

**CONTESTATION AND POSSIBILITIES:
EXPERIENCES IN THE 'OTHER' URBAN CLASSROOMS**

by

Nicole K. Grimes

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This manuscript has been read and accepted for the Graduate Faculty in Urban Education
in satisfaction of the dissertation requirement for the degree of Doctor of Philosophy.

Kenneth Tobin

Chair of Examining Committee

Anthony Picciano

Executive Officer

Wesley Pitts

Jennifer Adams

Supervisory Committee

ABSTRACT

Contestation and possibilities:
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By
Nicole K. Grimes

Advisor: Professor Kenneth Tobin

The research presented in this dissertation is a response to the general lack of research conducted in independent urban schools. In my work, I present varied vignettes that aim to provide a glimpse into the lifeworlds of students within such schools and how they too struggle to learn science. There are two major goals of this study. First, I encourage readers to rethink current conceptions of urban schooling and redefine what it means to be an urban learner. Secondly, I intend to demonstrate how the cogenerated action plans of coteachers and cogenerative dialogue groups can serve to make science accessible to students whom are diagnosed and placed in mainstreamed educational settings. The idea is to show that by transforming science learning contexts into cosmopolitan learning communities, students can become successful in science. Through a three-year ethnographic study of middle science classrooms in an independent school in New York City, I present explorations of the culture and context of the independent urban classroom as a chief means to meet my stated goals. By utilizing cogenerative dialogues and coteaching, I show how students and teachers can work together as co-researchers and coteachers that engage in a dual process of creating structures that support science success.

DEDICATION

To my family, my friends, my colleagues, my students, my community, and those who told me that teaching “would never amount to nothing.”

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I am truly grateful for the cooperation of my student participants in this research, referred to in this dissertation as Ashley, Leslie and Rebeka. They allowed me to work with them to explore science and science education in our cogenerative dialogues, in my classes where we cotaught, and other social spaces we shared at Pay Prep. I have learned a lot from these students who allowed me to take risks in ways that were productive and helped to increase my fluency in teaching science. I only hope that they acquired as much out of their participation as I did. Without their agentic and intelligent participation, this study would not be half of what it is. I would also like to thank the staff and administrators at Pay Prep for their unwavering support while I juggled full-time science teaching and pursuing my doctorate. They were patient, understanding and also flexible in their acceptance of new strategies and tactics to help our students reach their highest potential.

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CHAPTER I

Lost and found: examining the possibilities of unintended rebellion

Why I do what I do

Kicking and screaming: My journey into the urban classroom

Unlike many of my colleagues who are researchers, I spend a great deal of time in urban private schools. It was not something at all that I intended or planned. In all honesty, it was certainly not the tier of schooling I cared to work in. During the two years pursuing a Master's degree in secondary science education, while most of my cohort resided in university dorms and remained unemployed, I desperately needed income to support myself. Amidst a scatter of other short-term administrative jobs, I assumed part-time work as an on-call substitute teacher within New York City (NYC) independent schools. Assignments were dispensed by a local placement company I had learned about while at Teacher's College. Some were merely for a day, while others spanned several weeks. Collectively, these early experiences provided a glimpse into the world of the urban *other*. In my then twenty two years, I had never even physically set foot in a private school. Needless to say, much that I saw intrigued and surprised me. Those initial days spent roaming the pristine hallways of some of NYC's most elite and exclusive schools set the foundation for and nurtured a strong and genuine interest in private education.

When I had finally fulfilled all the requirements for my Master's program, the timing could not have been more dubious. It was the same year that NYC met the formal dissolution of the 'Board of Education' and was mediating a transition to the newly restructured 'Department of Education.' I applied for a science teaching position within

the NYC Department of Education (NYCDOE). Surprisingly, despite earning science and science education degrees, passing the required state exams and attending to the lengthy list of other requirements, I failed to secure a job for that autumn. I was told that my lack of formal student teaching experience (my substitute teaching experience did not count and was rejected) barred me from any potential work and voided my application for certification. I left the Court Street building that summer day in Brooklyn numbed and stunned. A month later, desperate for stable employment, I graciously accepted a science teaching position at an elite private school in Manhattan. The initial plan was to teach there for a year, and then return to the NYCDOE to seek placement in a city public school. Many years have subsequently passed. And in those many years, I have braved harsh critique about my decision to teach mainly White students. *But your own kind needs you. They need to see someone that looks like them teaching to them. Why do you want to teach those spoiled preppy kids?* While I have paraphrased examples of popular questions I have fielded, I should also say that I have participated in conversations with colleagues, whom I respect highly, that were not so pleasant. Despite the unkind attacks that insinuated I was a ‘sell-out’ who did not care about Black impoverished urban youth, needless to say, there were strong reasons that compelled me to remain teaching within the private sector.

Can the ‘other’ teach ‘another?’ - Appropriating difference in the classroom

We have seen it dramatized time and time again in such American films as *Stand and Deliver* (1988), *Dangerous Minds* (1995), and *Freedom Writers* (2007). Each of these feel-good flicks share a common theme. They deliver narratives of teachers who are different from their students – racially, ethnically, and class-wise. The students, largely

Black or Latino, are mostly from lower socioeconomic class and underprivileged backgrounds. They are depicted as tough, sullen and their life stories unfold amidst vignettes of alcohol and drug abuse, street gunfights, gang drive-by shootings, teenage pregnancy, domestic violence, abuse, and murder. In contrast, the teachers are mainly White middle-class zealous newbies armed with lesson plans and ready to conquer the world. At first, each protagonist struggled to forge connections with his/her students. However, in the end, each, found ways to succeed at mediating difference in the classroom. Through the use of poetry, journal writing, bribes, school trips etcetera, students adopted a newfound interest in learning by the year's end. These films were generally met with harsh disapproval despite box-office success at home. The plots were bashed for their redundant miracle teacher tale that reliably hit all the expected marks, with no cliché left behind. What else these films failed to do, according to critics, was to identify the true culprits – the societal ills that saturated the classrooms and helped to reproduce failure for certain students. One critic¹ summarized the sentiment well – “You don't have to be Mr. Chips to know that making education stick takes an entire social system, not just one willful teacher, no matter how well-meaning.”

While the latter two films are both renditions of the real life experiences of novice female educators placed in schools in tough locales in California, they remain fictional characters. With that said, is it possible in reality to become one of these heroines – different – yet create ways to afford student success in the classroom? I asked myself this very question when I first begin teaching. The difference is that I perceive myself as fairly opposite to the real life characters of Erin Gruwall and LouAnne Johnson. Almost ten years later, I still feel more connected to the students these women struggled to teach.

During my first year, I pondered whether my identity as an immigrant Black educator from a lower socioeconomic class would impede my ability to connect with my affluent White students and teach them science. If anything, this reverse tale emerges as a laughable movie plot.

An interview of Black teachers working in predominantly White schools in the United States found that the experience of being a ‘token’ minority forced the teachers to reflect on their professional and personal identities and their relationships with students and colleagues in ways unlikely to confront their White colleagues (Kelly, 2007). In another study, difficulties in navigating the peer culture surfaced as a dominant theme for African American teachers in predominantly White suburban schools (Mabokela & Madsen, 2007), where teachers felt they were expected to “bear the burden of dispelling myths and representing their race in their exchanges with coworkers” (p. 1171) while at the same time confronting evidence of racial stereotypes (including skepticism about their teaching expertise) and feeling uncertain how to interpret the social and cultural cues that would gain them membership in the school’s professional culture. Eight years ago, I shared comparable concerns of these interviewed Black educators. When I assumed my first teaching position as the sole Black female on the faculty, I was somewhat nervous and unsure about my reception in a largely wealthy White school. On reflection, I can admit that I entered that grey-bricked building with a wealth of preconceptions. I was certain that I would encounter resistance, negativity and a persistent interrogation of my competence to teach science. I also did not have any colleagues working in similar settings who could provide any insights or advice to calm my fears. At that time, my future there loomed bleak and brief. However, like the films

mentioned above, I was surprised at what I encountered in ways beyond my natural imagination. Not only was I not met with any direct opposition; I was able to teach, and teach well. In the years that followed, I begin to thrive at Pay Prep and very quickly, I realized that urban private school students were quite different that I originally thought.

Let's get the facts straight: Uprooting false constructs of urban learners

I have become increasingly concerned about the ways in which many have characterized what it means to be an urban student and decide which populations of students are more important to educate/research than others. I consider it as important to illuminate the complexities of all urban students' diverse lives and how families, peers, teachers, nannies and other specialists (therapists, psychologists etcetera) all affect the educational experiences of both public and independent school students. What classifies one student as more representative of the urban experience than another anyway? Many might readily argue that public school students are in schools that are failing to educate them due to the confluence of many political, economical and social problems. Thus, they deserve our full attention, as we should be focused on how to provide these children with the education they rightfully deserve.

In the same light, these individuals would quickly contend that private school students are wealthy and attend better schools equipped with superior resources and highly qualified teachers, and will certainly enter better colleges and obtain better jobs. Thus, I can imagine that some might wonder whether such students could possibly be true beneficiaries of classroom research. However, I remain grateful for these critiques, as they have afforded me the opportunity to think critically about my research agenda and why I was so passionate about working with these students.

Paradoxically, in contrast to others' deficit conceptions, I have discovered that many students attending independent schools can be as needy as many of their public school counterparts. Similarly, they face grave issues that disadvantage their achievement in the classroom: drug addiction, eating disorders, absentee guardians, feuding parents, adoption adjustment-related issues and being diagnosed as learning disabled. Therefore, research in private school classrooms can illuminate the stories of these students who fall outside the stereotypical lines of what it means to be an urban student. As Tobin (2009) points out, there is little research that focuses on science education for the privileged and thus, I fervently believe that this is a field that warrants our equivalent attention. Consequently, I felt that I was in a special position to examine the complexities of urban private life, complexities that eventually trickle down into the science classroom and affect the teaching and learning that occurs there.

My current standpoint places me at a point where I deem a quality science education as a right to all students, regardless of socially constructed differences. As a science teacher-researcher, I am dedicated to providing opportunities for students to become engaged in the field of science and show them that, if they want to, they can be successful in the discipline. And thus, I have remained there, teaching in this contested space, focused on finding ways to improve the educational experiences of equally deserving urban youth. This dissertation is largely an account of my experiences and deepest considerations of life within private schooling, an untold story that should justly sit alongside the other numerous stories about the plight of urban youth in our city's public schools.

The art of teaching

As a child growing up in my native Trinidad, I was fairly quiet and introverted. My parents were strict disciplinarians who tolerated very little misbehavior. Young girls in their eyes were quiet, well mannered, and focused on their education. With many activities barred in my household (television, all games and the telephone were banned on weekdays), I excelled in school and stayed far away from female peers who were deemed ‘trouble.’ In my parents’ eyes, they were the ‘fast’ girls who conversed with boys on the telephone and retreated to the movies for dates on the weekends. This was certainly not allowed in my household. There was school, chores and additional after-school lessons. Thus, school became a great escape, and a place where I blossomed. Before I moved to the United States at fourteen, I attended two schools, a (free) Catholic primary school and a prestigious public secondary girls school that I gained admission into after sitting a Caribbean wide standardized examination. At both institutions, I thrived. I devoured books as though they were nourishment and revered my teachers. I can still remember their wise faces, their sometimes icy mannerisms, their frowns and their proud smiles when bestowing rare praises. These individuals fashioned such strong impressions on me during my childhood that I always considered teaching a highly noble profession.

When I moved to the United States, I was struck by the radically different perception of the teaching profession here. As a youth in a large Jersey City public school, I continued to admire my teachers and could not comprehend the blatant disrespect they endured from my classmates. I had envisioned what an American high school classroom would be like through popular sitcoms and movies I saw on television in my younger days, yet it was still shocking to see these negative events firsthand. Since then, my

collective experiences in the classroom, both facing an audience and being a participant in an audience, have turned dated teaching pedagogy (at least when I attended these schools) on its ugly head. I now know differently. As much as I still pay respect and render favor toward my Trinidadian teachers, I know that their ‘fill the empty vessels’ approach to teaching was deeply erroneous. Although there are studies which suggest that educators tend to emulate the ways in which they were themselves taught, today, I embrace a very different construct of the art of teaching.

Teaching and learning is about the construction of knowledge and meaning by individuals. Neither of these is an individual act nor an individual possession. Vygotsky (1986) described learning as being embedded within social events and occurring as a child interacts with people, objects, and events in the environment (p. 287). It is easy to gloss over the fact that while we describe someone as learning, this individual is learning because they have achieved a relationship with another, maybe others. Therefore, both acts can only be imagined within the recursive relationship between an individual and the surrounding collective (Sewell, 1992). In the simplest of terms, teaching cannot occur without matched learning. As we educators position ourselves at the front of our classrooms, we teach – and (we hope) our students learn. Concurrently, our students teach us and we too learn. We discover aspects of ourselves as individuals and we learn about our enacted praxis.

What also remains true is that neither teaching nor learning can occur without dialogue. Discourse exists to give people alternative ways to view one’s self and social life. Gee (2004) argues that language is not about conveying neutral or objective information. Rather, he believes it is about communicating perspectives on one’s

experience, often in contrast to alternative and competing perspectives. He also argues that humans understand content best when connections are made to possible activities, decisions, and dialogue. There is something quite reverent about classroom life and what is shared there through dialogue. A teacher's work is not merely to dispense information, but to share in the intellectual and spiritual growth of his/her students. Gee also writes about the negative consequences of the feeling of not belonging when one's valued home-based practices are unaccepted and denigrated. Lisa Delpit (1995) shares Gee's thoughts and similarly argues that students' culture must be honored in the classroom.

Over the years, I can assuredly say I have transformed my classroom practices and have become an improved practitioner. This was not the result of brainless repetition. I have taught many different sciences and science education courses across middle and high school, and at both the undergraduate and graduate levels. Despite the varied students I have had along the way, my growth as an educator is largely due to the fact that I have read much and I have listened even more. One of the most impressionable works I have ever read that transformed my perception of teaching was by bell hooks (1994). bell asks that every teacher try to detach his/herself from the role as educator to truly critique the teaching and learning that unfolds in the classroom. She also asks that educators think critically about why they think and teach in the ways in which they do. She believes that teachers must be actively committed to a process of self-actualization that promotes their own well-being if they are to teach in a manner that empowers students. hooks also thinks highly of the personal experiential aspect of classroom discourse. She is a huge proponent of creating spaces where both teacher and students can share personal stories and use these as a means to both transform their identity and

construct stronger connections to the curriculum. According to her, to educate as the practice of freedom is a way of teaching that anyone can learn, regardless of socially constructed differences. And so, this dissertation remains an attempt to share what I have learned thus far about teaching and learning, and the possibilities for success in the urban classroom.

Central themes in the dissertation

Science education in urban settings has long been beset by increasing complexities due to racial, ethnic, socioeconomic, religious, language and ability differences among students. These issues have contemporarily grown to become the central foci of research in the field. In contrast to numerous other studies that focus on how these complexities complicate learning in the public school classroom, my research aims to look at life in the urban private science classroom. In doing so, numerous themes emerge throughout the dissertation. To begin, I consider the role of *glurbanization* (globalization and urbanization) as a means to describe urban life and more pointedly, compare and contrast modes of urban schooling. A productive way to think about the connection between globalization and education is through examining the macrostructures that saturate educational fields. Current research on globalization and education involves the study of intertwined worldwide discourses, processes, and institutions affecting local educational practices and policies. In the case of NYC schooling, federal policy like *No Child Left Behind*, standardized testing like Regents examinations, and student IEP's are just a few of the impositions that educators and students alike must mediate in the classroom. My primary interests lie in how globalization defines urban ecologies and thus, my work aims to dismantle and reconstruct the true meaning of urban. I also focus on the realities and

associated complexities of mainstreamed/inclusive education. The fact remains that urban general education classrooms are mainstreamed classrooms and so, I invite readers to consider the associated difficulties of preparing teachers to work cooperatively and be armed with the sensibilities and strategies to teach diversely-abled students. Next, the role of identity and identity formation remain the crux of the research. As I have already begun to show, reflection and reflexive practice remain a central aspect of much of what I do. My research has allowed me to examine my own identity shifts as well the identity transformations of the students with whom I have conducted research.

Key theoretical constructs and methods: an ethnomethodological bricolage

In this dissertation, I utilize a bricolage approach to investigate the ways we can work to improve urban science education. Varied methods and methodologies were used on an as needed basis. That is, I employ approaches that seem to fit well with particular research interests and can reveal the most promising results. My work also aims to highlight the critical merger of good research with sound theory and practice and it is from this respect that I operate. I use a blended approach in attempts to address the following research questions:

- 1) How can an educator mediate boundaries of difference in the classroom to create a space marked by successful teaching and learning?
- 2) How can urban science teachers learn to teach students in mainstreamed classrooms?

The research methods used also draw extensively on three tiers of analysis: looking at unfolding social life through micro, meso, and macro lenses. It is highly important to study social life through these varying scaled perspectives as it enriches our interpretations of what we find in our research. This approach also illuminates patterns of contradiction and episodes of coherence evident at the meso level. In this dissertation, meso level analysis includes video analysis and conducting authentic ethnography. Micro level analysis was used to make sense of what is happening, particularly the appropriation of capital and emotional climate during selected vignettes of classroom life. Macro level study extends across social space and time. As such, researching the teaching and learning of science invites analyses that extend across multiple fields and invoke a globalized conception of social life. It is critical that research affords all those involved – researcher and stakeholder, the agency to interrogate, make, support and contradict any claims that are constructed as a result of said research. Thus, the students whom I conducted research with, remained key contributors to the work that is presented in this dissertation.

In the following sections, I describe each of the methods and associated theories that support specific research methods that I have selected. These include narrative research, ethnography, identity research, and the use of cogenerative dialogues and coteaching. Within each chapter, these methods and methodologies are explained in more lucid ways within the context that they have been applied.

Hermeneutics, phenomenology and ethnography

Max van Manen (1990) presents phenomenology – the study of lifeworld(s) as an approach to research. An important dimension of phenomenology is hermeneutics- the

interpretation and understanding of social events by analyzing their meanings from the perspectives of the human participants and their culture. The basic questions that drive this approach are as follows: *What is the lived experience? How does the essence of the lived experience constitute interpreted reality for the participants?* It is important to acknowledge that the object of study cannot be described with an exact rendering of the phenomenon being explored. We are relegated to the subjective reduction that occurs when any phenomena is described. Thus, the ability to translate social life while depicting both the limitations and possibilities of those descriptions is a critical component of good ethnographic work. Ethnography is the written representation of human culture, or selected aspects of culture. It carries quite serious intellectual and moral responsibilities, for the images of others inscribed in writing are most assuredly not neutral (van Maanen, 1988). Hence, as a hermeneutically informed researcher, I hope to transcend the pitfalls of assembling thin descriptions of decontextualized facts and gain the skills to produce thick descriptions of social contexts (Kincheloe, 2003).

