I had no idea that they only had worked on worksheets in the fall semester.

This experience had a huge impact on my beliefs about teaching and learning. My students repeatedly stated that trust and respect had to be earned. These students also taught me that there are relational aspects of teaching and learning that must not be ignored. For example, getting to know my students helped me to gain a better understanding of their experiences inside and outside of school. When I changed my interactions with students, they trusted that I was going to at least try to stay.

As a beginning teacher, I struggled with making mathematics relevant to my students, but the students and I worked together to find ways to engage them in our mathematics class. I made myself available before and after school as a math tutor. Students also wanted help in areas outside of learning mathematics, and I supported them, for example, to research and apply for college. Many of the students aspired to go to college, but they did not know about the opportunities that were available to them. There were guidance counselors at the school, but like many urban schools, they were assigned hundreds of students and several students were
overlooked. I even counseled students who were going through tough times. My goal was to encourage them to use their success in mathematics as a gateway to achieve other successes in their lives.

I left to pursue my Master's degree after a year and a half, but for that semester those students knew that I was not going to leave them. I still have handwritten cards from my students that stated, "I thought you would leave us like the other teachers" and "Thanks for believing in us." Listening to my students allowed me to better serve them in the classroom. Currently, I am still in contact with some of those students.

In fall of 2015 , I initially entered the school in which I conducted my dissertation study to investigate a mathematics teacher who struggled with student engagement and wanted me to support her to engage her students better. We discussed using students' perspectives to gauge how students experienced her mathematics classroom. During this work, the teacher decided to take a position at another school in November. Although she asked me to follow her to the new school, I decided to stay with the students because I was concerned about how this experience might impact them. As the transition to the new teacher took place, I witnessed several behavioral changes including students acting out and not engaging in the classroom. Students' behavioral shifts prompted me to examine students' perspectives of their experience with teacher turnover.

## Contents of the Dissertation

Throughout this dissertation, I use the terms experience and perspective. For clarity, I briefly define those words. Experience is a variety of interactions and actions students have inside and outside of the classroom. Perspectives are what students have to say and what they notice about their experiences. Attending to perspectives validates and authorizes students' ideas and opinions about their experiences as retold by the students.

In this three-manuscript dissertation, I amplify the subjugated voices of five African American students, highlighting their perspectives on their experience of mathematics teaching and learning within the context of teacher turnover in an urban school. Each manuscript is intended to be a self-contained articulation of the relevant literature, methods, analysis, results, and discussion for the individual research questions/problem posed.

The first manuscript (Chapter 2) is an empirical study. In it, I showcase specific aspects of students' perspectives on caring student-teacher relationships because this was a prevalent theme in their talk about their experiences. In fact, this aspect of their experience was made salient because they experienced teacher turnover and had to negotiate relationships with more than one teacher in less than three months. Students discussed the importance of getting to know their teacher as well as recognizing the role of student-teacher relationships in mathematics teaching and learning. Students responded to teacher turnover by working to build a caring student-teacher relationship with their new teacher. This manuscript is intended for a researcher audience interested in urban and/or mathematics education.

The second manuscript (Chapter 3) is also an empirical study. It highlights students' resistance towards a new teacher and her teaching practices after losing their first teacher during the fall semester. As I collected and analyzed the data for this paper, I did it with the intent to hear students' perspectives on their experiences with teacher turnover in their mathematics class. I did not enter the investigation looking for student resistance, yet resistance was one of the pervasive themes that arose from students talking about their experiences. This manuscript is also intended for a researcher audience interested in urban and/or mathematics education.

The third manuscript (Chapter 4) is written for mathematics education leaders (e.g., mathematics department chairpersons, mathematics coaches). I highlight the challenges reported
by students as they experienced teacher turnover in their mathematics classroom. Because teacher turnover rates are high in urban schools, mathematics education leaders need to hear how students experience this phenomenon in order to better support new teachers entering the classroom so they can positively impact students' mathematics learning. I offer recommendations for mathematics education leaders who work closely with practicing teachers who may have to navigate transitions in mathematics classrooms during the school year. Mathematics teachers can also utilize these recommendations when they are asked to enter a mathematics classroom after the school year has started.

I have two additional "book end" chapters (Chapters 1 and 5) that situate the study in the context of the relevant research literature, theoretical frames, and research methods that cut across the three manuscripts. In this first chapter, I state the problem that this dissertation addresses; situate my dissertation topic in broader relevant literature than the individual manuscripts do; provide an overview of the context, participants and data collection for the entire dissertation study; and address my researcher positionality. In the final chapter (Chapter 5), I conclude the dissertation by summarizing Chapters 2 through Chapter 4, highlighting what each chapter contributes to our understanding of students' experiences with teacher turnover in urban mathematic classrooms, and synthesizing important ideas across the three manuscripts. In this final chapter, I also describe lessons I have learned and highlight what I envision doing as I move forward into an Assistant Professor position.

Broadly, this dissertation addresses the following questions: Based on five African American students' perspectives, how can teachers:

1) demonstrate care and know that students feel cared for?
2) identify and understand resistance and what might the absence of resistance mean for teachers?

3 ) help students understand and navigate teacher turnover?
I argue that students' perspectives are necessary data points to answer these important questions. There have been a growing number of scholars who have conducted research to understand students' perspectives on their schooling experiences in mathematics classrooms (e.g., Jansen, Herbel-Eisenmann, \& Smith, 2012; Jansen \& Bartell, 2011; Lee, 1999; Martin, 2007; McGee, 2013; Terry \& McGee, 2011). We know very little about the ways students experience teacher turnover, especially from their perspectives.

This dissertation highlights students' perspectives in their mathematics classroom as they experience a new teacher during the school year. Two salient themes arose in this dissertation study. First, students expressed the need for teachers rotating in to work with them in the formation of caring student-teacher relationships. Second, student perspectives revealed an initial resistance to marginalizing pedagogical practices from a mathematics teacher who entered the classroom during the school year. Students also resisted the fact that their teacher did not engage in the formation of a caring student-teacher relationship. When stakeholders listen to students' perspectives, they can better understand the ways to support students in the classroom, especially in times when learning is disrupted due to teacher turnover.

## Statement of the Problem

The potential to learn about schooling experiences from the perspective of African American students is consistently overlooked in favor of information garnered through large data sets and the one-size fits-all remedies these kinds of studies inspire (Irizarry, 2011). The consistent underachievement of African American students warrants an investigation into their perspectives on what types of teaching and learning promote effective learning environments.

The experiences and voices of African American students are directly impacted by the differences in academic preparation and outcomes. Those with the most to gain from meaningful changes in policy and practice, namely students themselves, and in particular African American students, are typically rendered silent in discussions (Irizarry, 2011).

The research on African American students' perspectives of their learning environment is limited, yet increasing (Howard, 2001). It is important to highlight the voices of marginalized groups not only to better understand their experiences but also to learn about ways to support their schooling experiences. Waxman and Huang (1997) argued that understanding how students perceive and react to their learning environment may be more useful than the opinion of outsiders who observe and assess the quality of teaching behaviors. When we do not take students' perspectives into consideration, there is a missed opportunity for students to offer potential solutions for what they believe helps them to navigate their school experiences.

In response to the need to highlight African American students' perspectives, the purpose of this study is to showcase a small group of African American students' perspectives on their experiences in their mathematics classroom in the context of teacher turnover. Examining students' perspectives and experiences can reveal ways in which a teacher can better promote the use of students' voices in a mathematics classroom, resulting in teachers being better able to support students' learning. Support for students' learning is essential, especially in urban contexts where teachers and students tend to be different culturally and racially (Milner, 2006). As Howard (2001) argues: empowering African American students to do their best work requires that we place their voices at the core of discussions about what works for them in the classroom.

## Theoretical Framework

In this dissertation, I draw upon critical theory (Giroux, 2008; Kincheloe \& McLaren 2008). Researchers drawing on critical theory generally hold four basic assumptions: (a)
knowledge is socially and historically developed and mediated by power relations, (b) facts are connected to values and ideology, (c) certain groups are privileged over others in society and other groups are oppressed, and (d) there are many forms of oppression, so it is important to consider the different forms (i.e. class oppression, gender biases, etc.) and how they are interconnected (Kincheloe \& Steinberg, 1997). Critical theorists endorse theories that recognize issues in society as more than isolated events of individuals within a structure. Instead, there is an interactive context between individuals and society (McLaren, 2003).

Within the framework of critical theory, scholars have also described aspects of critical pedagogy in mathematics education (e.g., Bartell 2011; Frankenstein, 1990; Gutstein, 2006; Skovsmose, 1994; Stinson, Bidwell, Powell, 2012). Critical pedagogy is a way of thinking about, negotiating, and transforming the relationships among classroom teaching, the production of knowledge, the institutional structures of the school, and the social and material relations of the wider community, society, and nation-state.
(McLaren, 2000, p. 345)

Critical pedagogy in classrooms works to bring student perspectives to the classroom, which reveals that students' experiences add value to what occurs in the classroom (Bartolomé, 1996). Moreover, it suggests the classroom would be incomplete without student input. Since school is the experience that most students have in common and students are the reason schools exist (Fletcher, 2006; Freire, 1968), then every effort should be made to highlight student voices to improve their educational experiences. This dissertation contributes to work on critical pedagogy because of its focus on listening to students and allowing their voices to not only be heard, but also embraced. When teachers listen to students, it provides the foundation for rich and democratic learning environments that promote inclusivity among all students.

## Situating This Dissertation in Literature on Teacher Turnover

Teacher turnover remains a consistent problem for schools (Ingersoll \& Merrill, 2012; Keigher, 2010), especially urban schools (Hanushek, Kain, \& Rivkin, 2004; Ingersoll, 2011; Simon \& Johnson, 2015). Research that examines teacher turnover has focused on the effects on student achievement (e.g., Ronfeldt, Loeb, Wyckoff, 2013), why teachers leave the teaching field and/or move to other schools (e.g., Marso \& Piggee, 1991; Miech \& Elder, 1996), and school conditions that may contribute to teacher turnover (Ingersoll, 2011; Simon \& Johnson, 2015). Yet, we currently know little about how students experience teacher turnover from their perspectives. Teacher turnover disproportionately affects minority students who attend schools with high teacher turnover rates. Due to a lack of literature in this area, I argue minority students' perspectives are also less likely to be heard. Freire (1970) posited, however, that it is important to provide space for the voiceless and to continually pay attention to issues of power and marginalization.

This dissertation makes a significant contribution to education research in its goal to better understand African American students' experiences in their mathematics classroom in the context of teacher turnover. I argue that students' perspectives are a necessary resource to challenge dominant narratives in the classroom. I particularly focus on caring student-teacher relationships and student resistance to instructional practices in the context of teacher turnover in their mathematics classroom.

## Situating This Dissertation in Literature on Students' Perspectives in Classrooms

This dissertation contributes to mathematics education research through highlighting students' perspectives on their experiences in classrooms. I briefly review literature on studies that examine students' perspectives on their experiences in the classroom. I do focus on some studies that highlight counterstories and/or counternarratives because this language tells the
stories of marginalized people whose voices are not often heard, and are also tools for "exposing, analyzing and challenging the majoritarian stories of racial privilege" (Solorzano \& Yosso, 2001, p. 32). Yet, counterstories and counternarratives are not a primary focus of this dissertation. In this section, I show how my work is situated in the broader set of literature on students' perspectives on their experiences in K-12 mathematics classrooms.

Students are experts on the topic of their own experiences (Erickson \& Shultz, 1992). In the literature on students' perspectives, the perspectives of 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. Some researchers have highlighted students' perspectives on their experiences in mathematics classrooms (Alder, 2002; Brown, 1999; Howard, 2002; Jansen, 2006; Lee, 1999; Martin 2000; McGee, 2013; Terry \& McGee, 2012). These studies focused on a wide range of topics that include influences inside and outside of the classroom. For example, Martin (2000) examined students' perspectives and experiences as situated with respect to contextual forces that shape their mathematical socializations and identities as African American mathematics students. Also, Terry \& McGee (2012) reported on high achieving African American males who rely on support networks inside and outside the classroom to improve their experiences in their mathematics classroom.

Research literature considering students' perspectives has also focused on the importance of positive student-teacher relationships in many different classrooms (Birch \& Ladd, 1998; Lynch \& Cicchetti, 1997; Parsley \& Corcoran, 2003), as well as in mathematics classrooms (Alder, 2002; Brown, 1999; Garza, 2009; Jansen \& Bartell, 2013). For example, research on middle school student-teacher relationships shows that these relationships influence a variety of student outcomes, such as students' academic achievement (Birch \& Ladd, 1998; Parsley \&

Corcoran, 2003). Many of these studies also highlighted the fact that students wanted to develop meaningful personal relationships with their teachers (e.g., Brown, 1999). Alder (2002) examined how caring relationships are sustained between African American middle school students and their teachers. She reported that middle school students said their teachers cared for them when they took the time to get to know them, communicated high expectations, and pushed them to do their work. In short, students stated that a caring relationship with their teacher is important. She added, "transformative education begins with the shared meaning we establish with one another through our interactions" (p. 264). In another study that examined students' perspectives on culturally responsive instruction, Howard (2001) found that students of color reported that they preferred "teachers who displayed caring bonds and attitudes towards them" (p. 131). Student-teacher relationships affect students' experiences in the classroom.

This dissertation makes a significant contribution to educational research related to the improvement of African American students' experiences in their mathematics classrooms in urban schools. I argue that students' perspectives are a necessary resource for challenging dominant narratives and marginalizing pedagogical practices in mathematics. I particularly focus on caring student-teacher relationships and students' resistance to instructional practices in their mathematics classroom.

## Description of Context, Participants, and Data Collection Methods

In this section, I describe the context, the participating students and their teachers, and my data collection methods for the dissertation. This is a big-picture lens on the work that I undertook. Each of the manuscripts, then, focuses more specifically on the relevant data and the analysis I did for the particular findings I report.

## Context

Westside School is located in a small urban ${ }^{1}$ Midwestern city of about 120,000 people. The school itself serves students from grades 7 to 12 and offers mathematics courses that range from Pre-Algebra to Advanced Placement Calculus. Westside School is one of the few schools in the district to offer an opportunity to earn an International Baccalaureate Diploma. At the time of this study, Westside had about 1,800 students, with about 700 students in seventh through eighth grades and 1,100 students in ninth through twelfth grades. The student demographics consisted of about $84 \%$ African American, Latino/a, Asian, and American Indian (majority African American) and $78 \%$ of the students who attend the school were eligible for free and/or reduced lunch. Westside School provided two separate tracks in mathematics for their middle school students. The majority of $7^{\text {th }}$ graders were enrolled in Pre-Algebra. A smaller group of $7^{\text {th }}$ graders were selected to take Algebra based on test scores and teacher recommendations from their elementary school.

Data collection took place in one of the $7^{\text {th }}$ grade Pre-Algebra courses at this school. There were 28 students in the classroom; 16 girls and 12 boys. Instruction in Mrs. Brown's (prior to her attending to students' perspectives) and Mrs. Edwards' mathematics classrooms was similar: students began the period with a warm-up, which was typically followed by lecture, guided practice and individual practice. Occasionally, students were organized into groups to work together on class work. Curriculum materials offered to students were based primarily on
${ }^{1}$ I use the term urban to refer to students or schools located in cities (population $>100,000$ ), with student populations that are predominately students of color and from low socioeconomic status (SES) families.
traditional textbooks aimed at supporting procedural fluency. The class textbook used was Holt Middle School Math Course 3 (Holt, Rinehart and Winston, 2004).

## Participants

My selection criterion for participants was focused on students who wanted to share their perspective about their educational and mathematical experiences during the school year. I selected five $7^{\text {th }}$ grade students who, with parent permission (See Appendix A), wanted to participate in the study. Originally, seven students expressed interest, but they were not all able to participate in interviews after school. I decided to focus on five African American students, two male and three female students. I invited these students to participate because they were good at articulating their experiences on the feedback forms and in the classroom when they had conversations about their mathematics class with Mrs. Brown. In the sections that follow, I draw on information documented in my observation field notes and that the students have told me to introduce each of the five students: Medina, Jada, Curtis, Opal, and Ty.

Medina was a 13-year old African American female. Her favorite subject in school was English. Her parents and family motivated her to do well in school. Medina really wanted to make them proud of her. She did not have many friends at school because she only hung out with her cousins. Medina valued her family and felt that, if someone has family around, then they will always be okay. She thought the harder she worked in school the more successful she would be in life. Medina's goal was to become a physical therapist because she liked to help people that need physical, mental, and emotional counseling. Ultimately, she wanted to help people live a happy life.

Jada was a 13-year old African American female student. Her favorite subject in school was English. Jada enjoyed dancing and was on the school's step team. She enjoyed school and thought it was very important to work hard. Jada struggled in mathematics and said that no
matter how hard she tried, she did not get the type of grades she thought she deserved. She had an outgoing personality and loved helping people. Jada wanted to become a nurse in the future, but she worried that mathematics may stop her from becoming one. She stressed that even though mathematics was really hard, she continued to work hard until she understood it.

Curtis was a 13-year old, African American male student. His favorite subject in school was science and he aspired to be a scientist. Curtis was motivated to do well in school so he could attend a university when he graduates from high school. He enjoyed hanging out at his friend's house and playing games on the computer. Curtis was adamant about making sure he played outside with his cousin instead of staying inside all of the time. He also enjoyed cooking and played in the school band.

Opal was a 13-year old African American female student. She wanted to become a chef in the future. Opal liked to ask questions in her classes because that showed the teacher that she paid attention. Her favorite subject was science. Opal was motivated to do well in school by her mother. Her mother worked hard at home and she wanted to make sure her mother knew she also worked hard at school. Opal was involved with an after school program that encouraged girls to be physically active.

Ty was a 13- year old African American male student. He was involved in numerous after school activities, such as basketball and track. Ty lived with his mother and four siblings. He described himself as someone who was very determined to do well, and saw himself as a leader among his peers. Ty's favorite subject was mathematics and he hoped to become an engineer in the future. He was excited about the possibility of attending college one day. Ty was motivated by his mother and talked about having the opportunity to one day take care of her, so she would not have to work so hard.

## Teachers and Their Classrooms

As I mentioned earlier, the classroom featured in my dissertation is one that has had multiple teachers working in it. Here I provide background for the reader by introducing the teachers. Mrs. Brown was the full-time teacher of this course at the beginning of the school year. She made a decision to leave Westside School the first week of November. The students had a substitute teacher, Mrs. Cotton, for two and half weeks while the principal searched for a fulltime replacement for Mrs. Brown. By the middle of November, Mrs. Edwards became their fulltime mathematics teacher. In the following sections, I say more about the two full-time teachers, in particular, because they will play an important role in two of the manuscripts for this dissertation.

Mrs. Brown identified as a White woman who had taught mathematics for about 20 years. She taught both middle and high school mathematics, including some time spent teaching in an alternative high school, so labeled because students were sent there before expulsion (Raywid, 1994). She also had experience teaching mathematics and chemistry in community college settings. All of her teaching took place in schools that were located in either rural or inner city school districts. In the inner city school, she had the opportunity to work with the teenage parent program, which involved primarily teenage girls with babies or who were pregnant and still working toward their high school diplomas. At the time of the study, Mrs. Brown had taught at Westside School for two years. She decided to leave Westside School at the end of the first marking period to teach at another school. Mrs. Brown's stated reasons for doing so were that the new school was closer to her home and that she thought it was the best decision for her family.

At the beginning of the school year, Mrs. Brown and I worked together to incorporate strategies that allowed her to encourage student voice in the classroom because we both thought
that it could improve the teaching and learning in her mathematics classroom. Honoring middle school students' voices is important because middle school teachers have been observed to be more controlling than elementary school teachers at a time when students are more in need of autonomy-supportive environments for developing their academic capabilities (Eccles \& Midgley, 1989). In particular, Mrs. Brown explored cogenerative dialogue (Roth \& Tobin, 2002) in her classroom in order to enhance students' opportunities to improve the student-teacher relationship and engage in their mathematics class over time. Cogenerative dialogue (or "cogen" for short) has been a strategy employed in science education. It is the "use [of students'] current understandings to describe what has happened, identify problems, articulate problems in terms of contradictions, and frame options that provide us with new and increased choices for enhancing teaching and learning" (Roth \& Tobin, 2002, p. 252). Examining how and in what ways the teacher and students participate in cogen can reveal ways a mathematics teacher might better promote students' participation or ways she might be inhibiting students' participation in their mathematics classroom. In the end, our work drew from cogen, but did not fully adopt all of the components of cogen. This is a salient part of the context, however, as Mrs. Brown had been working to honor her students' voices prior to the substitute and then Mrs. Edwards coming into the classroom.

Mrs. Edwards, the teacher who replaced Mrs. Brown after the two and a half week substitute teacher, also identified as a White woman. She had taught mathematics for about 17 years in both urban and private school contexts. All of her teaching experiences involved teaching $7^{\text {th }}$ and $8^{\text {th }}$ grade students. In the past, she taught $8^{\text {th }}$ grade literature, but most of her teaching experience was in mathematics. At the time of the study, she had been teaching at Westside School for five years and she began her teaching experience in the focal classroom in
the middle of November. She was assigned the class that was the focus of this dissertation when Mrs. Brown left the school. She reported enjoying helping students problem solve and especially loved when a student had an "aha" moment in mathematics.

## Data collection

In this section I describe, more generally, the data collection methods across the entire dissertation. I describe the primary and secondary data sources I collected as well as why those data sources made sense for my study.

Participant observations. Over a period of nine months, I spent approximately 90 hours sitting in the back of the $7^{\text {th }}$ grade Pre-Algebra classroom. While I observed, I also set up a video camera to video-record the classroom sessions so that verbal and non-verbal interactions could be analyzed. Occasionally, though, I served as a classroom tutor, helping students when they raised their hand or assisting the teacher when she needed help. The decision to play a more active role in the classroom beyond observation was based on several factors. First, I felt obligated to the teachers participating in the study to reciprocate their generosity. Given my background as a former high school mathematics teacher, providing assistance to their students was one small way to contribute. Second, from a research standpoint, participant observation gave me a chance to get to know the students and for them to know me on a less formal level. The mutual trust built over time proved useful when interviewing students throughout the school year.

As I observed, I wrote notes that I could elaborate once the observation was over. The classroom observations served to confirm or disconfirm what the students and teacher mentioned in their interviews and written journals, and in many cases, served as a basis for future interview questions. Classroom observations helped me gain a better understanding of the experiences students were having in their mathematics classroom.

Field notes. I recorded field notes each time I observed the mathematics classroom. As Emerson, Fretz and Shaw (1995) pointed out: "field notes provide a distinctive resource for preserving experiences close to the moment of occurrence, and hence, for deepening reflection upon and understanding those experiences" (p. 13). I recorded key words, phrases, and events along with the time an event happened so I would know which video recording to refer to when I conducted interviews and/or analyzed data. For example, if a student was asked to leave the classroom due to not following directions, I recorded the following: "On 12/6/14 at 12:00, Curtis was asked to leave the classroom because he did not work on his assignment. Ask Curtis about this event during our interview." Emerson, Fretz and Shaw (1995) suggested jotting down key words and phrases, which jogs the memory later so that the field researcher can catch other significant actions, such as student-student and teacher-student interactions. The field notes also contained summaries of informal conversations between teachers and students. For example, if a student entered the classroom and went up to his/her teacher and asked how she was doing, I would write such an observation down. There were times when these conversations occurred off the video camera, so I made sure to write down a summary of what was discussed in order to follow up with the students during the interviews. Any insights as well as problems or concerns that occurred during classroom observations were also recorded in field notes and used to guide future data collection (Guba \& Lincoln, 1998; Miles \& Huberman, 1994).