The power of narrative

We've self-importantly dubbed our kind as *homo sapiens*, wise man. We are pensive and interpretative, and can employ multiple modes of communication, including language, to express ourselves. However, I contend it more fitting to describe our species as *homo fabulans* - the tellers and interpreters of stories as Mark Currie (1998) and other narrative theorists have proposed. We humans are magnificent story-telling beings. Historically, we have amassed innumerable tales as we continue to make sense of the world and its events by constructing narratives to explain and interpret things to ourselves and to others. Social life is itself a narrative and social constructivists would go as far as to

argue that the world as we know it is a collection of subjectively spun stories as we continuously construct and reconstruct our lives narratively. Jerome Bruner (1996) argues that story making is central to creating insight into a world where a person can feel s/he will fit. The narratives we craft describe our perceptions and our experiences, and in themselves are highly significant, as when examined closely, they provide us with information about our human culture.

Increasingly narrative analysis is becoming a valued method within social science research. It falls under the realm of interpretative research, a field long under fire from advocates of the 'objective right.' Despite pronouncements of the decline of the oppressive paradigm of positivism in academia from the left, there is still evidence today of reversions to the dated positivist vs. interpretative/objective vs. subjective dualism. Critics claim that interpretive research fails to meet the criteria of 'validity' and 'truth' and accuse narrative researchers for telling, 'made up' stories that are neither objective nor reliable. It is evident that these offenders have conveniently overlooked that all our general representations of research are frankly made up social constructions. Our subjectivity is crippling and we remain incapable of completely accurately and truthfully capturing social life. As Richardson (1997) states, all attempts, whether data are in the form of words, numbers or images, or even video, will only ever be re-presentations, and, hence, interpretations. Hence, the narrative retains binary significance in the domain of social research - both as the phenomenon to continue to study and as the method of analysis. Within education, the burgeoning of narrative approaches has rattled the foundational epistemologies and methodologies of established research practices (Denzin, 2003). These works have clearly challenged the hegemonic positivist approach

to research and have shown us there is much to learn through this and other interpretive lenses. Given the great narrative-based contributions to education research that Lyons and LaBoskey (2002), Fowler (2006), Hartnett and Bathmaker (2010), and many social scientists have provided, the issue is not whether we should use narratives, but rather how and which narratives will we use to enhance our understandings of teaching and learning.

Identity-based research

In this dissertation, identity formation remains a prevalent consideration. My work not only aims to discuss the role and criticality of teacher identity but also the process of nurturing other sub- and role- identities in students. These include not just producing science identities, but also generating expanded roles for students in schools including becoming student-researchers. Both Jonathan Turner's (2002) and Amryta Sen's (2006) constructs of identity are well applied to all ethnographic analyses that follow. Identity can also concomitantly be conceptualized through William Sewell's (1992) construction of the dialectical relationship between agency|structure and Wolff-Michael Roth's (2007) rendering of the agency|passivity dialectic. Social actors are always part of an individual|collective relationship. Parts of one's identity are unstable and change as we are called upon to assume multiple identities associated with different social roles. When particular identities are expressed repeatedly across plural fields, a core identity emerges. When an individual is treated in the same manner across fields, and when similar situations arise, they begin to form an anticipatory set of schema and practices. An individual core identity (usually containing core beliefs and values) can be disrupted when patterns become unfamiliar, expectations are not met and contradictions in social

life emerge. In this way, identity is dependent on micro, meso and macro structures that either afford or truncate an individual's agency in the classroom.

Cogenerative dialogue and coteaching

Science educators Roth and Barton (2004) explore how science is imbued in the social fabric of everyday life and community practices. In relation to this notion, Roth and Barton posit that science education must allow a variety of participatory modes to be more consistent with a democratic approach in which people make decisions about their own lives and interests. Along the same vein, Ray McDermott (2000) states that if a particular kind of learning is not made available to an individual, learning simply will not occur. Thus, the cogenerative dialogue, based on its already successful research history, was selected as a means to achieve a democratic approach to achievement in the science classroom.

In a world where the divisions of power, voice, and opportunity vary across race, socioeconomic class, and gender lines, the relationships between teachers and students in schools remain complex and are exacerbated by these existing divides. In instances where the teacher is the ultimate decision maker on what is considered knowledge versus valuable knowledge, and what is validated as such, students in urban classrooms are often faced with scenarios that mirror what they have experienced in many worlds outside of school. Their voices remain largely suppressed and are not legitimized in the classroom. Cogenerative dialogues are social spaces where teachers and students can critically deconstruct their experiences within classrooms through dialogue. In these dialogues, participants come together and discuss the enacted science curriculum and the causes of

problems that afflict teaching and learning. Together, they can devise plans to improve the classroom field.

Coteaching occurs when two or more teachers teach together and share responsibility for meeting the learning needs of students and, at the same time, these teachers learn from each other. Conventional coteaching arrangements usually include two teachers (usually special education teachers and general education teachers) who both hold responsibility for the classroom. In this arrangement, (in NYC referred to as CTT or Collaborative Team Teaching) one teacher is responsible for general instruction while the other is merely responsible for attending to the needs of the identified learning disabled students. This CTT model has been touted as a valuable strategy for the effective teaching of inclusion students with special needs or disabilities. However, this traditional model of coteaching has one instructor assume the role of the lead teacher while other teacher acts as assistant. In this model, expertise is not shared among people in the classroom. This approach varies from a genuine coteaching model where all teachers collectively assume responsibility for all teaching and learning in the classroom.

There exists a great deal of research spanning elementary up to the university level which supports using cogens and coteaching in educational settings. Kenneth Tobin and Wolff-Michael Roth first used cogens in 1998 while conducting research in the classrooms of a large comprehensive urban high school in Philadelphia. Since then, numerous peer reviewed books and articles have shared research from the United States, Great Britain, New Zealand, Australia, Singapore, and Taiwan (Tobin & Roth, 2006) which report on the benefits of using cogens. Prominent research has been produced by teams of education researchers led by Tobin (Tobin, Elmesky, & Seiler, 2005) in City

High School in Philadelphia, and more recently the collective work of several New York City (NYC) mathematics and science teacher-researchers (of which I am one). The NYC based research employing cogens, both past and ongoing, has produced numerous positive outcomes for science teaching and learning in an array of educational settings. My primary interests lie in building on this body of work, which explores the significant benefits of integrating cogen in the urban science classroom as culturally adaptive pedagogy.

What does 'good' research look like?

The act of conducting any form of research involves more than mere procedural inquiry to seek out facts or understandings of a particular topic or phenomenon. Newly acquired knowledge in any field - whether it stands solely or in conjunction with other works - can hold broad societal implications that affect our way of life. Thus, all research should be subject to some form of rigorous assessment. The research in this dissertation infuses a system of quality criteria that can guide the peer review and research evaluation processes, and it takes into account the connection between research method, practice, and theory. I have adopted a modified system of quality criteria for judging interpretive ethnographic research adapted by Kenneth Tobin (2006). The authenticity criteria include four categories: ontological, educative, catalytic and tactical authenticity. Ontological authenticity refers to the way in which research stakeholders transform their own constructions of social life as they relate to what they have learned from a study. It suggests an elevation of consciousness: a consideration of how a participant has improved, matured, and expanded. Educative authenticity represents the extent to which stakeholders understand the implications that emerge from a study. Catalytic authenticity

relates to the obligation of the research and researchers to define ways to expand the agency of all stakeholders involved in the research in order to promote greater change. One way to achieve catalytic authenticity is to negotiate and share responsibility for action(s) and follow-ups that foster positive change. Tactical authenticity refers to the extent that stakeholders have enough agency to bring about positive change. This criterion holds researchers to a standard of change as an outcome, but that that change must be realized from the points of view of the individual stakeholders, and not as a claim of the researcher. As a teacher-researcher, I retain an obligation to create structures that afford the agency of all the students who participate in my work, so that they can benefit from what is learned from the research. This system of criteria should be regarded as a whole and will be used dynamically to not only enhance my research fluency, but also reinforce the importance of connecting research, theory and practice. Its usage will also assure mutual respect for the autonomy of all, beneficence and justice for all human subjects participating in my research as articulated in the Belmont Report (1979). Taken as a whole, the authenticity criteria serve to remind us researchers that regardless of our research foci, our participants should learn, transform, and generally benefit in some way from their involvement in our work. It also remains our responsibilities as good researchers to ensure that structures are made available and that appropriate methods and methodologies are used to ensure that such learning and growth occurs.

Addressing the question of whether my research remains authentic is one task. However, there still remains the question of whether the research conducted is objective (or critically subjective). This is a consideration that continues to plague work of the hermeneutic vain, and I too, having conducted largely qualitative mix-methods work, am

left to attend to this issue. The concept of objectivity can be partitioned into two components – reliability and validity. Reliability refers to the degree to which findings from a study are independent of accidental circumstances. That is, how ‘consistent’ are the results a researcher may find? In my collective body of research, this might mean whether researchers in other private school settings would encounter similar kinds of students and similar kinds of teaching and learning classroom experiences. However, human observations cannot be assigned a score of sorts. It would be difficult to claim research reliability comparing my work and any other works emerging from similar research settings and foci. However, we can estimate reliability as the correlation between two observations, provided the same thing is being measured. If more stories of urban teaching and learning in private schools emerged, only then we could we fairly tackle the reliability conundrum.

Still, there remains the task of speaking to the validity of my research. Validity is the degree to which the findings are interpreted in a ‘correct way.’ The task of proving validity in qualitative work can be rather difficult. Ethnographers (and quantitative researchers alike) tend to avoid it and focus on proving research reliability as much as possible. In my research, I provide contextual descriptions of individuals and events. I also clarify all theoretical lenses applied, to deconstruct any events I recount. It was also important to me to infuse polysemic and polyphonic perspectives by having the voices of the stakeholders present. Thus a significant portion of my research includes the perceptions and insights of students whom I have worked with. My students’ responsibilities expanded during the course of the research as they transformed and assumed the roles of student-researchers themselves. Through essays, cogenerative

dialogues, and participation in professional conferences, not only were they able to reflect upon prior shared experiences and data in the form of photographs and video vignettes of themselves in the science classroom, but they also were provided with opportunities to review and critique my writings of them. What remains highly important here to me, is that any assertions or claims presented in my research are not ones merely constructed by myself or others, but rather I aimed to present what I have learned as *shared understandings* of particular events. Together, we worked to incorporate points of clarity while providing agency to multiple research participants. In this respect, I deem this work, *our* work, to be valid research. Interpretations were made a communal responsibility as much as possible. These collective understandings are critical to sharing within the field of education research, the associated complexities of teaching and learning in urban private schools.

Overview of dissertation chapters

This dissertation is a blend of my personal thoughts, theory, research, and practice presented through an ethnographic study of science teaching and learning at Pay Prep, a small, co-educational, accredited college-preparatory, independent school in NYC. In each chapter, a different story unfolds, with particular theoretical frameworks employed to help make meaning of particular research findings. As a result, this work abandons the traditional practice of having a literature review section. Instead, different theoretical constructs are applied and ‘woven in’ throughout the research shared in each chapter. These constructs are used to illuminate aspects of classroom life and vary depending on the focus of each smaller study within the larger research project. The primary methodologies employed in this body of work - ethnography, narrative research,

cogenerative dialogues and coteaching are united by critical threads that bind the entire dissertation: Pierre Bourdieu's constructs of social and cultural capital (1986); Amartya Sen (2006) and James Turner's (2002) ideas on identity construction; William Sewell's work on the dialectical relationship that exists between the agency of participants and the structures within a social field (1999); David Harvey's (2000) construct of geographic space entrenched within cultural theorist Kwame Appiah's notion of cosmopolitanism (2006); Stuart Hall's (1990) theorizings on hybridized culture; and Wollf-Michael Roth's ideas on passivity (2007) all permeate each chapter. Collectively, the smaller studies invite readers to forgo current perceptions of urban learners and to think critically about how to teach and learn science best in urban schools.

Chapter II

A central characteristic of urban life is the abundance of 'sameness' and 'difference' that permeates shared geographic spaces. Social actors who share these spaces, depending on their socioeconomic and sociopolitical positioning, possess differing perspectives on urban life and urban schooling. These varied perspectives are all central to our construction of the realities of teaching and learning in a big city. In order to really understand urban education and its paradoxes, not only do we need to study the have-nots in efforts to improve the conditions in many of our schools, but we must also pay attention to and study the 'haves.' This chapter aims to highlight conflicting perspectives of urban life: the deficit aspects and the promising ones. Here, I explore the ideal of cosmopolitanism and discuss the constructed intersections of public and private urban schooling. This piece is an attempt not merely to point out the obvious disparities, diversity and heterogeneity that remain the fabric of urban life, but rather to focus on the

hybridity that is produced as different individuals come to together and utilize the same geographic spaces. It is within these creolized spaces that new schema and practices are produced, and it is here I argue that holds the promise for expanded possibilities for learning in urban schools.

Chapter III

Science teacher education programs operate under the belief that teachers play a preeminent role in the educational process. The mission of such programs is to prepare students who are competent in subject matter content to teach science at the elementary and secondary levels. Each program's goal is to ultimately prepare teachers to have confidence in their own abilities to access resources and gain the understanding that they need to help individual students become more scientifically literate. However, there remain deficiencies across national programs that are no easy task to combat. In addition to basic program requirements that cover curriculum, science content, methodology, field experiences, how are new science teachers being prepared to teach in diverse urban settings? The concept of diversity extends far beyond the usual constructs of gender, race, ethnicity, language, sexual orientation and religion. We neglect at times to include that diversity also intends to speak to differences in values, attitudes, cultural perspectives, beliefs and skills and ability/disability. This chapter aims to problematize the difficulties of teaching in urban mainstreamed settings like NYC. I argue that teacher preparation programs as independent bodies are inadequate to prepare teachers for the diversity they will encounter in urban classrooms. With an assortment of students labeled with learning disabilities in today's urban classrooms, general education science teachers are expected to navigate the intricacies of curriculum differentiation as well as working with

sometimes non-cooperative special educators who are assigned to their classrooms. This chapter highlights the existing rifts between general education and special education teachers working in mainstreamed classrooms. I propose a combination of approaches: coteaching, cogenerative dialogues and teacher conducted research as ways to improve the quality of teaching and learning in our urban schools. Lastly, I strongly argue for these considerations to be brought to the table at teacher education programs and also to teachers currently in the classrooms – both general education and special education instructors. These conversations are critical in efforts to better position our educators for the challenging roles of educating the incredibly diversely-abled student population of urban niches.

Chapter IV

In the social sciences, use of the term ‘story’ in relation to research can still have negative consequences for how that work is regarded within the larger academic community. Unfortunately, stories are still at times equated with fabrication and untruths. This of course runs counter to the traditional goals of ‘objective’ research. Thus, whilst many would agree that stories teach us about human experiences, those same individuals may not see those stories fitting within scholarly research accounts. However, we cannot escape the influence of the experiences, perceptions, beliefs and values that have shaped both storytellers and listeners. Hence, we need to continue to use stories for purposes of scholarship, for moving towards better understandings of the social situations we are concerned to investigate as researchers and for better communication of those understandings. This chapter aims to use narrative as a way to discuss how teachers mediate holding plural identities in the classroom in order to create a classroom

environment characterized by successful teaching and learning. Drawing from an array of sociocultural theoretical perspectives, complementary constructs of identity, George Lakoff's (1980) work on metonymy, and Randall Collins' (2004) discussion of emotions, I explore the ways in which my Black female Caribbean identity has transformed the classroom field and created positive resonance for some of my privileged White students who have Caribbean caretakers at home. Thus, I hope that this story illustrates how understanding the unconscious 'backgrounding' and 'foregrounding' of certain identities in the classroom can improve one's praxis in the urban science classroom and possibly increase student success in science.

Chapter V

It can be argued that both traditional and alternative teacher education programs fail to appropriately prepare educators for the challenges associate with teaching diversely-abled urban science students. Chapter 3 attends to this in more detail. This concern of mine is explicitly what impelled the ethnographic research that I share in this chapter. This chapter chronicles how I initially struggled to teach a class of sixth grade science students, many with diagnosed learning disabilities. With the assistance of three high school student researchers, cogenerative dialogues and coteaching were integrated into this mainstreamed middle school science class I taught at Pay Prep. The initial goal was to uncover ways to better teach the students in this class of 90% learning disabled children, a class that would traditionally require the assignment of a special educator if it were within a public school. We hoped to produce positive outcomes surrounding student learning. I used critical ethnography augmented by video and conversational analysis to investigate the ways to improve the teaching and learning of science in these spaces. I

then applied Kenneth Tobin's (2006) adapted form of the research authenticity criteria as originally described by Lincoln and Guba (1989) as a way to judge the quality of my ethnographic research. With the plethora of other research that speaks to the benefits of using cogenerative dialogues and coteaching, we initiated our research hopeful, and felt confident that we would observe marked improvements with our sixth grade students. However, what was remarkable was the varied transformations that occurred for my student researchers. Their individual experiences and growth during our first year of research remains the focus of this chapter.

Chapter VI

Originally, I held little interest in working with privately schooled urban learners, but my interests were tweaked and the unfolding research that I conducted here has been quite rewarding. In the final chapter of this dissertation, I revisit my standpoint as a teacher-researcher and discuss what I believe I accomplished in my research. I review the importance of my selected methodologies, revisit my two primary initial research questions and apply the research authenticity criteria I described earlier. Lastly, I discuss the implications of my work for other urban science educators, school leaders, the possibilities for improving teaching and learning, and the promises afforded by amended educational policies within urban science education.

CHAPTER II

Redefining popular public imaginations of an urban identity

The multiplicity of urban imagery

The urban landscape has the ability to conjure dynamically conflicting perceptions depending on an individual's physical, political and sociocultural positioning. It invites discourse that illuminates different perspectives and different practices, all of which are equally valid ways to describe the setting. Pedro Noguera (2003) conceptualizes the term urban as more than a mere geographic location. He explores the term as a social and cultural construct constituted by specific historical, socioeconomic and ethnic trends. Generally speaking, the use of the term urban is largely associated with the themes of difference, diversity, heterogeneity, and incongruity. The construct of difference as pointed out by David Harvey (2004) is socially articulated and is a complex negotiation across cultural fusions. Harvey states that the borders formed by such cultural distinctions – gender, race, religion, class, and nationality etcetera – may be regarded as consensual or contested. These borders as Homi Bhabha (2004) states may challenge our designations of convention and modernity and alter the traditional boundaries between what is deemed as public and private. Overall, these boundaries that define cultural differences challenge our standard expectations of common coexistence.

Within this bedlam of difference, there are varying perspectives that permeate all discourse on social life. For starters, there remains a particular focus on aspects of urban life that are characterized as deficient and negative. On the other end of the spectrum lies images of wealth and opulence of urban life. Urban is at times also regarded as a space that 'bubbles up troubles' and is a breeding ground for discord and dislike amongst its

citizenry. Conversely, the term evokes a sense of cosmopolitanism – that there is a fertile land of difference within which habitants coexist in the face of the strong currents of globalization that swirl around them. Regardless of the perspective, what remains true in urban spaces is the abundance of ‘sameness’ and ‘difference’ and an understanding that coexistence is the primary game one can elect to play. It is within this simultaneous existence that cultural hybridity emerges, that is, where new schema and practices are produced. In this chapter, I discuss how these varying perspectives of urban life compare through temporal and spatial lenses. Differing perspectives either reveal or conceal aspects of urban life and inevitably allow for us to critique urban schooling more deeply. What this sets us up for is an alternative way of characterizing urban centers, schools, and ultimately discussing how a renewed perspective can provide insight into finding ways to improve teaching and learning in these hybrid spaces.

Urban centers as sites of educational deprivation

The issues confronting urban schools today are typically manifestations of larger societal problems related to social inequality, racism and the deterioration of urban areas (Noguera, 1999). There are several studies that provide profound insight into the quandary of schooling in our nation’s cities. These many accounts evoke strong sentiments of distress that create and sustain the bleak realities of many of our youth. In particular, many have long sought to identify and account for the miserable state of urban education. For example, Michael Apple (1982) discusses the reproduction of unequal power relations through schooling and provides a methodical examination of the ways in which sociocultural dynamics are embedded in and reflected through curricular concerns. A decade later, Kantor and Brenzel (1992) document the growing disparity between

urban schools and schools located in the suburbs. They argue that post-war (World War II specifically) transformations of American cities created new forms of longstanding economic, racial, and class inequalities that intensified the barriers to the educational success of low-income families and students of color. Their work further claims that the connections between poverty and low-performing schools in urban centers have strongly been linked to the changes in the racial composition of urban areas and rising poverty of African Americans and Hispanics. Another significant work, *Ghetto Schooling* (Anyon, 1997) chronicles the economic, racial, political, and social realities that shape urban centers and public schools in America. Jean Anyon's central argument is that some of the failures of urban education are largely grounded in social and historical contexts of poverty and racial isolation. Anyon's follow up work, *Radical Possibilities* (2005) argues that the major culprits of increased social inequalities and poverty are not failing urban school systems or urban families, but regional and federal policies that fail to provide access to living wage jobs, decent housing, equitable tax rates, health care, and other critical needs for survival. Similarly, Tobin (2009) also describes how larger urban school districts are typically bureaucratic, hierarchical and ineffective. Generally, these and other works depict the urban educational landscape in real, yet slightly depressing and sometimes-hopeless ways.

In any large city, it is rather easy to conjure up varied images of life there without the help of any of the works mentioned above. These images are well replicated in all forms of media – magazines, newspapers, movies, television and news programming - and have been firmly positioned within the social imagination. The attributes are clear. Urban spaces are thought of as places marked by poverty, particularly amongst its high numbers

of ethnic, racial and languaged minorities. If we consider public schools, we are easily drawn into imagining aged buildings that are continually under-resourced and manned by underachieving and unqualified faculty and staff. Urban students are also imagined in similarly deprived ways. They are thought of as disruptive (perhaps even violent), incapable, and possessing low interest in learning. They also sometimes navigate complex and difficult lives at home. If the media does carry any news of success in urban schools, it is typically presented as a human interest story about a student, teacher or coach, who overcame incredible odds to accomplish something notable that isn't expected from individuals in deprived urban neighborhoods.

Sadly, these are not solely blind depictions without merit. The statistics are quite real. At schools in these areas, drop-out rates hover at around 50%, test scores are generally well below national averages, and for example, it is estimated about 19,000 youth are homeless in NYC (Tobin, p. 457). To these youth, schooling has lost meaning and has become irrelevant to their lives outside of school. Recent estimates also indicate that between one third and one half of all NYC minority youth fail to earn a high school diploma (Education Week, 2007). Specifically, statistics show that only 40% of all Black and Hispanic students graduate from high school (compared to 70% of their Asian and White counterparts). A large majority of minority youth is also schooled in alternative settings. Within NYC's District 79, some 25,000 youth are schooled in alternative schools, including one-year and long-term suspensions centers (www.schools.nyc.gov). Suspension centers house children who have been expelled from their regular schools due to violent acts. Then science teacher Ed Lehner's (2007) research describes his experiences working with such NYC youth at a suspension center as he aimed to find

meaningful ways to rekindle an interest in their education through learning science. (I discuss his work in slightly more detail in Chapter 5 of this dissertation.)

A reoccurring theme across these and other bodies of research is that our urban youth feel hopeless. Sociology professor Prudence Cater (2003) addresses the notion that many low-income and underachieving students of color, many of whom reside in urban centers, do not have the cultural capital to succeed in academic institutions and other social and professional organizations. She comments that the dominant social class largely dictates the notion of cultural capital. The fact is, that these children, especially those of low socioeconomic status, feel the loss of agency as they age and become exposed to the realities of life within and outside of schools and classrooms. Like most of the spaces they traverse within their immediate urban settings, urban spaces assume the destitution, despair and disadvantageness of their positions. However, as unfortunate as these numbers loom, as we continue to work toward ways to alleviate the conditions that breed such a distressing reality, let us not forget that there are other youth who remain very much of the fabric of the city and are experiencing schooling in extremely different ways.

Educational opulence between, within and amongst

While cities have long been regarded as a source of crime, pollution and disease, they remain society's predominant engine of innovation and wealth creation (Bettencourt et al, 2007). New York City is arguably the reigning king of them all. A 2008 edition of the report by the Center on Budget and Policy Priorities (CBPP) and the Economic Policy Institute (EPI), *Pulling Apart: A State-by-State Analysis of Income Trends*, found that overall, NYC continues to have the most unequal distribution of income in the United States, a situation that has worsened over the last two decades. New York possesses the

widest income gap between rich and poor of all 50 states (high incomes were 8.7 times greater than low incomes), and the fourth widest gap between the rich and the middle class (high incomes 2.8 times greater than middle incomes).

The children of the city's peak earners are largely educated in various independent schools that scatter the five boroughs. There are no exact figures as to how many private schools exist and how many children in NYC are educated in these settings. A U.S. Census Bureau report (the 2005-2008 American Community Survey) estimates that there are roughly 65 million public school students in the U.S. versus 13.5 million private school students. The same report states that in NYC, there are about 1.1 million public school children alongside roughly 348,000 thousand who attend around 900 private and parochial schools. The educational experiences within these independent schools remain equally as varied as the experiences of their public school counterparts. To begin, while public schools remain locally funded, according to 2007 NCES (National Center for Education Statistics) data, private school tuition averages about \$6,600 per student. However in NYC, tuition costs remain upwards of \$40,000 per year. Wealthy parents also tend to supplement their children's education with varied enrichment activities including music, horse riding and dance instruction. An important consideration is the position that many super-rich do not view education as the be-all-end-all for their offspring. This is mostly because their wealth and connections can already open doors for their children. Their children already have opportunities in place that are out of the grasps of the less wealthy. However, Brantlinger (2003) has found that affluent professional parents have high expectations for their children based on their beliefs in their children's high intelligence and ability. Consequently, they expect the private schools where they

send their children to further nurture their children's potential by engaging and challenging them. These children attend such schools and typically go on to attend the country's best universities.

Mutual coexistence

The idea of cosmopolitanism has acquired so many nuances and meanings that sometimes blur over its role in a globalized world. It suggests a copresence and a mutual understanding between individuals possessing different ideologies. According to noted cultural theorist Kwame Appiah, it is a philosophical construct that is founded on the belief that all individuals are members of a single moral community (Appiah, 2006). A quick stop at any NYC Starbucks will reveal many cosmopols convened ready to partake in its coffee-infused drinks and selection of culinary delights. But aside from being in the same physical space, there are also other shared values, beyond the food and caffeine. One's social standing dissipates the instant one-steps on line. It is in places like this that executives, security guards and students are brought together and the temporary divide between white and blue-collar folk blur. Thus, along this continuum, we can examine the co-existence of numerous bodies within similar spaces at any point in time. The construct of cosmopolitanism also suggests the notion of a shared urban identity that moves beyond the geographic. The focus on learning the right kind of behavior is central to being a cosmopolitan. Becoming fluent in urban cultural norms is not only cultural capital in the work place but it also becomes symbolic capital in the larger global society. For an individual recently relocated to NYC, gaining skills that would provide the confidence to maneuver through the multicultural and globalized worlds of the city can be a difficult task. This adjustment to new social practices and norms simply takes time. For example,

noted American urban ethnographer Elijah Anderson (1999) examines the effects of poverty in the inner-city neighborhoods of Philadelphia. Using ethnographic methods, he explores the ways one must behave in order to survive in the inner-city neighborhoods of Philadelphia. He speaks of the ability to act and speak the language of the community in these neighborhoods and then being able to “code switch,” or speak the language of the mainstream society. This concept is central to the urban ethos, and the way its participants reveal themselves in different fields, including the home and school.

In his 2003 work, Pedro Noguera uses the example of Oakland and Richmond to describe a common characteristic of urban centers, where affluent and impoverished neighborhoods exist alongside each other within each city. The idea is that within the same geographical spaces, urban schools reproduce failure and oppression of some of our youth while at the same time they cultivate tomorrow’s leaders. In the same way, NYC is a unique place where people of different socioeconomic statuses can be positioned inches apart amidst a sea of outstretched pole grasping arms on a crowded subway train. Even the physical subway car holds differing meanings depending on its rider. For the single mother, it is a ‘life-saver’ and the only affordable means to commute from her residence to a menial occupation one hour away. For the city’s billionaire mayor, Mike Bloomberg, it is certainly a less comfortable and convenient mode of travel but helps to reinforce his fervent contention that he is in touch with the lives of New York City’s diverse citizenry. Standing within the confines of a crowded train-car holds similar meanings for our children. The free/discounted student passes disseminated to over 550,000 youth in the city (www.mta.nyc.org) enables these students to travel to and from school. On the other hand, some youth commute to and from school either in personal cars or taxi cabs. As

these different bodies travel and make their own ways to and from school, they may commute along the very same blocks on their way to very different places. Wealthy private schools can be located just mere blocks away from under-resourced NYC public schools. Where else but in a city can one encounter a school in one district where the presence of metal detectors remain as ubiquitous as playground swings (Maerof, 1988) while less than 10 blocks away, another school houses the offspring of a noted movie director and where Wynton Marsalis attends the school's 'Art & Music Night' for his comrade's son? Many more examples of cultural divides within the larger geographic space of the city can be referenced, but what about the local classroom? Here too, students from polar lifeworlds are seated inches apart and expected to learn in the same ways, a phenomenon that is not unique to public schools but also to the private school experiences.

As a science educator in such a school, I have sat across the table from many of NYC's wealthiest individuals at parent-teacher conferences. They own multiple homes across the globe, have celebrity chefs occasionally prepare dinners, and their children are gifted with the latest cell phones, laptops and I-readers on the market. I once taught a young man who had been given a Bentley at 16 and another teenage boy who had his own apartment in a Trump building while his parents resided on another floor. Startlingly, within the same science classes, I have had students whom know very little of these lifestyles. I once taught a male student (both 9th and 12th grade physics) whom admitted to me during his senior year that he had never flown on an airplane. He said his family could not afford it and instead, they drove everywhere. I also once taught a troubled 6th grader of Puerto Rican heritage who was adopted by a White male couple

and struggled to do well. During that time of his life, he was largely preoccupied trying to find his biological mother and would devote large amounts of time to searching for her on the Internet. I also taught an orphaned 6th grade girl who was adopted from a Rio de Janeiro favela by wealthy Jewish parents when she was around 5. She had grave difficulties as she often stole from her peers and ended up leaving Pay Prep at the conclusion of 7th grade. Another year, I taught a learning-disabled 9th grade boy born to a crack-addicted mother who was subsequently raised by his grandmother (he always referred to her as ‘mom.’) In the same class, there was a Korean immigrant who had left his siblings and his mother back in Russia where they then lived. He came to the US and entered the 8th grade at my school not knowing the English language. He did this so that he would not have to live with his wealthy father whom he said had physically abused his mother, divorced her and cut off financially. He never sported trendy attire and seldom lunched with his peers as he worked to save his allowance (sent by his father who also paid the tuition) to pass on secretly to his mother in Russia. Over almost ten years, these and others are the tales that have emerged from one of NYC’s exclusive private schools. These stories are undoubtedly atypical of those we expect to hear from in these geographic spaces.

Bowles and Gintis (1977) like many other scholars, contend that schools continue to perform as sorting machines through which inequality and privilege is reproduced. Their work discusses how the urban geography concurrently produces blue-collar workers and professionals, future leaders and future felons. If we conform to prevailing ideological conceptions of merit and mobility, then surely there are no surprises here. We expect hard working children to succeed - such as children from affluent families - while those we

anticipate will fail (like poor, immigrant children) tend to be more likely to fail. This cyclical process of producing winners and losers (children who excel and those who do not) certainly lays the foundation for resentment and conflict within the urban routine of schooling.

Urban centers as sites of perpetual struggle

Along this spectrum, there is the view of urban centers as sites of struggle and social collision. It is a perspective well perpetuated through multiple media forms. Dense cities tend to be spaces imagined to be riddled with violence between opposing gangs or discord between slum landlords and their victimized tenants. Recall the plot of *West Side Story*, a popular Broadway musical situated in NYC. It is a rendition of 1950s NYC life that focuses on the rivalry between two street gangs of different ethnic backgrounds. Tony, a white working-class fellow from one of the gangs falls in love with Maria, the sister of the leader of the rival Puerto Rican gang leader. This is a characteristic story of racial divisions and associated conflict within urban spaces. In reality, clashes do turn violent. Currently, hate crimes are on the rise in NYC and according to FBI hate crime statistics, the number of reported incidents in the metropolis motivated by race, religion, sexual orientation, ethnicity and disability are steadily increasing. Learning to accept the differences in each other has never been an easy task. Neither is the act of becoming an urban cosmopol who has embraced a new global perspective. There is an implicit tangled journey here, a journey that causes one to consider his/her own identity. When you are surrounded by a lot of 'otherness,' it bubbles up a restless anxiety about who you really are as a person. It is difficult to conceive of the true wholehearted acceptance of difference around you without this occurring. The following lines are taken from an

Adrienne Rice poem, *An Atlas of the Difficult World* (1991), which wonderfully convey the complexities of 'being' in the contemporary cosmopolitan world.

I'm an immigrant tailor who says A coat
 Is not a piece of cloth only
 I have dreamed of Zion I've dreamed of world revolution
 I'm a corpse dredged from a canal in Berlin
 A river in Mississippi. I am a woman standing
 I am standing here in your poem. Unsatisfied.

Each of these lines aims to recall tragic events within the flow of a transnational and globalized history. The author seems to struggle to find her place in this world as she mediates these histories and tries to determine how and where she belongs. In the last line of the poem where she refers to 'standing' and being 'unsatisfied,' she adopts a stance against the complicatedness that befalls difference, including exclusion, alienation and discrimination; all elements of urban life and urbanization.

According to David Harvey (2008), urbanization remains primarily a class phenomenon. As urban centers become populated with immigrants, urbanites continue to search for new ways to distinguish their socioeconomic status within urban space. Such practices are often linked to flows of culture and commodities (Heung, 2009). The exploding fearsome inner-city slums exist in conflict with the drive to colonize more urban space for the concentrated occupation of wealth, privilege and consumerism. When revisiting the Starbucks reference example, urban geographer David Harvey would most likely analyze this physical space through a very different lens. The coffeehouse is a space within which only a sect of the public frequents for commercial and consumption purposes. The working class family might view it as an exclusionary space, one from

which they are shut out. Those who cannot indulge in its pricey beverages and pastries can neither evade nor ignore its presence on many a NYC block. They are forced to confront it in exactly the same way that its occupants cannot avoid seeing them.

Like Starbucks or any other highly frequented space within a city, its schools also exist as spaces that present multiple struggles, sometimes violent, amongst its cosmopol attendees. There is nothing novel about this theme. The educational streams are saturated with surveys, articles and scholarly works that describe, deconstruct and problematize the urban classroom. In general, conflicts tend to occur when teachers, other school personnel and students who come from varied cultural backgrounds come into contact. Instances of conflict are notably high amongst students. In NYC, the NYC Department of Health and Mental Hygiene and the NYC Department of Education administer an annual anonymous survey (The New York City Youth Risk Behavior Survey) intended to highlight trends in youth violence. The numbers are glaring reminders of the continual violent interactions amongst our children. For example, in 2005, 9% of NYC youth reported missing school because they felt unsafe (as compared to a national average of 6%). In that same year, 14% of young people reporting being involved in fighting at school in NYC (the then national average). The annual 2005 report also indicates that boys were more likely to be reported carrying a weapon than girls, and 1 in 25 males reported carrying a gun (4%). Simultaneously, other forms of conflict emerge in the confines of the classroom. A significant body of research points to a general lack of multicultural competence that can exacerbate the difficulties that inexperienced teachers (not solely novice teachers, but also those who are unfamiliar with working in urban schools) face in their classrooms. Other studies, like Shernaz Garcia and Patricia Guerra

(2004) discuss the tendency of educators to hold on to deficit perspectives and identify failure and underachievement as a problem within students, families, and communities. (This construct of deficit perspectives will be revisited in Chapter 3.)

We can also similarly apply the Starbucks analogy to a previously mentioned contested physical space - the private school. The prep school is a space that only a small sect of the urban public ever frequents. The typical NYC working class family views it as an exclusionary space, one from which they are shut out due to the financial costs of its educational services. Even though a great many New Yorker parents cannot afford to pay the tuition of such schools, they cannot ignore their presence across the landscape. Private school children walk the same city blocks and may share the same train cars to and from school with non-private schoolers. Thus parents, and their public school children are forced to confront the existence of every NYC private school in exactly the same way that its typically uniformed students cannot avoid seeing them as they traverse shared geographic space during mornings, lunch and rush hours. Thus, Harvey might argue that in analyzing each of these cases, the porosity of the boundary between opposing groups forms a zone of potentially conflictual contact (Harvey, 2005).

Clearly, the idea of coexistence is a position that is loaded with tension. The idea that we have universal moral obligations is not always easily reconciled with the practices and beliefs of many. Appiah (p. xv) recognizes this tension, and writes: "As we'll see, there will be times when these two ideals - universal concern and respect for legitimate difference - clash. There's a sense in which cosmopolitanism is the name not of the solution but of the challenge." However, while we recognize the challenges it presents, it

would be remiss to not explore the possibilities and opportunities that cosmopolitanism afford us.

The riches and richness of overlap

Globalization has become highly personified within the shifting in patterns of migration across the planet. Today, warfare across sociopolitical boundaries, scarce food resources, employment and educational opportunities are still salient issues that impact migration and immigration. According to the Global Commission on International Migration (2005), there are currently 200 million people living away from their place of birth. The phenomenon of immigration remains central to any discourse involving urban foci. It is obvious that immigration remains a feeder for the varied peoples whom reside in cities. It redefines social space and changes the urban dialogue that must continually mediate new types of coexistences and new types of contingencies. As families with school age children migrate, they must interact with the school systems in their new locations. Their children in turn are plunged together in classrooms where they must learn to coexist and learn science. Reciprocally, the school systems must also learn how to interact with transforming cultural spaces created and shared by new and multi-generational immigrant student populations and their families. These global and more local trends continue to have a significant effect on the racial and ethnic compositions of the public schools in NYC.