Written journals. The five focus students were asked to write journals to document their experiences in their mathematics class. Students were given a set of prompts (See Appendix C) that asked them to write about topics such as their participation in class, their understanding of mathematics concepts, the challenges and successes they experienced in their mathematics classroom, etc. Students had the freedom 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 a journal prompt. Students were asked to turn in their journals every two to three weeks (depending on school breaks and tests). By the end of the data collection, I had collected a total of approximately 150 journal entries. There were an average of 30 journal entries from each student. The length of the journals varied and students could write as much or as little as they wanted. I collected and read through their journals and kept track of topics and/or information that I needed to probe further in their student interviews.

Interviews. Since the understanding of student experiences cannot be obtained through mere observation, it was essential to hear about these experiences from the students themselves. Thus, I also conducted interviews with the teachers in order to learn more about their experiences with teaching mathematics.

Student interviews. Students' interviews took place after the first teacher left, approximately once a month (See Appendix D). I conducted seven interviews with each student. These interviews took place after school, in the library, at a time that was convenient for the student. The interviews were semi-structured in order to probe aspects of their mathematics experiences and to ask clarifying questions based on information in the students' journals. I also asked them questions based on my classroom observations. For example, if I saw a student putting his/her head on the desk multiple times, I asked them whether they were tired or perhaps uninterested in the topic. These interviews helped clarify some of the incidences I noticed throughout the school year. Each interview lasted between 45-60 minutes. Notes taken during after reading students' written journals were used to construct semi-structured interviews to probe aspects of their mathematics experiences and ask clarifying questions. During later interviews, I conducted member checks with students. Glesne (2006) noted that member checks
are important to ensure experiences are portrayed in a matter that coheres with participants' perspectives. The member checks conducted with the students allowed me to ascertain that my interpretations of what the students mentioned during interviews aligned with their own interpretations.

Teacher interviews. I conducted a semi-structured, audio taped interview with Mrs. Brown (See Appendix E) before the school year began. We met twice during the semester to discuss the student feedback she received before she left the school. The interviews lasted approximately 60 -minutes each. The initial interview inquired about Mrs. Brown's pedagogical strategies in the classroom and the learning environment of her past classrooms. Kvale and Brinkman (2009) stated that, through conversations, we get to know people, learn about their experiences, feelings, attitudes, and the world they live in. The interviews attempted to gain her perspective about the use of students' voices in her classroom and her description of how students' voices affected her practices. The two interviews during the semester focused on utilizing student feedback in the classroom. During these interviews, we were able to discuss any issues or concerns she was experiencing in her classroom.

At the end of the school year, I conducted one 30-minute interview with Mrs. Edwards (See Appendix F). During this interview we focused on her perspective of the students in my study as it pertained to their performance and participation in her mathematics classroom. She also briefly shared the student resistance she felt she experienced as well as the behavior problems she perceived throughout the school year.

Given my focal interest and the paucity of work related to African American students' perspectives in mathematics classrooms, I made the decision only to illuminate students' perspectives in this study. I think it is extremely important to focus on what students have to say
about their experience in the classroom. I do, however, understand that teachers are asked to deal with institutional and structural barriers that might limit their ability to "demonstrate their care for and 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. Mrs. Edwards might have thought she was demonstrating care, for example, and was not aware of the students' perspectives. Because I did not ask those types of questions during the brief teacher interview, I was unable to collect the type of data to fully capture how the teachers' experienced the phenomenon of teacher turnover.

## Researcher Positionality

It was critical for me to choose and understand my role in this study as a researcher of African American students' perspectives. As with all research, life experiences impact the positionality we bring to our work (Foote \& Bartell, 2011). Subjectivity is an inevitable component of research that is present and should be searched for by the researcher (Peshkin, 1988). The researcher is challenged to admit to personal biases and preferences that may affect the data. Here, I name my identities and experiences that may have influenced how I made decisions, interpreted, analyzed, understood the data, and so on. As an African American woman, educator, and teacher educator, it was challenging to choose and understand my roles as my own background, experiences, childhood and adulthood surfaced throughout this study.

As noted in my introduction, my past experience as a mathematics teacher played a role in my advocacy for valuing students' perspectives in the mathematics classroom. My first teaching position was a result of teacher turnover. I was compelled to research this context because I have seen the ways students struggle when losing teachers in the middle of the school year. When I think back to my first experience in my mathematics classroom, I did not try to understand students' perspectives until I experienced a lack of student engagement. In this
dissertation, I wanted to document students' experiences to highlight the importance of educators and researchers learning about and from students' perspectives. Thus, I came to this study valuing students' perspectives and convinced that listening to students' voices could have a positive impact on their learning.

My identity as a teacher also made me wary about telling some of the students' perspectives, especially when I felt the descriptions, although accurate to what I observed, were not always pleasurable. I tried my best to describe what the students said and not evaluate or judge the teacher and/or teaching that occurred in the classroom. This was hard for me and sometimes I may have underrepresented what the students said, unintentionally, because I did not want to sound too harsh on the teacher. There were times when I saw instructional strategies that I thought were not best for the students. At times, it was a difficult place to be in and continues to be difficult as I report this work at conferences.

I was a participant observer in this context before and after the first teacher decided to leave. When she announced that she planned to transfer to another school, the students asked me if I was going to go with their teacher. In fact, the teacher suggested that I move my study to her new school. I decided, however, to stay with the students because I had started to build relationships with them as I assisted Mrs. Brown in the classroom. Because of the relationship that was being built between the students and me, I also felt protective of the students and did not want to abandon them. Because of this decision, I believe I gained a level of trust among the students and they may have viewed me as a reliable person. The trust earned by students enabled me to gain rich descriptions of their experiences during interviews.

I chose to highlight African American students' perspectives because I personally share two identities with them: I came from a low-income household and am also a racial minority. As
an African American woman from a low-income household, I could relate to their experiences as a student with low socioeconomic status. For example, many of the students expressed their interest in going to college and getting a job in order to help their mother financially one day. This experience resonated with my own. Yet, I recognize my experiences as a college graduate, high school mathematics teacher, and graduate student may be fairly removed from my lowincome household experience growing up. Because of these differences, I chose to use Critical Theory as my theoretical framework because this theory promotes giving a voice to the voiceless and to continually paying attention to issues of power and marginalization (Freire, 1970). In this dissertation, the 'voiceless' refers to individuals whose lives and stories are not well represented (or are misrepresented) in dominant narratives about schools. For example, there is the idea that the mathematics achievement gap is primarily the fault of African American students and African American families, rather than a symptom of broader social inequities that keeps the best teachers, newest technology, and effective policy out of predominantly African American urban schools. I feel like I am empowering youth who are similar to me, but recognize that being an adult (rather than a child) sometimes makes it difficult to truly capture their perspectives.

Although my researcher positionality helped me see things while I conducted this study, there are always some things that are overlooked. Some students' experienced a seamless transition when the new teacher entered the classroom during the school year. Students' grades could have remained the same or even improved with their new teacher. Students may have begun to build a positive student-teacher relationship. Also, some students may not need to build a caring student-teacher relationship with their teacher. In my previous teaching experience, many of my students struggled, so I gravitated towards students that struggled with receiving a new teacher during the school year. My selection of students was affected by my previous
teaching experiences. Also, when I began my first teaching job in January, I had conversations with students that led me to understand the importance of student-teacher relationships. As a mathematics teacher, I value student-teacher relationships, so think that played a role in what I saw in the data.

My hope is that the findings in this dissertation, however, encourage other researchers to pay attention to African American students' perspectives on their mathematics classroom experience. Such attention, I hope, can help to better support students' learning and to counter the underrepresentation of these youth in mathematics and STEM fields. Moreover I encourage mathematics researchers, educators, and teacher educators to pay attention to what students express about their experiences in their mathematics classroom and use the information learned to improve students' learning environments. I accept these aspects of my identity and by acknowledging them; I better understand how they informed my research.

## CHAPTER 2: AFRICAN AMERICAN STUDENTS' PERSPECTIVES ABOUT FORMING CARING STUDENT-TEACHER RELATIONSHIPS IN THE CONTEXT OF TEACHER TURNOVER

Teacher turnover remains a consistent problem for schools (Ingersoll \& Merrill, 2012; Keigher, 2010), especially urban schools (Hanushek, Kain, \& Rivkin, 2004; Ingersoll, 2011; Simon \& Johnson, 2015). Research that examines teacher turnover has focused on the effects on student achievement (e.g., Ronfeldt, Loeb, Wyckoff, 2013), why teachers leave the teaching field and/or move to other schools (e.g., Marso \& Piggee, 1991; Miech \& Elder, 1996), and school conditions that may contribute to teacher turnover (Ingersoll, 2011; Simon \& Johnson, 2015). Yet, we currently know little about how students experience teacher turnover from their perspectives.

Teacher turnover disproportionately affects minority students who attend schools with high teacher turnover. Due to lack of literature in this area, I argue minority students' perspectives are also less likely to be heard. Freire (1970) posited, however, that it is important to provide space for the voiceless and to continually pay attention to issues of power and marginalization. Critical theorists seek to illuminate perspectives that have been silenced by structural inequity (McLaren, 2003). In this article, I use the term 'voiceless' to refer to individuals whose lives and stories are not well represented (or are misrepresented) in dominant narratives about schools. Highlighting these students' perspectives provides an opportunity to showcase what is important for students as a starting point to improve their learning environments (Howard, 2002). Research on students' perspectives as they experience teacher turnover may help schools to identify and target the type of support students need, which may in turn direct educators to focus on relevant resources needed to promote better student experiences
in school (Mitra \& Gross, 2009). Increased attention to students' perspectives on losing their teacher can offer insight into the affective and interpersonal factors that shape student-teacher relationships, and ultimately students' learning in their mathematics classroom.

In this article, I focus on five middle school African American students' perspectives with respect to a caring student-teacher relationship in the context of teacher turnover. The specific aspects of students' experiences that I highlight are their descriptions of what they wanted in terms of their relationship with teachers. I take this focus because it was a prevalent theme in their conversations about their experiences throughout the school year I spent with them. In fact, this aspect of their experience was prevalent because they experienced teacher turnover and had to negotiate relationships with more than one teacher in less than three months. As previous research has shown, relationships between students and teachers affect students' experiences and learning in mathematics classrooms (e.g., Battey, 2013; Howard 2001). In fact, Battey argued that the relationships that teachers build with students are just as important as the quality of the mathematics that is taught. There are few studies, however, that have focused on the role of such interpersonal relationships in mathematics education (Hackenberg, 2010), and even fewer studies that have considered this issue from the perspective of African American students. Yet many authors argue that this kind of work is imperative in order to gain a better understanding of these students' experiences in their mathematics classrooms, which is ultimately important to supporting their learning (Howard, 2001; Stinson, 2008; Terry \& McGee, 2012).

## Literature Review

To situate this study with respect to existing research, I first examine research that has explicitly considered students' perspective because Howard (2002) recommended that more studies on African American students perspectives could help us gain better insights on the role
teachers could play to support these students' learning. Next, I turn to research literature documenting the importance of student-teacher relationships in order to better understand the importance of relationships with respect to students' experiences and learning in the classroom. Finally, I examine research on the development of caring student-teacher relationships because these ideas are central to the findings I present. I conclude this section with an argument for why it is important to highlight African American students' perspectives on the development of caring student-teacher relationships in the context of teacher turnover.

## Students' Perspectives on their Experiences in their Classrooms

The potential to learn about schooling experiences from the perspective of African American students is consistently overlooked in favor of information garnered through large data sets and the one-size fits-all remedies these types of studies inspire (Irizarry, 2011). Poplin and Weeres (1992) noted the importance of hearing the "voices from the inside" (p. 4), and hearing about these experiences from students. Moreover, researchers should understand how students discern and respond to their learning environment because this kind of information may be more useful than the opinion of outsiders who observe and assess the quality of teaching behaviors (Waxman, Huang, Anderson, \& Weinstein, 1997). Critical theory legitimates students’ perspectives as important sources of information about schooling systems (Robinson \& Taylor, 2007).

In the past decade or so, there has been a growing body of research that has examined students' perspectives on their experiences in classrooms (Alder, 2002; Brown, 1999; Howard, 2002; Jansen, 2006; Jansen, Herbel-Eisenmann, \& Smith, 2012; Lee, 1999; Martin 2000;

McGee, 2013; Terry \& McGee, 2012). These studies show us the ways students experience various phenomenon from their perspective. For example, focusing on students in a rural context, Jansen, Herbel-Eisenmann, and Smith (2012) examined students' perspectives as they
experienced discontinuities between middle school and high school mathematics programs. Students discussed how changes in instruction across grade levels, influenced their achievement and interest in mathematics. Students' perspectives shed light on ways mathematics teachers might support students' opportunities to learn mathematics during such transitional experiences.

A small amount of research has specifically considered African American students' perspectives of mathematics teaching and learning (e.g., Berry, 2011; Martin, 2000; McGee \& Martin, 2011; Terry \& McGee, 2012; Stinson, 2008; Terry, 2011). This research has documented, for example, successful African American mathematics students' perspectives and experiences, thus serving as counterstories and highlighting the racialized nature of students' experiences (Stinson, 2008). Also, Martin (2000) interviewed seven African students about their experiences in their mathematics classroom and found the students had a strong sense of who they were and of the responsibility they had for their own success. They also believed their teacher wanted to help them succeed. Additional literature on African American students' perspectives examines how a teacher's classroom practices can impact the identities of students (e.g. Berry, 2008; Martin, 2009; McGee \& Martin, 2011; Spencer, 2009). These studies demonstrate the ways mathematics teaching and learning affect students' experiences and how students see themselves. Students' perspectives shed light on ways various teachers might be able to support students' opportunities to learn mathematics during such educational experiences inside classroom.

In searching for articles that examined students' perspectives of teacher turnover, I was only able to find one contribution to this kind of work and it focused on high school band students' perspectives of teacher turnover (Kloss, 2013). This author found that students negotiated relationships with new teachers in different ways and experienced a wide range of
emotions. He argued more studies need to be conducted on students who experience teacher turnover. Although I searched extensively, I could not find published research that investigated students' perspectives as they experience teacher turnover in mathematics classrooms. The lack of empirical research leaves it unclear as to how to better support students' mathematics experiences during teacher turnover. I specifically focus here on the relationships students have with teachers because this emerged in the data analysis as a prevalent part of what students talked about when they shared their perspectives in the context of teacher turnover. In the next section, I highlight related literature about student-teacher relationships in order to gain a better understanding of how students discuss student-teacher relationships.

## Student-Teacher Relationships

Effective teachers have been characterized by their ability to maintain and cultivate a relationship with their students (Ladson-Billings, 1994; Noddings, 1992). For example, after examining case studies of students, Nieto (1994) stated that it was more important for teachers to humanize teaching than just to focus on teaching methods, if they wanted to support students’ learning. Creating positive student-teacher relationships is a vital part of students' success in school. Researchers have indicated the importance of examining relationships between students and teachers in the classroom (Nieto, 1994; Fullan, 1993).

Most research on student-teacher relationships has focused on elementary students and has been from the perspective of teachers (e.g., Howard, 2002; Hamre \& Pianta, 2001). There are a few studies that highlight student-teacher relationships from the perspective of middle school students (Birch \& Ladd, 1998; Lynch \& Cicchetti, 1997; Parsley \& Corcoran, 2003). Lynch and Cicchetti's (1997) findings that student-teacher relationships changed as students' transition to middle and high school, for example, highlights the importance of investigating secondary students' perspectives of these relationships. More specifically, these authors found
that middle school students do not develop strong, positive relationships with their teachers. Nonetheless, research on middle school student-teacher relationships shows that these relationships influence a variety of student outcomes, such as students' academic achievement (Birch \& Ladd, 1998; Parsley \& Corcoran, 2003). 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. In the next section, I highlight educational research about the characteristics of a positive, caring student-teacher relationship.

## Caring Student-Teacher Relationships

Educational research on caring has often borrowed from feminist perspectives when framing issues of care in schools and in student-teacher relationships (Noddings, 1992; Thompson, 1998). The literature in this section suggests that teachers are able to assist students by providing a variety of personal connections through fostering caring relationships in the classroom. Caring student-teacher relationships have been identified as critical to supporting students' opportunities to learn more generally, and in mathematics classrooms (Ladson-Billings, 1997). Noblit, Rogers, and McCadden (1995) found that caring student-teacher relationships encouraged students' academic and social development. A caring teacher can play a role in students' academic success (and failure), as well as students' behaviors. Owens and Johnson (2009) noted that it is the teacher's responsibility to initiate and facilitate an environment conducive to meaningful interactions.

Noddings' (1992) seminal work provides a broad framework for how caring occurs between students and teachers in the classroom, and she focused on a relational sense of caring. She defined caring as "a way of being in relation, not specific behaviors" (p. 17). Noddings (1992) argued that a caring relationship occurs when students receive care. She noted, "No matter how hard their teacher tried to care, if caring is not received by the student, the claim
'they [the teacher] doesn't care' has some validity" (p. 15). She described a caring relationship as being received by someone, i.e., by the student, in a classroom. Similarly, Schussler and Collins (2006) defined caring as "a desire to understand the other and help the other reach his/her potential" (p. 1464). They differentiate personal and academic care. Personal care focuses on students' overall well being as people. Academic care is when a teacher provides academic help so students can learn in the classroom and achieve success.

Some existing research on caring relationships focused specifically on the perspectives of middle school students and the various ways their teachers show their care for them (Hayes, Ryan \& Zseller, 1993; Pink, 1987; Teven \& McCroskey, 1997). In a study conducted with sixth and eighth grade students in one urban and two suburban schools, students' perspectives of how a teacher might show care included the teacher: a) using humor in the classroom; b) helping students with their work; and c) showing interest in the students as people, not just as students in their classroom, including being responsive to individual students outside the classroom (Hayes, Ryan \& Zseller, 1993). Other studies focused on students in suburban contexts reported that students thought their teacher cared for them when the teacher was there to answer schoolfocused questions when the students needed them (Teven \& McCroskey, 1997; Pink, 1987). Ferreira and Bosworth (2001) found that middle school students, from urban, rural and suburban schools, stated that a caring teacher exhibits behaviors that relate to content and teaching (e.g., help students complete their student work, explain how to do the work and make sure they understand the content) as well as to fostering relationships (e.g. respect students, get to know students and listen to students' personal problems). They also noted, "All caring acts were unidirectional, from the teacher to the student" (p.24). In other words, the students did not mention the ways they showed care for their teacher.

These studies show us students' perspectives about behaviors they believe showed that their teacher cared about them (Alder, 2002; Howard, 2002; Jansen \& Bartell, 2011).

Other research exists at the intersection of these foci and considers African American students' perspectives of caring relationships. Alder (2002), for example, reported findings that focused on African American middle school students' perspectives of the ways a teacher showed they cared in an urban context. Many authors reported that students thought they were cared for when their teacher had high expectations, pushed them to succeed academically, and made them work hard (Alder, 2002; Howard, 2001; Storz; 2008). Through his analysis of student interviews, Howard (2001) concluded that teachers showed "culturally connected care" (p. 434), which were displays of care that occurred within the cultural contexts with which students were familiar. For example, a teacher patted students on their back to encourage them to do their best, and verbally expressed how the teacher felt about their academic potential. These studies showed that there are multiple (academic and physical) ways teachers can show they care. This section highlighted research that was not specific to mathematics education. The next section highlights work in mathematics education.

A few studies in mathematics education have examined caring relationships in mathematics classrooms and have focused on the role of care when students engage and interact with mathematics (Battey, 2013; Hackenberg, 2010; Jansen \& Bartell, 2013; Stipek, 2006). Stipek (2006), for example, highlighted students' perspectives of the ways their mathematics teachers cared for them. Students stated that they put forth more effort and engaged in the classroom if they had a positive caring relationship with their teacher. Jansen and Bartell (2013) interviewed middle school teachers and students and found that their participants' perspectives on caring in mathematics instruction included: teaching in ways that supported all students
learning, setting high expectations for students, creating a classroom community that was welcoming for students, and engaging all students as they learned mathematics. They found both academic (e.g., reaching every student, explaining mathematics concepts) and interpersonal (e.g., getting to know students well, providing emotional support) aspects of care. These studies highlight the role of relational aspects in teaching and learning mathematics.

Hackenberg (2010) built upon Noddings'(1992) theory of care and explored a mathematical caring relation (MCR), arguing that MCRs consist of "a quality of interaction between a student and teacher that conjoins affective and cognitive realms in the process of aiming for mathematical learning" (p. 237). MCRs are supposed to capture the relational aspect of teaching mathematics. Hackenberg examined "in-the-moment interpretations" (p. 242) between the students and the teacher's responses to the mathematics tasks. She argued the following points: a) MCRs attend to cognitive and affective needs of students, b) students receive their teacher's care, and c) the interaction took place in the context of teaching and learning mathematics. MCRs resonate with a teacher who attempts to find a balance between attending to the person and to the mathematics, responds to students cognitive and affective needs, and so on. Hackenberg acknowledged the importance of paying attention to affective characteristics of teaching mathematics, but Bartell (2011) argued that it is also important to pay attention to students' culture.

Bartell (2011) critiqued Hackenberg's (2011) work by acknowledging that she did not explicitly examine issues of race and culture. Bartell argued teachers should develop cultural competence in order to build upon students' cultural capital. She stated, "teachers that care with awareness know their students well mathematically, racially, culturally, and politically" (p. 65). Bartell went on to argue that caring teachers could practice culturally relevant pedagogy, which
is a "pedagogy that empowers students intellectually, socially, emotionally, and politically by using cultural referents to impart knowledge, skills, and attitudes" (Ladson-Billings, 1994, p. 1718). Bartell's call for attention to race and culture in MCR requires that teachers learn about various aspects of students' lives in order to provide cognitive and affective support in the mathematics classroom. Although the research reported here does not attend to race and culture explicitly, it does add to this literature by examining the ways African American students describe what they wanted to see from a teacher who entered the classroom a few months into the school year.

## Summary

The research reviewed above documents the importance of quality student-teacher relationships for supporting student learning. This research, however, has largely been focused on elementary student experiences or on the perspectives of teachers. Research on caring student-teacher relationships includes African American middle school students' perspectives, but this work is rarely situated in the context of mathematics education. Rather, the work on caring relationships in mathematics education lacks attention to race and culture (Bartell, 2011). Moreover, the research that specifically considers African American students' perspectives does not consider the explicit context of teacher turnover. When teachers leave, relationships that were formed are lost and new ones must form (Ronfeldt et al., 2011). Thus, it is important for an incoming teacher to make it a priority to build student-teacher relationships. This particular article contributes to this work by focusing on African American students' perspectives of their mathematics education in the context of teacher turnover. It highlights what these students see as important to developing a caring student-teacher relationship.

## Research Question

This article addresses the ways in which students' describe their experiences in their mathematics classroom. The specific question I address is:

1. What did $7^{\text {th }}$ grade African American students describe as salient to their mathematics experiences in terms of a student-teacher relationship once their first mathematics teacher left in November of the school year?

## Research Methods

Data was collected through a qualitative study of the perspectives of five African American middle school mathematics students' experiences in their mathematics class as they experienced teacher turnover. More specifically, I employed interpretive design methods (Erickson, 1986). Interpretative designs are used when the research takes place in a natural setting and the researcher wants to make meaning of particular people's points of view, in this case students' perspectives (Erickson, 1986). In this section, I provide an overview of the context, participants, and data collection methods I used when conducting this study.