Hybridity in a new 'third' space

Migration into urban spaces clearly has a tremendous effect on the rate and variety of which cultures come into frequent contact. Stuart Hall (1990) theorizes the existence of

global collided cultural spaces where no one can claim to be indigenous. He contends that these spaces give rise to hybridized culture. Hall refers to diasporic identities as those that are constantly producing, reproducing and transforming themselves anew. Adopting a similar analysis, Roth (2006) explores how students are in a diaspora whenever they are in a process of learning in new and unfamiliar forms. As a result, students are thought to simultaneously construct and exist in a *third space*. The culture enacted in the third space is contingent upon the merger between the schema and practices from the first space – the home, community, and the other assorted peer networks and the second space - more formalized institutions such as school. In this manner, participants create a creolized form of being. For example, in noted Caribbean laureate Derek Walcott’s collection of poetry and plays, he switches between elements of native Caribbean patois and English. For example, in “A Far Cry from Africa,” and “Omeros,” Walcott merged these languages to convey to his readers the extremity of his racially mixed ancestry and uses the advantages of hybridity to express his difficulties of reconciling a West Indian upbringing, and African and Dutch roots while living in a foreign country (the US). Thus, several works speak to this personal struggle and his unhomeliness in a strange new land:

Art is History’s nostalgia, it prefers a thatched
 roof to a concrete factory, and the huge church
 above a bleached village. The gap between the driver
 and me increased when he said:
 “The place changing, eh?”
 where an old rumshop had gone, but not that river
 with its clogged shadows. *That* would make me a stranger.
 “All to the good,” he said. I said, “All to the good.”

The above lines from his work, *Omeros* (1990), through this title character, Walcott expresses his nostalgia and love for his native St. Lucia. Using Greek mythology as a structural tool, he tells a remarkable story that really speaks to the relation of human society to its past. Many of Walcott's writings are good examples of hybridity and how it creates new conditions for achieving one's goals (in his case – his inner turmoil toward cultural assimilation), and expand the possibilities for sharing knowledge. Chris Emdin's (2007) research, using cogenerative dialogues in his science classrooms, argued that when students feel comfortable to use out-of-school language as opposed to highly canonical terms within the classroom, it is because the boundaries between school and out-of-school begin to blur. With the validation of a safe space emerges hybridized discourse where new understandings about students' lifeworlds and understandings develop. It is within these spaces that a certain degree of cosmopolitanism is attained.

In a 2009 speech at Princeton University to its freshman class, Appiah stated that one of the foundational tenets of cosmopolitanism as he sees is the complete existence of hybridity. He said, "We have the sense that our knowledge is imperfect, provisional, subject to revision in the face of new evidence - including new evidence from people in other societies." I highly agree and I would contend that in order for creolization to truly occur, there must be a wholehearted acceptance that there is much to learn from each other in these new spaces. The unique aspect about urban spaces is that, thanks to immigration, it repositions those individuals from "other societies" right here in our own backyards. We do not have to look very far for inspiration and to observe what Appiah imagines. There is much to learn from those members in our own societies whom we share common spaces with each and every day. Within classrooms in urban schools

where the divides are quite pronounced, utilizing cosmopolitanism is a goal for all participants in the social field, which can allow for a collective ideal to be attained.

What does all of this ‘coexistence’ mean for science education?

The purpose of drawing attention to the distinctions and differences we encounter in urban ecologies is much more than just the obvious. Yes - urban centers introduce heterogeneity on multiple levels that saturate our classrooms. Thus, educators need to acknowledge and mediate the complexities that urbaneness brings to teaching and learning. However, there is certainly much more here to draw upon from this reality. For starters, sole focus on the social inequalities and discriminatory constructs of gender, race, ethnicity and class (classic foci for the discussion of the plight of urbanites) are not conducive to sustainability or success. In contrast to describing urban contexts largely in terms of deficits, efforts can be made to identify and describe affordances for urban education. What is needed for acknowledgement, beyond the obvious disparity in distribution of resources is that sometimes, these resources come together in unexpected ways and coexist. That is, at times, fields overlap and different individuals are brought together in the same space. When this happens, it also means that at times, goals and motives of social agents also overlap in meaningful ways. Thus the city has the ability to be the place where we can work on building new patterns of social relations, and bridging the gap between the differences in educational experiences of our children. In Chapter 5, the story of how Rebecka, Ashley and Leslie, three female students from very differing lifeworlds met and greatly transformed their schooling experiences in an independent school, serve as a strong example of how difference can produce unforeseen positive circumstances for teaching and learning. Chapter 4 of this dissertation will also reveal

another unlikely yet hopefully intriguing story of how stark racial, ethnic and other cultural differences between a teacher (myself) and groups of White students were effectively mediated and served as a means for student achievement in the classroom. In both of these chapters, the goal is to provide fodder for thought about how cultural differences can be used in ways to transform traditional learning environments into spaces marked by student success.

While it is clear that major divisions exist between social actors in the urban scene, it is not the intent to simply restate the obvious and remind ourselves about the unfortunate inequities that define urban ecologies. Martin Heidegger (1971) reminds us that “A boundary is not that at which something stops but, as the Greeks recognized, the boundary is that from which something begins its presencing.” Thus, our focus should center on a consideration of what happens when boundaries blur and ‘worlds collide.’ It would be careless to overlook the opportunity to imagine and construct new possibilities for how we build solidarity and educate our urban science students so that they are successful in science. In these hybrid spaces, we envision that all participants still retain the right to expand their own agencies to meet their individual goals. No individual is more valuable or capable than the other. After all, we each make the other possible in very unique ways. Can the rich exist without a population of less fortunate folk? It is clear that this is not possible. All parts of a system define all the other parts of the system. Likewise, there is no ‘urban’ without the presence of a ‘suburban.’ Thus we must begin to more wholly accept the importance of rejecting the ‘us’ versus ‘them’ ideology as it continues to consume us and manifests itself in highly destructive ways. It is imperative that we find ways to continuously create solidarity in a world with continuous change and

difference across space and time. As Appiah writes, “People are different, the cosmopolitan knows, and there is much to learn from our differences. Because there are so many human possibilities worth exploring, we neither expect nor desire that every person or every society should converge on a single mode of life.” What Appiah certainly makes clear here is that we should remain very open to the opportunities that creolization affords. It brings different cultures together to new spaces where new culture is enacted to meet goals and motives salient to the new field. As Homi Bhabha reminds us, the production of new culture is always most prolific where it is most ambivalent. Thus, creolization, a marker of urban spaces, can serve as a path to hope and promise. These ‘in-between’ spaces while they can be sites of contestation, are innovative spaces for collaboration and afford us new ways to think about ourselves, how we live, how we teach and how we learn.

CHAPTER III

Urban educators at the crossroads: Towards cultivating urban teaching sensibilities

Excellence has ceased to exist once people start asking whether it can be taught.

(Pierre Bourdieu, 1977)

What does it mean to teach in urban schools?

In the previous chapter, I explored the evident disparities and heterogeneity that remain the fabric of urban life. Often, individuals from differing backgrounds come into contact with each other in shared spaces and are copresent. When there is a mutual understanding between individuals possessing different ideologies, cosmopolitanism emerges (Appiah, 2006). In urban schools, this phenomenon is perhaps even more prominent with the inundation of diversity saturating our classrooms. Thus, educators must mediate the complexities that urbaneness brings to teaching and learning. It is also apparent that urban areas like New York City can be spaces marked by dissent and discord amongst socio-categorical divisions of individuals. However, we should realize that preoccupation on the negative encounters amongst urbanites holds little potential to advance our understandings of learning from each other. I argue that rightful focus should be placed on the hybridity produced as different individuals come together and utilize the same geographic spaces. These creolized spaces (Hall, 1990), created by the copresence of unique learners, retain new possibilities for learning in urban schools.

Part of the complexity of appropriately preparing our educators is *how* exactly to address the plethora of diversity that teachers may encounter in urban classrooms. Across the gamut, urban students (and educators) differ in a multitude of ways: racially,

ethnically, religiously, linguistically, gender-wise and ability-wise. They are immigrants or children of immigrants, who span the socio-economic spectrum, and who have dissimilar interests in music, fashion and art. Therefore, at times, there is little common lived-experience here, a general mark of urban life. This is precisely why teaching urban students requires particular understandings and dispositions, and a willingness to learn from diversity and to teach adaptively.

A reduced interpretation of diversity evokes a consideration of differences in gender, race, ethnicity, language, sexual orientation and religion. However, we neglect at times to include that diversity also intends to speak to differences in axiology (values), ontology (perspectives) and epistemology (understandings). In education, it also refers to student knowledge and life experiences of each individual in a classroom. In particular, we sometimes neglect to recall that student ability/disability is very much a critical component of school diversity. Schools have become sorting sites for an assortment of learning styles (McDermott, 2000) and more and more teachers are faced with the challenges of differentiating instruction for a varied spectrum of learners within larger general education classes. Despite the fact that urban classrooms are primarily conceived of as general education classrooms, in accordance with the Individuals with Disabilities Education Act (IDEA), a considerable number of its members are identified and diagnosed as learning disabled. It remains just one of many such labels placed upon urban students that educators are left to contend with. Increasingly, new teachers are receiving general subject certifications through varied teacher preparation routes and are encountering both special education children and special educators placed in their classrooms. This means that today's general educators are expected to develop the

knowledge and skills necessary to educate the increasing numbers of students with disabilities in their classes and work in collaboration with special education teachers (Dingle, Falvey, Givner & Haigel, 2004).

With such enormous diversity in urban classrooms, what should teachers know and do in order to teach effectively? Modern teacher education programs, even at the most prestigious institutions, are still presenting dated ideologies about teaching and learning and requiring prospective educators to engage in activities that do little to cultivate the sensibilities needed to work in urban settings. How can we expect there to be any shift away from the teacher-centered, humanistic curricular approaches in the classroom if we are not working more diligently to change the ways we prepare today's educators? There is need for new global models for teacher education and in-field reflection – models which are innovative and flexible, based on collaboration and cooperative learning, which encourage creative and holistic thinking, and aptly equip teachers with tools to teach effectively in diverse classrooms.

In this chapter, I bring forth the constructs of cosmopolitanism and hybridity to analyze complexities introduced by the lack of particular sensibilities that teaching in urban spaces requires. I provide a supporting framework of several correlated subjects within the issue of contending with diverse urban labels. Firstly, I describe the limitations of current teacher preparation specifically for those ultimately placed in urban schools and the debate centered on teacher effectiveness. I then address the stigma of labels in urban classrooms, particularly the struggles of students categorized as learning disabled. Not only do students mistreat each other because of these labels, but so do educators, especially those lacking the necessary dispositions to work with diverse

children. I also discuss the compound discord over special education legislation enactment in urban settings like New York City (NYC) and the existing rifts between general education and special education teachers working in varied team-teaching settings. With limited means for teacher preparation programs to ensure that its graduates leave with enhanced dispositions toward urban students, new educators enter the field and are faced with challenges that labels and labeled students bring to urban education. Thus, collaborative efforts among educators and students are critical to attend to the inadequacies that both teacher preparation programs and urban schools introduce. With this consideration, I end the chapter articulating an argument calling for the adoption of two methodologies - cogenerative dialogues and coteaching - as ways in which educators, regardless of their certification paths and program preparedness, can collaborate to shoulder the challenging roles of educating the incredibly diversely-abled student population of urban niches.

Beyond certification: The importance of dispositions

The intellectual caliber of the teacher has long been a focus of policy makers. We continue to ask, are teachers up to the task of educating students to the level intended by established standards? Throughout the history of formal schooling, a teacher's academic background has occupied a central place in the definition of what it means to be qualified to teach, and it has been a perennial touchstone for debates, laments, and defenses centered on the overall quality of the teaching workforce (Little & Bartlett, 2010). In recent decades, academic preparation has evolved as perhaps the single most prominent proxy for teacher quality as a necessary guarantor of classroom effectiveness. Today, teacher education programs continue to face the challenge of meeting specific national

and state standards that are established by external accreditation bodies (Darling-Hammond, 2001). These standards imply that teacher candidates will become highly qualified educators by meeting particular technical competencies associated with program completion and satisfactory performance on certification tests (U.S. Department of Education, 2004).

Many teacher education programs across the country have initiated discussions between general and special education faculty about the characteristics and competencies needed by both special and general educators in order to effectively teach a diverse population of students (Dingle, Falvey, Givner & Haagel, 2004). This dialogue has, in some cases, evolved into pilot programs and/or new models of teacher preparation for both general and special education teachers (Blanton, Griffin, Winn, & Pugach, 1997). Researchers Monahan, Marino, and Miller (2000) conclude that offering a singular “mainstreaming” course as the lone method for general education teachers falls short of providing them with the competencies needed to successfully include students with disabilities in their classes. Instead, they argue for a comprehensive teacher preparation program where all candidates learn to effectively include students with disabilities in their classes. Their research provides strong evidence that we must examine teacher preparation programs and how they mediate teachers’ attitudes toward inclusive practices (Dingle, Falvey, Givner & Haagel, 2004). D’Alonzo, Giordano, and Cross (1996) also recommend that in order to improve general education teachers’ attitudes about inclusive education, teacher preparation programs for both special and general educators must provide the competencies necessary to successfully include students with disabilities.

Still falling short

Good teaching requires more than just a broad knowledge base and skills. Being a ‘highly qualified’ educator encompasses aspects of teaching that cannot be quantified. The teaching profession requires certain dispositions, beginning with a fundamental belief that every child, regardless of color, language, ability, or any other label can learn. These qualities, including kindness, fairness, honesty and empathy, are some of the normative qualities one would hope to see in a prospective teacher (Sherman, 2006). The National Council for the Accreditation of Teacher Education (NCATE, 2002) provides a definition of dispositions:

The values, commitments, and professional ethics that influence behaviors toward students, families, colleagues, and communities and affect student learning, motivation, and development as well as the educator’s own professional growth. Dispositions are guided by beliefs and attitudes related to values such as caring, fairness, honesty, responsibility, and social justice. (p. 53)

Thus, in accordance with NCATE and other similar accrediting bodies, teacher education programs continue to seek to establish ways to focus on candidates’ capacities to be responsive to students in multiple ways in varied contexts. While establishing high standards for the moral dispositions of prospective teachers remains an important directive for teacher preparation programs, standardizing such assessment is not possible (Sherman, 2006).

Having the above described dispositions are necessary to afford positive school encounters in such multicultural settings like NYC. While policy makers might imagine the integrated classroom as a cosmopolitan seedbed for the valuing of difference, at

times, the opposite takes course. Unfortunately, many prospective educators with deficit attitudes enter urban classrooms and continue to make negative judgments about certain students' potential in the classroom (Darling-Hammond & Bransford, 2005). A significant body of research indicates that the general lack of multicultural competence of inexperienced teachers (both novice teachers and those who are unfamiliar with working in urban schools) exacerbates discord in the classroom (Garcia & Guerra, 2004). Many of these students have legitimate learning difficulties but have never been formally diagnosed and thus, do not have Individualized Educational Programs (IEPs). From early on, these students are labeled as 'disadvantaged' and 'at-risk' because of culturally deficit views. Proponents of such views naturally make assumptions for what they perceive as incompetence and inability on the part of the students. They contend that students' poor school performance stems from one of many sources: deficiencies in the home environment (poor language modeling, disorganized family life etc.) lack of parental interest and involvement and lack of motivation on the part of students (Darling-Hammond & Bransford, 2005). These children are consequently placed in lower-tracked instructional groups where they are exposed to an overly simplified curriculum. There is heavy emphasis on basic skills, which ignores the possibility of legitimate learning disabilities and fails to provide means for the development of higher-level thinking skills. Usually what occurs in such classes is a slowed instructional pace where the emphasis is on student behavior at the expense of academic content.

Though we hope that different learners would create a hybridized space with new classroom culture that would facilitate learning, in reality, this does not always occur in our classrooms. Sometimes, the new culture produced promotes solidarity amongst

individuals that is painted by the existence of negative emotions and discord like in the above case. Hence, teachers retain a critical role of being the first respondents when negative encounters occur between students. However, at times, educators themselves are the purveyors of negativity in the urban classroom. These harmful practices of some urban educators devalue our students, reproduce low academic outcomes and promote a sense of alienation and disempowerment among these children (Villegas & Lucas, 2002). Thus, how do we discourage such acts from occurring in our schools? Clearly, teacher preparation programs have a critical role to play in priming teachers for the litany of labels that will mark future classrooms and the kinds of experiences that such labels might produce. The following section takes a more critical look at the power of labels in urban classrooms and problematizes the truncated conditions for learning that varied labels create.

The authority of urban labels

Label appropriation within the urban educational landscape

The United States is more racially, ethnically and linguistically diverse than ever. Over the past forty years, the urban elementary and secondary student population has transformed dramatically. New York City, home to over 1700 public schools and around 900 independent schools, is one such place. According to the city's Department of Education website, the racial makeup of NYC's 1.1 million public school students is 37% Hispanic, 35% Black, 14% Asian, and 14% White. About 40% of students in the city's public school system live in households where a language other than English is spoken. The city's Department of Education (DOE) translates report cards, registration forms, system-wide alerts, and documents on health and policy initiatives for parents into

numerous tongues including Spanish, French, German, Chinese, Japanese, Urdu, Persian, Hindi, Russian, Bengali, Haitian Creole, Korean, and Arabic. Among these differences, there also exists a continuum of placements for students in urban settings that are ability-based. According to 2009 DOE data, about 161,820 NYC students receive special education services. This number includes all public, non-public, pre-school and school age children. Generally, many learning disabled students spend the majority of the school day alongside their non-disabled peers in mainstreamed classes. These students may be diagnosed with one or more of the following: Attention Deficit Disorder (ADD), Attention Deficit Hyperactivity Disorder (ADHD), Autism (including Asperger's Syndrome), Central Auditory Processing, Disgraphia, Dyslexia, Dyscalculia, Emotional Disturbance (ED), Hearing Impairment, LD, NVLD (Non-verbal LD), Receptive and Expressive Language Disorder, and Physical, Speech/Language or Visual Impairment. In particular, these ability-based labels continue to retain important weight in dialogue surrounding if and how students are appropriately being taught in their respective learning communities.

The way in which we are perceived in the urban classroom can either serve as a benefit or an obstruction to our individual goals. That is, depending on the context, labels can either afford opportunities for us to progress or serve as an impediment that interferes with our ability to be a successful educator or a successful student. Being a certain skin color might elicit harmful commentary in a largely racially uniform setting; being the wealthy student amongst your peers of less fortunate circumstances might also elicit some harsh criticism from others; and being labeled as 'smart' or 'dumb' also carries with it grave implications for any child in his/her school setting. Any label can become a

cause of great pain and produce years of struggle or can be a means to achieve and progress. *Black; White, rich, poor, immigrant, LD, gifted, ELL, fat, thin, pretty, ugly, Muslim, Jewish* are all such labels that illicit highly valenced emotional energies from others in the classroom.

Labels can be considerable disadvantages in our educational and professional pursuits. Having an immigrant status could be the reason a student is unfairly placed in a remedial setting, or the reason it is difficult to secure a professorial position in academia. Race or ethnicity could also play an adverse role in how a new educator is received in his/her classroom by students. In Ashraf Shady's (2008) dissertation, he discusses how his Egyptian and immigrant identities created teaching and learning conditions that were less than favorable. His research chronicles how he worked to overcome differences in labels (particularly race, ethnicity and social class) in his science classrooms. In Chapter 4, I highlight my own experiences being in largely White classrooms where my gender, race and Caribbean identities shaped the classroom field and mediated the teaching and learning that transpired there.

In a similar manner, educators too are caught in the crossfire of label warring with each other. New, younger teachers at times encounter resistance from older, experienced educators who may be opposed to implementing fresh ideas and new technology. Subject teachers also sometimes find themselves at loggerheads with special educators over their expected classroom roles. As we navigate urban schooling as individuals, we must come to terms with the phenomenon of labeling and determine the best ways to move forward in the directions we seek, while minimizing harm unto other individuals with whom we share social spaces, and are also acting agentially to realize their own individual goals.

Dispositions surrounding student LD status

Among the slew of possibilities, one such label that holds significant authority in the classroom for both teachers and students is the term 'learning disabled' (LD). On one hand, the label could be quite anodyne and provide the child with a means to feel comforted knowing that something is legitimately 'abnormal' with him/her. For a child, it can be one of the most destructive and toxic labels ever placed upon him/her. Ray McDermott (1993) describes the school as the chief theater for the exposition of children branded as learning disabled. He also presents an insightful way to think of the LD label. He describes being learning disabled as constituted within the relationship between an individual and the collective and is given meaning within this dialectic (Sewell, 1992). Similarly, McDermott contends that the practices of students who are labeled as LD are dependent on both the setting (the learning environment) and individual moments of analysis, neither of which are mutually exclusive of each other. As Chris Hale (2008) describes, in real life LD is invisible to the children whom are diagnosed with it. They participate in social life, both in and out of the classroom in ways that mirror the absence of any detriment. However, the LD label returns once students are located in the school. An LD identity immediately materializes in the eyes of peers, teachers and even their own parents.

In a 2004 survey of middle school youth (6th, 7th, and 8th grade), Semrud-Clikeman found that students who were labeled LD suffered a large sense of inadequacy regarding their intellectual ability and social capital. Another 2006 study yielded similar results (Higgins, 2006). It indicated that children (ages 9 to 18) who self-identified as 'having' LD embraced a dualistic view of LD as both a problem and as part of their identity. The

children expressed negative emotions and complained not only about academic difficulty, but also about their social isolation. Many reported that their peers had negative attitudes toward them, treated them poorly, and often described negative past experiences associated with LD.

Portrayals of what society sees as disability reveal much about societal beliefs and attitudes relative to difference in schools. They reinforce a binary system of normalcy and abnormalcy that determines individual and group membership and status (Darke, 1998). Collectively, representations of disabilities tend to rationalize the social construction of those with impairments as the ‘other.’ The LD marker has obvious implications for educators in urban classrooms. That is, it governs the way we interact with such labeled students in the school setting. These interactions can range from positive to negative ones. Noted author John Elder Robison (*Look Me in the Eye, My Life with Asperger’s*) claims that there is “no power in a broad brush label.” I strongly disagree with him, especially when children are involved. It is precisely because labels are so powerfully empowering and crippling that we educators must draw increased attention to our students and what it will take for each child to succeed.

In search of collaboration amidst label wars

Mainstreaming and the CTT model

Mainstreaming is the term used to refer to the selective placement of special education students in one or more ‘regular’ education classes. Historically, teachers formerly worked in isolation - one teacher to a classroom. As children with disabilities entered the public schools in the 1970s, they were taught in separate classrooms with their own teachers (Ripley, 1997). However, IDEA, enacted in 1975, is the main federal law that

governs the education of learning disabled children. IDEA mandates that children and youth aged 3-21, with disabilities, be provided a free and appropriate public school education. Specifically, the law requires that children with disabilities be educated in the "least restrictive environment appropriate" to meet their "unique needs" and that placement begins in the regular education classroom. The National Center for Education Statistics (NCES) reports that the number of students in integrated or mainstreamed classrooms is on the rise. Between 1995 and 2005, the percentage of students with disabilities who spent 80% or more of the school day in a general education classroom increased from 45 to 52%. As of 2006, more than 53% of all students with disabilities spent the majority of their time in the general education classroom, specifically, less than 21% in a separate special education classroom.

A similar tenet - inclusion, is a term that expresses a commitment to educate each child, to the maximum extent appropriate, in the school and classroom he or she would otherwise attend. This approach involves bringing the support services to the child (rather than moving the child to the services) and believes that the child will benefit from being in the class.

In accordance with IDEA legislation, Collaborative Team Teaching (CTT) is a national model that places students with disabilities together with other children in a classroom that is run by two teachers—one special education and one general education instructor. Alongside general education teachers in public schools, there are special education teachers, and other administrators and paraprofessionals at work. Since the induction of the IDEA, one of the biggest challenges for today's educators is how to share the role that has traditionally been that of the general education teacher. In a

collaborative model, the general education and special education teachers each bring their skills, training, and perspectives to the table, and combine their resources to strengthen teaching and learning. Typically, the general education teacher's responsibility is to instruct students in curricula dictated by the state they work within. On the other hand, the primary responsibility of special education teachers is to provide adapted materials that match the differing learning styles, strengths, and needs of each of their students. Both groups of educators introduce critical training and experience into the urban classroom and it is imagined that they share the collective goal of ensuring that all their students are provided with appropriate instruction so that each child learns, remains an active classroom participant, and is adequately challenged.

These described roles of different educators in the classroom at times leads to dissenting attitudes that are complex, multidimensional, and affected by many variables. Mainly, there is skepticism related to the efficacy of implementing inclusion, which in turn, depends on administrative support, resources, time, and the training needed to work collaboratively to implement inclusive education.

Can't we (teachers) all get along?

Collaboration is an ongoing process whereby educators with different areas of expertise voluntarily work together to create solutions to problems that are impeding students' success, as well as to carefully monitor and refine those solutions. Collaborating teachers share both responsibilities for developing/delivering instruction as well as accountability for the outcomes. They also maintain a sense of parity – recognition of and respect for each other. The idea of collaboration often conjures images of a culture of consensus, shared values, and social cohesion. Yet, in practice, when teachers collaborate, they

sometimes run headlong into enormous conflicts over their professional beliefs, roles and practices. According to teacher educator Betty Achinstein, in our optimism about creating supportive learning communities, we often underplay the role of diversity, dissent, and disagreement in community life, leaving practitioners ill-prepared and conceptions of collaboration under-explored. Research has shown that at times, when teachers enact collaborative reforms in the name of community, conflict often emerges (Achinstein, 2002). This challenges the role of cosmopolitanism in school communities by showing that conflict is inevitable. Consequently, it is how teachers manage such conflicts, and whether they suppress or embrace their differences, determines the potential for optimal teaching and learning.

Over the past ten years, my own experiences in varying urban schools have revealed tensions among educators in collaborative set-ups. At times, special education and general education educators clash in the classroom and are at loggerheads over their respective roles. At times, general education teachers feel as though special education teachers pose as obstructions in the classroom and physically interrupt the ‘flow’ of the classroom. Research has also revealed that some special educators struggle to find a balance in the mainstreamed classroom and remain unsure about how to better collaborate with general educators (McDonnell, McLaughlin & Morison, 1997). In the meantime, the larger challenge is for both general and special education teachers to acquire the capacity to work together to identify and focus on skills their students need to succeed academically. The solution here does not solely rest in the hands of teacher preparation programs. These programs cannot be fully expected to educate pre-service teachers about the realities of urban classroom life and associated complexities of the

CTT model. Thus, educators must look to other approaches to afford urban student success. The following sections provide insight on some of these classroom realities and ultimately discuss how educators can utilize coteaching and cogenerative dialogues to work collaboratively to enact classroom practices that afford the success of its diverse youth.

Overcoming the roadblocks to achieve urban student success: The intersection of cosmopolitanism and collaboration

As educators, we must accept a broad view of diversity, which embraces that students possess a multitude of complex experiences, strengths, and identities, which include ethnicity, gender, social status, family experiences and learning differences. Thus students must be taught by prepared teachers who are aware, observant and diagnostic in their approach to teaching to such diversity. Viewing disability as a type of deficit is a socially constructed notion that continues to be detrimental to the education of our youth and needs to be forcefully challenged. With such a continuum of difference in the urban classroom, teachers need to be better primed to teach students with varying needs. In this section, I re-emphasize the possibilities for collaboration in integrated settings. Besides providing the obvious necessary content and pedagogical coursework, teacher education programs should also prepare prospective educators with a means to consider the possibilities for discord and conflict that may emerge in the classroom, not just teacher-student and student-student interactions, but also those between and amongst other school personnel. Along these lines, I introduce some collaborative approaches that have begun to secure a foothold in current teacher preparation programs and in urban classrooms.

The construct of cosmopolitanism is a useful one in considering the ways in which to

envision cooperation across boundaries of difference. While it focuses on the copresence and valuing of difference, it offers more when we consider it within the individual|collective dialectic (Sewell, 1992). That is, while cosmopolitanism centers on valuing all parts of a system, it does not poignantly place importance on one component of that system in relation to another part of the system. As McDermott (1993) states, all parts of a system define all other parts of that system. That is, one label or social category cannot exist without the other: there is no male gender identity without a female gender identity, and likewise, there would not be labeled LD children without the existence of non-LD learners. If we embrace such an approach to valuing difference, perhaps can we begin to study the hybrid communities that emerge when students with different cultural capital are placed together in the same classroom (Hall, 1990). This remains highly relevant in integrated classrooms with diversely-abled children.

While collaboration can be difficult at times, research reveals promising results for the students of collaborating teachers. For example, using 11 years of student data in North Carolina, researchers have found that most value-added achievement gains are attributed to the make-up of teacher teams, not the traits and characteristics of individual teachers (Jackson & Bruegmann, 2009). Using sophisticated analyses of a large data set, their paper, published by the National Bureau of Economic Research, revealed that peer learning among small groups of teachers appeared to be the most powerful predictor of student achievement over time. The research of Schlechty (1984), Meyer (1999), Cissna and Anderson (1994), and Hollingsworth (1992) are all additional examples of student success that centered on effective teacher collaboration. The following sections serve to offer two collaborative approaches – cogenerative dialogues and coteaching - that can

transform the urban classroom and provide educators with a way to improve their teaching and student learning. Both of these methodologies are discussed in significant detail below and again in Chapter 5. However, the following sections serve as an introduction to both constructs.

Successful collaboration using cogenerative dialogues

An essential aspect of good teaching is working to cultivate an inclusive classroom and school community for all its diverse learners. What this means is that an important aspect of classroom life is for students to feel safe and understand each other's differences. The cogenerative dialogue, as introduced in Chapter 1, is an approach that can be utilized to achieve this goal.

Cogen are presented by Roth and Tobin (2006) as a way to improve the teaching and learning of science. They are conversations among participants of a shared experience where the goal of the participants is to collectively agree upon ways to acquire capital that will facilitate increased learning of students in the classroom field. These conversations are aimed at identifying and reviewing what seems to work and what doesn't, especially the schema and practices that disadvantage certain students and truncate their agencies (p. 81). Cogen work best when all participants, especially students feel that by participating, they are provided with opportunities to actively change their life conditions, both inside and outside the classroom. A cogenerative dialogue was originally a method that was gradually theorized and currently operates as a theory of method (i.e., a methodology). In many respects, it shares the underlying beliefs of critical pedagogy, which is a teaching approach to help students question and challenge

dominating beliefs and practices. In other words, it is a theory and practice of helping students achieve critical consciousness.

The current conception of cogen is one largely derived from the intersection of cultural sociology and science education. Cultural sociology continues to provide insights into ways of rethinking the teaching and learning of science. In alignment with good professional practice, the central question that should govern any science educator's practice is how to create classroom culture that will improve the science achievement of the students. I define culture as the practices that are enacted in a field by its participants (Tobin, Elmesky & Seiler, 2005). Similarly, fields are theoretical spaces defined by the activities that occur there, where such activities are governed by an individual's goals and the motives of the collective. For example, the science classroom is a field where students act in ways that are aligned with their personal goals (for example, to earn a B, to make new friends, etc.). However, despite these individual ambitions, there are structures in place in the classroom field that either afford or hinder achievement of these goals. These structures can be either material (the arrangement of desks, the whiteboard, etc) or non-material (classroom rules, the instructor's dialect/accents) in nature. Consequently, the purpose of the cogen was to create a new field where students could share their voices and openly discuss which structures, tangible and subtle, were hindering their achievement in the science classroom and how they could attain their own individual goals.

At the time when I was first introduced to the history of cogen, I was a science educator facing some difficulties in my own middle school classrooms. I had a class of sixth graders displaying a large disparity in ability and interest. I began to think critically

about what structures I had possibly imposed which were affecting their learning. The following section is a brief overview of some recent work produced in New York City and the significant outcomes for science education found through using cogens. These outcomes greatly solidified my own interests in using cogens to improve my teaching practices.

A selection of cogen-based work in NYC, 2006-2010

Chris Emdin's work in New York High School (NYHS), a small Empowerment Zone school in the Bronx, centered on the use of cogens to improve the science experiences of conceptual physical science students. In his work at NYHS, a school geared toward nursing and the health profession, cogens became a new way to afford opportunities for students' voices to be heard. Emdin (2007) argued that due to frequent cultural misalignments in urban schools, and in many academic classes, there are too many instances where students are unable to engage in the science classroom. The cogen then becomes a critical entry point to initiate discourse between students and teachers that aims to derive ways to increase learning back in the classroom field. Emdin introduced weekly cogens with willing students during lunchtime. These discussions around Emdin's teaching practices illuminated the complexity of social life in his classroom, and at times, even the current science material being covered. Students shared how they felt about particular lessons, situations that unfolded during class and comments Emdin made during classroom instruction. However, a central theme that emerged was a group longing for the valuing of differences. These students, from diverse ethnic backgrounds, expressed a desire for solidarity, not just because they were forced to exist in a classroom with each other, but rather they articulated a desire to build an affiliation around science

learning. Overall, Emdin used cogens to foster greater student interest in science achievement and to encourage cosmopolitanism, an affiliation around the valuing and acceptance of difference. Through cogens he argues, he and his students were able to co-construct new classroom culture, build solidarity and thus raise the level of interest and achievement in the larger classroom.

Ed Lehner was also a teacher-researcher who worked with at-risk students of color in a New York City High School Suspension Center. The students at this school have all committed violent offenses and have poor achievement and attendance records. Lehner's students also came from a variety of ethnic backgrounds in the African Diaspora while he was a White male, raised in an upstate NY suburb and from a higher socioeconomic background. Initially, Lehner encountered tremendous difficulty mediating these differences within his classrooms and creating a classroom culture supportive of learning. Through participation in cogens, Lehner (2007) and his students conferred on issues related to their differences. In time, the participants in Lehner's classes began to understand each other with a higher valuing of difference in the group. There was a significant shift away from the individual to the collective and thus cogen participation catalyzed the formation of solidarity within each class. Together, students created an agreed upon list of expectations to improve classroom behavior. The practices employed within the cogens were reproduced in the classroom and were the antecedents to the emergence of a new culture, which was grounded in positive emotional energy and solidarity within the class. With this new outlook, students were able to participate in Lehner's science class in ways that were more meaningful to them.

Due to cultural misalignments, Ashraf Shady (2008) also initially experienced difficulties in teaching science at Queens High School. Shady was an immigrant science teacher from Egypt also working with predominantly Black and Hispanic students. Shady attempted to foster successful science interactions across differences in race, ethnicity, age, gender, language and socioeconomic class but with little success. Shady tried to use cultural cues belonging to his students in order to engage them in science but soon realized that the laughter that frequently resulted from the students was not a sign of acceptance, but rather of ridicule of him as a teacher. Shady's initial negative encounters cultivated an interest in ways to create a new culture in his classroom. Cogens between Shady and two students, Star and Steve served to facilitate much needed change back in the classroom field. Star and Steve were students Shady perceived to possess social capital in the classroom--individuals whom other students looked to and emulated their practices, both negative and positive. As a result of participating in this small group cogen, Shady and the students developed an understanding of each other's culture and contempt was replaced by a respect for difference. These initial cogens centered on difference but soon grew to include discussions of science content and Shady's science teaching practices. The solidarity that emerged within the group became apparent to others when Star and Steve reproduced in the science classroom the practices they enacted in the cogen. Other class participants noticed and reproduced such changes and soon their own practices transformed. Not only did Shady's students perform successfully in his science class, but also his work has huge implications for teacher education. Cogens were used as a way to transcend difference between immigrant teachers and students from divergent backgrounds.

Ken Tobin and Rey Llena's recent work (2010) also at NYHS, the site where Emdin (2007) performed his cogen work, has also produced promising results for the implementation of cogens. Together, these scholars spent more than four years conducting research in mainstreamed high school Regents science classrooms with several learning disabled students. Cogens were held weekly with Llena, Tobin and willing students during lunch periods. During these dialogues, students shared experiences in the classroom where they felt their agency truncated and discussed ways to improve their learning. These conversations produced ripple effects back in the classroom fields where cogen participants generally became more agentic in regards to their science learning. Consequently, some students greatly improved their attendance, class participation and performance in Llena's science courses.

Cogen research in NYC has also unfolded and achieved notable successes in mathematics classrooms. In particular, Samuel Jackson (2010), Carol Woodburn (2010) and Felicia Wharton (2009) are all math educators who've yielded similar successes with their students. Jackson, a researcher based in the borough of Queens, utilized cogens with a class of 9th grade algebra students. During the same year, Woodburn also did the same at another NYC high school. Both of their studies show that when given the opportunity, students will access and enact new culture in ways that create solidarity and success in the teaching and learning of mathematics across the boundaries of difference. Wharton's work with cogens was based in an Adult Basic Education (ABE) classroom for individuals working to sit the GED (General Education Development) examination. Her students displayed a wide range of proficiencies in mathematics, both in the lecture part of her course and in the laboratory component where they were expected to complete

math-based computer exercises. What Wharton did in efforts to gain knowledge of how to better teach and support the learning of her adult students was she introduced cogens to facilitate conversations with them. An initial group of 4-6 participants over time grew to whole-class cogens as the year progressed. During these dialogues, Wharton's teaching practices were deconstructed and students cogenerated ways to better learn mathematics in her course.

The secret of cogen success

The success of cogens remains largely in the emphasis and importance placed upon participants' shared responsibility to generate agreed upon ways to transform the classroom. For teachers who have utilized the methodology, it has been critical to revealing aspects of classroom life that were once hidden to them, and also have been a place to understand how to better teach diverse students. Pre-service teachers have also well benefited from using cogens to learn how to teach (Siry, 2009). In her research, Christina Siry incorporated the cogen into her field coursework for four years as a way to foster collaboration amongst her students while they collectively learned how to teach elementary school science. Darling-Hammond and Bransford (2005) specifically suggest that teachers create ways to encourage conversations among students where they share information about their disabilities and their backgrounds. The cogen becomes a suitable place for such conversations to unfold. Learning occurs more readily in environments that are free from tension or humiliation; where students feel like they belong in the classroom group, are cared for by the teacher, and accepted by peers (Peterson & Hitte, 2002). Therefore cogens can serve as the initial space where learning disabled students can generally articulate their fears, concerns and needs back in the science classroom.

Research has also shown that students without disabilities are not harmed academically by inclusive education and, furthermore, may benefit socially by reducing fear of human differences, and increasing understanding and tolerance for others (Hunt, 2000). Thus, these conversations among teachers, diagnosed and non-diagnosed students can springboard much needed classroom community.