## Context

Westside School is located in a small urban ${ }^{2}$ Midwestern city of about 120,000 people. The school itself serves students from grades 7 to 12 , and it offers mathematics courses that range from Pre-Algebra to AP Calculus. Westside School is one of the few schools in the area to offer an International Baccalaureate Diploma. Westside has about 1,800 students, with about 700 students in grades 7-8 and 1,100 students in grades 9-12. The student demographics consist of about 84\% African American, Latino/a, Asian, and American Indian (majority African
${ }^{2}$ I use the term urban to refer to students or schools located in cities (population $>100,000$ ), with student populations that are predominately students of color and from low SES families.

American) and $78 \%$ of the students who attend the school are eligible for free and/or reduced lunch. Westside School provides two separate tracks in mathematics for their middle school students. The majority of $7^{\text {th }}$ graders were enrolled in Pre-Algebra. A smaller group of $7^{\text {th }}$ graders were selected to take Algebra based on their test scores and on teacher recommendations from their elementary school.

The focus classroom was one $7^{\text {th }}$ grade Pre-algebra class at this school. There were 28 students (16 girls; 12 boys) in the classroom, and these students had three different teachers in one academic school year. The first teacher, Mrs. Brown, engaged in discussions with students to try to attend to their perspectives before she decided to teach at another school in the same district at the beginning of November (c.f., Id-Deen, 2015). Mrs. Edwards became their permanent teacher for the rest of the school year. In Mrs. Edwards' classroom, students normally began the period with a warm-up, which was typically followed by a lecture that was primarily procedural as opposed to conceptual. The class then engaged in guided practice by reviewing various kinds of examples, followed by individual practice that mirrored many of the examples that Mrs. Edwards reviewed. Occasionally, students were organized into groups to work together on work assigned by the teacher. The textbook used in this class was Holt Middle School Math Course 3 (Holt, Rinehart and Winston, 2004) and the instruction using this textbook focused on supporting procedural fluency.

## Participants

Through my involvement with students during my classroom observations, I developed strong rapport with students in the classroom. I selected five $7^{\text {th }}$ grade African American students, with parent permission, to participate in this study. My selection criterion was students who wanted to share their perspective about their experiences in their mathematics classroom during the school year. Because highlighting the perspectives of African American students is
important to improving their classroom and schooling experiences, I decided to focus on African American students, in particular. In the sections that follow, I draw on information I observed and that the students told me to briefly introduce each of the five students: Medina, Jada, Curtis, Opal, and Ty.

Medina was a 13-year old African American female. Her favorite subject in school was English. Her parents and family motivated her to do well in school. She really wanted to make them proud of her. She did not have many friends at school because she only hung out with her cousins. She valued her family and felt that, if someone has family around, then they would always be okay. She thought the harder she worked in school, the more successful she would be in life. Her goal was to become a physical therapist because she liked to help people that needed physical, mental, and emotional counseling. Ultimately, she wanted to help people live a happy life.

Jada was a 13-year old African American female student. Her favorite subject in school was English. She enjoyed dancing and was on the school's step team. She enjoyed school and thought it was very important to work hard. She struggled in mathematics and said that no matter how hard she tried to do well, she did not get the type of grades she thought she deserved. She had an outgoing personality and loved helping people. She wanted to become a nurse in the future, but she worried that mathematics would keep her from becoming one. She stressed that, even though she found mathematics to be difficult, she continued to work hard until she understood it.

Curtis was a 13-year old African American male student. His favorite subject in school was science and he aspired to be a scientist. He was motivated to do well in school so he could attend a university when he graduated from high school. He enjoyed hanging out at his friend's
house and playing games on the computer. He was adamant about making sure he played outside with his cousin instead of staying inside all of the time. He also enjoyed cooking and played in the school band.

Opal was a 13-year old African American female student. She wanted to become a chef in the future. She liked to ask questions in her classes because that showed the teacher that she was paying attention. Her favorite subject was science. She was motivated to do well in school by her mother. Her mother worked hard at home and she wanted to make sure her mother knew she also worked hard at school. She was involved with an after school program that encouraged girls to be physically active.

Ty was a 13-year old African American male student. He was involved in numerous after school activities, such as basketball and track. He lived with his mother and four siblings. He described himself as someone who was very determined to do well, and saw himself as a leader among his peers. His favorite subject was mathematics and he hoped to become an engineer in the future. He was excited about the possibility of attending college one day. His mother motivated him and he talked about having the opportunity to one day take care of her, so she would not have to work so hard.

## Data Collection

The data analyzed for this article consisted of (a) students' written journals, (b) student individual interview transcripts, and (c) field notes. To capture students' perspectives on their experiences in an ongoing way, students wrote journals and participated in individual interviews. These data were my primary data source. I also video recorded classroom sessions, but wrote field notes to capture powerful moments. Powerful moments were instances that related to my previous experience as a mathematics teacher in ways that helped me articulate what I saw in the
classroom. Field notes were treated as secondary data sources because this data helped me understand information the students described in their journals and interviews.

Students' written journals. Each student was asked to write in their journals in order to capture their perspectives on their mathematics class. Students were given prompts that asked them to write about topics such as their participation in class, their understanding of the mathematics they were studying, the challenges and successes they experienced in their mathematics classroom. Students had the freedom to write at least three times a week in their journal on any of the topics provided or to choose to write something that was not associated with a journal prompt. Students were asked to turn in their journals every two to three weeks. There was a range of student journal entries from each student. On average, there were approximately 30 journal entries for each student. I collected and read through their written journals and kept track of topics about their experiences in their mathematics classroom that I wanted to probe further in interviews.

Student interviews. The student interviews took place after the first teacher left, beginning in November, and occurred approximately once a month for a total of seven interviews with each student. At the time of this analysis, I had eight interviews total. Each interview lasted between 45-60 minutes. These interviews took place after school, in the library, at a time that was convenient for the student. The interviews were semi-structured, in order to probe aspects of students' mathematics experiences and to allow me to ask clarifying questions about my interpretations of their written journals. Interviews were transcribed verbatim. The interviews included questions like, "What's going well for you in your mathematics class?" and "Talk about your least favorite moment in your mathematics class. Explain." I also asked students questions based on my observations in the classroom. For example, if I saw students
placing their heads on the desk multiple times, I asked them whether they were tired or uninterested in the topic or if there might be another reason they did that.

Field notes. I recorded field notes each time I observed in the mathematics classroom. As Emerson, Fretz, and Shaw (1995) pointed out: "field notes provide a distinctive resource for preserving experiences close to the moment of occurrence, and hence, for deepening reflection upon and understanding those experiences" (p. 13). In my field notes, I recorded powerful moments along with the time an event happened so I would know what video recording to refer to when I conducted interviews and/or analyzed data. For example, if a student seemed to be acting out in a ways that were very different from what I previously witnessed during classroom observations, I recorded the following: "On 1/15/15 at 12:15, Medina has not completed her assignments in class for the past two days. She sat there and talked with her neighbor. Ask Medina why she did she is not completing her assignments in class." The field notes also contained summaries of informal conversations between teachers and students. For example, if a student entered the classroom and went up to his/her teacher and asked how she was doing, I would write such an observation down because I wanted to capture as many student-teacher interactions that took place in the classroom. There were times when these conversations occurred off the video camera, so I made sure to write down a summary of what was discussed in order to follow up with the students during the interviews. Any insights as well as problems or concerns that occurred during classroom observations were also recorded in field notes and used to guide future data collection (Guba \& Lincoln, 1998; Miles \& Huberman, 1994) and data analysis.

## Data Analysis

I started the data analysis by looking for recurring themes in student interviews. I transcribed student interviews and read through students written journals after I talked with all
five students. Transcribing interviews right after they were conducted allowed me to get a better sense of what the students focused on. During these iterative analyses, I noticed students focused on building a positive student-teacher relationship. I then listed every time students mentioned information that spoke to a student-teacher relationship. Within those instances, I looked for more specific themes about how students framed their relationships with their teacher. For example, if a student stated they did not trust their teacher, so they did not ask questions that might help their mathematics understanding, I coded this response as "trust/mathematics learning" since they mentioned trust as it related to their learning. If a student noted that the teacher did not care about him/her, because she did not get to know her/him, then I coded that response as "care/getting to know student."

As a result of these analyses the following themes arose as important to students' perspectives: (a) engaging with their teacher in ways that related to teaching and talking, (b) having effects on one's mathematics learning, and (c) initiating caring relationships with their teacher. Engaging with their teacher in ways that related to teaching and talking was coded whenever students said they tried to engage in conversations that would allow them to get to know their teacher and their teacher to get to know them, as well as interactions with learning mathematics. Having effects on one's mathematics learning was recognized whenever students mentioned that they thought having a relationship with their teacher had effects on their mathematics learning. Relationship in this theme included a positive, caring and/or trusting relationship. I looked for ways students described themselves in relation to their teacher establishing (or not) a relationship with the students. Initiating caring relationships with their teacher was coded whenever students said they took it upon themselves to ask Mrs. Edwards questions in order to get to know her better.

## Findings

This section highlights the perspectives of five African American middle school students as they experienced teacher turnover in one academic school year in their mathematics classroom. The findings suggest that, similar to other research on relational benefits in the classroom, the students valued positive caring and trusting relationships with their teacher. I organize my findings based on what students discussed as they talked about their experiences regarding their new mathematics teacher, Mrs. Edwards. Students shared information that captured their perspectives on how and why caring mattered for them. These topics included: (a) meaning subtly different things when the teacher "talks" versus "teaches", (b) needing caring and trusting relationships due to the effects on their mathematics learning, and (c) initiating a caring student-teacher relationship with their new teacher, Mrs. Edwards. I illustrate these further in the following sections.

## Wanting the Teacher to Both "Talk" and "Teach"

This section highlights the students' descriptions of wanting to engage in interpersonal dialogue ("talking") as a feature of teacher-student relationships, as opposed to their teacher's seemingly exclusive attention on mathematics instruction ("teaching"). The students perceived that Mrs. Edwards was not interested in participating in interpersonal dialogue (talking) with them, and would only communicate with them if the focus of the conversation was mathematics (teaching). This seemed to engender feelings of disappointment among the students. For example, Medina shared that Mrs. Edwards did not want to get to know them when she first arrived as a new teacher to their 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's reflections highlight this difference between talking and teaching. Mrs. Edwards spoke to the class constantly because she primarily lectured about mathematics. Medina's contention that Mrs. Edwards "does not talk to us at all" seemed to suggest that Medina was not referring to all types of speech when she used the phrase "talk to." Instead, she seemed to distinguish between teaching and talking, where teaching referred to classroom speech that was used to convey information about mathematics and talking referred to interpersonal speech or to speech intended to understand and get to know more about the students in a classroom. Medina also provided a suggestion that her teacher could do ("tell me two or three things about you") to show she cared. Medina may have felt as if she received care if Mrs. Edwards expressed an interest in getting to know her. Also, getting to know students may be an aspect of teaching that is associated with the beginning of school activity as opposed to a key component of effective mathematics teaching, more generally.

In addition to discussing how Mrs. Edwards did not try to get to know the students in the class when she first arrived, Medina noted that Mrs. Edwards seemed resistant to Medina's attempts to get to know her. Medina felt that her efforts at interpersonal talk were not acknowledged. She shared:

At the beginning of class, I would come in and ask her how she was doing. She would just say, "Fine. Go sit down," or not answer me at all. Then one day she was not at school because I heard her kid was sick. I would ask her how he was doing. She would just reply with one-word answers...I am done getting to know her.

Medina's attempts to initiate interpersonal talk with Mrs. Edwards about "how she was doing" and the welfare of her son seemed to be rebuffed. When Mrs. Edwards appeared to ignore Medina, or when she offered one-word answers in response to Medina's questions, Medina
expressed frustration. Because Mrs. Edwards did not take up Medina's attempts to have interpersonal interactions, Medina did not want to continue to get to know Mrs. Edwards on a personal basis. Ferreira and Bosworth (2001) found that a caring teacher exhibits behaviors that foster relationships, which included getting to know students. Because Medina did not experience her teacher making the effort to get to know her, she may have assumed Mrs. Edwards did not care about her.

The ways that Medina seemed to distinguish between teaching and talking emerged during interviews with other participants as well. Jada shared an experience that supported the presumptions that Medina made about Mrs. Edwards' lack of interest in engaging in interpersonal talk. Jada and other students overheard Mrs. Edwards talking to Mrs. Brown about breastfeeding, so they were aware that Mrs. Edwards had a young child. Like Medina, Jada expressed interest in Mrs. Edwards' family life. She stated,

She just had a baby, so I would ask her about that and she would not tell me anything. I just said forget it and stopped trying. I am not going to keep trying to get to know someone and they don't want to get to know things about me.

Jada wanted to talk with Mrs. Edwards' about her life outside of the classroom. For her, a meaningful teacher-student relationship seemed to include interpersonal talk about out-of-school experiences and interests, such as conversations about Mrs. Edwards' child. If Mrs. Edwards learned more about Jada's life outside of school, she may become a teacher who "cares with awareness" (Bartell, 2011, p. 53) because the information Mrs. Edwards would learn could speak to Jada's culture and/or race. Like Medina, however, Jada determined that it was not worth the attempt to continue to pursue a relationship with the teacher when Mrs. Edwards seemed
unresponsive. In my final interview with Jada, she emphasized the importance of interpersonal talk in teacher-student relationships:

I was not able to have a relationship that lasted long with Mrs. Brown because she left. I feel like she at least tried [to get to know us]. But she decided to leave us and the new teacher doesn't really talk to us. I wanted to get to know her because we would be here most of the year.

Jada shared that she was unable to have a relationship with Mrs. Brown "because she left," a statement that implied Jada wanted to get to know her former teacher. My observations noted that during the first week of school Mrs. Brown asked students to tell her about themselves and would occasionally ask about those things throughout the time she was there. For example, one student sang in the choir, so Mrs. Brown would ask him if he had any upcoming recitals. When Jada insisted that Mrs. Edwards, "doesn't really talk to us", she may have been contrasting this with her sense of Mrs. Brown, thus inferring that Mrs. Edwards was refusing to get to know her. This distinction seems to support Medina's above noted distinction between teaching and talking. This aspect seemed important to Jada because she pointed out that Mrs. Edwards would be there for "most of the year."

Ty's aspiration for interpersonal talk with his teacher also went unmet. He expressed frustration that his understanding of Mrs. Edwards was limited to the classroom. He noted, "Mrs. Edwards is my math teacher, but we don't talk that much. I just ask her questions about math and that's it. She is just somebody that teaches me math and that's it." When I asked Ty to elaborate on the type of relationship that he might want with Mrs. Edwards, he shared, "The students and teacher should do things that bring us closer. I think every teacher should try to have a relationship with the students and teach math." Ty's statement echoes Noblit, Rogers, and

McCadden (1995) who found that caring student-teacher relationships helped encourage students' academic and social development. Ty acknowledged Mrs. Edwards' attempts to support students' academic development, but the social component was missing. Ty thought teachers should spend time getting to know their students. This statement about his teachers went beyond his mathematics teachers, to "every teacher."

My classroom observations supported Medina, Jada and Ty's descriptions of their experiences. In addition to students reporting this issue in interviews, I also observed them making several attempts to get to know their teacher by asking her questions. For example, some students would come in and ask her how she was doing. The students rarely got a reply from Mrs. Edwards. Students acknowledged the difficulties that arose as they attempted to build a relationship with Mrs. Edwards. Students wanted their teacher to engage in interpersonal dialogue (talk) to build a caring student-teacher relationship. They also expressed a need for their teacher to establish a relationship in addition to teaching mathematics. All of the students recognized and voiced the importance of talking with Mrs. Edwards in order to build a positive student-teacher relationship. This does not mean, however, that they were not also interested in learning mathematics from her. In the next section, I highlight the students' perspectives that named explicit connections between wanting a student-teacher relationship and students' mathematics learning.

## Caring and Trusting Relationships are Important for Students' Mathematics Learning

Students articulated how the relationship with their teacher was foundational to their mathematics learning. Students described the importance of a quality and/or caring teacherstudent relationship. Opal noted,

If I get to know her and she gets to know me, it will help me do better in mathematics. Math is hard. If I get to know her, I won't be afraid to ask her questions when I am confused.

Opal mentioned she wanted to develop a positive and caring relationship with Mrs. Edwards because familiarity with one another's interests would, I presume, help Mrs. Edwards get to know Opal's strengths and weaknesses when learning mathematics content. Opal seemed to think that an ideal relationship with her teacher was a reciprocated one, wherein both individuals got to know each other. She then continued to locate this reciprocity as being important to her doing well in mathematics. Opal asked questions as a method to help her in mathematics and getting to know her teacher would alleviate her fears of asking questions about mathematics in class. Because of the lack of relationship building with Mrs. Edwards, Opal may not have thought Mrs. Edwards could help her reach her potential. This view of a caring relationship aligns with Schussler and Collins' (2006) definition of care, which stated a caring relationship between people is marked by a desire to help others reach their potential. I asked Opal to expound upon her comments about how getting to know her mathematics teacher would help her do better in mathematics. She stated, "Well, if I don't know something I won't be embarrassed to ask her questions." In this statement, Opal discussed the feeling of discomfort when she asked Mrs. Edwards a question about something she did not understand. If Opal had a relationship with Mrs. Edwards that involved reciprocity, embarrassment would be less of an issue. Opal admitted mathematics was challenging for her to grasp, so the frequency of Opal's feelings of embarrassment may habitually occur in the classroom. Hackenberg (2010) discussed affective characteristics when learning mathematics such as enthusiasm and relatedness, but it is also
important to acknowledge some negative emotions that might be common, such as embarrassment, which students experience when learning mathematics.

Similarly, Curtis said he did not want to learn mathematics from someone he did not know. He noted, "I don't want to learn math from someone I don't know....I don't know why I feel that way, I just don't want to." He saw Mrs. Edwards every day, but he seemed to want to know more about her than what she showed him through teaching mathematics. Knowing his teacher seemed to be a prerequisite to him being motivated to learn from her.

Other students also indicated the ways in which a lack of a caring relationship with their teacher affected their mathematics learning. Jada noted that learning from Mrs. Edwards played a role in her performance in her mathematics classroom. She stated, "If she cared about me, she would help me in class. I don't always understand what is going on and if my teacher helps me I know she cares about me." To Jada, if Mrs. Edwards cared for her then she would push her to succeed academically. Students acknowledged that a caring relationship would enhance their mathematics learning experiences in their classroom.

Some students discussed their experience with what they seemed to think of as a lack of care in relationship to their work on mathematics assignments. Curtis stated,

I don't think my teacher cares if I get the math or not. I mean sometimes I can't just work by myself and need to work with somebody else to get it. If she forces me to work by myself, I think she doesn't care about me and if I ever know what is going on in class. Here, Curtis talked about his perspective on his teacher's care for him and his mathematical understanding of topics. He viewed a caring student-teacher relationship as one where Mrs. Edwards supported him by allowing him to work in a way that would help him "get it." Because the teaching in the mathematics class was procedural, I could not presume whether Curtis was
referring to following the steps or understanding the mathematics as "getting it" to encourage his understanding in mathematics.

Medina stated that if Mrs. Edwards would show she cared about her, then she would increase the efforts she put into class. She said, "If I know my teacher cares about me, I will try harder. I don't know why, but I would want to make her happy." This statement echoes other educational literature about students putting forth more effort when they know they have a caring relationship with their teacher (Stipek, 2006). Medina admitted to trying hard in mathematics in order to please her teacher. For Medina, a caring relationship was necessary for mathematics learning to take place.

Noddings (1992) stated caring student-teacher relationships are essential to the formation of interpersonal commitments. Students discussed their feelings towards the lack of a trusting relationship with their teacher. Students did not separate interpersonal aspects and mathematics learning, so these two concepts should both be taken as important for student learning. Jada noted that learning from Mrs. Edwards played a role in her performance in her mathematics classroom. She stated,

If I don't trust a teacher, it's hard for me to know she is looking out for me. I don't always understand what is going on, so if I happen to do bad on a test, I have to be able to trust that you will help me understand it. It is really important for me to be able to trust my teacher, especially my math teacher because that is a hard class for me.

A trusting relationship for Jada meant that Mrs. Edwards would look out for her when Jada attempted to understand the mathematics topics. Jada may have felt vulnerable when she struggled with the content, because she found mathematics to be more challenging than other subjects.

Jada's example highlighted another common piece of relationships that students noted: the importance of trust. Some students seemed to indicate a lack of trust in Mrs. Edwards in relationship to their work on mathematics. They identified behaviors, such as Mrs. Edwards asking students to stop talking to their peers without listening to specifics of the conversation, as examples of this lack of trust. In some cases (like Jada's), they seemed to indicate that they did not trust Mrs. Edwards. In other cases, they seemed to indicate that Mrs. Edwards did not trust them. Curtis, for example, stated,

She doesn't trust us. I am confused why she does not give us a chance. You [mathematics teacher] are the one who came in out of nowhere. I'm not just talking, I am doing the assignment you gave us...Like, when she sees us talking, and immediately says, "Stop talking." She doesn't even think we are talking about math. We are talking about math, but she always thinks we aren't.

Curtis was perplexed as to why their teacher did not trust them as the semester progressed. Because the teacher "came in out of nowhere" Curtis suggested that he felt the onus was on the new person to take the initiative to begin a trusting student-teacher relationship. He also discussed his need to talk about mathematics with his peers. He noted that he was unsure why Mrs. Edwards did not trust them to work with their peers and stay on task. Perhaps if Mrs. Edwards trusted her students to stay on task when they were supposed to, she would have assumed the conversations were about mathematics. Curtis wanted Mrs. Edwards to trust that he and his peers would complete the work that was assigned to them.

Medina discussed Mrs. Edwards' academic expectations based on the assignments given by her teacher. She stated, "She doesn't trust that we will understand the math, so she always gives us worksheets. They are easy and I know I can do harder work." Medina was aware of the
type of worksheets that, from her perspective, included low-level tasks that did not challenge her. Medina attributed the type of worksheets her mathematics teacher assigned as indicating a lack of trust that the students were capable of understanding the mathematics. She also expressed her ability to complete assignments that had a higher cognitive demand than the worksheets she was assigned.

In summary, students spoke about mathematics learning and its connection to a caring and trusting relationship. Students wanted their teacher to show care to alleviate their fears about asking clarifying questions and to mitigate their embarrassment when they were confused about a mathematics concept. Students also discussed the need to develop a trusting relationship in order to know their teacher would help them when they needed it and wanted her to trust that they would do the mathematics when asked. Students not only wanted to get to know their teacher, but they also wanted Mrs. Edwards to get to know them because it would aid students' learning in their mathematics class. Students knew caring and trusting relationships were consequential for their mathematics learning. Yet, the students realized Mrs. Edwards was not working to build those relationships.

## Working to Build a Caring Student-Teacher Relationship with their New Teacher

Interpersonal dialogue was important to students and Mrs. Edwards did not take up this type of dialogue; the students tried to initiate this type of interaction in order to get to know Mrs. Edwards. Their attempts to do so, however, did not seem successful from their point of view, so they eventually stopped trying. In the context of teacher turnover, students felt that their new teacher, Mrs. Edwards, did not work to build relationships with them that were built on care. Students experienced their previous teacher making efforts to build a positive relationship with them. According to many of these students, they did not receive care from their teacher, which is
a requirement of Noddings' (1992) conceptualization of care. Students responded to teacher turnover by trying to build a caring student-teacher relationship with Mrs. Edwards. Students seemed to have failed at attempts to build a caring relationship, and eventually stopped trying to build a caring student-teacher relationship. Medina stated, " I really wanted to get to know Mrs. Edwards, but she didn't want to get to know me. I tried, but I am not going to try anymore." As stated earlier, Medina wanted to learn more about Mrs. Edwards, but she felt like that was not reciprocated. So, Medina stopped initiating these kinds of interactions

Curtis described how he tried to build a caring relationship with Mrs. Edwards.
He noted,
I would come in [the classroom] and see her [Mrs. Edwards] look mad or really busy. I would ask her if she is OK. She would just say yes and then ask me what am I supposed to be doing. I just stopped asking her stuff like that.

Curtis' attempts to build a caring relationship with Mrs. Edwards involved asking her a question when he noticed something was wrong. Curtis saw this as taking an initiative to build a relationship by asking if Mrs. Edwards was OK. Even though Mrs. Edwards answered Curtis’ question, he was not satisfied with her response. His comment, "she would just say yes" indicated he wanted a more thorough response from Mrs. Edwards or perhaps he wanted her to ask him how he was doing.

Jada also realized Mrs. Edwards was not working to build caring student-teacher relationships with her students, so she initiated by asking Mrs. Edwards questions; eventually Jada gave up. Jada stated, "I wanted Mrs. Edwards to get to know me like Mrs. Brown did. When she didn't, I tried to get to know her, but it didn't work." When I probed Jada about the ways she was trying to get to know Mrs. Edwards she stated, "I would ask her how she was
doing...when we were working I asked her if she likes doing math." Jada made attempts to build a positive relationship with Mrs. Edwards by asking her questions that helped her get to know her teacher. She seemed to be impacted by Mrs. Brown in her attempts and found that, unlike Mrs. Brown, Mrs. Edwards seemed uninterested.

Ty stated that he also made an attempt to talk to Mrs. Edwards when she first came into the class, but he was not successful. He stated,

I try to talk to Mrs. Edwards, but it doesn't work. Maybe if we had more time with her, she would see I tried.... now it's at the end of the year, so I am done trying to talk to her. I just walk in and sit down to do my work.

Because Mrs. Edwards entered the classroom during the school year, students did not have a full academic school year to begin to build a positive student-teacher relationship through getting to know each other. Ty gave up on the idea of a positive relationship with Mrs. Edwards by learning more about her. He also recognized that the limited amount of time he had to get to know Mrs. Edwards. He seemed to wonder if more time to engage with Mrs. Edwards would have helped, but acknowledged that he had given up.

My classroom observations validated Medina, Jada, Ty, and Curtis' descriptions of their experiences. In addition to students reporting this issue in interviews, I also observed them making several attempts to get to know their teacher by asking her questions. For example, some students would come in and ask her how she was doing. The students rarely got a reply from Mrs. Edwards. I will briefly note, however, that there were times when she was busy trying to transition to a new class coming in or talking with students who just finished her class. Thus, some of the students' attempts to interact with her may have been hindered by the structure of the school day. The students felt Mrs. Edwards did not seem to value or recognize the role of
student-teacher relationships in mathematics teaching and learning. The students tried to combat this by working to try to get to know her and to be the initiators in the relationship building, but they recognized that Mrs. Edwards did not reciprocate or take up their initiations.

## Discussion

The findings in this article advance an area that is understudied, yet fairly commonplace for urban students: students' perspectives on their mathematics education experience in the context of getting a new teacher in November of their school year. This article, in particular, focuses on five African American middle school students' perspectives on their new mathematics teacher after losing their first teacher during the school year, and highlights aspects of relationships that are important to students in their mathematics classroom. In this section, I discuss three points: (a) students interpret Mrs. Edward's exclusive attention to mathematics as not caring for them; (b) the importance of the social norm in which the teacher is seen as needing to initiate a trusting and caring relationship with students; and (c) pressures that may prevent teachers, who enter the classroom during the school year, from building a caring student-teacher relationship.

First, the findings showcased how students interpreted Mrs. Edwards' exclusive attention to mathematics as her not caring for them. The students stated that Mrs. Edwards liked to talk about mathematics and engage with students about mathematics, but students noted the absence of their teacher attending to their interpersonal relationships. Therefore, students felt unsupported as they learned mathematics. Students wanted a caring and trusting relationship with Mrs. Edwards and for her to notice their commitment to learning mathematics. In this case, students reported that the lack of a caring and trusting relationship with their teacher effected their mathematics learning. Students did not want to ask clarifying questions or even state when they needed additional help with the mathematical content because the teacher did not establish or
reciprocate a caring or trusting relationship. Students in this study reinforced the importance of relational aspects of teaching. In fact, the students' perspectives in this study echoed Battey's (2013) argument that educators should not overlook the "relational and cultural aspects of the classroom if they want to understand access to mathematics for students of color" (p. 142). Also, the students wanted aspects of personal care (Schussler \& Collins, 2006), such as getting to know them through interpersonal dialogue, in their mathematics classroom. For example, these aspects are arguably even more important when a teacher enters the classroom part way through the school year because students have already experienced a sense of loss of another adult. Regardless of the time of the year a teacher enters the classroom, these findings suggest that students' learning requires a caring student-teacher relationship. When students experience the loss of a teacher and they are students who have been historically marginalized in mathematics education (and school), caring and trusting relationships can be especially important to their success. When working with African American students whose teacher chooses to leave them, alongside the issues of trust they feel in school, it is imperative that students know that their teacher has their best interest when she works with them.

The first two findings from this study also raise questions about research that calls for the separation of relational aspects from content-related learning. Although there have been some debates in mathematics education that indicate content-related learning must be centrally focused on the mathematics (e.g., Heid, 2010), the findings reported here suggest that the question Martin, Gholson, and Leonard (2010) raised about context are certainly part of students' learning experiences and must not be ignored. The students in this study called for teachers "talking" to them and pointed out that they were not going to ask their teacher for help unless they trusted her. These are important aspects of these students' context that would be missed if students'
perspectives were not taken into account.
Second, literature in mathematics education addresses the negotiation of classroom norms or expectations and often focuses on the beginning of the school year in classrooms and primarily highlights the teacher as the person who establishes these norms. When students lose a teacher with whom they have already established some type of relationship, however, who should be responsible for beginning to establish caring relationships in classrooms? How might this negotiation feel when students find themselves in contexts in which they have multiple teachers even in a single school year? As the findings illuminate, students tried to initiate relationships multiple times during the school year because of their experience of teacher turnover. Yet the students felt these initiations were dismissed or went unrecognized. Although reciprocal interactions are important in caring and trusting relationships, a closer look at who initiates that relationship is vital for students. This initiation relates to the norms negotiated by teachers in the classroom. In this case, the students expected the relational norms (such as initiating trusting and caring relationships) to be the teacher's responsibility. When the teacher did not develop this kind of student-teacher relationship, students tried to initiate the relationship they wanted to have with their teacher. The teachers' role in initiating norms, such as caring student-teacher interactions, is important when one considers the control and authority a teacher has of the mathematics content and their responsibilities in the classroom.

Third, students described what they perceived to be a lack of effort on Mrs. Edwards' part towards building caring and trusting relationships with them. There were times when students also seemed to notice that this could be related to the stress she was under with having been placed in a new classroom in November. They recognized that sometimes Mrs. Edwards seemed stressed as she gathered materials in preparation to teacher their Pre-Algebra class.

Though students in this study interpreted this as Mrs. Edwards not being caring or trustworthy, the contextual reality of urban schooling might make it difficult for urban teachers to express care, especially under these conditions of rotating into classrooms after the school year has begun. Institutional and structural barriers might limit teachers' ability to "demonstrate their care for and to connect with students" (Milner \& Tenore, 2010, p. 568). These barriers include, for example, a focus on preparing students for standardized tests and a lack of administrative support. These barriers, however, should not impede working to support students in these kinds of situations. Perhaps some barriers when the teacher first enters the classroom are immediate (e.g., following curriculum given by the district), which may come across as a teacher not caring (Milner \& Tenore, 2010). These authors suggest the use of culturally relevant management skills that pay attention to cognitive and social needs of their students.

This paper examined five African American students' experience with a teacher who, from students' perspectives, did not engage in a caring relationship. Students explained what they needed in order to begin to develop a caring student-teacher relationship. Students also felt that their new teacher, Mrs. Edwards, was not working to build relationships with them and did not seem to value or recognize the role of teacher-student relationships in mathematics teaching and learning. The students tried to combat this by working to try to get to know Mrs. Edwards and by acting as the initiators in the relationship building.

## CHAPTER 3: UNDERSTANDING AFRICAN AMERICAN STUDENTS’ PERSPECTIVES: RESISTANCE IN A MATHEMATICS CLASSROOM IN THE CONTEXT OF TEACHER TURNOVER

Teacher turnover remains a long-standing problem in education (Keigher, 2010). This is particularly true in high poverty schools and urban schools (Ingersoll, 2011; Simon \& Johnson, 2015). Research examining the phenomena of teacher turnover has tended to look at the effects of teacher turnover on student achievement (e.g., Ronfeldt, Loeb, \& Wyckoff, 2013), which kinds of teachers tend to leave the teaching profession (e.g., Marso \& Piggee, 1991; Miech \& Elder, 1996), and the conditions of schools that impact teachers' decisions to continue teaching in such contexts (Ingersoll, 2001). High poverty schools experience a turnover rate that is approximately $50 \%$ higher than suburban schools (Ingersoll, 2001). More recently in a National Center for Education Statistics (NCES) survey, it was reported that approximately $13 \%$ of public school teachers move or leave the profession each year (Keigher, 2010). Consequently, students attending schools in urban areas experience inconsistent staffing of teachers from year-to-year, as well as many new teachers entering the school who are novice teachers (Hemphill \& Nauer, 2009). Because students in urban contexts experience frequent loss of teachers, hearing their perspectives on this experience can help educators and researchers better understand and provide support for their teaching and learning in such a context. But little is known about how students describe their experiences in the context of teacher turnover. Moreover, little research considers the perspectives of students, and even less, the perspectives of African American students (Howard, 2001; Lee, 1999). Yet researchers have documented the importance of student perspective in supporting teachers in the classroom (Cook, 2002; Howard, 2002; Jansen, 2006).

As I entered this year-long study, I intended to listen to students' perspectives on and experiences with teacher turnover in their mathematics class. I did not enter the data collection and analysis looking for student resistance towards their teacher and/or or classroom practices. Student resistance, however, became a pervasive focus that arose from my observations and during student interviews when they discussed their experiences in their mathematics class. Similar to the paucity of work on students' perspectives on teacher turnover, little attention has been given to student resistance and the ways student resistance affects student achievement in mathematics (Kitchen, 2003; Martin, 2006; Stinson, 2004). Listening to students can be an important step towards gaining an understanding of what, how and why students resist in the mathematics classroom, especially in a context in which a new teacher entering the classroom after the school year disrupted students' learning experiences. Insights about student resistance, from their perspectives, can help educators' better support students in the classroom.

According to Lindquist (1994), "the concept of resistance becomes problematic when someone defines another person's behavior as resistance, because to do so always requires interpreting (and, therefore, potentially misinterpreting) the other person's behavior, motives, and attitudes" (p. 1-2). Thus, resistance studies could benefit by considering resistance through attending to students' voices in order to understand the reasons behind their behaviors rather than making assumptions. It is important to highlight the voices of marginalized groups not only to better understand their experiences but also to learn about ways to better support their schooling experiences. In particular, this study focuses on the perspectives of five African American students who talk about their experience in their mathematics classroom after their first teacher left during the school year. This article discusses students' perspectives as they described what, how and why they resisted in their mathematics classroom in the context of students
experiencing teacher turnover. I end this article with implications for how teachers can understand and recognize resistance in order to improve students' learning conditions in mathematics classrooms in urban schools.

## Significance of the Study

The potential to learn about schooling experiences from the perspective of African American students is consistently overlooked in favor of information garnered through large data sets and the one-size fits-all remedies these kinds of studies inspire (Irizarry, 2011). When African American students' perspectives are placed at the center of the discussion, educators find out what works for students in the classroom, which may empower them to do their best work (Howard, 2002). An understanding of schooling from students' perspectives may also help schools to identify and target critical areas for students, which may in turn, direct educators to focus on relevant resources needed to promote better student experiences (Mitra \& Gross, 2009). Students grapple daily with making connections, decisions, and choices about fulfilling adults’ expectations, yet "the significance of students' experiences is neither well understood, nor commonly explored" (Rubin \& Silva, 2003, p. 1). The students whose perspectives I share here experienced disruption, alienation from the learning process, and loss of a teacher with whom they felt a connection. The new teacher coming into such a setting may experience backlash or resistance from the students that may be difficult for the new teacher to navigate. This article showcases a small group of African American students' perspectives in relationship to what, how, and why they resisted aspects of the new teacher's classroom practices and her interactions with them.

## Theoretical Framework

In this article, I draw upon critical theory. Critical theory is a large, ever changing, meta or über-theory oriented toward critiquing and changing society as a whole, in contrast to
traditional theory, which is oriented only to understanding or explaining it (Giroux, 2008; Kincheloe \& McLaren 2008). Critical theory debunks that there is one way of seeing and knowing. Critical theory does not outline specific practices, but the framework seeks to help students and teachers to become critical with intentional ideas to advance student engagement (McLaren, 2003). In this case, student engagement was achieved by my carefully listening to students' perspectives on their mathematics classroom. Their voices highlighted descriptions of their resistance as they experienced having two different teachers in one school year.

Critical theorists reframe oppositional behavior as resistance, and they see this as hope for transformation of oppressive structures (Giroux, 1996). The transformation of oppressive structures can consist of engaging people who have been marginalized and dehumanized by drawing on what they already know (Freire, 1970). This viewpoint helps educators utilize the contexts that students engage with both inside and outside of schools. I used critical theory to examine students' perspectives on their experiences in their mathematics classroom because it allowed me to "examine patterns in their lives in such a way to discern the nearly hidden structures that shape their lives" (Lincoln, 1995, p. 92). Hidden structures refer to inadequate resources (e.g. scripted curriculum, equipment, etc.) that offer incentives for students and teachers to thrive. This theory also allowed me to examine African American students' perspectives that offer insight into the oppressive structures they felt in their classrooms.

## Literature Review

These sections of the article review how scholars have defined resistance, highlight various categories or types of resistance previous scholars have offered, describe what students might resist, how students resist, and illuminate why students resist. I end this section by stating how this study fills the gap in this literature on students' resistance.

## Resistance Defined

There have been several definitions of resistance in educational literature (e.g., Giroux, 1983; Solorzano \& Delgado Bernal, 2001; Willis, 1981), many of which emphasize oppositional behavior that works to actively undermine, or at least protest, oppressive structures in some kind of way. Willis (1981) noted resistance has been thought of primarily in terms of how students sacrifice their own learning. He went on to say that the term resistance could have different nuances (e.g., social, educational, and political). Politically, hooks (1994) and Giroux (1983a) defined resistance as actions that are against the status quo. Giroux went on to say that resistance could consist of conscious or unconscious acts against dominant structures that may align with oppressive behaviors. Raby's (2005) definition of resistance also included naming the dominant structures or power relations that are being resisted: "resistance is oppositional, aiming to disrupt, or gain the upper hand in, what actors perceive to be dominant power relations" (p. 153). Power relations here highlight "philosophical or ideological differences between an individual and an institution" (DeMarrais \& LeCompte, 1999, p. 138).

In education, McLaren (1985) defined resistance as "oppositional student behavior" (p. 85). In other words, resistance is behavior that may protest or undermine oppressive educational practices that may or may not hinder what and how students learn. In this article, I used McLaren's definition of resistance to highlight students' oppositional behavior. Initially during my classroom observations, I witnessed oppositional behavior from the students. Once I listened to students' perspectives about their experiences with respect to student resistance, I used the literature to better understand how students described their experiences and McLaren's broad definition helped me account for students' perspectives related to what, how, and why they resisted in their mathematics classroom. I introduce additional types of resistance in this section to showcase oppressive conditions that the students mentioned about their experience.

## Types of Resistance

Although students may display "oppositional behaviors" as a way to resist, these behaviors could be intentional for various reasons. Resistance can be motivated by social justice (Solorzano \& Delgado Bernal, 2000; Giroux, 1983b), can happen collectively or individually (Raby, 2005), and can be passive or aggressive (Roy, 2000). Solorzano and Delgado Bernal's (2001) categorization described resistance as a range from less productive (e.g. dropping out of school) to more productive ones (e.g. explicitly critiquing signs of oppression and motivated to make changes). In other words, these categories highlight the fact that when students resist oppressive structures, they can sacrifice their own learning. These authors also acknowledge that productive forms of resistance can be seen as early forms of agency towards educational change. Solorzano and Delgado Bernal (2000) named four different types of productive and unproductive resistance: 1) reactionary behavior, 2) self-defeating resistance, 3 ) conformist resistance, and 4) transformational resistance. Students demonstrate reactionary behavior when they neither critique oppressive conditions nor are motivated by social justice (e.g., behaves poorly in class). When students critique oppressive conditions but are not motived by social justice, they engage in self-defeating resistance (e.g., someone who has an opinion of a condition, but is not motivated to change that condition). Students display conformist resistance when their behavior is motivated by a need for social justice, but their oppressive conditions are not addressed (e.g., someone works within the existing conditions, but may blame themselves or family for the conditions). When students have the desire for social justice and critique their conditions, they engage in transformational resistance. Solorzano and Delgado Bernal (2001) noted that this last type of resistance results in social change. Transformational resistance displayed by students can be internal or external. Internal resistance may look like someone is conforming to the oppressive conditions, but they are consciously engaged in a critique of the condition. External
resistance includes more overt behaviors that do not conform to norms and expectations. These authors noted both types of transformational resistance are equally important in the struggle for social justice. Other types of resistance can include individual or collective behaviors that may resist dominant power relations.

Similar to Solorzano and Delgado Bernal (2000), Raby (2005) illuminates types of resistance that may or may not promote social change. She suggests adolescence is a time that resistance to dominant structures can readily occur because youth are encountering awareness of the world around them. In an attempt to answer the question, "What is resistance?" she described four different types of resistance: 1) active, collective, 2) active, heroic, 3) passive, collective or heroic, 4) appropriation. Not only does the author provide a description of the various types of resistance, but she also provides examples, and weaknesses of each type of resistance. Active, collective is noticeable resistance against power relations with a "goal towards social change" (Raby, 2005, p. 153) (e.g., walking out to protest), which could possibly "produce new hegemonic effects" (Raby, 2005, p. 153). Active, heroic is an individual action to move towards social change against a dominant group (e.g., challenging the teacher), which could result in small level changes. Passive, collective or heroic is indirect and less explicit and does not have a goal of social justice (e.g., students being unengaged in class). This last type of resistance does not do much to challenge the status quo (Raby, 2005; Roy, 2000). Raby (2005) described this type of resistance as someone taking symbols and using them in ways to make a statement to deal with various dominant structures (e.g. the way Mods and punks dress). A limitation of this type of resistance is the fact that real change does not occur. Although Solorzano and Bernal Delgado (2000) and Raby's (2005) categorizations do not completely overlap, there are some similarities. Some of the types of resistance described by the authors had a social change
component, which can occur collectively as a group or individually. There was also a type of resistance that was "self-defeating" (Solorzano and Bernal Delgado, 2000) or "passive" (collective or heroic), which is not beneficial to the individual resisting and at times may hinder his/her learning.

In addition to describing passive resistance, Roy (2000) found students could be aggressively resistant (e.g., disruptive behavior that results in students getting kicked out of class). These articles highlight various types of student resistance that can take place in various forms. Student resistance may motivate students towards social justice (Solorzano \& Bernal Delgado, 2000), be individual or collective (Ray, 2005), and can occur passively or aggressively (Roy, 2000). These types of student resistance among the various authors are not mutually exclusive. For example, a group of students (collective) could disengage in class (passive). Although these broader categories are useful for considering student resistance, it is also important to consider what, how, and why students resist in order to better understand how resistance may affect students learning experiences in their mathematics classroom.

## What Students Resist

Authors have described multiple things that students resist in the classroom. Frequently, resistance stems from opposition to greater social factors that are reflected and reinforced in school, such as racism or sexism, or social reproduction taking place within schools (Dickar, 2008; Giroux, 1983; Munns \& McFadden, 2000; Willis, 1977). McLaren (1985) illuminated the power structures that students resisted in their schooling experiences. He goes on to say that students "contest the legitimacy and significance of school culture in general and instruction in particular" (p. 85). In relation to instructional strategies, Lubienski (2000) found that students from low socioeconomic backgrounds demonstrated greater resistance to challenging problem solving approaches than to learning mathematics with their peers. In addition to resistance
towards teaching strategies, students can also reject the actual content being taught in the classroom (Aggleton, 1987). This literature is by no means an exhaustive list of what students resist, but rather serves to highlight examples of the kinds of things students resist that have been reported previously in the literature.

## How Students Resist

Although some scholars suggest resistance is more than a particular set of actions (Shor \& Freire, 1987), some scholars focus on the kinds of actions people take or how people resist (Abowitz, 2000; Dickar, 2008; Olafson \& Field, 2003; Walker \& Sylvester, 1998; Willis, 1977). One of the seminal works on resistance was a study conducted by Willis (1977) who examined working-class, secondary students who resisted a school system that treated them poorly by preparing them for the production line. These students rejected authority, disrupted classes on a daily basis, and spoke and dressed in ways that countered what the school expected and valued. Willis acknowledged the role of constraints in the wider society that contributed to students' resistance in schools. An example of a constraint included students' "acceptance of not only their future work roles, but also their rejection of intellectual labor" (Giroux, 1980, p. 79). Kohl (1991) identified another, slightly different, form of resistance: "not learning," or "an active, often ingenious, willful rejection" (p. 10) of the teaching that occurred in the classroom. Kohl (1991) warned that if not learning involves defiance of the dominant authority; the students may experience negative consequences and may not be able to advance in society.

Other resistant behaviors researchers have identified include students not being willing to learn in school, becoming disengaged in instruction, coming to class late and unprepared, and alienating and engaging in noncompliance (Abowitz, 2000; Dickar, 2008). Typical behaviors include refusing to comply with teachers (Walker \& Sylvester, 1998), starting trouble or fighting with other students, escalating power plays with teachers (Olafson \& Field, 2003), violating
school rules, and undermining the teacher's lesson plans (Giroux, 1980). These behaviors frequently result in disciplinary action taken against the student. Although these and other forms of resistance can be counterproductive (e.g. dropping out of school, acting out in class), the actions may additionally reinforce the ideologies and structures that one may intend to resist (McLaren, 1989; Solorzano \& Bernal, 2001).

## Why Students Resist

Researchers and teachers should attempt to understand students' rationale for their acts of resistance. Otherwise, these acts can come across as only disruptive and oppositional without an understanding of the underlying causes. For example, Kohl (1991) provided an example of Akmir, a student who rejected instruction from his history teacher by refusing to learn the curriculum. Once Kohl talked with Akmir, he learned that Akmir actively tried to "destroy the teacher's and textbook's credibility (p.26) because he disagreed with the racist perspective of the teacher. For example, Akmir's teacher told his students they were people who could not keep a job, but refused to listen to Akmir when he tried to raise the fact that racism played a role in Black poverty, not a lack of intelligence or ability.