General education teachers will also by and large not be familiar with all the adaptive techniques when working with learning-disabled children (Darling-Hammond & Bransford, 2005). Thus, the cogen becomes a critical field where teachers and other professionals can have conversations with each other and with students. My own research in Chapter 5 provides an in-depth look at how cogens were used successfully to teach a mainstreamed middle school science course. General educators and special educators, especially those in Collaborative Team Teaching (CTT) settings like in NYC, should be engaged in ongoing dialogue about how to best work with the students in their classes. Hence, CTT educators can look to cogens as an opportunity to discuss how to access the necessary human and material resources to support student learning. We sometimes fall trap to forgetting that LD students possess different interests, learning styles, and motivations. Believing that all disabled students are alike results in the notion that schools only need to provide a single program to meet their needs. The complex differences among disabled students would suggest that offering the same decelerated curriculum with weekly pullout programs create a mismatch between learner need and instructional opportunity. Instead, with a cogen, educators can together consider differentiated instructional paths for diversely abled students.

The cogen can also be a space where participants can foster conversations about undiagnosed students who may indeed have legitimate disabilities. Some urban schools may not have structured systems in place to help properly identify students who may be disabled. If there was a space like a cogen, practitioners could share their experiences working with those students of concern and collectively decide the best ways to support that child. In my experience, parents can be at times resistant to accepting that their child may have a disability. Hence, teachers can also use cogens to discuss how to navigate possibly difficult conversations with parents as they work toward the correct diagnosis of a child. Lastly, as mentioned previously, some special educators continue to struggle to find a sense of balance and are unsure how to better collaborate with general educators. Hence, a cogen would serve as a space to negotiate classroom responsibilities between educators and determine expected roles. One of these agreed upon roles might very well be the possibilities of classroom coteaching.

Goodbye CTT, hello coteaching!

In NYC classrooms, there lies an opportunity to reconsider current approaches to CTT. CTT as explained previously, is a proactive approach in which general and special educators work in a coordinated fashion to jointly assess, plan for, teach, and evaluate academically and behaviorally heterogeneous groups of students in an educationally integrated setting. Ideally, CTT should leave students unable to correctly identify who among them is really being served by either teacher, thereby taking some of the stigma out of being a child with special needs. However, this is difficult to accomplish with most diagnosed students being pulled out of their general education class weekly in order to sit in separate special education classes. Additionally, CTT set-ups are usually ones where

the general education teacher (the curriculum and content expert) remains at the head of the classroom and instructs, while supporting special educators retain roles where they mainly monitor and observe the classroom (Figure 1.).

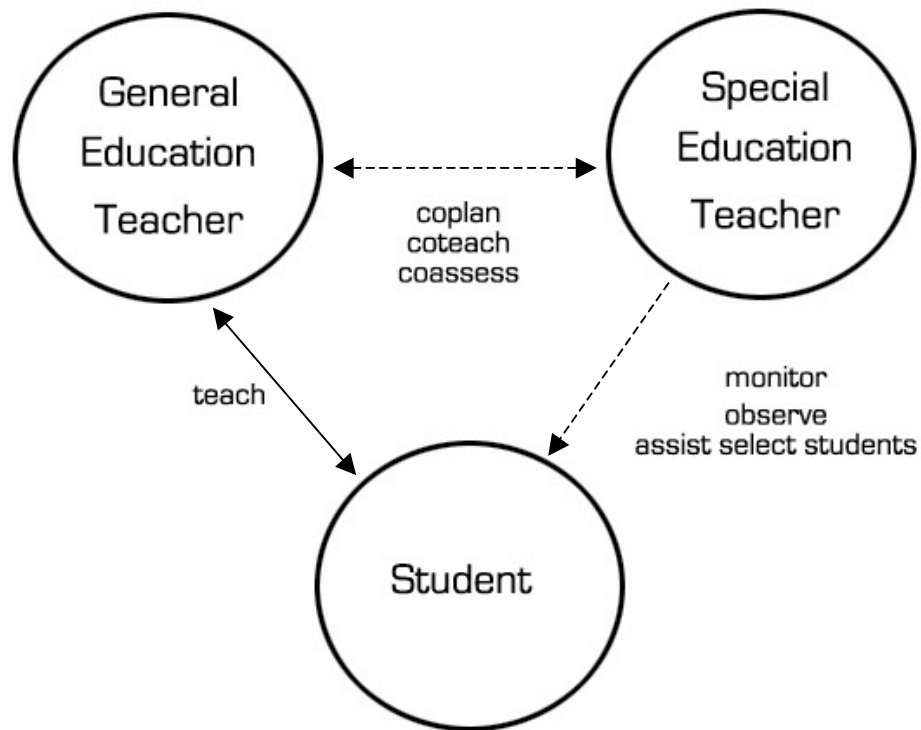


Figure 1. The current Collaborative Team Teaching (CTT) model.

Ideally, these educators are expected to work collaboratively to plan and implement instruction. This is why I have indicated this partnership with a broken line in the above diagram, to represent the sometimes fragmented relationships between these classroom educators. These disconnected roles can become clear and apparent to students. However, a renewed approach can hold significant potential in the classroom through the adoption of coteaching.

Coteaching is a proactive approach to education and has been found to work well in heterogeneous, integrated settings like urban classrooms. It is the practice of teaching with more than one teacher and by doing so, each learns from the other and reproduces certain teaching practices (Tobin & Roth, 2006). Coteachers are simultaneously present in the classroom setting and maintain joint responsibility for coplanning, classroom instruction, classroom management and student evaluation. Like cogens, coteaching continues to be in use in schools both locally and in international contexts. They have been implemented in middle, primary, high school and university classrooms across the globe where a multitude of coteaching partnerships have emerged: student and in-service teacher; pre-service and in-service teacher; university researcher and in-service teacher. Pernilla Nilsson's (2010) research surrounding coteaching is one of many unique examples where the coteaching arrangement between a physicist and a primary science teacher was utilized in a university setting to successfully teach pre-service science educators enrolled in an 8-week physics class. Cristobal Carambo's work (2010) within Philadelphia schools is an example of the terrific partnerships between university programs and local schools where science education faculty are coteaching with science teachers to improve the success of students and subsequently conducting research in these classrooms. At home in NYC, the university partnerships with neighboring schools afforded Christina Siry's (2009) research that focused on the effectiveness of pre-service educators learning to teach elementary science through the coteaching model.

If we consider a coteaching model for general and special educators in urban schools like in NYC, it would look closely to the diagram indicated in Figure 2. Here, coteachers provide more integrated services for all students, regardless of learning needs.

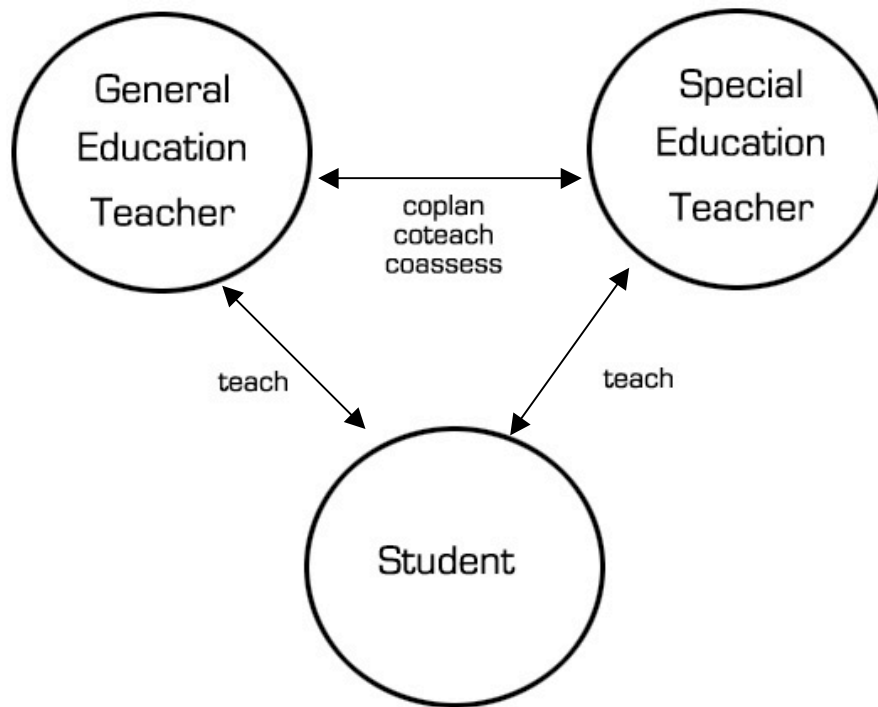


Figure 2. A Coteaching model for general & special educators.

In the arrangement in Figure 2., both educators are actively involved in all aspects of the class, and work to implement differentiated instruction in the classroom. Distinct roles also become blurred and both teachers are content-proficient and knowledgeable of diverse teaching strategies.

It is imagined that through cogens, coteachers would coplan how to adjust content, process, and expected product in response to individual student readiness, interests, and learning profile. If coteachers embrace a similar axiological, epistemological and ontological vision for their classroom, then it becomes easy for their students to value that vision too. This in turn enables students to work to the best of their abilities and become more successful. Hence, both coteaching and cogen are approaches that can

afford cooperation, growth and the improved learning of both students and classroom teachers alike. With continuing successes in both local and international spheres, these approaches hold promising potential in urban education settings.

Rethinking teacher education: new tools and renewed attitudes

As John Dewey (1938) noted, nothing has done more to drink pedagogical theory into disrepute than the belief that it is associated with merely disseminating teacher recipes and models to be followed in teaching. It should be quite obvious that it remains a much more complex task. In reality, it is difficult to expect all teacher preparation programs to create high quality teachers in an assembly-line fashion, who can be placed in any diverse classroom setting, devoid of harmful dispositions and produce collective student success. Still, every classroom should have a teacher who is aware of self, aware of the learner and aware of the continuous process of learning to teach. This requires teacher education programs to teach the importance of continuous reflection. There has been promising research that suggests that new teachers will use critical reflection as a problem-solving tool if educated to think in that way (Yost, Sentner, & Forlenza-Bailey, 2000).

For starters, studies show that teachers who are prepared to teach students with special needs are more skillful teachers with all students as they develop deeper diagnostic skills and a repertoire of strategies that are beneficial to many students who learn in different ways (Darling-Hammond & Bransford, 2005). Generally, this means teacher preparation that provides systematic and extensive development of the knowledge and skills necessary for teachers to implement inclusive education. However, this is not a rallying cry for additional regulations from teacher preparation programs imposed on students. In order for beginning teachers to become successful in the classroom, they

require the tools necessary for coping with challenges they encounter, and critical reflection remains a viable tool to help teachers cope with problems that occur in the classroom setting (van Manen, 1977). Thus, teacher preparation programs should be the beginning point from which prospective teachers learn the importance of reflection and collaboration in efforts to learn how to work in heterogeneous settings. Research shows that beginning teachers tend to lack the opportunity to reflect on their work by engaging in earnest and sustained conversations about teaching with their peers (Rogers & Babinski, 2002). Conversations about how new educators can thus create such spaces for dialogue on their reflective practice become critical.

Teacher preparation programs should also serve to instill the importance of teachers doing research in their own classrooms. Teachers should be taught to be reflective, reflexive and understand how research in their own classrooms is crucial to improving localized teaching and student learning. A 2000 report from the Wisconsin Center for Educational Research (WCER) states that evidence from various studies shows that, engaging in teacher research validates the importance of the work teachers do and helps them to: become more confident about their ability to promote student learning; to acquire habits and skills of inquiry used beyond the research experience to analyze their teaching; to develop or rekindle an excitement about teaching; and to gain essential wisdom, which is missing from the knowledge base of education that connects theory, practice and policy. In classrooms where teachers have conducted research, there are also noted benefits for students. These classrooms were marked by high levels of student interest and engagement with substantial reductions in student conflict, confrontation and alienation from schooling (Mitchell, 2005). Likewise, teachers must also foster the

adoption of expanded roles for students in the classroom. Students themselves should be encouraged to conduct research in their own classrooms and to also be reflective. In a similar way, students too become more dedicated and invigorated about their own growth and learning

As articulated earlier, the solution is not just a matter of creating coursework to muddle through “learning issues.” Teacher education programs should foster the emergence of communities of practice where teachers are introduced to cogens and coteaching as approaches to embrace the necessary dispositions needed to work successfully with diversely-abled children. There needs to be spaces like cogens, that serve to nurture a cultural sensitivity in every teacher and provide a means to create professionals who hold high expectations for all students irregardless of socially constructed differences. Both coteaching and cogenerative dialogues can also be used as professional development models for in-service teachers. Coteaching has enabled in-service collaborating teachers to reflect on their practice, change ineffective existing practices, gain new pedagogical and content knowledge and expand their roles to become teacher educators (Gallo-Fox, Wassell, & Scantlebury, 2007).

Research in schools where collaborative teaching has been practiced point to significant benefits for both special education students and their typical peers (Walter-Thomas, 1996). Consequently, diagnosed students reconstructed improved self-images, became less critical and more motivated, and recognized their own academic strengths. As detailed earlier, numerous studies (e.g., Hunt, 2000;) also show that generally, students in these collaborative settings developed a stronger sense of self, gained a greater understanding of differences and acceptance of others. School personnel also

provided testimony of professional growth and enhanced teaching motivation.

Collaborative efforts brought complementary professional skills to planning, preparation, and delivery of classroom instruction.

Providing more opportunities in teacher education programs to learn about working with diverse learners is certainly not a magical solution. However, it does provide a place to initiate both self and learner awareness, encourages reflection and hopefully implants a willingness to do research so as to continue to learn how to teach during the course of one's professional career. Special educators must become more adept in content knowledge and curriculum development, and general educators must understand their role in implementing IEP goals and objectives - that is, how to accommodate students with disabilities within the general education classroom. It is important that all teachers - general and special education - receive sufficient preparation to learn how to work together effectively once they are in the field. The bottom line is that all students win when they are challenged by well-trained, collaborating instructors who believe that they are responsible for all children in the classroom.

CHAPTER IV

The nanny in the schoolhouse: the role of femme-Caribbean identity in attaining success in urban science classrooms

I've got a story to tell

Narratives are increasingly becoming a valued method within educational research. They are a means to capture the situatedness, the contexts and the complexities of human action in teaching and learning (Lyons and LaBoskey, 2002). When one considers the duty of a teacher, as a person who instructs students, this conception slurs over the fact that the teaching and learning environment involves a personal sharing of common experiences. Narrative has long been a tool used in educating students as it provides a useful framework that teachers can use to their benefit. We educators live in stories and use narrative to teach children difficult concepts and to bring structure to the curriculum. As equally powerful are narratives from educators about their experiences in the classroom. Connelly and Clandinin (1994) posit that such stories are crucial in teacher education because the sharing and writing of their classroom experiences can lead to awakenings and to transformations in the practice of the teacher-storytellers themselves. In the same way, I hope to use narrative to tell a story about my own praxis, while lending some insight into the complexities of social life in the urban science classroom. This story aims to contribute to the understanding of the relative importance of my plural identities and how such identities shape the science classroom field. The discussion of identity provides a backdrop for robust discourse of how we negotiate our praxis as

science educators in the unfolding of classroom life, and subsequently, enact culture, which can serve to improve the teaching of science. Over the years, the personal narratives of many students have been shared with me – from family histories to domestic conflicts, celebratory occasions and private fears. I have discovered that there exists a familiar link between these students' identities and mine, and that these emotional links have served in fostering success in science. Specifically, my female Caribbean identity has helped to shape some of the relationships built with students (particularly those with Caribbean nannies) and have transformed the teaching and learning environment. Hence, I use my own biography to discuss the role of teacher identity plurality, the role of metonymy, and dialectical relationships in the science classroom, like agency|passivity and agency|structure. These will be conjunctively used to frame a discourse around the importance of building solidarity amongst participants in the science classroom in order to create conditions for science achievement.

Traditionally, academic writing in the social sciences is expected to follow a particular basic format, with slight variations being acceptable among specific genres (Van Maanen, 1988). This format is consistent with scientific investigative writing where the author begins with an introduction, and then follows with a literature review, a justification for the methodology and methods, a description of the research context/population, a presentation and discussion of findings, and finally a conclusion. Often, writing which does not conform to this recipe is considered inappropriate academic publishing. However, this traditional format holds little weight as an approach to tell my story or any other for that matter. I quickly decided that it was particularly inappropriate to write in a way in which I felt stilted and constrained. Therefore, I have

chosen to write in the way I imagine is more suitable for the story I would like to share. To begin, I discuss the nature of Afro-Caribbean immigration and how this flux has produced numerous childcare occupational opportunities in urban centers like New York City. As a first generation Caribbean immigrant, my identity, both the inscribed and ascribed, has structured my teaching praxis and simultaneously altered the way my students learn science. As Hans-Georg Gadamer (1989) contends, we can only reach the ‘truth’ through understanding or perhaps even mastering our experiences. Our experiences remain dynamic and are always integrating new perspectives. As such, this piece is a partial autoethnography, as it is a representation of some memorable recollections as a science educator and largely intends to be a reflexive account of such experiences situated within the science classroom. Simultaneously, I attempt to explore what the practical implications for teaching and learning science are and unpack other assertions that can be made for the larger domain of education. I hope to share my story so that it remains intimate yet effective in creating a common meeting place for theoretical and methodological discourse on improving science education.

Afro-Caribbean immigration as a population seedbed for the childcare profession

Afro-Caribbean immigration to urban centers

I migrated to the U.S. in 1993, along with my nuclear family, at the age of fourteen primarily to improve my chances of gaining admission and securing financial assistance to attend an American university. My relocation was not unlike those made by many immigrants every year to this country. Large numbers of Caribbeans (or West Indians) have continuously flocked overseas due to two chief incentives – employment and/or

pursuit of academic endeavors. According to data from the 2000 U.S. Census, Caribbeans comprise approximately 5% of the American Black population, with Jamaica, Guyana and Trinidad being the top three sending countries, and the majority of these immigrants settling in New York City (NYC), Miami and Fort Lauderdale. Today, the Caribbean presence continues to be felt in a numbers of areas in New York City. Positive stereotypes of the group have created numerous opportunities for employment. Caribbean women specifically have made significant contributions to the expansion of the health care industry and specifically, according to Colen (1996), Afro-Caribbean women have been working as child caretakers and domestics for decades, enabling the pursuit of professional careers for a growing number of middle and upper class White families.

Many Black immigrants soon become aware of a distressing truth; the fact remains that for Blacks, both African American and immigrant, phenotype activates certain positive and negative stereotypes tied to the racial group and they are generally subjected to the same kinds of race-based bias and discrimination. While the U.S. Department of Justice Federal Bureau of Investigation² categorizes Black or African-American people as "A person having origins in any of the black racial groups of Africa," I will use the term African American to refer to those who are familiar with or experienced the historical inequity and complexities associated with belonging to the group and also ascribe themselves as members of this racial grouping (Franklin, 2000). Numerous studies have shown that racial homogenization of Blacks is not always the rule when individuating information is available. Where White Americans are concerned, Black immigrants are seen to possess cultural capital. Cultural capital (Bourdieu, 1986) refers to the knowledge, experience and or connections one has had through the course of his/her life

that can enable that individual to succeed in a specific field. Specifically, Bourdieu might assert that Black immigrants have a specific type of cultural capital that exists in an embodied state - where cultural capital is embodied in the individual. This capital is inherited not in the genetic sense, but more in the sense of time, culture, and traditions that bestow elements of the embodied state to another usually by the family through socialization. It is strongly linked to one's habitus- a person's character and way of thinking. Hence, Black immigrants are often positively distinguished from native-born African Americans. Preferential treatment results from their beliefs that Black immigrants are more hardworking and less difficult to work with than African Americans as members of the latter group are labeled as criminal, lazy, tough and aggressive (Tormala, 2005).