In a setting in which there were apparent inequalities and social disadvantage, Munns and McFadden's (2000) study focused on students who were "consciously aware of their educational powerlessness" (p. 60). The students' rationale for resisting included a rejection of their discriminatory experience and the educational system that allowed this inequality. In the context of classrooms, student resistance can be a response to being labeled as a low achiever by their teacher (Steele, 1997), schooling and teaching practices that are not congruent with students’ cultures (Aggleton, 1987; Gutstein, 1998), and schooling practices that contribute to devaluing students' culture and potential for success (Ogbu, 1991). These studies indicate that resistance is
not only due to processes of society or schooling at large, but also to instructional situations themselves.

Resistance to mathematics teaching and learning is a challenge when teachers attempt to incorporate new practices, such as problem solving, and other less common practices suggested by NCTM (1991). Student resistance may be present when mathematics learning involves higher-order thinking, collaborative problem solving, open-ended problems, and mathematical inquiry in schools that serve students with low SES backgrounds (Lubienski, 2000; Roy, 2000). Building on this research about what, how, and why students resist, this study examines students' perspectives about their resistance to their teacher's instruction and assignments, and how they thought they were silenced. This investigation can shed light on the reasons students may (dis)engage in their mathematics classroom and help better prepare and support prospective and practicing teachers as well as administrators who work with students in urban schools.

## Research Questions

This article seeks to investigate students' experiences in their mathematics classroom. Students discussed aspects of resistance as they described their experiences with two different mathematics teachers with different instructional practices in the same year. The specific questions I address are:

1) When African American students describe their experiences in their Pre-Algebra mathematics classroom undergoing teacher turnover, what issues of resistance do they share? In particular, what do they share that helps us understand what they resist, how they resist, and why they resist?

## Research Methods

In this section, I offer an overview of the school and the focal classroom in which the study took place. Next, I provide some biographical information about the participants who
participated in this study. I conclude with a discussion of the data collection and analysis methods used in this study

## Context

This section highlights information about the school and the focal classroom where the study took place. It also provides information about the two teachers the students experienced in one school year as well as information about the students who participated in the study.

School and focal classroom. Westside School is located in a small urban ${ }^{3}$ Midwestern city of about 120,000 people. The school itself serves students from grades 7 to 12 , and it offers mathematics courses that range from Pre-Algebra to AP Calculus. Westside School is one of the few schools to offer an opportunity to earn an International Baccalaureate Diploma. The school has about 1,800 students, with about 700 students in grades $7-8$, and 1,100 students in grades $9-$ 12. In 2013, the student body consisted of $85 \%$ African American and Latina/o students and about $70 \%$ of the students received free or reduced-priced lunch. This study was conducted in a $7^{\text {th }}$ grade Pre-Algebra classroom at Westside Middle and High School. There were 28 students, (16 girls, 12 boys), in the classroom.

Teachers. Mrs. Brown, the students' first mathematics teacher who left in the middle of the school year, identified as a White woman and had taught mathematics for about 20 years. She taught both middle and high school mathematics at various public schools, including an alternative high school. She also had experience teaching mathematics and chemistry in community college settings. All of her instruction took place in schools that were located in rural and inner city school districts. In the inner city school, in particular, she had the opportunity to
${ }^{3}$ I use the term urban to refer to students or schools located in cities (population $>100,000$ ), with student populations that are predominately students of color and from low SES families.
work with the teenage parent program, which was primarily made up of teenage girls with babies or who were pregnant and were trying to get their high school diploma. At the time of the study, Mrs. Brown had taught at Westside School for two years. During the 2013-2014 academic school year, Mrs. Brown decided to leave Westside School, in November, to teach at another school. Mrs. Brown's stated reasons for doing so were that the new school was closer to her home and that she thought it was the best decision for her family.

When Mrs. Brown was in the classroom, she wanted to build a strong classroom community, to communicate effectively with her students and to show her students she genuinely cared about them and their learning of mathematics. She also emphasized the need for reciprocated trust and respect with her students in her mathematics classroom. She wanted her students to be engaged in the classroom. Mrs. Brown thought it would be beneficial if she received ongoing feedback and had classroom discussions with her students about their experiences in her mathematics classroom. She was also interested in exploring students' perspectives on their understanding of mathematics concepts. She used practices that drew on students' perspectives of their experiences in the classroom to reveal how she might promote students' engagement and participation in their mathematics class.

The teacher who replaced Mrs. Brown, Mrs. Edwards, also identified as a White woman. She had taught mathematics for about 17 years in urban and private school contexts. All of her teaching experiences involved teaching $7^{\text {th }}$ and $8^{\text {th }}$ grade students. In the past, she taught $8^{\text {th }}$ grade literature, but most of her teaching experience was in mathematics. At the time of the study, she had been teaching at Westside School for five years and she began her teaching experience in the focal classroom in the middle of November when Mrs. Brown left. She reported enjoying helping students problem solve and she especially loved when a student has an "aha" moment in
mathematics. From my observations, most of Mrs. Edwards teaching was procedural as opposed to conceptual. In Mrs. Edwards' classroom, students normally began the period with a warm-up, which was typically followed by a lecture that was primarily procedural as opposed to conceptual, guided practice by reviewing various kinds of examples, and individual practice that mirrored many of the examples that Mrs. Edwards reviewed. Occasionally students were organized into groups to work together on work assigned by the teacher.

Student Participants. I selected five $7^{\text {th }}$ grade students who, with parent permission, wanted to participate in the study. My selection criteria were students who wanted to share their perspective about their educational and mathematical experiences during the school year. I decided to focus on five African American students (two males and three females) because they were good at articulating their experiences on the feedback forms and in the classroom when they had conversations with Mrs. Brown. In the sections that follow, I draw on information I have observed and that the students told me in order to introduce each of the five students: Medina, Jada, Curtis, Opal, and Ty.

Medina was a 13-year old African American female. Her favorite subject in school was English. Her parents and family motivated her to do well in school. She really wanted to make them proud of her. She did not have many friends in school because she only hung out with her cousins. She valued her family and felt that, if someone has family around, then they will always be okay. She thought the harder she worked in school, the more successful she would be in life. Her goal was to become a physical therapist because she liked to help people that need physical, mental, and emotional counseling. Ultimately, she wanted to help people live a happy life.

Jada was a 13-year old African American female student. Her favorite subject in school was English. She enjoyed dancing and was on the school's step team. She enjoyed school and
thought it was very important to work hard. She struggled in mathematics and said that no matter how hard she tried, she did not get the type of grades she thought she deserved. She had an outgoing personality and loved helping people. She wanted to become a nurse in the future, but she worried that mathematics may stop her from becoming one. She stressed that even though mathematics is really hard, she continued to work hard until she understood it.

Curtis was a 13-year old African American male student. His favorite subject in school was science and he aspired to be a scientist. He was motivated to do well in school so he could attend a university when he graduates from high school. He enjoyed hanging out at his friend's house and playing games on the computer. He was adamant about making sure he played outside with his cousin instead of staying inside all of the time. He also enjoyed cooking and played in the school band.

Opal was a 13-year old African American female student. She wanted to become a chef in the future. She liked to ask questions in her classes because that showed the teacher that she paid attention. Her favorite subject was science. She was motivated to do well in school by her mother. Her mother worked hard at home and she wanted to make sure her mother knew she also worked hard at school. She was involved with an after school program that encouraged girls to be physically active.

Ty was a 13- year old, African American male student. He was involved in numerous after school activities, such as basketball and track. He lived with his mother and four siblings. He described himself as someone who was very determined to do well, and he saw himself as a leader among his peers. His favorite subject was mathematics and he hoped to become an engineer in the future. He was excited about the possibility of attending college one day. He was
motivated by his mother and talked about having the opportunity to one day take care of her, so she would not have to work so hard.

## Data Collection and Analysis

This study employed a qualitative methodology. Data included student interviews, participant-observer observations of the Pre-Algebra classroom, and observation field notes.

Student Interviews. Student interviews served as my primary data source for this study. Since the understanding of student experiences cannot be obtained through mere observation, it was essential to hear about these experiences from the students themselves. The student interviews began taking place after the first teacher left, with the frequency of approximately once a month. I conducted five interviews with each student, resulting in 25 total interviews. The interviews were semi-structured so I could probe aspects of students' mathematics experiences and ask clarifying questions about their journals. Students were asked general questions about school and about their future plans, as well as specific questions related to classroom observations. For example, if I saw a student putting his/her head on the head multiple times, I asked him/her what was his/her reason for that behavior. The interviews also served as an opportunity to discuss the implicit resistance that was only detectable from conversations with students.

The interviews helped clarify some of my observations throughout the school year. They provided an opportunity to add more nuance and texture to the videotaped lessons because I could gain a better understanding of why students resisted. This type of interview allows not only for access to specific information but also probing certain responses for more depth (Rubin \& Rubin, 2005). Each interview lasted between 45-60 minutes. The interviews were scheduled after school on days and times convenient for the students' schedules, and took place in the library. The purpose of the interviews was to gather information on students' perspectives about their
experiences in their mathematics classroom.
Participant observations. This data served as my secondary data source. Observing students in the classroom provided a "context within people interact" (Patton, 2002, p. 262). Over a period of nine months, I spent approximately 90 hours as a participant observer in this $7^{\text {th }}$ grade Pre-Algebra classroom. While I observed, I also set up a video camera to video-record the classroom sessions in order to capture verbal and non-verbal interactions. Occasionally, I helped students when they raised their hands or I assisted the teacher when she needed help. The decision to play a more active role in the classroom beyond observation was based on several factors. First, I felt obligated to the teachers participating in the study to reciprocate their generosity through helping when I could. Given my background as a former high school mathematics teacher, providing assistance to the students was one small way to contribute. Second, from a research standpoint, participant observation gave me a chance to get to know the students and for them to know me on a less formal level. These interactions helped to establish a sense of trust and made students feel more comfortable talking with me when I interviewed them throughout the school year.

As I observed the classroom, I wrote notes that I could elaborate once the observation was over. Emerson, Fretz and Shaw (2001) suggested jotting down key words and phrases in order to jog the memory later so that the field researcher can catch other significant actions, such as student-student and teacher-student interactions. The classroom observations served to confirm or disconfirm what the students and teacher mentioned in their interviews and journals, and in many cases, served as a basis for future interview questions. For example, if students were not working on class work, I would take note of that and use those notes to discuss those actions in the interviews. The classroom observations also served to confirm or disconfirm what the
students mentioned in the interviews. Classroom observations helped me gain a better understanding of the experiences students described from their mathematics classroom.

Field notes. In my field notes, I described what I saw and heard during the students' mathematics classes. Specifically, I paid attention to the focal students in this study, but I did not ignore other students that were not a part of the student interviews. For example, Medina continuously worked with a partner, so I also noted when they worked together. I took notes of classroom practices and norms as well as student practices. I looked for evidence of recurring practices and strategies that seemed to enhance or hinder students' learning in the classroom. For example, if the students stated working in groups enhanced their ability to do well in mathematics, I then paid attention to whether the teacher let them work in groups or if the students chose to work with their peers while working in class. I also paid attention to studentstudent interactions during their mathematics class. While in the class, I looked to see whether the students in the study initiated conversations with their peers with regards to the material covered. Overall, I took note of various interactions (student-student and teacher-students) that took place within the mathematics classroom. For the student-teacher interactions, I took notes on opportunities for students to work on a problem on the board and conversations between students and teacher that signaled the teacher (or students) made attempts to get to know each other. Student interviews, classroom observations, field notes, and member checking were used to triangulate the data.

## Data Analysis

I transcribed interviews and read through the transcripts multiple times to identify emergent themes (Patton, 2002) in order to organize the data into categories. I initially did not begin this analysis looking for moments in which students talked about resistance. Instead, I wanted to hear about students' experiences with teacher turnover and resistance was one of the
pervasive themes based on what students consistently shared. As I listened to the interviews, I noticed statements made by students that indicated they resisted by refusing to do something. For example, when they said things like "I will not continue to do worksheets" or "I am not going to learn from her." Students were in opposition of various aspects of their learning. Once I realized resistance was a theme that I wanted to pursue, I used the literature to help me operationalize resistance. I then looked for comments in student interviews that spoke to student disengagement, unpreparedness, alienation, and noncompliance because these were some of the acts of resistance that I read in the literature.

The classroom observations were used as evidence to confirm what the students described during interviews and also to ask clarifying questions to students. At times, I returned to the video recordings of classroom observations that a student may have mentioned in an interview. For example, Curtis talked about being kicked out of the classroom, so I went to the observation data and watched the video for evidence of resistance. In order to truly capture students' perspectives, I talked with the students to make sure I accurately represented their perspectives.

When I analyzed the observation data, I began with the days that the students highlighted during the interviews. So, when students referenced resistance at a specific time in class, I looked at the video recording to triangulate their responses with what I wrote down in my field notes and observed in that video recorded classroom data. For example, if a student stated they did not complete the worksheet on Tuesday, I looked through the video recording for that day to (dis)confirm his/her statement. I also looked at classroom observations for outward displays of resistance to instruction, such as not paying attention in class, head down in class, getting kicked out of class, etc. In addition to acts of resistance, I listened for acts of resistance that might have
spoken to systemic injustices that related to students' schooling experiences. For example, if a student stated the teacher silenced them by not listening, then I used observational data to confirm or challenge some of the students' statements.

Resistance was operationalized using iterative analysis methods between video recorded classroom observations, student interviews and field notes. The themes that arose were: (a) resistance towards instruction, (b) resistance to assignments, and (c) resistance towards being silenced. The first theme, resistance to instruction, was identified when students discussed moments when Mrs. Edwards was in front of the room or circulating the room as she interacted with students to teach them the mathematics content. As students described the teaching that occurred in their mathematics classroom, I documented how some of their responses might be instances of acts of resistance. The second theme, resistance to assignments, was noted when the teacher assigned work to students. Students described their experiences with the classwork they were being asked to complete in their mathematics classroom and when they were asked to complete their classwork for their homework. Any negative comments about their responses to classwork and homework were placed into this theme. The last theme, resistance towards being silenced, emerged whenever students stated Mrs. Edwards did not listen to them. This theme emerged when teaching occurred and when students posed questions or comments about mathematics or other concerns about the class. Once the three themes were identified, I continued to analyze the data and I paid attention to how students chose to resist as well as why students resisted, which helped me gain a better understanding of students' experiences in the classroom.

Lincoln and Guba (1986) considered member checks as important for a study's trustworthiness. For this study, member checks ensured that the students' experiences were
portrayed in a manner that cohered with the students' perspectives. Frequently during interviews throughout the school year, I asked participants to clarify or confirm some of the conclusions I made about their statements and about the observations I made in the classroom. For example, if I observed a student with his/her head on the desk, I did not want to assume they were resisting because they could have been ill or still paying attention to Mrs. Edwards.

## Findings

For this section, I organized my findings based on what students discussed as they talked about what they resisted in their mathematics classroom. Students resisted monotonous teaching practices, assignments, and being silenced by their teacher. Within each section, I also highlight how students resisted as well as why students resisted.

## Resisting Monotonous Instruction

On most days, students resisted instructional strategies that mirrored Freire's (1970) description of teachers depositing knowledge. Students described the ways they resisted these practices, but also explained coping strategies that they used to help them learn mathematics. For example, Jada discussed the classroom routine for instruction that they experienced on most days. Jada maintained,

I hate my math class now. It is boring because all we do is watch her write down stuff on the thing [document camera], copy it down and then work on a worksheet. That is why I get sidetracked, talk to friends and don't pay attention.

Jada realized the routine in her mathematics classroom was the same on most days. In this scenario, the teacher provided information, had students copy what she wrote on the document camera, and/or gave directions. This description is akin to Freire's (1970) banking education where instead of communicating, the teacher makes deposits as the students repeat the information they are given. Due to the mundane routines in her class, Jada resisted by not paying
attention to the lesson. Although some students chose to resist by just not paying attention, other students were asked to leave the classroom due to noncompliance with Mrs. Edwards' requests to be quiet. For example, one day Curtis was asked to leave the classroom for not being quiet when Mrs. Edwards repeatedly asked him to stop talking while the students worked on their assignments. I asked Curtis what happened that day and he stated,

I'm tired of being in class. I don't know what is going on. She just keeps talking when everybody is lost. I don't know what's going on, so I just talk to my friend...Fine, I will just go outside [his response when he was kicked out].

Curtis stated that he did not understand what was going on in class, so he decided to ignore the request of Mrs. Edwards to stop talking. He did not mind staying outside of the classroom during the lesson, instead of staying inside the classroom, and he continued to be confused about the mathematics being taught. He noted that Mrs. Edwards talked a lot and most students did not understand what was going on. When I asked him how he knew other students were lost, he replied, "Can't you tell? No one asks a question and as we walk out we tell each other how lost we are." Once class was over, Curtis and peers discussed how confused they were about the mathematics taught in the class. Students chose not to participate in class and did not ask questions to clarify concepts that they did not understand. Later in the interview, Curtis still expressed frustration with his mathematics class and he suggested, "I'm done with her. I just don't learn that way. I will ask my friends for help. I don't understand what she is doing and she is not changing even though we complain." Curtis recognized that he did not learn the way Mrs. Edwards taught, but instead of refusing to learn the material, he asked his friends to help him understand the mathematics content, which shows he was productively resistant (Solorzano \&

Delgado Bernal, 2001). Curtis recognized what was and was not working for his learning of the mathematics. He used a coping strategy, which was asking his friends for help.

Ty showed resistance by putting his head on his desk when he did not understand what was going on in the classroom. He stated, "I put my head down... because I don't understand what is going on. All she does is talk and we are supposed to write what she writes on the thing [document camera]." Ty resisted Mrs. Edwards' instruction as she gave information to the students. Students were asked to regurgitate the information presented to them through instruction. This type of instruction could be seen as disempowering students during their mathematics learning. Instead of shutting down because of the lecture-based instructional strategies that Mrs. Edwards used, some students took initiative to learn the content on their own and with their peers. Opal stated,

I do not know what she is doing. She stands in the front of the room and talks to herself. I am not going to learn from her, so I refuse to pay attention. I will figure it out on my own.

She decided she would take the initiative and learn the concepts on her own. She resisted by not paying attention. Similarly, Medina posited, "She is talking too much. She is doing what we asked Mrs. Brown to stop doing. I just use videos on the Internet [to] do it myself." Even though many videos about mathematics concepts on the Internet may be lecture-based instruction, Medina somehow felt that she could learn more from those videos than listening to her teacher. Medina may have been exhibiting productive resistance (Solorzano \& Delgado Bernal, 2001) because she was motivated to find a resource to help her learn the mathematics when she thought the teacher was not doing so.

Jada also focused on a strategy to help her figure out the problems that she did not know how to do, but instead of using the Internet, she worked with her friends. She noted, My friends and me [sic] work together in the library and try to understand math. I just write down what she says and don't ask questions. The way she teaches doesn't help me. It's hard, but when we all are there helping each other, we figure it out.

Jada was not specific about the ways Mrs. Edwards's instruction did not help her understand mathematics. She noted Mrs. Edwards gave information to students and Jada copied what Mrs. Edwards wrote on the board. But, when Jada worked with her friends in the library, she was able to talk through ideas that were confusing and received immediate feedback among individuals with whom she was comfortable.

In this section about students resisting monotonous instruction, I described how students resisted instruction. They resisted by not paying attention, putting their heads on the desk, complaining about getting kicked out of class, and ignoring Mrs. Edwards' requests. The reasons they gave for why they resisted included their classroom being boring, not understanding the mathematics content, and not being able to learn the way the teacher taught. Although this section highlighted resistance towards forms of instruction, the following section emphasizes students' resistance to the kind of assignments they were given.

## Resisting Assignments

All of the students discussed the ways they showed resistance towards their assignments because they found the types of problems they were asked to complete to be monotonous and not relevant to their lives. They were also dismayed by the lack of relevance to their current and future lives that they saw in the work they were assigned. I observed, for example, days when Curtis did not complete the worksheets that Mrs. Edwards handed out. Instead, he would
sometimes work on assignments for another class or talk with his neighbor. I inquired about why he was not working on his mathematics assignments. Curtis replied,

I am not doing those worksheets anymore. I am turning in a blank paper. I don't care if my grade goes down...I am tired of doing the same type of boring problems every single day...the questions are all the same, but the numbers are different. It's the same thing over and over. I'm just not doing it anymore.

Curtis' statement described his refusal to continue to complete the worksheets. He sacrificed his grade because of the type of work that was assigned in the classroom. He talked about how he worked on problems that were monotonous, so there were not a variety of problems for students to work through. The fact that Curtis knew the problems were the same, but with different numbers, spoke to his understanding of the type of thinking that the problems required from him. My observations confirmed that students worked on worksheets, as well as the types of worksheets described by Curtis, on most of the days in the classroom.

When I asked Curtis if he thought they would do mathematics that was not "boring" or have "questions that are all the same," he replied,

No. I doubt the problems we do in Mrs. Edwards' class will ever be relatable to me. It hasn't happened so far, so I don't think it's possible. If she did problems like that I probably will pay more attention in class. Now, I just zone out.

The consistent lack of connection between Curtis' life and what had occurred in his mathematics class so far even led him to believe that it was not going to be possible in this class. In addition to not completing his assignments, Curtis chose not to pay attention. Curtis was explicit about resisting because the work was not relevant to him.

Ty also commented about not completing problems that were similar in format and did not relate to him. He stated,

It is so boring working on the same types of problems. Like the one-step equation questions we just did. I don't see that in the places that I go...the mall, movies or on TV. I only see them in math class. They are not relatable to me at all. I really do not want to do the worksheets, but when I stopped doing the work, my grade got bad and I got in trouble at home....So I had to do them.

Ty was aware that the problems he was being asked to complete were not relevant to him. It was unclear whether Ty was referring to a disconnect between school mathematics and his life outside of school or a disconnect within school mathematics topics. Nevertheless, students recognized the importance of relevance of school mathematics such as funds of knowledge (Gonzalez, Andrade, Civil, \& Moll, 2001), reading the world with mathematics (Gutstein, 2006) and culturally relevant mathematics pedagogy (CureMap, Rubel \& Chu, 2012). He mentioned places outside of the classroom that were relevant and stated the mathematics they were working on in class was not related to those experiences. Ty tried to use the same resistance strategy as Curtis, refusing to complete the worksheets, but he could not continue to resist through refusing to do the work. Grades and getting in trouble at home seemed to motivate Ty to complete the work instead of him finding any kind of enjoyment in working through the mathematics problems.

Similarly, Opal stated that the mathematics assignments they worked on were not relevant to her future career, another important area in which mathematics teachers often connect. She stated,

The work she asks us to do is pointless. Sometimes I don't complete assignments because I don't see a point. I won't ever use the stuff she is trying to teach us. I come to class because I have to get a good grade in math. I want to be a nurse, so I know I need math, but I don't see how this stuff relates to me wanting to be a nurse. I don't want to do the work, but I have to.

Although Opal noticed a disconnect between the school mathematics topics she was learning and her hope to become a nurse, she did not address those concerns to Mrs. Edwards. She did not enjoy going to her mathematics class and stated the mathematics did not connect to her future goals. It is common for students to attempt to make connections between mathematics and a future career. Otten (2011) argues that it is problematic for teachers to explicitly connect mathematics topics to various careers. He stated it is more important for students to be happily engaged while learning mathematics. Perhaps if Opal was engaged in the mathematics, she would be more concerned with learning the mathematics instead of making connections to being a nurse. Also, at times, Opal resisted by not completing her work, but did not want to risk lowering her grades. Additionally, she recognized that this kind of resisting might have negative consequences for her advancing in society.

Jada was frustrated with what she perceived to be a lack of cohesion among the mathematics topics taught. She stated,

It's like we learn something new everyday, but it's never related. I feel like the new stuff is not connected to the old stuff we learn...I do it, but I feel like I am not really learning anything. I am just memorizing stuff. I don't pay attention sometimes, but I would think some of the stuff we learn can go together better.

Jada described the information she was learning as unrelated information ("stuff") that did not support her in ways that helped her acquire new skills, other than to use memorization. As a result, there were times when Jada resisted by not paying attention in class. Jada noted that more cohesion among topics might be possible and that the information could actually go together better. Schoenfeld (1992) found that students may develop a view of disconnected concepts in mathematics due to classroom instructional practices, but Jada stated that mathematics should consist of a connected set of ideas.

In this section, I showed that students resisted particular forms of assignments, namely repetitive and mundane problem sets that they felt did not relate to them. They resisted those assignments by not completing them, turning them in late, and not paying attention when the teacher explained how to complete the worksheets. The reasons they gave included being tired of doing the same type of work, assignments not relating to their current lives and future career goals, and the ways in which the mathematical ideas were disconnected.

## Resistance Toward Being Silenced

In addition to resisting assignments, students also resisted at times when they thought they were being silenced. The communication between Mrs. Edwards and her students was very different from what the students had experienced with their first teacher, Mrs. Brown, before she left. Mrs. Brown wanted to improve her relationships with her students by listening to them, so she would periodically solicit feedback from them. She even shared with them how the changes she made in the classroom related to their feedback. The students did not have the same experience with Mrs. Edwards. When Mrs. Edwards first came into the classroom she taught mathematics content that the students previously learned from Mrs. Brown. There were multiple times when I observed Curtis not taking notes while Mrs. Edwards taught. When I probed about this behavior, Curtis said,

I'm not taking notes because I already learned that stuff anyway. We [referring to himself and other students] tried to tell her, but she doesn't listen to me. I am not going to act like I don't know how to do it.

Mrs. Edwards ignored Curtis and his peers when they stated their concerns about the content she taught when she first entered the classroom. Curtis realized their classroom was not a space for his voice to be heard. Being silenced speaks to the lack of power he felt he had in the classroom. He resisted by not taking notes on material that was already taught by his previous teacher. If Mrs. Edwards had asked students about their mathematics experiences when she first entered the classroom, they could have told her what they had already learned. Even if Mrs. Edwards thought it was best to review this information again, she could have shared this with the students.

Relatedly, Opal mentioned that Mrs. Edwards did not listen to the students in terms of their feelings about the class. She stated, "We tell her the class is boring and we feel lost. We stopped saying stuff to her because she won't listen. I stopped listening to her since she does not want to listen to me." I observed students shouting out comments like the one Opal described. The students' comments were made, at times, in the middle of a lesson, so students were asked to be quiet. Because Opal and her peers did not feel like they were being heard, she resisted through not listening to Mrs. Edwards. Not only was class not enjoyable for her, but she also reported that there were times when she was confused. Opal did not specify the type of things she would not listen to when Mrs. Edwards taught mathematics. From my observations, she followed directions given by Mrs. Edwards, such as picking up her class notebook.

Another student expressed her feelings towards Mrs. Edwards not listening to them and compared it to Mrs. Brown. Medina noted,

She [Mrs. Edwards] just doesn't listen to us. Mrs. Brown used to listen to us. We knew it because she would change things when we told her why it didn't help us learn. I just don't understand why she [Mrs. Edwards] doesn't listen. Like Marcus [another student in the class] will tell her the class is boring, but she just ignores him. I get so mad because I want to stop doing the work, but I know my grade will go down and I'll get in trouble. Medina's comments that Mrs. Edwards "just doesn't listen to us" suggested that Medina was not referring to all types of listening. Mrs. Edwards, in fact, did listen when students had questions about mathematics content. Instead, Medina viewed being listened to as having her perspectives heard in relation to the teaching and learning that occurred in the classroom. Before Mrs. Brown left, she asked students about their experience with teaching and learning in the classroom. Medina assumed Mrs. Edwards did not listen to them because she did not ask them similar questions, even though students expressed their dissatisfaction with some aspects of the classroom instruction. She wanted to resist, but was worried about her mathematics grade and getting in trouble at home.

Before Mrs. Edwards first arrived in the classroom, students were able to work together in order to complete assignments. When she required students to work by themselves, the students resisted Mrs. Edwards' request by continuing to work with their peers. Ty commented on his ability to talk with his peers about his work. Ty stated,

A few times she thought we were talking at first because she told me to be quiet. She always thinks we're talking about stuff. But, we are really working. I don't understand why she doesn't listen to us when we tell her we are doing our work...I just talk anyway. There were times when Mrs. Edwards asked him to stop talking although students were talking about mathematics. Ty resisted by not following Mrs. Edwards' request to work independently.

Ty was critical of Mrs. Edwards' inability to listen to the conversations the students were engaged in before assuming they were off task. Mrs. Edwards silenced them as the whole class and took away the possibility of talking in small groups.

In this section, I showed that students resisted particular forms of being silenced in the classroom. These resistant acts were the following: refusal to take notes, making comments out loud during class about what did and did not work for them, and ignoring Mrs. Edwards' requests to stop talking. Their reasons for resistant acts included their frustration that their previous work related to the mathematics content was going unrecognized and their feelings of being lost as she taught them. An additional contextual factor that seemed to underlie their resistance: the fact that Mrs. Edwards' practice was quite different from what Mrs. Brown had done before she left. This abrupt change in practice left students wanting what they had previously.

## Discussion

The students in this study described acts of resistance. These findings help identify a critical area, such as what students were resisting and why, in the context of teacher turnover. Teacher turnover probably exacerbates students' sense that they have limited control over their learning and their relationships. Students are processing grief and feelings of betrayal over the loss of a person who was part of their lives and they may resist the change. One way for students to know what a good teacher is, is by reflecting on what aspects of their learning experience help to support their learning. For example, Obrycki (2009) reported on a student who disliked him because he made her think in harder ways than anyone else had made her think in the past, but when the student was interviewed at the end of the school year, she could articulate how much better that learning was compared to other kinds of mathematics instruction in the past. Thus, students can come to understand what supports their learning in their mathematics classroom.

In this section, I discuss three points: (a) types of pedagogies that did not work for students, as opposed to the more commonly reported findings that focus on the perspectives of teachers or researchers; (b) descriptions of student resistance in ways similar to educational research and strategies that help students cope; and (c) absence of and/or discontinuation of resistance does not necessarily mean good instructional practices are present.

First, students' perspectives reaffirm the instructional strategies that show that the pedagogy of poverty still exists in urban mathematics classrooms. They also show how students become acquiescent because of the consequences of their grades, which impact their family lives and possibly future careers. One particular set of hegemonic practices that Haberman (1991) identified that occurs in urban schools was the pedagogy of poverty. This type of pedagogy is characterized as teachers taking authority and silencing students in the classroom. The pedagogy of poverty can manifest in ways that include mundane teaching acts as "giving information, asking questions, giving directions, making assignments, monitoring seatwork, reviewing assignments, giving tests, reviewing tests, assigning homework, settling disputes, punishing noncompliance, and giving grades" (p. 290). It is important to articulate the philosophies that undergird those practices. The pedagogy of poverty does not allow space for teachers to humanize, center, and understand their students. This article highlighted students' resistance towards some of those kinds of teaching acts, which included a large amount of giving information, giving directions, punishing noncompliance, etc., in a systematic way. Haberman (1991) posited, "taken together and performed to the systemic exclusion of other acts, they become the pedagogical coin of the realm in urban schools" (p. 291). Throughout the findings, students spoke to a combination of characteristics of the pedagogy of poverty. Unfortunately,
this type of atmosphere may create passive resentment initially, which may eventually lead to overt student resistance (Haberman, 1991).

Haberman (1991) identified the characteristics of the pedagogy of poverty from his own (researcher's) point of view. This study highlighted the fact that students notice, can describe, and in fact resist, these instructional practices. When I looked at the literature on the types of instructional practices that are examples of the pedagogy of poverty, the conversations surrounding them have been ongoing for more than 30 years (Anyon, 1980; Haberman, 1991; Ladson-Billings, 1997). Specifically in urban schools, these pedagogies of poverty are still students' realities, so we must continue to understand students' perspectives of such instruction. Hearing this information from students' perspectives inform researchers and teachers that students are very much aware of the type of instruction that is not working for them in the classroom. Students need to be aware of the type of support, if any, that we are working on to improve the instruction that occurs in their classroom.

For example, Anyon (1980) found that in working-class schools, students were asked to copy down examples in their notes and follow the procedures presented to them. Jada recalled her mathematic classroom as being boring because all the student does is "watch her write down stuff on the thing [document camera], copy it down and then work on a worksheet." Jada noticed that this happened often in her classroom. She resisted by not paying attention and would get sidetracked by talking with her peers. Anyon (1980) also discussed teaching in working-class schools that involved unexplained, fragmented procedures. Jada stated that she wanted to learn topics in ways that were interrelated. She recognized the majority of the mathematics topics were learned in isolation. Jada's description of what she experienced seemed to run counter to a belief she may have had about mathematics being a set of connected ideas. Research has shown that
some students develop a view of disconnected facts as a result of specific classroom practices that they experience (Schoenfeld, 1992). Jada experienced low-level procedural mathematics instruction. However, she still recognized that there could be connections in mathematics by stating, "the stuff [mathematics]...can go together" despite her experience in the classroom.

Ladson-Billings (1997) also described mathematics teaching in urban schools as repetitive, consisting of drills, and having predictability. She noted that students were rarely asked to challenge rules and were not asked about how prior knowledge and experiences might support their learning of mathematics. Similarly, Ty mentioned the teacher would assign worksheets with sets of the same type of problems with different numbers as classwork. The types of problems Ty referred to relied heavily on memorization of following routine procedures based on prior instruction, otherwise known as low cognitive demand tasks (Stein, Grover \& Henningsen, 1996). A teaching act could subvert the pedagogy of poverty, which students referred to often because Mrs. Brown had engaged in such practices: listening to students' perspectives on the teaching and learning that occurs in the classroom.

This study highlighted some of the ways students resisted the pedagogy of poverty. Although students showed resistance towards the pedagogy of poverty, they were ultimately not successful in their attempts to fail, based on the consequences they would face if they continued to resist. Student resistance helps educators and researchers understand their educational practices, specifically for students from marginalized communities (Freire, 1992). The majority of acts of resistance that students engaged in during this study were reactionary resistance (Solorzano \& Delgado Bernal, 2001), but some were self-defeating resistance (Solorzano \& Delgado Bernal, 2001). There were times in this study when students exhibited reactionary behaviors because they resisted by not turning in assignments, refusing to complete the
worksheets assigned, talking with their peers about work when the teacher stated they needed to work independently, etc.

Students expressed a number of reasons for their resistance. For example, the problems assigned were not challenging enough. At times, students critiqued some of the hegemonic practices such as worksheets and repetitive routines in the classroom and they resisted by not engaging or by acting out in the classroom. This type of resistance would be self-defeating because of the lack of motivation for change (Solorzano \& Delgado Bernal, 2001). Not only did they critique those practices during interviews, however, they also complained about some of the practices directly to Mrs. Edwards.

Although students resisted various aspects of Mrs. Edwards' instructional practices, they found coping strategies to help them succeed in their mathematics classroom. Much of the literature on students' perspectives highlights various types of resistance and describes what students might resist, how they resist and why students resist. This literature spends less time, however, on articulating various ways students cope that would go unnoticed if I had not heard directly from students. The students in this study explained the various ways they persevered even though they resisted Mrs. Edwards' instructional practices and assignments. Students worked with their friends outside of class when they did not understand the mathematics concepts, learned concepts on their own, and even watched videos online. The students' actions did not seem to be motivated by social justice (Solorzano \& Delgado Bernal, 2000; Raby, 2005), but they were ways in which they exercised resilience as they experienced difficult conditions. Just because students are resistant in one setting, does not mean they are not using other strategies to help them navigate the space they resist.

This article speaks to what and how students first resisted, then conformed to,
instructional practices in their mathematics classroom. The students in this article resisted for a short amount of time and then decided that the consequences of a low grade in mathematics and the related trouble at home were not worth it. Failure in mathematics could affect students' longterm goals and aspirations, so the students realized the risk of resistance was not worth the costs. I suggest that these student actions can be seen as failed resistance because students initially resisted the pedagogy of poverty, but eventually conformed to the teaching practices. The teacher did not change her teaching practices because of the low grades her students earned. Instead, the system (e.g., not utilizing student voices in the classroom and teachers having most of the power in the classroom) was set up in a way that students needed to conform to the teaching acts that continued to marginalize African American students in urban settings. I am unsure if the students were aware of their capacity to make changes in the practices they were resistant towards. There were times when students attempted to tell the teacher information that would positively affect their learning (e.g., teaching a mathematics topic the students previously learned), but the teacher ignored the students' comments and asked students to be quiet. Teachers should not presume that the absence of (or the discontinuation of) resistance means they are teaching in ways that are beneficial to students' mathematics understanding.

## CHAPTER 4: USING STUDENTS' PERSPECTIVES TO SUPPORT MATHEMATICS TEACHERS WHO TEACH IN SCHOOLS WITH HIGH TEACHER TURNOVER

If I get to know her and she gets to know me, it will help me do better in mathematics. Math is hard. If I get to know her, I won't be afraid to ask her questions when I am confused...If I don't know something I won't be embarrassed to ask her questions. Opal seemed to think that an ideal relationship with her teacher, Mrs. Edwards, needed to be a reciprocated one, wherein both individuals got to know each other. She then continued to locate this reciprocity as being important to her doing well in mathematics. With Opal's previous teacher, she used to asked questions as a method to help her in her mathematics classroom. Opal thought that getting to know her new teacher would help alleviate her fears of asking questions about mathematics in class. Opal may not have thought Mrs. Edwards could help her reach her potential. The students' perspectives in this article offer valuable insight into challenges students faced when they experienced teacher turnover in their mathematics classroom. Opal, like many students in urban schools, experienced teacher turnover.

Many mathematics teachers and students across the U.S. confront conditions associated with teacher turnover. Teacher turnover can occur when teachers leave the classroom for a minimum of one year (Grissmer \& Kirby, 1997), transfer to another school (Ingersoll, 2011), or leave the classroom after one year and never return (Borman \& Dowling, 2008). This paper highlights students' perspectives on their experience when a teacher left their school to work in another school. No matter the reasons teachers leave, support for the students who experience teacher turnover needs to be established.

There is scant literature about mathematics teachers developing relationships with students under the circumstances of teacher turnover. 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. In this article, I draw on African American students' perspectives as they reflected on their experiences with teacher turnover in their mathematics classroom. I offer recommendations for mathematics education leaders (e.g., mathematics department chairpersons, mathematics coaches) who are responsible for preparing teachers who enter a mathematics classroom after the start of the school year. Based on students' perspectives of the challenges they faced, I suggest ways mathematics education leaders can help mathematics teachers work with students to: a) learn more about students' positive past experiences in their mathematics classroom to support consistency with learning mathematics; b) inquire about the type of classroom routines that existed before the teacher entered the classroom; and c) think about ways mathematics teachers can develop a caring student-teacher relationship under conditions of teacher turnover. In what follows, I define and situate the experience of teacher turnover in urban settings, describe the context in which this study took place, share African American students' perspectives that illuminate their experiences with teacher turnover, and offer recommendations for mathematics education leaders who work with mathematics teachers in order to help students and teachers navigate these transitions effectively.

## Teacher Turnover

Teacher turnover remains a long-standing problem in education (Keigher, 2010). This is particularly true in high poverty schools and urban schools (Ingersoll, 2011; 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, 2002, p. 8). It can include situations when teachers move from one classroom or subject area to another, move from one school to another, or leave the profession altogether. Unfortunately, teacher turnover is a
common occurrence for students who attend urban schools (Ingersoll, 2001). Matus (1999) stated that "the average career of an urban teacher is between three and five years, and in every fiveyear period approximately one-half of the urban teaching force leaves the profession" (p. 37). Many studies on teacher turnover focus on reasons why teachers leave, including reasons like poor working conditions (Darling-Hammond, 2003), low salary (Quartz, 2003), and perceived lack of safety (Smith \& Smith, 2006).

Although there may be cases where teacher turnover is helpful to student achievement, research demonstrates that it is most often harmful (Guin, 2004; Ingersoll, \& Smith, 2003; Ronfeldt, Lankford, Loeb, \& Wyckoff, 2011). Some research shows a negative correlation between teacher turnover and student achievement. For example, Guin (2004) found that 66 elementary schools in an urban district with high teacher turnover had low student achievement. Additionally, Ronfeldt, Loeb, and Wyckoff (2011) examined the impact of teacher turnover on the Mathematics and English Language Assessment test scores of over 600,000 $4^{\text {th }}$ and $5^{\text {th }}$ grade students in New York City. They found negative effects on student achievement when there was a large percentage of teacher turnover in schools where there are large populations of low performing and minority students. Ronfeldt, Loeb, and Wyckoff (2011) argued that inadequate administrative support for teachers who moved into classrooms after other teachers left experience teacher turnover. It is important to note, however, that the relationship between teacher turnover and student achievement is not a causal one, and there is no evidence that teachers who leave schools caused lower student achievement (Ronfeldt, Lankford, Loeb, \& Wyckoff, 2011). These studies are all large, quantitative studies about teacher turnover and student achievement.

In contrast to the plethora of large quantitative studies on teacher turnover, there are few detailed qualitative studies that can help us gain an understanding of students' experiences. Outside of mathematics education, for example, Kloss (2013) examined high school band 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 on students who experience teacher turnover. There is, however, a lack of empirical evidence providing rich descriptions of students' perspectives in regards to losing their teacher as it relates to their learning experiences in the classroom. The qualitative study reported here adds nuance to this literature by investigating students' perspectives on their mathematics learning in the context of teacher turnover in order to support students' achievement in mathematics.

More particularly, educators need a better understanding of the ways students perceive and respond to teacher turnover with regards to its influence on student-teacher relationships. When teachers leave, relationships that were formed are lost and new ones must form (Ronfeldt et al., 2011). Thus, it is important for a teacher entering the classroom to make it a priority to build student-teacher relationships.

Such quality student-teacher relationships are important in all classrooms, including mathematics classrooms. Battey (2013) noted the mathematics education field cannot overlook relational aspects of the classroom in order to understand access to mathematics for students of color and to support teachers' response to students. Relational interactions between students and teachers can affect students' mathematics learning (Jackson, 2009; Martin, 2000). In fact, Battey (2013) argued that the relationships that teachers build with students are just as important as the quality of mathematics that is taught to students. The findings in this paper highlight students'
perspectives that point to the importance of relational aspects to teaching mathematics in the context of teacher turnover.

## Research Question

This paper seeks to investigate African American mathematics students' perspectives on their experiences with teacher turnover in their urban school. The specific question I address is: What key challenges do these mathematics students describe related to their experience of losing their mathematics teacher during the school year?

## Methods

Data was collected through a qualitative study of the perspectives of five African American middle school mathematics students' experiences in their mathematics class as they experience teacher turnover. In this section, I provide an overview of the context, data collection methods, and data analysis I used when conducting this study.

## Context

The study reported here took place in Westside School, which is located in a small urban ${ }^{4}$ Midwestern city of about 120,000 people. The school itself serves students from grades 7 to 12 , and offers mathematics courses that range from Pre-Algebra to AP Calculus. Westside School is one of the few schools in the area to offer an International Baccalaureate Diploma. At the time of this study, Westside had about 1,800 students, with about 700 students in grades 7-8 and 1,100 students in grades 9-12. The demographics of the school consisted of about 70\% African

[^0]American and $14 \%$ Latina $/ o^{5}$ students. The percentage of students who were eligible for free and/or reduced lunch at the time of the study was $78 \%$.

## Data Collection

I observed a 7th grade Pre-Algebra classroom with 28 students, three times a week during the 2014-15 academic school year for a total of approximately 110 hours. In addition to classroom observations, I interviewed five students for approximately 60 minutes each session. Student interviews occurred approximately once or twice a month for 9 months throughout the school year to have them discuss their experiences in their mathematics classroom. In particular, I became interested in students' perspectives on losing their teacher, Mrs. Brown, after she decided to leave during the school year. Mrs. Brown was the full-time teacher of this class at the beginning of the school year and, for personal reasons; she decided to teach in another school. 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 behavioral changes including students acting out and not engaging in the classroom. Students' behavioral shifts 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. In fact, I also had first-hand experience with teacher turnover as a beginning mathematics teacher when I found myself teaching in an urban classroom in the middle of a school year. This combination of witnessing this happen to students, being aware of how common an experience this was for many

[^1]urban students, and knowing the challenges I previously faced in this type of context, I thought it was important to investigate how students experienced the phenomenon of teacher turnover.

## Data Analysis

Student interviews were transcribed and the notion of emergent themes (Patton, 2002) was used to organize the data into categories. Emergent themes require coding and forming categories after data collection (Patton, 2002). Thus, I examined the data guided by the research question, which led to an establishment of three themes. First, students reported that they had to adjust to different instructional strategies to learn mathematics. Second, 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 performance when students discussed the effects of teacher turnover on their learning and performance in the classroom. Finally, I coded students' comments related to student-teacher relationships when students worked to build a relationship with their teacher.

## Findings

This section highlights students' perspectives on their experiences with teacher turnover in their mathematics classroom. The findings highlight what mathematics teachers can do to address some of the challenges students faced when they lost their teacher during the academic school year.

## Identifying 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. Curtis, for example, stated, "I had to get used to it [instructional strategies], which is why my grades were 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 affected. Jada 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.
Jada recognized the misalignment between her learning preferences and Mrs. Edwards' teaching style. Jada wanted her teacher to provide opportunities for her to talk to her peers in order to understand the mathematics concepts.

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 the mathematics instruction with Mrs. Edwards as following steps. Jada 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. Many studies have found that mathematics instruction described by Jada and Medina as being typical for low socio-economic status students of color (Anyon, 1980a; 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, Curtis stated, "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 Jada's and Medina's contributions above). If mathematics teachers had strategies for asking students about their prior experiences, then the students' new mathematics teacher would be better informed about instructional strategies that work for those particular students.

Students even pointed out that Mrs. Edwards spent time reviewing mathematics concepts they had previously learned. Curtis stated, "I already learned that stuff. We [referring to himself and other students] tried to tell her, but she doesn't listen." Mrs. Edwards ignored Curtis 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. My point is not 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.

## Building Quality Student-Teacher Relationships are Important for Mathematics Learning

Students especially struggled with that 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 mathematics learning. Caring student-teacher relationships were identified by students as critical to supporting students' opportunities to learn more generally, and in mathematics classrooms (Ladson-Billings, 1997). 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 mathematics content, it is imperative for students to pay attention to the instruction. In this case, Medina said she had little interest in learning mathematics 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."

Students wanted a reciprocal relationship where they were able to get to know Mrs. Edwards and vice versa. 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. To some, a teacher
can fulfill multiple roles for students, such as a confidante, etc., which can have implications for the ways teachers can engage with students to begin to build a student-teacher relationship. 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." Ty 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 student-teacher 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.