A 2006 study conducted by Tormala also found that in urban metropolitan areas with a higher percentage of Black immigrants, like New York or Miami, the stereotype about Black immigrants was more developed among Whites than it was for Whites whom did not reside in urban centers. Of the Black immigrant group, Caribbeans are placed at the top rungs of the Black immigrant group (Sutton, 1992). Consequently, White employers enact preference for Caribbean workers over African American workers. This preference in hiring has been tested empirically (Eberhardt & Deaux, unpublished data). White participants in an experiment were shown a videotaped interview of a Black man who they identified as either African-American or Caribbean based on the accent he falsely adopted for the study. In the latter condition, participants rated the candidate more favorably, perceived him to have stronger interpersonal skills, and believed that he had performed better in the interview, despite the fact that he gave the identical script in both

conditions. These documented preferences for Black immigrants over native-born African Americans in job-related contexts are due to the differences in stereotypes and general representations about the two groups in American society (Tormala & Deaux, 2006).

The childcare profession and New York City nannies

Childcare workers play an important role in a child's development by caring for children when parents are at work or away for other reasons. It can be argued that collective networks of city childcare workers structure the White middle/upper class family unit and afford countless parents the opportunity to pursue careers. In addition to attending to children's basic needs, some childcare workers are expected to organize activities that stimulate children's physical, emotional, intellectual, and social growth. Such workers are generally classified into three different groups, depending on the setting in which they work: workers who care for children at the children's home, called private household workers; those who care for children in their own home, called family childcare providers; and those that work at separate childcare centers and centers that provide preschool services to 3- and 4-year-old children. Private household workers who are employed on an hourly basis usually are called babysitters. These childcare workers bathe, dress, and feed children; supervise their play; wash their clothes; and clean their rooms. Babysitters also may put children to bed and wake them, read to them, involve them in educational games, take them for doctors' visits, and discipline them. Those who are in charge of infants, sometimes called infant nurses, also prepare bottles and change diapers. Nannies work full or part time for a single family. They generally take care of children from birth to age 10 or 12, tending to the child's early education, nutrition,

health, and other needs, and also may perform the duties of a housekeeper, including cleaning and laundry. Typically the responsibilities of a nanny are whatever a family negotiates on an individual basis with their hire.

Parents seeking a nanny can find a worker on their own by placing advertisements or engaging in nanny networking with friends and colleagues. Others, usually those seeking live-in help, rely on an employment agency to screen candidates. Such agencies are listed under the Yellow Pages under “child care” or “nanny.” Many of such agencies are located throughout NYC. To search for a full-time nanny, an agency on average charges about \$1200. In the NYC area, nannies receive on average between \$200 and \$400 a week, depending on their age, experience and whether they live-in or not. The Caribbean communities in New York City provide much of the childcare described above. Though very little research exists on this group, after recently browsing several nanny services online, I came across a noteworthy job posting³:

Hi my name is Linda. I'm inquiring about ANY summer help position available. I am originally from St. Lucia which is a small island in the Caribbean. We do speak another language which is Creole/broken French. I am currently attending the borough of Manhattan community college where I major in science. I plan on attending medical school in the future to fulfill my dream of becoming a pediatrician. I believe that I am the best for this job opportunity because I'm dedicated, responsible, punctual, loving, humble, nurturing, have great experiences with kids and have excellent references. I can clean, cook and I'm very organized. I have been babysitting since I was at the age of 16. I am now 20 years old and I have worked with kids which are 2months-14years. Kids love me and I love them more in return. I have also worked with twins before and their other brother so I have lots of experience with twins and babysitting three kids at the same time. Thank you for your time.

What struck me the most about Linda's fervent posting was her self-characterization as "responsible, punctual, nurturing and loving." These are all positive attributes, cultural capital, that as previously described, are frequently placed upon Black Caribbean female immigrants.

When I first migrated to the U.S. as a fourteen year old youth, I possessed a limited understanding about how Caribbean people were perceived in this country, and the types of employment that were pursued by new immigrants. My family of five moved into a single bedroom at a relative's home in New Jersey. I soon learnt that my uncle's partner had spent the past four years as a caretaker to a wealthy White Manhattan family. She had also been instrumental in securing similar jobs for two other aunts, also with White New Jersey families. Over a short period of time, I learned about other family and friends who immigrated to the Tri-State area and acquired similar caretaker positions. It was then that I began to understand that this was a customary phenomenon in the Carib-immigrant community, a direct result of chain immigration. To this day, these three women in my family hold jobs in the childcare profession. What I also later realized is that my aunts themselves fit the stereotypical perceptions of a local caretaker: an older (30+), immigrant, non-White female (usually Black, Latina or Southeast Asian). I spent the proceeding decade suffering an intense internal pressure to become one who dismissed the image of Caribbean women solely as nannies. By being the first to attain tertiary education in my new homeland, I knew that I could be the first to break the precedent in my family.

A new home: encounters in an independent school

Alongside the 1,700 New York City public schools are several small privately run schools spread across the five boroughs. ISAAGNY Schools (Independent School Admission Association of Greater New York) include programs from early childhood through high school, of which there are over 150 of these schools in New York City. Within this body of schools, there exists diversity in the student and faculty populations, academic, athletic and support services and mechanisms for acceptance into the school. In my earlier twenties, I worked in several ISAAGNY schools as a substitute teacher. Through my comings and goings in several of these independent schools, my experiences showed that there are numerous students that are not representative of stereotypical private school students – White and members of affluent social class. Contrary to popular belief, in these schools there exists diversity in race, ethnicity, religion, language, sexual orientation, family structure, student learning ability and socioeconomic status.

The day I went to interview at Pay Prep, was the first time I had ever ventured into this NYC community. I can recall vividly that sunny July day, observing the many bustling sidewalk cafes, the flower shops, high-end cosmetic and apparel stores and the numerous Black women I continue to observe, escorting White toddlers and stroller-confined babies around the city. It immediately struck a nerve despite my previous exposure to the social phenomenon. I recall feeling perturbed but equally uneasy as I entered the small building. At the time, I was anxious to secure a science teaching position for the upcoming academic year. Despite holding sufficient education, passing the required state exams and the long list of other certification requirements, I still was unable to secure a job with then new NYC Department of Education. That July day, I

interviewed with the school's principal and department chair and was offered a dual middle/high school science position.

Pay Prep is a private, co-educational, college-preparatory day school. It is home to roughly 330 students, spanning grades six through twelve, and supported by a combined faculty and staff of seventy. The majority of the school's students are upper class Whites. There is a fluctuating proportion of non-White students, some of who are on academic scholarships. A few of the students who are unable to fully pay the annual tuition, are anonymously sponsored by another student's family. More than one third of the student population is learning disabled and many possess Individualized Educational Programs (IEPs). In accordance with the federal legislation, IDEA⁴, the school is mainstreamed, which means that there are learning disabled students present in each classroom. The school incorporates a four-tier tracking system with an Honors level and three lower sections. Classrooms vary greatly in size, ranging anywhere from twenty students to just two. These smaller classes are aimed to create an intimate atmosphere where students can receive more individual instruction.

Pay Prep belongs to a smaller sect within the ISAAGNY schools that serve a large body of learning disabled students. Just as there are sub-categorizations of schools within NYC's public school system (for example magnet schools, specialized high schools, charter schools, special education schools, detention centers), even Honors students at Pay Prep are sometimes subject to the woes of being labeled as unintelligent special education students by other private schoolers. Other independent schools like Pay Prep are well know within the private education sphere in the same way that certain public schools in NYC fall within the jurisdiction of District 75⁵.

Initially, I anticipated teaching at this institution for a year, and then intended to reapply for a public school science teaching position at the NYC DOE. My educational experiences at that point included an undergraduate engineering degree and a Masters level secondary science education degree. However, due to numerous positive experiences at this institution, I elected to remain on the school's faculty and have subsequently spent eight years there. From the onset, the decision to stay at this school invited much harsh criticism from colleagues who felt that I should rightfully be teaching in the public school setting with students who shared my complexion. They assert that public school students are in schools that are failing to educate them due to the confluence of many political, economical and social problems and that students are in need of strong role models like myself. Many others would also agree with this characterization of NYC public schooling, and would add that our focus as educators should be on how to provide a quality education as is rightfully deserved. Some of these individuals (colleagues included) would also equally contend that private school students are already superiorly positioned with greater access to resources and ultimately an enhanced educational experience. However, narratives, like the one I share below, can illuminate surprising stories of private students who fall outside the stereotypical lines of what it means to be an urban learner. In the same way, as an educator, introspection and self-reflection can also serve to provide insight into the way students in these settings can learn and be successful in science.

An introspective look: the plurality of self

The multidimensionality of identity is not a peculiar concept to sociology. There are a

great many categories to which we simultaneously belong. These categories can include gender, class, race, language, citizenship, profession, and political beliefs. I am at the same time, a Caribbean immigrant, a Trinidad national, an American citizen, a racially mixed being, a scientist, an educator, a graduate student, a researcher, and a woman. Of course, these remain just a few of the ways in which I can describe myself. These and all my other ascriptions are a reminder that our identities are robustly plural and the salience of each of identity is context dependent. That is, the way we perceive ourselves can influence our practical reason and/or our actions within a specific circumstance. For example, my identity as an educator takes center stage when interacting with youth in a school but is less important when I am having Sunday brunch with close friends. Another example is how my scientist identity takes center stage when teaching physics and telling students about my former engineering experiences and providing real-life insight into scientific work. This fondly brings to mind the story of Tanya, a new science educator who openly shared her struggle to negotiate her core, sub and role identities (Turner, 2002) in the science classroom (Kidman, Ritchie & Vaughan, 2007). As a new biology teacher, Tanya juggled her former role identity as a scientist, as a PhD scholar and as an all-round successful woman. Tanya's story reminds us that depending on the social situations we enter, we are continuously confronted with the issue of deciding which of our identities become the most important for the particular situation we are in. Thus, as noted Indian economist-philosopher Amartya Sen (2006) reminds us, as we participate in social life, we are constantly making choices about our different affiliations and associations. As I walk the hallways of my work site, interacting with students and other faculty alike, I too am constantly both consciously and unconsciously negotiating these

plural affiliations. However, it is my female Caribbean identity that seems to consistently bear the most prominence in the science classroom.

Sherri-Ann Butterfield (2004), an American sociologist whose research specifically explores how race, ethnicity, class, and gender impact Afro-Caribbean immigrants and their children within the metropolitan contexts of New York/New Jersey considers allegiance to a Caribbean identity based on numerous practices. In alignment with her ‘generalized other’ Caribbean framework, I too practice a preference for my native Trini dialect with others (largely other co-ethnics); I participate in voluntary organizations and events and activities sponsored by co-ethnics; I listen to Caribbean music – calypso, soca, reggae and dancehall specifically; I read Trinidadian newspapers, magazines, books and other local literature; I participate in and attend local Caribbean activities (e.g., parties, concerts and carnival celebrations like the annual West Indian Day Parade on Labor Day in Brooklyn, NY); I frequently travel to my home country to visit family and friends; and I often prepare and enjoy Trinidadian cuisine like *pelau*, *roti* and *callaloo*. Collectively, these are all practices that allow me to assert my generalized Caribbean identity.

Recalling my earliest experiences, I found that there were parts of my identity that would draw most students in. I was Trinidadian, a Caribbean woman; someone who many of my students knew closely and generally aligned himself or herself positively with. A great majority of them have caretakers who are of Barbadian, Trinidadian or Jamaican descent. These caretakers are primarily middle-aged women who have been with many of their families since birth, and my students speak of them daily, with adoration, pride and love. These women are individuals who are constant figures in their lives, who understand and support them in a way that some of their parents cannot. Being

of Caribbean descent has inevitably shaped my relationship with them and likewise, influenced how I am viewed as a teacher. I strongly believe that finding the ways to make science class meaningful to a student should be irrelevant of his/her race, class, sex, creed or ability. But where does one begin? This process involves complexities and intricacies on both the teaching and the learning fronts.

When I began teaching science in 2003 at Pay Prep, I was the only Black female teacher on the faculty. As a new instructor, Black, and in a White private academic setting, I was exceedingly uneasy about how I would be perceived and judged by students and faculty alike. At this juncture, my scientist identity had taken a back seat, as I was not immersed in a new unfamiliar setting. My passivity caused me to assume that some students would openly disrespect and challenge my status as a science educator. I also believed that the older White faculty would not be receptive to my phenotype nor my personal pedagogy. Gender stereotypes about the roles of women in science were also pre-conceived concerns. I was a woman in a science classroom. To my surprise, my stay at this institution was longer and more pleasant than expected. Each year, I continue to foster strong relationships with my students despite obvious differences. This is because I possess symbolic capital – my age, Ivy League education (one which some aspire to) and similarities to their Caribbean care-takers – which I believe have helped to produce the positive encounters which occur daily in my science classrooms. I have become a central science teacher in the department due to my rapport with the students and partly because of my background in science and science education. I have consequently accepted these views of myself (receptivity), have been afforded the agency, and thus I continue to work

diligently to make each day successful, because of these very ascriptions. These ideas of agency, receptivity and passivity are revisited later in this paper.

I believe that the most significant aspect of my core identity is what W.E.B DuBois in his 1897 Atlantic Monthly article titled "Strivings of the Negro People" referred to as a "double-consciousness." I feel fortunate as my lived experiences have enabled me to negotiate holding dual positions of inclusion and exclusion in society (Ladson-Billings, 2003). As aforementioned, I hold the transcendent position of being a marginalized student, teacher and societal member – a Black woman. I have been subjected numerous times to othering, with the bulk of these negative experiences stemming from my undergraduate and early graduate years both at largely White Ivy League American universities. Prominent examples range from consistently being assigned the "administrative" role on engineering project design teams by my male team members during my undergraduate engineering days to a terribly embarrassing episode as a temp at a NYC law firm where an indignant lawyer hurled obscenities at me during my first hour on the job. He was upset that I had not yet figured out the necessary codes to transfer a call to his office. He apologized profusely later that first week during a conversation when he discovered I was in graduate school at a respected institution. He had harmfully labeled me and treated me accordingly. However, I too am also currently positioned to ascribe others negatively. I also bring forth the experience of coming from a family where many of my aunts were/are caretakers of children of affluent Whites. As a Caribbean woman, I am usually regarded as one who might hold such a "menial" societal occupation; yet I am a teacher at an elite private school both run and attended by affluent Whites, who selected me to work there. Therefore, even though I may at times consider

myself to be the “other” in the school building, there are factors that have fortunately allowed me to juggle multi-identities while earning respect and continuing to be valued by my superiors. These multiple identities have afforded me the opportunities to create successful encounters with students in the science classroom, encounters that arguably have provided a springboard for student success. In the following section, I share some fond experiences with students that illustrate this point.

Recollections of student encounters

I can remember precisely the way I felt the very first time, during my first week of teaching, when a seventh-grade student stated that I sounded ‘just like their nanny.’ When I began to hear such remarks repeatedly, I initiated informal dialogues with many students to obtain a deeper understanding of their relationships with these Caribbean women. Over the years, many of my students have provided great insights into the characters and roles of these women. I once taught a sixth grader, Rose, whose care-taker patiently waited in the school’s lobby everyday at 3 o’ clock. Whenever we saw each other, we exchanged the usual cordial greetings. One day, while leaving the building we initiated conversation as she left school with Rose. I learned that she was also from Trinidad and that she had been with Rose since birth.

Another fourteen year-old student of mine, Lily, revealed an even closer relationship with her caretaker than I could have ever conceived. Her family resides in Park Slope while her Trinidadian nanny lives in the Flatbush section of Brooklyn, two distinctly different neighborhoods in both socioeconomic and ethnic senses. In one of several conversations I had with her, she told me of the many traditional dishes she favored that her nanny frequently prepared for her family. She also told me that she invited her, Lily,

to many family gatherings where she was introduced to more Caribbean folk, learned to understand the dialects, and adopted a penchant for soca and calypso music. Lily spent many nights at her house and explained how ‘differently’ her nanny lived compared to her lifestyle in her Park Slope brownstone.

Leigh was a vivacious and endearing eleven year old I taught one year. She always seemed to be ready to burst at the seams with energy. Very early on, she recognized my accent and expressed tremendous excitement at having me as a teacher. It was her first year at Pay Prep. I soon found out that her babysitter, she referred to her, was also from Trinidad. In the proceeding weeks, Leigh would begin walking into my classroom headed for me, with outstretched arms in request for a hug. I willingly complied. This soon became a ritual and by mid-year, Leigh began to refer to me as ‘mommy’ and began to turn in all required science assignments with her name printed as “Leigh Grimes.” Grimes was my last name, not hers. Comments like “Hi mommy,” “I love you mommy” and “Bye mommy” were frequent. I repeatedly asked her not to do these things but she did it anyway. She would repeatedly remind me that I was so much like her baby sitter and she ‘couldn’t help it.’ Leigh worked diligently in my science class as she was determined to excel. If she discovered that other students had earned higher grades on tests, she would slump sullenly into the enclosure of her desk and remain silent for the remainder of the class. Despite constantly reminding her that her assessments were of high quality and that she should not feel defeated, this continued anyway.

A male student Scott, whom I became particularly fond of after having him as a student in 9th grade physical science was one such example. His affluent parents were divorced and he lived with his mother, a corporate attorney. His mother’s demanding

profession (corporate law) kept her away from home for prolonged hours daily but his Trinidadian nanny Cecelia, has been a staple figure since he was born, for the past seventeen years. His previous year in science class at Pay Prep, as revealed through informal dialogue, was riddled with numerous negative encounters with his teacher. One day during his junior year, about two years after I first taught him, I decided to inquire more about Yvette and the similarities between us. I also asked him what it was like to also have a Trinidadian science teacher in light of his relationship with Yvette. A heartwarming yet informative conversation ensued. I asked him if he could write a paragraph summarizing his thoughts during our dialogue:

When I was growing up I had my baby sitter. She was my second mother for my entire life from two weeks old. During our time together, she showed me care and compassion that I believe, permeates through West Indian culture. When I had Miss G. as a teacher, I felt the same compassion that I received from my baby sitter when I was growing up. After school she would discuss issues that I was having and what to do to improve [my] classroom experience. I have spent a great deal of time in the West Indies and with West Indian people, and their care and compassion is something that I believe influenced Miss G.'s teaching.

Last year, I had another male student whom I had taught multiple years beginning in the sixth grade. Even the years I did not teach him, he would drop by my classroom daily to say hello. During one random conversation where my accent became more prominent while speaking with him, he mentioned to me that he was excited because it was Tuesday. When asked why, he informed me that his Trinidadian nanny declared Tuesdays as “patois” day. On this day, she would teach him and his older brother how to

say something in my local dialect. I remember laughing heartily at the thought but was certainly struck at how important this ritual was for Jack.