## Attending to Students' Adjustment to Differences in Classroom Routines

The presence of classroom routines is a benchmark of successful mathematics teachers (Leinhardt, 1983). Classroom routines are behaviors that support activities and structures in the classroom (Leinhardt, Weidman, \& Hammond, 1987). Many of the students in this study spoke
about the difficulties of getting a new teacher because of the differences between the teachers' classroom routines. The first two examples below highlight mundane routines. For example, Opal noted, "The class is just different now. I just need time to get used to her and the ways things are now. Like what we do when we come in class." Due to having two teachers in a short period of time, Opal recognized differences, generally, between her two mathematics teachers and expressed the need for time to adjust to Mrs. Edwards. One specific example that Opal recognized was the need for her to adjust quickly to new routines when students first entered the classroom each day. Opal felt like Mrs. Edwards expected them to learn the new routines fairly quickly, even if the new routines were different from their old routines. Ty stated,

Everything is just different...It's a lot to get used to and sometimes I forget. I shouldn't get yelled at if I don't remember to pick up my folder when before [Mrs. Edwards was our teacher], they were on my desk.

Ty also noticed differences between the teacher's classroom routines. At times, he would get in trouble by getting "yelled at" when he did not follow Mrs. Edwards' norms and routines, such as not picking up a folder.

Jada also mentioned some differences about her teachers' routines when students entered the classroom. Jada noted, "She just came in and expected us to know what to do. Like, before sometimes we didn't do warm-ups, but with her we always do. When we forgot, we would get in trouble." Because Mrs. Edwards' routines were not made explicit, Jada thought that the students were expected to know things that were not explained to them. Specifically, when Mrs. Edwards came in, she expected students to complete work as soon as they entered the classroom. This was not a routine, however, when Mrs. Brown began class.

Students also discussed doing sustained activities such as note taking and working on puzzles for warm-ups. Not only were their two teachers' routines different, the students acknowledged that Mrs. Edwards did not seem to have patience as the students transitioned to her expectations. When I asked Ty to provide me with another example of Mrs. Edwards' expectations that were different from Mrs. Brown's, he noted,

Mrs. Brown did not make us take notes all the time. She said if we get stuff then we don't have to write it down. But, Mrs. Edwards makes us write down everything she writes down. Even if we get it...Sometimes I get in trouble because she thinks I am not paying attention, but I already know it.

Ty was not used to writing down mathematics content that he already understood. Note taking can be an important routine in the classroom, but if Ty was not aware of the reasons for taking notes, he may not understand its importance. There were times when Ty would "get in trouble" because his behaviors were being misinterpreted by Mrs. Edwards. In the quotes above, we see that as students are adjusting to Mrs. Edwards' routines, they also describe instances where they "get in trouble" or are "seen as not paying attention," which are negative interpretations of what students were doing. That is, Mrs. Edwards construed students' actions as students being bad and reprimanding them, rather than Mrs. Edwards seeing these as students adjusting to new routines. Mathematics teachers entering the classroom need to understand that things may have run differently with the prior teacher. It will be helpful for teachers to interpret such possible "misbehaviors" as related to the fact that things may have been different with the previous teacher.

The findings section highlighted challenges students faced as they experienced teacher turnover in their mathematics classroom. Students wanted time to adjust to Mrs. Edward's
routines and expectations, discuss things with Mrs. Edwards that occurred in the classroom before Mrs. Brown left, and build a caring and trusting relationship with Mrs. Edwards because they knew it was important for their mathematics learning.

## Discussion

This article highlighted the ways teachers can support students using the challenges students faced when they experienced teacher turnover in their mathematics classrooms. Students' perspectives on their experiences can inform mathematics education leaders as they prepare mathematics teachers who enter these classrooms after a teacher leaves in the middle of the school year. The students whose perspectives I share here experienced senses of disruption, alienation from the learning process, and of loss - both the loss of their previous teacher and the loss of a potential relationship with their new teacher. Though students in this study perceived Mrs. Edwards as not very caring or trustworthy, the contextual reality of urban schooling might make it difficult for urban teachers to express care. Institutional and structural barriers might limit teachers' ability to "demonstrate their care for and 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. These barriers, however, should not impede working to support students in these kinds of situations. Therefore, I conclude with recommendations for mathematics leaders who can provide intentional support for mathematics teachers who navigate their professional duties in ways that support their students.

Students noticed the differences between instructional preferences between their two mathematics teachers in one school year and felt challenged by the burden of adjustment. The differences contributed to students feeling that Mrs. Brown did things in their mathematics classroom that supported their learning in ways that Mrs. Edwards did not. To address the potential inconsistencies for students who experience teacher turnover, a teacher can draw out
students' perspectives on their experiences to gain a better understanding of students' previous mathematics teaching and learning in their mathematics classroom. When the incoming teacher listens to students' perspectives, it provides an opportunity to learn about established classroom routines and instructional strategies that existed prior to the teacher entering the classroom. For example, information about students' learning preferences could be obtained through facilitating whole class discussions, by giving brief surveys with questions about instructional strategies that work for them or having small group discussions that could occur before school, during lunch, or after school. It is best if these conversations with students could be ongoing throughout the school year as opposed to once when the new teacher first enters the classroom. A teacher could pose questions that help students discuss what works and does not work for them. Possible prompts that teachers could ask students include:

- List 2-3 activities that have been helpful for you learning mathematics.
- If you could change some things in your mathematics class, what would you change?
- What do you enjoy about your mathematics class?
- How can I best support you to learn mathematics?

Additionally, a teacher could ask students to name some successful and unsuccessful teaching strategies and routines the previous teacher used in the classroom.

This process is similar to teachers using formative assessment in the classroom.
Formative assessment is defined as an assessment used by teachers and students to be used as feedback to adjust teaching and learning (Dunn \& Mulvenon, 2009; Wiliam, 2000). In other words, formative assessment gathers information about what students know and can do. When teachers collect information about students' past experiences, it provides an opportunity for the
new teacher to learn more, from students, about what occurred before he/she entered the classroom. Again, my point is not that teachers only duplicate previous teachers' practices. Rather, I argue that teachers can improve the learning environments for students by learning about what students see as the positive and negative experiences in their existing mathematics class. A teacher entering the classroom could provide opportunities to learn from the students as well as making students aware of the changes that will occur in the classroom. This allows for opportunities for a mathematics teacher to negotiate the shared space with 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 caring relationships with students as soon as possible. In fact, Katz (1999) explicitly identified teacher turnover as a structural condition that precludes the development of "caring relationships with students" (p. 809). When entering the classroom, many teachers may focus primarily on getting caught up with the content, due to the pressures like high-stakes testing in urban schools, and may not spend time building caring relationships with students. Teachers coming into the classroom to teach mid-year may not feel they are supposed to build caring student-teacher relationships because it may not be viewed as instrumental to learning, but rather as something to do at the beginning of a school year. Some of the students in this study described Mrs. Edwards as a stranger who (only) taught them mathematics. The students did not know much about their teacher, which they saw this as detrimental to their learning.

Because relational aspects of mathematics teaching are so important (Battey, 2013), and caring relationships are reciprocated (Noddings, 2002), teachers should spend time learning the ways students' articulate how their teacher shows he/she cares. Students expressed wanting to get to know their teacher as one aspect of a caring relationship. In fact, students even suggested
how their teacher could get to know them: "tell me two or three things about you." Asking students this question is important to settle some of the students' discomfort when getting a new teacher during the school year. Relational aspects of mathematics teaching are integral to positive and negative interactions between students and teachers (Battey, 2013), "caring with awareness" (Bartell, 2011, p. 53), and culturally responsive teaching (Ladson-Billings, 1997). A teacher could share fun facts about themselves or their loved ones. A teacher should be able to share things they are comfortable with, but one important first step of getting to know students is just to open up and share!

This paper adds to existing literature on the effects of teacher turnover by incorporating students' perspectives about the challenges that they faced in such a context. Students had difficulties adjusting to new instructional strategies, getting used to Mrs. Edwards' routines, and building caring and trusting relationships with Mrs. Edwards that they knew influenced their mathematics learning. Although new teachers coming in may feel overwhelmed by some of the structural features of working in a new school mid-year, students' learning experiences must take precedence. A mathematics education leader can and should support teachers to make meaningful connections with his/her students. Although teacher turnover is a persistent dilemma in urban schools, it can provide a space where new student-teacher relationships are celebrated, new ways of thinking and learning can be introduced and embraced, and students and teachers get a new start. Although mathematics education leaders cannot ensure stability, they can support mathematics teachers to identify instructional strategies that students think support their learning, attend to students' adjustment to differences in classroom routines and access to caring teachingstudent relationships, which can support students' mathematics learning.

## CHAPTER 5: CONCLUSION

This dissertation showcased three manuscripts (Chapters 2-4) that focused on five African American students' perspectives on their experiences in their mathematics classroom in the context of teacher turnover. The first manuscript focused on aspects of students' perspectives of the importance of a caring and trusting student-teacher relationship in their mathematics classroom in the context of teacher turnover. The second manuscript discussed students' perspectives of what, how, and why students resisted in their mathematics classroom. The third manuscript provided recommendations for mathematics education leaders who may support teachers entering a mathematics classroom due to teacher turnover. In this chapter, I state the significance of the work presented in this dissertation, summarize Chapters 2-4 and highlight what each chapter contributes to the literature, synthesize important ideas across the three manuscripts, and describe the lessons I have learned throughout this dissertation process. I also highlight my tentative plans as I move forward into an Assistant Professor position and briefly describe some implications of this work for the teaching of courses for prospective teachers.

## Significance of Problem Addressed by this Dissertation

Students are the reason schools exist (Fletcher, 2006; Freire, 1970). Educators and researchers need to learn more about the ways students experience school, from students' perspectives. There has been a lack of research that examines students' mathematics schooling experiences from various ethnic and socioeconomic populations (Lubienski \& Bowen, 2000). Students have important lessons to teach educators, however, and we need to listen to them more diligently. Nieto (1994) stated students are the individuals who spend the most time in schools, but they do not have many opportunities to speak. One important aspect of students' experiences in school is their learning environment. Nieto (1994) argued for more students' perspectives of their learning environments by stating that, "student voices sometimes reveal the great
challenges and even the deep pain young people feel when schools are unresponsive, cold places" (p. 420). Students are able to provide perspectives that speak to the ways educators can better understand the oppressive structures that exist around them. The use of students' perspectives can reclaim the ownership of their lives (Giroux, 1988).

Teachers, researchers, and policy makers should consult with students to have a better understanding of what works for and against students' mathematics learning. Students know a lot about what they need. 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" (Cook-Sather, 2006, p. 359-360). Students have something to say about the education they receive and it is the responsibility of adults to not only listen, but also collaborate with students to address what they have to say.

Utilizing student perspectives is an important starting point for enabling students who have been silenced and/or marginalized by schools. Some of those marginalized experiences may occur in students' mathematics classrooms. Students' perspectives can be used to enhance students' learning in the mathematics classroom and allow teachers to better understand students' experiences. Research has shown that there are benefits specifically to encouraging the use of African American students' perspectives in a mathematics classroom (e.g., Battey, 2013; Martin, 2000). This work showcased African American students' perspectives of their experiences in a mathematics classroom as students experienced teacher turnover. The next section specifically summarizes Chapters 2-4 and describes how each chapter contributes to educational research.

## Chapter Summaries and Contributions to Research

In Chapter 2, I highlighted students' experiences with a teacher who, from these five African American students' perspectives, did not engage in a caring relationship. Ladson-

Billings (1997) identified caring student-teacher relationships as critical to supporting students’ opportunities to learn, more generally, and in mathematics classrooms. I found that students wanted their teacher to engage in interpersonal dialogue to build a caring student-teacher relationship. Students described differences between "teaching" and "talking" with their teacher. Teaching referred to mathematics instruction, while talking referenced getting to know students. Students also wanted their teacher to get to know them because of the effects a caring studentteacher relationship had on their mathematics learning. If students knew their teacher cared for them, then they said it would alleviate both fear when they needed to ask a clarifying question and embarrassment when they were confused about a mathematics concept. Students also felt that their new teacher, Mrs. Edwards, was not working to build relationships with them and did not seem to value or recognize the role of teacher-student relationships in mathematics teaching and learning. The students tried to combat this by working to try to get to know Mrs. Edwards and to be the initiators in the relationship building, but this was not successful from their point of view.

Chapter 2 examined a phenomenon that is understudied, yet fairly commonplace for urban students: students' perspectives on their mathematics education experience in the context of teacher turnover. Many of the studies on teacher turnover focus on the reasons why teachers leave, including reasons like poor working conditions (Darling-Hammond, 2003) and low salary (Quartz, 2003). Other studies on teacher turnover are all large, quantitative studies about teacher turnover and student achievement, more generally (Ingersoll, 2001; Ingersoll \& Smith, 2003; Ronfeldt, Lankford, Loeb, \& Wyckoff, 2011). I found no empirical studies that examined students' perspectives of their new teacher in the context of teacher turnover. Thus, there is a lack of empirical evidence providing rich descriptions of students' perspectives and experiences
in regards to losing their teacher. The qualitative study reported here adds nuance to this literature by investigating students' perspectives on their mathematics learning in the context of teacher turnover in order to support students' achievement in mathematics in this unique context. Specifically, I advanced a student-centric perspective that demonstrates the ways students discussed caring student-teacher relationships in their mathematics classroom in the context of teacher turnover.

One contribution of the work presented in Chapter 2 is in understanding some of the kinds of teacher interactions and behaviors students might interpret as "caring." As Noddings" (1992) seminal work noted, "No matter how hard their teacher tried to care, if caring is not received by the student, the claim 'they [the teacher] doesn't care' has some validity" (p. 15).

In Chapter 2, I examined the types of behavior students described in this dissertation that can help educators facilitate more positive relationships in order to determine whether students 'received' the care and/or the potential impact of the relationship between students and their teacher. The students stated that Mrs. Edwards liked to talk and engage with students about mathematics, but students noted the absence of their teacher attending to any kind of relational aspects they described as important to their educational experience. Therefore, students felt unsupported interpersonally as they learned mathematics. Although reciprocal interactions are important in caring and trusting relationships, students highly valued teachers who initiated these types of caring relationships with them. For the students, a teacher's initiation toward building a caring relationship demonstrated that the teacher cared. Students experienced Mrs. Brown initiating a caring student-teacher relationship, but they stated that Mrs. Edwards did not initiate such relationships with them. Students saw these relationships and mathematics learning as
intimately related. This was particularly evident as students attempted to initiate conversations to try to get to know Mrs. Edwards.

Also, critical theorists hold that social arrangements of power, designations of authority, and determinations of what it means to know, are the product of structural relationships. They seek to illuminate perspectives that have been silenced by structural inequity (McLaren, 2003). This framework is relevant to the findings in this chapter for at least two reasons. First, it legitimates students' perspectives as important sources of information about schooling systems (Robinson \& Taylor, 2007). Second, its pushes us to think critically about how care has been discussed in the literature, and the power arrangements, systems of authority and epistemologies that dominant conceptualizations of care affirm.

In Chapter 3, I examined what, how, and why students resisted in the context of experiencing teacher turnover. I adopted McLaren's (1985) definition of resistance as an oppositional behavior that may protest or undermine oppressive educational practices that may or may not hinder what and how students learn. I used McLaren's definition because of the oppositional behavior students discussed in interviews and which I witnessed during classroom observations. I learned that students first resisted hegemonic practices, but eventually succumbed to those practices because they did not want to fail their mathematics class. Students resisted monotonous teaching practices by not paying attention, putting their heads on desks, getting kicked out of class, and ignoring the teacher's requests. The reasons they gave included being bored, not understanding the mathematics content, and not being able to learn the way the teacher taught. Students also resisted assignments by not completing them, turning them in late, and not paying attention when the teacher explained how to complete the worksheets. The reasons they gave included being tired of doing the same type of work, seeing their assignments
as not related to their current lives and future career goals, and feeling that the mathematics concepts were disconnected from students' lives. Students resisted being silenced by their teacher through refusing to take notes, making comments about what did and did not work for them, and ignoring their teacher's requests to stop talking. Their reasons for these resistant acts included their previous understanding of mathematics content and their feelings of being lost by how the teacher taught.

Much of the research on student resistance has focused on urban schools that enroll primarily underrepresented racial and ethnic populations (Solorzano \& Delgado Bernal, 2001). Roy (2000) found that students could be passively resistant (e.g., disengaged, not going to class) or aggressively resistant (e.g., disruptive behavior). Some forms of resistance can be counterproductive (e.g. dropping out of school, acting out in class) because the actions may reinforce the ideologies and structures that one may intend to resist (McLaren, 1989; Solorzano \& Bernal, 2001). Some forms of resistance contribute to students' academic goals, while other forms of resistance do not (Carter, 2008). For example, Carter introduced an achievement ideology that helps to understand the role race plays in students' educational experiences and how students can resist negative experiences through academic achievement. Whatever the acts of resistance students engage in, Chapter 3 illustrates potential rationales for students' acts of resistance as they experience teacher turnover. My study examined what, how, and why students resisted in their mathematics classroom.

Chapter 3 makes significant contributions to existing literature about student resistance because there is no explicit mention of teacher turnover in other research on student resistance. Yet, research has shown that urban students have to contend with issues of teacher turnover, at a higher rate than most (Ingersoll \& Smith, 2003). Specifically, I reported students' perspectives
about the types of pedagogies that did not work for them, whereas most literature reports perspectives of teachers or researchers (e.g., Haberman, 1991; Ladson-Billings, 1997). Students' perspectives in Chapter 3 reaffirmed that the instructional strategies formerly named "the pedagogy of poverty" (Haberman, 1991) still exist in urban mathematics classrooms. Students also became acquiescent because of the consequences of their grades, which could impact their family lives and possibly future careers.

Some of my findings echo existing studies. Similar to Roy's (2000) findings, my data illustrated how students engaged in passive and aggressive forms of resistance in their mathematics classroom. Passive forms of resistance included students not paying attention because the work was not relevant to students and aggressive forms of resistance included being kicked out of the classroom because students did not understand the mathematics content. My study highlighted the idea of failed resistance, which is supported by Carter's (2008) idea of achievement as resistance because students initially resisted the pedagogy of poverty, but eventually conformed to the teaching practices in order to achieve academically. Teachers should not presume that the absence of (or the discontinuation of) resistance means they are teaching in ways that are beneficial to students' mathematics understanding. Unless we seek out students' voices and honor their perspectives, we cannot know whether what we are doing benefits students' learning and their ongoing identity development.

In Chapter 4, I identified teacher turnover as a problematic phenomenon in urban schools. I drew on African American students' perspectives as they reflected on their experiences with teacher turnover in their mathematics classroom in order to share this information with mathematics education leaders. The students, whose perspectives I shared, experienced a sense of disruption, alienation from the learning process, and of loss - both the loss of their previous
teacher and the loss of a potential relationship with their new teacher. Students had difficulties adjusting to new instructional strategies, getting used to Mrs. Edwards' routines, and building caring and trusting relationships with Mrs. Edwards. These were all problematic because of their effect on students' mathematics learning. I addressed the key challenges that students described by offering recommendations for mathematics teachers and mathematics education leaders who are responsible for preparing teachers to enter a mathematics classroom after the school year begins. I recommended that teachers should: talk to students to get to know them, identify instructional strategies that work best for students, and attend to students' adjustments to differences in classroom routines that existed before the teacher entered the classroom to support consistency with learning mathematics in the classroom. I also shared ways mathematics education leaders can support teachers to build a caring student-teacher relationship within conditions of teacher turnover.

The work highlighted in Chapter 4 contributes to research conducted in the field of mathematics education by showing how teacher turnover affected the ways students needed to adjust to their new mathematics teacher. The new mathematics teacher may feel overwhelmed by some of the structural features of working in an urban school, but students' learning experiences must take precedence. Although teacher turnover is a persistent dilemma in urban schools, it can provide a space where new student-teacher relationships are celebrated, new ways of thinking and learning can be introduced and embraced, and students and teachers get a new start.

The findings in Chapter 4 can be used to help teachers see that some of the things they may accidentally interpret as disruptive and belligerent are really the result of shifts in norms and routines for students. For example, quotes by students like Ty (e.g., "It's a lot to get used to and sometimes I forget. I shouldn't get yelled at if I don't remember to pick up my folder when before
[Mrs. Edwards was our teacher], they were on my desk") may illustrate this point clearly for teachers and be interesting substance for discussion with mathematics education leaders.

## Synthesis across Chapters 2-4

Broadly, these three studies examine aspects of the phenomenon of teacher turnover that have yet to be fully explored in mathematics education literature. My dissertation research contributes to equity research by examining students' perspectives on what may be more equitable learning environments for African American students in mathematics classrooms. This research also discussed obstacles that affected students' mathematics learning in the context of urban education. I examined students' experiences by focusing on their perspectives as they discussed the importance of student-teacher relationships and explained what, how, and why they resisted instructional practices in their mathematics classroom. I also demonstrated how teacher turnover disrupted student mathematics learning.

One important contribution to mathematics research is the fact that I brought a critical perspective to this work. A critical perspective promotes giving a voice to the voiceless (Freire, 1970) and to continually paying attention to issues of marginalization. Some issues of marginalization can be addressed by attending to aspects of students' identities; including those related to future STEM careers that might be silenced or ignored when a mathematics teacher does not initiate/pursue interpersonal relationships. Howard (2001) noted that in order for African American students to do their best work, it requires that we place their voices at the core of discussions about what works for them in the classroom. Those with the most to gain from meaningful changes in policy and practice (i.e., students themselves, and specifically African American students) are typically rendered silent in discussions (Irizarry, 2011). The literature often acknowledges the challenges of teacher turnover for teachers and for students' learning (Ingersoll, 2001), but 'learning' in this body of work tends to focus narrowly on the learning of
content. Yet, learning also involves students' identity development, which requires positive student-teacher relationships. By using a critical perspective, I was able to identify how accepted and traditional practices, such as repetitive routines, have hegemonic effects in the mathematics classroom. I also investigated students' perspectives on some of the hegemonic practices (e.g., worksheets) that took place in their mathematics classroom and at times critiqued some of the hegemonic practices in the classroom and they resisted by not engaging or acting out in the classroom. Moreover, the students in this paper resisted for a short amount of time and then decided that the consequences of a low grade in mathematics, and the related trouble at home, were not worth it.

In relation to student perspectives, Chapters 2-4 also highlighted challenging assumptions that African American students' resiliency will necessarily get them through their negative experiences in urban schools. This work shows that we should continue to pay attention to the importance of caring student-teacher relationships in the mathematics classroom. If students are not able to build caring relationships with their teacher, then student resistance may be more likely to occur. Students also noted that the pedagogy of poverty does not work for themsomething that has been previously argued from the perspective of researchers and teachers. Ultimately, students' mathematics learning will be affected, which may further marginalize students.

Most of the work that focuses on what might be important to the teaching and learning of mathematics are from the perspectives of researchers and/or teachers. Researchers can gain a better understanding about teaching and learning in mathematics classrooms by listening carefully to students' perspectives. For instance, students' perspectives can provide more insight into the language students use to describe their schooling experiences. In Chapter 2, for example,

Medina used the phrase, "my teacher does not talk to us" when she shared that Mrs. Edwards did not want to get to know them when she first arrived to their mathematics classroom. Medina's statement highlighted a difference she saw between teaching and talking. To her (and other students), teaching referred to classroom speech that was used to convey information about mathematics and talking referred to interpersonal speech or speech intended to understand and get to know more about the students in a classroom. If researchers continue to frame students' experiences in the language of researchers and teachers, we might be missing some issues that are important to students. Researchers and teachers may not hear the kinds of differences in language, explained above, when talking about students' experiences. This point suggests that more work needs to be done to ground certain concepts in ways that are relevant to students. In other words, listening to students' perspectives provides an opportunity to find commonalities and differences between languages students and researchers use to discuss students' experiences. Researchers may not be asking the right kinds of questions to learn all that we can, if we focus primarily on what researchers (or teachers) see and/or think. This study provided new insight into the phenomenon of teacher turnover in mathematics classrooms because it accounted for students' perspectives. I also offered some new language from the students themselves through which to describe their experiences in their mathematics classroom. If researchers and teachers listen to students, we are able to consider experiences that are important to students and the ways they talk about those experiences.

## Lessons Learned

This study examined the perspectives of African American students in their mathematics classroom over an entire school year. Because I was a novice researcher when I started this dissertation study, I want to share the lessons I learned throughout this process. I discuss the lessons I learned by organizing these lessons in relationship to the chronological process of doing
the work. In this section, I discuss lessons learned about a) having the support of teachers and administrators in the school, b) dealing with situations that may force research topics to alter c) building relationships with students when conducting research over time, d) learning to get rich data when interviewing middle school students, and e) representing students' perspectives as closely as possible. I also highlight why each lesson was important as I conducted my dissertation study.

My first lesson came before I conducted research in Westside School. I learned the importance of collaborative discussions with teachers and administrators in the school. Before I gained entrance into Westside School, I began to develop a relationship with Mrs. Brown. She and I took a doctoral class together and we had several conversations once we discovered we both taught mathematics. Mrs. Brown was a practicing mathematics teacher and struggled with student engagement. Thus, we talked about some of the instructional practices in her classroom and how she might be able to improve student engagement. One day, I got excited after I read some articles about the use of cogen in middle and high school classrooms. I wanted a practicing mathematics teacher's opinion of cogen, so I talked to Mrs. Brown. After our conversation, she stated that she loved the idea and she thought incorporating cogen in her mathematics classroom would increase student engagement and improve relationships with her students. Together we talked to the principal, who also liked the idea of me working with Mrs. Brown during the school year. The principal was excited about my study and told me to let her know if I ever needed anything. After my conversation with Mrs. Brown and the principal, I began planning my dissertation study.

As I mentioned in Chapter 2, I did not enter this study to highlight student experiences with teacher turnover. My initial topic came from conversations with Mrs. Brown about cogen
and ways to improve student engagement in her classroom. When Mrs. Brown decided to leave Westside School, however, my study was put in jeopardy. I learned that these kinds of situations can happen in school-based research and that I was able to bounce back and do something that was even more aligned with my interests: focus on the students' perspectives. The Principal, School Counselor and the Vice Principal advocated for me and talked with Mrs. Edwards to see if she would allow me to continue my study in her classroom. Later in the school year, the Vice Principal pulled me aside and stated that it was honorable that I decided to stay with the students instead of going to the other school with Mrs. Brown. This highlighted, again, how important it was for me to have strong, genuine relationships with people at the school. The Vice Principal knew I was there for the students and he wanted to make sure I was able to continue my study.

My interactions with Mrs. Edwards further taught me that researchers may have little control over what might happen. When Mrs. Edwards agreed to let me observe her classroom when she took over for Mrs. Brown, I was unsure what my specific focus for my dissertation research would be. Mrs. Edwards stated she did not want to try cogen or the other strategies Mrs. Brown had used, but she welcomed me to continue to observe her classroom and engage with students. Sometimes researchers enter a school with an agenda to study one phenomenon and end up conducting a study that has a different focus because that is a more interesting path to take. I want to also highlight the importance of keeping in contact with the Institutional Review Board (IRB) personnel because $\mathrm{s} /$ he can be very helpful with addendums to human subject approval, if necessary.

I also learned that being present in the classroom through one academic school year helped me build relationships with the students in the classroom and the students who participated in student interviews. I was at Westside School three to four times per week, so as I
walked down the hallway to complete my observations, many of the administrators and students greeted me with, "Good morning, Ms. Id-Deen." As the year progressed, students came to expect me to be in the classroom. On days when I could not make it to Westside School, students noticed my absence and always asked me why I was not there when I returned.

As time passed, students stated, "No one ever cared to listen to what I have to say", "I can say anything I want about school and my math class?" and "I like coming to talk to you about stuff from my class." The students and I got to know each other during interview sessions. As students learned more about me, they were willing to share more about themselves and their experiences. Before I began asking questions about their experiences in their mathematics classroom, I would ask them how things were going for them. I would revisit previous topics or issues when they mentioned they had a bad day or someone made them mad. I also provided opportunities for students to ask me things they wanted to learn about me. During interviews, I consistently reminded students I wanted to hear everything they wanted to share with me and I was honored to be able to listen to their stories. Students trusted me to listen to who they were as individuals and their concerns because they understood that this information, in turn, would help teachers who work with other students. While doing this work, I came to find that building these kinds of long-term relationships helped students to be excited to provide their perspectives on their mathematics classroom experiences.

As I collected data, I learned strategies to help obtain rich data when interviewing middle school students. At the beginning of my study, it was sometimes difficult to get students to talk about their experiences during student interviews. Students gave sentence-length answers without elaborating. I talked with experienced researchers (e.g., Amanda Jansen, Tonya Bartell, Beth Herbel-Eisenmann) who previously examined middle school students' perspectives. They
provided advice that helped me get students to elaborate on their brief answers to my questions. They suggested that I ask students to discuss relationships with people out-of-school and make comparisons to the relationships with their mathematics teacher. For example, a student stated she wanted her teacher to care about her. I asked the student to discuss a relationship with someone who she thought cared about her outside of school or positive experiences that occurred in previous years or other classrooms. This allowed students to think about people who showed they cared for them, compare it with what was happening in their classroom, and discuss what those individuals did to show they cared. Another suggestion was to have students watch some of the video recordings from previous classroom observations and ask them to discuss what they saw in the video. I was able to obtain rich data through the questions I asked. Because the data was so rich, I wanted to make sure I authentically represented the students' perspectives.

As I began an initial analysis of the data, I learned about the importance of representing students' perspectives as genuinely and closely as possible to how they described their experiences. It was important for me to make sure I represented students' perspectives to the best of my ability through asking clarifying questions and member checking to better understand their perspective. During interviews, students would say something that happened in their mathematics classroom and I would always ask them to provide an example of what they said. For example, I asked Curtis how his mathematics classroom was going. He stated the class was boring and he was not interested in the lessons. I wanted to learn more about why the class was boring and asked him to give some examples of situations that happened that helped me understand what he found un-interesting. I also wanted him to discuss what was not interesting about the mathematics lessons. The students eventually began clarifying their answers without me asking them. They would answer interview questions by making statements like, "I know you
want an example" or "Ok. This is why I feel that way...". The students and I would laugh and they would continue to discuss their experiences.

Member checking was also an important part of helping me represent students’ perspectives. Member checks are imperative to ensure the students' experiences are portrayed in a manner that coheres with their perspectives (Glesne, 2006). Because I interviewed students over several months, I continuously listened to the audio recording of the interviews and wrote questions and brief summaries of the students' statements. I sometimes had them read these summaries to provide feedback on my descriptions and interpretations. This process helped me capture students' authentic perspectives on their experiences. During student interviews, I also member checked what I observed when they were in their classroom to avoid any misrepresentation of the students' behaviors in the classroom.

## Moving Forward

I have developed research commitments that reflect my passion for improving the teaching and learning of mathematics for all students, especially students in urban contexts. As I enter my tenure-track Assistant Professor position, my work as a mathematics education researcher will be tightly knit with my thinking and practices as a teacher and teacher educator committed to ensuring mathematics classrooms and schooling environments are equitable for underrepresented students. I will continue my commitment to highlight students' perspectives on their experiences in order to improve diverse students' mathematics learning environments in urban schools. I am elated to be a part of a College of Education that values community-oriented work and will allow me to continue to provide voices for the voiceless (Freire, 1970) in a way that will enhance their learning environment. This section highlights tentative research questions related to my future research and how I plan to incorporate a focus on students' perspectives in my mathematics methods courses.

I would like to extend aspects of this dissertation study to another urban school district in which students experience a high amount of teacher turnover. I want to learn more about the ways administrators and teachers support these teachers and students who attend schools with high rates of teacher turnover. Although my rich descriptions of five students' perspectives provided great insight into the phenomenon of teacher turnover, more students' voices are needed to have a greater understanding of how students experience this. In fact, I could use the findings from this dissertation to design a survey instrument to give to a larger number of students in order to provide a broader understanding of many students' perspectives. Such larger scale work could help inform policy and district- or school- level practices.

Additionally, doing similar work as what I report here, but in different urban contexts, could highlight other issues that did not surface here. There may be similarities and differences across urban school contexts that will help articulate a more precise conceptualization of urban students' perspectives on student-teacher relationships and resistance in their mathematics classrooms. These broad questions (and brief elaborations) will be influential as I continue my research agenda of examining students' perspectives of their schooling experiences:

1. After students experience the loss of a teacher, how does that affect them as they build relationships with their new teacher the following school year or within the year students experience that loss?

Some of the students in the study talked about the importance of getting to know their teacher, even though they were unsuccessful in getting to know Mrs. Edwards. Because caring and trusting student-teacher relationships were an important part of students' mathematics learning, I would like to know if students initiate caring and trusting relationships with their teacher.

Additionally, mathematics will always be the content focus of my work. I could collaborate with
scholars in other content areas to help me better understand teacher turnover in mathematics. Collaborations will help me consider how students experience teacher turnover differently by content areas.
2. What more can we learn when we attempt to examine students' perspectives on their mathematics schooling experiences? What aspects do students pay attention to when they discuss their experiences in their mathematics classroom?

As I mentioned throughout this dissertation, I did not enter the data looking for caring and trusting student-teacher relationships and student resistance. I would like to continue to listen to students' perspectives to learn more about their mathematics schooling experiences. Students' perspectives could speak to various hegemonic practices in mathematics classrooms and schools. Paying attention to prevalent themes may show what students find important to their schooling experiences.

My work will also inform conversations about student perspectives in teacher education. Cook-Sather (2009) argued that paying attention to students' perspectives in teacher education is not common. I can see this work being integrated into discussions that occur in teacher education in at least two ways. I think a good first step might be to consider the ways prospective mathematics teachers think about how they might use students' perspectives in their planning and teaching.

To anchor classroom discussions about how prospective teachers might use their students' perspectives, I would a) include readings about students' perspectives; b) design assignments and projects that would help prospective teachers gather information from students to enhance students' teaching and learning in the classroom; and c) incorporate classroom observation assignments during field experiences. The readings would include articles that focus
on the importance of students' perspectives, for example, an article entitled, "Hearing footsteps in the dark: African American students descriptions of effective teachers" (Howard, 2002). This article examined students' perspectives on teaching strategies that had positive effects on students' engagement and overall achievement in their class. I could also offer Chapter 4 (after publication) because of its focus on students' perspectives on their experiences with a common phenomenon in urban schools, teacher turnover.

An example of a potential assignment I might design for my methods course would ask prospective mathematics teachers to talk to students about their relationships with their teacher. It would also be beneficial to learn more about students' learning preferences, so the prospective teachers can see whether students' learning preferences align with the instructional practices in the classroom. The conversations we have may uncover benefits and anticipated challenges with prospective teachers incorporating student voices when they enter the classroom. I might also have students take notes during field experiences of examples that show their mentor teacher paying attention to students' perspectives in the classroom. These notes would be ongoing because learning about students is not something that can be captured from one observation. These instances may be able to speak to the type of student-teacher relationships that occur in the classroom. Prospective mathematics teachers could also interview their mentor teacher to see how s/he gets to know students as people, learners, and mathematics learners. These are just a few examples of ways I could integrate the importance of students' perspectives in teacher education. This study demonstrated the importance of students' perspectives on students' mathematics learning. One of the goals in my future mathematics methods course is to get prospective mathematics teachers to better understand the importance of centering students' perspectives in the classroom.

Broadly, this dissertation provides a better understanding of how African American students experienced their learning conditions in the context of teacher turnover. Scholars of urban education suggest that African American students in urban settings are uniquely marginalized by schooling systems. Utilizing these student perspectives is an important starting point for supporting their learning, especially in mathematics (Martin, 2000; Stinson, 2008; Terry \& McGee, 2012). In this dissertation, I drew on Critical Theory to examine students’ perspectives that offer insight into the oppressive structures that exist around African American students in mathematics classrooms in an urban school. This study demonstrated the need to recognize the types of behaviors that students associated with a caring student-teacher relationship. Additionally, students described initial resistance to hegemonic practices, but eventually succumbed to those practices because they did not want to fail their mathematics class. Researchers and educators need to pay closer attention to concerns and perspectives of African American students in urban schools.

## APPENDICES

## APPENDIX A: CONSENT FORMS

Research Study Title: Examining Students' Perspectives and Learning Experiences During Teacher Turnover in a $7^{\text {th }}$ Grade Mathematics Class

## Researchers

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Dear Participant:
We are contacting you to invite you to participate in a research study to examine students' perspectives and learning experiences in a mathematics classroom where they received a new mathematics teacher in the middle of the school year. The goal of this study is to understand students' experiences of learning mathematics once their mathematics teacher left.

## Purpose and Overview

We are looking for $7^{\text {th }}$ grade students to participate in this research on students' experiences with teacher attrition. Teacher Attrition refers to those who leave or transfer to other schools or school systems. Should you participate in this study, the researchers will ask to (1) collect a copy of your written work throughout the semester, your work will be collected to gauge your mathematics understanding; (2) students will have the choice to write (in a notebook provided) or audio record (an audio recorder provided) journals using prompts and questions given by the Ms. Id-Deen; (3) video record you in your mathematics classroom and (4) participate in interviews over the phone during the school year. In order to protect your anonymity, pseudonyms (fake name) will be used. Although investigators will be given a copy of your assignments from the teacher, the researchers will not be grading them. Your grades in this class will not be affected by participating in this research project nor will any research data be analyzed or reported until final grades are posted/determined.

## Participation and your right to say "no"

Participation is voluntary, you may choose not to participate at all, or you may refuse to participate in certain procedures or answer certain questions or discontinue your participation at any time without consequence. Refusal to participate will involve no penalty or loss of benefits to which the subjects is otherwise entitled.

## Benefits to You

If you do choose to participate, this is an opportunity for you to reflect on your own mathematical experiences in your mathematics class. Research shows that discussing academic experiences can be empowering, and our hope is that this will be an empowering experience. More broadly, this study may contribute to the understanding of the use of student voices to
better understand how to support students through teacher attrition.

## Guardian Involvement

Your guardian will not be involved in the research study. The interviews will take place over the telephone at a time that is convenient for you.

## Potential Risks

Just as discussing academic experiences can be empowering, discussing negative experiences in mathematics can also be potentially stressful. Otherwise, there are no foreseeable risks associated with participation in this study.

## Confidentiality and Privacy

Your confidentiality will be protected to the maximum extent allowable by law. The research data will be kept on the campus of Michigan State University (MSU) in a locked file cabinet and/or password protected computer for 3 years after the close of the research. Only the appointed researchers (Lateefah Id-Deen and Beth Herbel- Eisenmann) and the Institutional Review Board at MSU will have access to the research data. Your real name will not be associated with any personal information; instead, false names will be used. The results of this study will be published and/or presented at professional meetings, but the identities of all research participants will remain anonymous.

## Costs and Compensation

There is no financial cost to participate in this study. If you choose to participate you will get paid a total of $\mathbf{\$ 5 0}$. You will receive $\$ 10$ before the end of this semester, $\$ 20$ at the beginning of March and $\$ 10$ in the middle of May. In order to receive the full amount of money you must complete the required journals and participate in the phone interviews. Anything that is not completed will jeopardize you receiving these funds.

## Contact Information for Questions and Concerns

If you have concerns or questions about this study, such as scientific issues, how to do any part of it, or to report an injury, please contact the researcher(s) (Lateefah Id-Deen: iddeenla@msu.edu, 146 Erickson Hall, Michigan State University, East Lansing, MI 48824 and Beth Herbel-Eisenmann: bhe@msu.edu, 316 Erickson Hall, Michigan State University, East Lansing, MI 48824, 517.432.9607).

If you have questions or concerns about your role and rights as a research participant, would like to obtain information or offer input, or would like to register a complaint about this study, you may contact, anonymously if you wish, the Michigan State University's Human Research Protection Program at 517.355.2180, Fax 517.432.4503, or email irb@msu.edu or regular mail at 408 W. Circle Drive, Rm. 207 Olds Hall, MSU, East Lansing, MI 48824.

If you would like to be in this research study and are under the age of 18 years old, your parent(s) will have to give consent first. Then we will ask you to voluntarily sign your initials below if you voluntarily agree to the following:
$\qquad$ I give my consent to be video recorded in my mathematics class.
$\qquad$ I may terminate my participation in this research study at any time.
___ I would like to participate in monthly interviews with Ms Id-Deen. Contact me at this number: $\qquad$
I give my consent for Ms. Id-Deen to have access to my written schoolwork for research purposes only.

Choose ONE of the options below:
___ I would like to WRITE my journals using a notebook provided by Ms. Id-Deen.
$\ldots$ I would like to AUDIO record my journals using an audio recorder provided by Ms.
Id-Deen.

## Documentation of Informed Consent/Assent

Your signature below means that you voluntarily agree to participate in this research study. You will be given a copy of this form to keep.

Student's Name (Printed)

## Student's Signature

Date

Sincerely, Lateefah Id-Deen

Beth Herbel-Eisenmann, PhD
PhD Student

## Parent Consent Form

The research study we would like your child to be in is about examining students' perceptions and contributions in their mathematics classroom. In order for your child to participate in this research study, we ask that parents/guardians read the attached assent/consent form, contact the researchers with any questions and then sign the consent (permission) form below.

I have read the participant assent/consent form explaining the study. I understand that data from the students' responses in the interview and notes from classroom observations will be confidential and that students will be identified by pseudonyms (fake names) in all reports. Data will be reported to the Michigan State University School of Education for a PhD dissertation study by Lateefah Id-Deen, and may be published in educational journals or at educational conferences for reporting to the community of educators and researchers. Although investigators will be given a copy of your child's homework assignments from their teacher, the investigators will not be grading them. Your child's grades in this class will not be affected by participating in this research project nor will any research data be analyzed or reported until their final grades are posted/determined.

I voluntarily grant permission for my son/daughter to participate in this research study.
Name of your child (please print)

Name of parent/guardian-(please print)

Signature $\qquad$

Date $\qquad$

## APPENDIX B: WRITTEN JOURNAL PROMPTS

Thank you for participating in this portion of the study! This journal will focus on your daily thoughts and feelings as it relates to your experiences in your mathematics classroom. Below are some important points as you write in your journal:

- Please bring your notebook to math class everyday. Ms. Id-Deen may need to collect it. It will be returned to you the following day.
- Please try your hardest to keep up with this notebook.
- Please write the date of your entry on the top of the page and the question you are answering in your journal page
- Please write in this journal at least 3 times per week.
- Here are some suggested topics to write about in your journal. You can, however, write about whatever you want.

1. Share a positive experience you had in your mathematics class.
2. Share a negative experience you had in your mathematics class.
3. Write about one mathematics concept you learned about today. What contributed to you learning the concepts? (For example, did the teacher help? Another student?)
4. Write about something you wish was different in your math class today.
5. Describe your engagement in your mathematics class today. For example, are you focused? Is it hard to focus? What did you do today in your classroom during mathematics class?

## APPENDIX C: STUDENT INTERVIEW QUESTIONS

Thanks again for taking the time to answer a few questions about your experiences in your mathematics class.

1. The first questions asked how students were doing.
2. The second questions asked students about their journal entries.
3. What's going well for you in your mathematics class?
4. What's not going well for you in your mathematics class?
5. What would you change about your participation in class?
a. Ask more questions?
b. More attentive?
6. What changes in your class would help you?
a. The pace of the class?
b. Interacting with other students?

Interacting with the teacher?
7. Have there been times where you feel invisible? If so, please explain. Did you have similar feelings with Mrs. B?
8. Describe your engagement in math class. For example, are you focused? Is it hard to focus? What do you generally do in your classroom during mathematics class?
9. Talk about your relationship with your teacher. What about your relationship with Mrs. B?
10. Describe a place where you feel like someone is listening to you. Compare and contrast that experience to your mathematics class.
11. Describe a place where you feel valued? Compare and contrast that experience to your mathematics class.
12. Describe a place where you are able to make decisions. Compare and contrast that to your mathematics class.
13. Talk about your favorite moment in your mathematics class. Explain.
14. Talk about your least favorite moment in your mathematics class. Explain.
15. Talk about one of your favorite classes. (Listen for relationships and resistance connections and expand on those)
16. How are your feelings about mathematics? Are you good at math?

At times, we also watched video clips of events in the classroom, so I could better understand their interpretation of events.

## APPENDIX D: MRS. BROWN'S INTERVIEW QUESTIONS

Thanks again for taking the time to answer a few questions about yourself. I know a teacher's time is very valuable, Even though part of this study is focused on students' perspectives of experiencing a new teacher in the middle of the school year, these questions will help me get a better sense of their mathematics teacher.

1) Tell me about your prior experiences with working with children.
2) Describe the mathematics class you envision teaching this fall. And you can look at it from a $7^{\text {th }}$ grade perspective or you can talk more broadly. What type of math class do you envision teaching this fall?
3) Please talk about some positive experiences as a teacher.
4) Talk about some challenging experiences as a teacher.
5) What are some questions or concerns you have about teaching mathematics?
6) What are some expectations for your teaching practices for this coming school year?
7) What are some areas you would like to improve in your classroom? (i.e. relationships with students, using a variety of teaching strategies)
8) Are having relationships with your students important to you as a teacher? If so, why?
9) How has your relationships been with your students in the past (at this school)?
10) How has your math classes been in the past (at this school)?
11) What, if any, problems have you experienced while teaching at this school in the past?
12) What are your expectations of your students this coming year?
13) How do you deal with criticisms about your teaching?
14) What is your understanding of cogen?
15) Have you ever used student voices in your classroom? If so, how? How did it go? If not, why?
16) What do you hope to gain from incorporating cogen sessions in your classroom?

## APPENDIX E: MRS. EDWARDS' INTERVIEW QUESTIONS

Thanks again for taking the time to answer a few questions about yourself. I know a teacher's time is very valuable, Even though part of this study is focused on students' perspectives of experiencing a new teacher in the middle of the school year, these questions will help me get a better sense of their mathematics teacher.

1) Please tell me about your prior experiences with working with children. For example, have you always taught mathematics at Eastern? What grades have you taught?
2) What do you find most rewarding about teaching mathematics?
3) Have all of your mathematics teaching experiences been in an urban context? If not, how different is teaching mathematics in an urban context
4) Describe the mathematics class you envisioned teaching at the beginning of the school year? (For example, what type of teaching strategies did you hope to use? What kind of activities were you hoping to use to engage the students?)
5) Were you able to continue this vision in your new classroom? Why or Why not?
6) How did you prepare to enter a new mathematics classroom in the middle of the school year? Was preparing mid year different if you would have started at the beginning of the school year? If so, how?
7) What has been the biggest challenges teaching a new class in the middle of the school year?
8) What are some areas you would like to improve in your classroom? (For example, relationships with students, teaching strategies)
9) Earlier this semester you observed some resistance from the students. Will you talk some more about the resistance you noticed? Why do you think the students were resistant? In what ways do you think you helped ease the resistance you experienced?
10) Do you think any of these students (Curtis, Medina, Opal, Ty, Jada) participation changed over time? If so, in what ways did their participation change?

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[^0]:    ${ }^{4}$ I use the term urban to refer to students or schools located in cities (population $>100,000$ ), with student populations that are predominately students of color and from low SES families.

[^1]:    ${ }^{5}$ Latina/o, which includes both the masculine "o" and feminine "a", as a way to describe people with Latin American roots.