Over the years, details of several more personal accounts of students' lives have revealed much about their caretakers. The students have grown to understand their dialects; speak fondly of the Caribbean dishes they prepare for dinner of which they can call by name; talk freely about many vacations with their nannies to the Caribbean; and speak more often of their nannies than their own parents. After all, they are the women with whom they recount details about the school day as they are walked home (many students live within walking distance of the school). The nannies lend ears to these stories first - what happened in mathematics class, which friends are feuding and who their best friends are first-hand. Their nannies are confidants and other-mothers and they have created intimate bonds with them that are almost irreplaceable. I even learned about two cases where students convinced their parents to visit their nanny's home country. Consequently, her family purchased a vacation house in those respective islands. In this final part of the paper, I intend to provide a more robust analysis of this unique situation and engage in a more in-depth discussion of how the presence of a Caribbean identity has altered the structure of my classroom and facilitated numerous positive encounters where effective teaching and learning occurred.

Metonymy in the classroom

In my first year of teaching, I was assigned to teach sixth and seventh grade General Science and eleventh grade Chemistry. This was not a typical teaching assignment as instructors were normally designated as middle or high school teachers and rarely work

across this continuum. I remember receiving much feedback that expressed disdain at the idea of having to work with such different age groups. Without thought to my specific approach with each group, I walked into each of those classes on the first day and each following day, 'taught' in the manner that I figured was age appropriate. This continued in the proceeding years. Upon recollection, I realize that without much understanding of my praxis, I had actually entered those classrooms with very particular ideas about how to teach science to different students. This is to say that I enacted very different schema and practices depending on the age of the students I was working with or rather, I enacted different culture in order to teach science to diverse groups of learners.

With high school students, I have realized that I act less like a mothering figure. I am more direct and straightforward with older students and I expect them to follow directions easily and without much coaxing and encouragement. In general, there are always a few students in these upper grades who consider me to be a very 'tough, no-nonsense' teacher. I have received this type of feedback informally, through casual conversations with students in and out of the classroom. I constantly remind them that my tough-love ways are solely to prepare them in order to excel in the upper grades of high school and in college. At this stage, I have learned that students are developing an understanding of their families' respective socioeconomic and sociopolitical statuses. Through informal conversations they have with each other and with me, the growing interest to align themselves accordingly with particular dispositions becomes apparent. As such, I find that my male high school students are more drawn to male teachers and speak more fondly of the teachers who are more experienced and have led similar lives to them. They generally seem to be drawn more to those who have had numerous years in

the teaching profession, those who attended prestigious institutions, who are well traveled, and who have shared similar stories of their NYC childhoods. As stated before, the students at this age, through ideas largely instilled by their parents, begin to align themselves with what they deem as cultural capital – those elements that are valued and are necessary or deemed part of being successful in society.

With middle school grades, I continue to enact a different set of schemes and practices. Through watching video of myself in the classroom, it is quite apparent that I am more patient, less stern, more gentle-spirited and overall, more sympathetic and tolerant. After reading Stephen Ritchie's (2009) analysis of Bhaskar Upadhyay's (2009) account of science teacher Daisy, he would probably agree that in these instances, it is my *caring teacher sub-identity* that emerges. I believe that my habitus affords a more mothering approach with this group and I deem this method necessary in order for this age group to do well and enjoy science. I regard them as youngsters who need constant shows of affection and likewise, need to be scolded in ways that they do not become discouraged from doing science. These ideas about what I believe middle school students need have consequently allowed certain parts of my Caribbean identity to shape the science classroom field and assume a more prominent stand in my praxis. Thus, my Caribbean identity has played a strong metonymic role in the middle school classroom, a role that is shaped by the relationship between dual identities – teacher and nanny.

George Lakoff (1980) describes metonymy as a referential function, which works by designating one thing in terms of another experientially, related thing. As he describes it, when one uses metonymy, the intent is not to simply transfer qualities from one referent to another as you would with a metaphor. It works by calling up a domain of usage and

mapping a connection between two things within that single domain. An example would be, “ we need a new glove to play third base.” Here, the term a ‘new glove’ refers to a new person needed to play in a baseball game. By highlighting certain aspects, metonyms create a perceived similarity between two things. With this consideration, it is easy to see how I as an educator in the classroom can be metonymic for the Caribbean nanny.

Metonyms are partially culturally defined and obviously experiential, which means they do not affect everyone in exactly the same way. The students in my classes who do not have Caribbean nannies cannot formulate the connections between a nanny and me in the way other students can. However, the students who do have Caribbean nannies as members of their households can relate to and succumb to creating my classroom metonymic status. Individuals in positions of power usually get to impose metaphors and metonymy on others. In my case, it is my students who essentially impose this metonymic status on me. As members of families of higher socioeconomic status who typically employ Caribbean women as their caretakers, White children are predominately exposed to Caribbean women in the role of caretaker. Whether the responsibilities are small and more supervisory or larger as live-in nannies, these are women who are perceived as loving and supportive nurturers. Thus, if we explore the narrative use of metonymy here and regard (from the perspective of the student) the domain as ‘Caribbean women,’ whether she is a nurse, a cashier, a nanny or a teacher, then these women irregardless of differing professions share specific attributes, or structures rather that can be appropriated in the classroom. Students thus map a strong connection between these double roles and engage in classroom discourse that is well aligned with this perception, and allow them to act in ways that enable successful encounters in the

classroom. Drawing from this phenomenon, we can see how metonyms can shape our reality by affecting how we perceive the world and how we act on those perceptions. In the first half of this chapter, I have attempted to raise the issue of the critical role of teacher identity in the classroom. Identity becomes a structure that students can use to mediate their learning in the classroom, sometimes in extremely powerful ways as my students have done. It is important for us to remember that we educators cannot assume false identities in the classroom and think that students would not be able to detect our attempts at bribery for their time and attention. However, we must acknowledge that the litany of identities that we introduce in the classroom is there, and we can transform the learning environment dramatically, just by merely being ‘ourselves.’ In the latter half of this section, I switch to a consideration of the role of student identity and student identity construction. It is obviously highly important work to science education researchers to explore ways in which students develop science identities as they experience life in the classroom. It is creation of such identities that typically lead to student achievement and the very rationale for our work.

Creating spaces for student identity production

As Kenneth Tobin (2005) indicates, there is a need to gain additional insight into ways students successfully use resources to build identity and enact culture in their lifeworlds to expand their horizon and succeed in science. Thus, it remains critical to examine the teacher-student and student-student encounters which occur during the teaching and learning of science. Categorical differences among teachers and students in race, ethnicity, age, and roles are just some of the identity-related factors that mediate successful classroom encounters. All of our identities are grounded in social life and are

at the same time, partly agentic and partly unconsciously ascribed. Hence, the way in which we perceive ourselves and how others view us significantly shape the way social life unfolds, including teaching and learning. For example, some of my students generally enter my classroom with the ideas that, like their nanny, I care greatly about them and I am interested in their personal life stories. As such, my own role identity is shaped within the agency|passivity relationship. Later in this section I explore this dialect further.

Students not only enter the classrooms with their own range of identities, but they also introduce into the classroom new culture and forms of cultural capital. A teacher's response to this assortment of cultural capital (Bourdieu, 1986) brought to the classroom field mediates whether students will engage in successful interactions and transactions. Fields can be described as a place, space and time where culture is enacted. Culture is produced (reproduced and transformed) in the science classroom through the agency|structure dialectic. Agency is the power to act to achieve one's own goals. The dialectical nature between structure and agency tells us that students will become agentic depending on the existing structures they are placed within. As they begin to feel more comfortable in a field (for the example the science classroom), they enact their agency by becoming more involved in classroom discourse through increased questions and feedback about their daily learning.

The structure of the science classroom largely changes because of the incorporation of these students' lifeworlds into the classroom. This is an example of how macro and meso structures permeate the field (Bourdieu, 1993) of teaching and subsequently influence identity transformation and science fluency in the classroom. The classroom field has no boundaries and as such, the culture enacted by students in fields outside the

classroom, like their homes, can get enacted within the classroom. When certain students position me in the same light as they do their nannies, there are opportunities for resonance to occur. For example, I am sometimes encouraged to speak more often in my native dialect because ‘we love when you speak like that Ms. G.’ I can argue that from the moment that this association with their nannies forms for some students, the structure of the classroom begins to transform and the potential of their learning changes. Because of a history of interacting with Caribbean nannies the youth unconsciously can engage in the science classroom using culture from their home fields. This can work to their advantage in making sense of phenomena and interacting with others in ways they usually have not employed. Thus, different forms of student knowledge are illuminated and can create successful teacher-student encounters.

As time progresses, the structure of the classroom will experience even more transformation. The results will directly impact the ways that these students can and enact agency. These new classroom field formed can afford the ability for some students to express themselves in ways they usually are encouraged not to. This is because students feel able to express themselves in a similar manner regardless of which field they are participants in. For some, a positive alignment between their nanny and me ushers in an atmosphere of comfort and reassurance for the students. They anticipate that I will praise and discipline them in the same ways they would be treated by their caretakers. For one, they respond extremely apologetically when they commit any wrongdoing. Likewise, when they are praised for excellent behavior or performance, they frequently look to me for hugs and approving pats on the back. They are clearly seeking the affection that is usually bestowed by their caretakers in their home lives. When they receive positive

reinforcement from me, they are excited, invigorated, and inspired to work harder. At times they even challenge me to expect improved performances. In such moments, when I share hugs and award affectionate praises, I express passivity. Passivity refers to unconscious operations that cause one to act in a certain way (Roth, 2007). There exists a dialectical relationship between agency and passivity so that whenever new culture is enacted, the associated teaching praxis is due to both. I do not make conscious decisions on how I should praise my students. I admit that in retrospect, in fact I sometimes wonder if my physical interactions with them are problematic. However, I eagerly hug my students, share hi-fives and pat heads. The new culture we produce by being with each other is also attributed to receptivity to being with others. Just as Linda tried to describe in her earnest request for a job, my femme-Caribbean identity lends a caring sub-identity and a nurturing and mothering approach to the encounters with my students. I do not try to consciously be more or less nurturing when I interact with them. Rather, I am passive to these inherent qualities and my students are receptive to these practices. This phenomenon of caring has huge significance in my science classroom. Some of my students' parents report that their children speak of their school science experiences fondly at home. They speak about how much their children enjoy science class and they thank me for 'caring' so much. In the same way, the mere thought of their caretakers elicits a production of positive emotions (Collins, 2004) as they constantly point to their caring and nurturing ways with immense adoration.

I believe that a central aspect of a productive teaching and learning environment is building solidarity. Solidarity is a collective action that produces synchrony (coherence in practice) and shared schema among participants in a field. Evidence for synchrony might

include coordinated eye contact, head movement like nods, gestures like high-fives, body orientation, overlapping speech and enactment of rituals (Pitts, 2007). Emotions, positive or negative, are a significant part of solidarity. I argue that a solidarity built around positive emotions continues to be produced in my classroom largely due to my femme-Caribbean identity. As mentioned previously, my native dialect has served as capital that structures a 'bubbling up' of such solidarity. There are moments in classroom life where I become excited, anxious or am disappointed in an individual or the class. In many of those instances, my native tongue unconsciously emerges and there is always one such student who will be the first to remark, "Oh, Oh! She's talking in her accent!" Such a statement is usually followed by synchronous high-energy declarations for collective focus on the physical me (despite my location in the classroom). If I appear to be upset or highly concerned about a behavior, another common remark is usually, "Yeah, she's getting upset 'cause her accent is coming out. Everyone be quiet!" and a communal round of nods and affirmations follows. These moments of synchrony occur more often than not and they are usually always marked by positive emotions. They happen because their responses in the classroom to my dialect exchanges (from using a more American tongue to my native Trinidadian dialect) are based on shared experiences from some of their own households. At those times when there is the shared sentiment that the class should quiet down and focus, there is solidarity. These moments of solidarity are markers of cohesion when they are expressing their desire to get back on task and resume full participation in the classroom. In each of the examples described, what remains a marker in the classroom is the production of positive emotions. Based on the work of Randall Collins

(2004) and Jonathan Turner (2002), high emotional energy allows individuals to appropriate culture and almost always precursors successful teacher-student interactions.

Implications for praxis in the science classroom

As Denzin (2000) contends, studying narratives forces us to develop new theories, new methods and new ways of talking about self and society. Currently, narrative research has come to have particular meanings, meanings that are attributed with particular axiological, ontological and epistemological positions. Autobiographical narratives like the one I have penned here, lend key insight into experiences of humankind but more specifically, many elusive problems that are often overlooked in education. Specifically, Felicia Moore (2008) correctly notes the limited nature of stories highlighting the experiences of African American teachers in science education. It was exciting to have come across Upadhyay's (2009) account of African American science teacher Daisy where he aimed to construct her multiple identities in the classroom. Stories, like hers and mine, can continue to serve as powerful tools in helping to provide us with deeper understanding of issues such as the nature of identity, race, gender, life in science classroom and the like.

In general, educational researchers generally tend to focus on those aspects of the field that are amenable to measurement (Tanner & Tanner, 1995), and not necessarily the areas that are most significant in education, that is examining more closely social life in the classroom as a way to understand how students learn best. This story, my story, asks that we reconsider sole preoccupation on the instruction (activities or methods) used in the classroom, and that we pay attention the role of teacher identity in the classroom and its relationship to student success. Why have we reduced teaching to mere transfer of

information and fail to pay critical attention to the *artistry* of teaching? Both are equally highly connected to student achievement. Narratives provide a window into unique spaces where much can be learned from the localized experiences of a teacher and his/her students. Additionally, it is important that teachers' voices remain a critical part of narrative research, especially any work that focuses on teacher identity. It would be remiss to not invite teachers, like Tanya (Ritchie, 2007) to co-author writings about themselves or provide a space for response to an analysis of their own classroom schema and practices. Not only are other researchers and scholars able to learn from her experiences, she herself was able to reflect and engage in reflexive efforts to become aware of her and hopefully improve her own praxis. Thus, the opportunity for polyemia and polyphonia in narrative texts should never be ignored as we all research participants benefit from the experience.

Like Tanya, when I first began teaching, I had very specific ideas about how I was going to be treated by students and staff alike. Eight years later, I have undeniably learnt a tremendous deal about teaching and learning having spent time in many urban classrooms. These experiences have afforded a means for me to engage in deep reflection. They have generously added to the accessible corpus of my affiliations and social memberships. That is, fresh identities have been produced through my daily interactions with a multitude of students, other educators and researchers alike. However, what I have found is that although there have existed obvious differences amongst classroom participants, some of my identities, specifically my gender and Caribbean heritage, were familiar structures to some students. They helped to create a sense of 'home' over the years in numerous science classrooms and have been instrumental in

directing both my teaching and student learning of science. This is not to argue that relevant identity reductionism is required to create meaningful discourse in the science classroom. For while I remain a science teacher in the classroom each day, I am still all of the other aspects of me and those other identities all coexist. While we do retain substantial freedom regarding what priority to give various identities we may simultaneously possess, we still cannot control the way others ascribe us in a singular moment. However, I strongly believe the incidence of a Caribbean identity significantly altered my practice in the classroom and the subsequent practices of certain students. Thus, it is important for educators to engage in non-scientific dialogue with students so that they may discover how certain self-identities can produce resonance in the science classroom. This process is not nearly as easy and linear as we may like and as such cannot be forced, but much will be revealed in the natural unfolding of life in the classroom. We simply must lend increased attention to our students.

bell hooks (1994) invites us to write in transgressive ways. She states, 'words invite us to transgress - to move beyond the world of the ordinary.' From reflecting, and even penning this story, I continue to evaluate the ways in which narratives, especially those of teacher-researchers, have served to inform our thinking about how to improve teaching and learning. Likewise, there is a great deal more to learn through my work with middle and high school students. My differentiating praxis with the diverse age groups is an indicator of an important emerging theme in my experience. Educators must acknowledge and be willing to mediate cultural resonance. Children, like all other human beings possess dispositions to act according to the structures within which they are placed. Changing praxis is also an acknowledgement that students are different and each

classroom should be treated uniquely to account for these differences. However, learner-sensitive teaching is not easy; it does not follow a recipe or a master narrative. Every learner needs the appropriate structures available to get from where he/she is to someplace else (that is, achieve his/her goal). Some learners can provide their own scaffolds by reading books and accessing resources that they know from their own lifeworlds. As students age, they increasingly incorporate ideas and other knowledges obtained from their parents and other figures in their lives. They are increasingly cultured about the significance of tangible wealth, status (social capital), and openly express these views on how science class does or does not align with their newfound life goals. However, there are other students who are dependent on teachers, tutors and other support figures to do this. If science teachers are sensitive to the needs for all learners and provide structures to support learning, then they find the opportunities to mediate learning in ways that make sense to them. Needless to say, educators must be able to appropriate different roles in order to create specific structures that are more aligned with students' experiences in their lifeworlds.

CHAPTER V:

Exploring multiple outcomes: cogenerative dialogues and coteaching in a middle school science classroom

Introduction

Science education in urban settings has long been beset by increasing complexities due to racial, ethnic, socioeconomic, religious and language differences. These issues have contemporarily grown to become the central foci of research in the field. Cogenerative dialogues, or cogens, have become new methodologies in the field of science education to combat these issues and their adverse impact on science achievement. There exists a great deal of research spanning elementary up to the university level which supports using cogens in educational settings. Ken Tobin and Wolff-Michael Roth first used cogens in 1998 while conducting research in the classrooms of a large comprehensive urban high school in Philadelphia. Since then, numerous peer reviewed books and articles have shared research from the United States, Great Britain, New Zealand, Australia, Singapore, and Taiwan (Tobin & Roth 2006) which report on the benefits of using cogens. Key precursors to the research presented in this chapter are found in work produced by the team of education researchers led by Ken Tobin (Tobin, Elmesky, & Seiler, 2005) in City High School in Philadelphia, and more recently in several New York City (NYC) schools (Bayne, 2008). I decided to build upon their work, which explores the significant benefits of integrating cogens in the science classroom. While working in an independent NYC school, I conducted an ethnographic study in an attempt to illuminate the structures which were mediating the way in which my students were

learning and not learning science in my classroom. As a result of creating a cogen-based science course with three tenth grade students, coteaching emerged. During the academic year, we cotaught several lessons across various science disciplines in one of my sixth grade classrooms. Consequently, a plethora of key additional outcomes emerged with far-reaching implications for improving the teaching and learning of science. Some of the observed transformations include identity shifts, changes in students' classroom practices and science fluency. In line with a Ken Tobin's (2006) modern adaptation of Lincoln and Guba's (1989) research authenticity criteria, this paper attempts to utilize multivalent approaches to make meaning of the practices of all stakeholders involved in this year-long research. These criteria will then be used to evaluate the cogens that we participated in and critically explore the numerous transformations that occurred for the participants in various fields.

Research authenticity and the cogenerative dialogue

The research authenticity criteria as described by Lincoln and Guba (1989) presents a system for judging interpretive ethnographic research and overall, they stress the importance of conducting research must benefit those who are involved. These proposed criteria are as follows: ontological, educative, catalytic and tactical authenticity.

Ontological authenticity refers to the ways in which participants enhance their own constructions of social life as it relates to what they have learned from a study. Educative authenticity represents the extent to which stakeholders, particularly those outside the research group, understand the implications and nuances that emerge from the study and the standpoints of key stakeholders. Catalytic authenticity relates to the obligation of the research and researchers to create ways to expand the agency and catalyze positive

changes of all stakeholders involved in the research. Finally, tactical authenticity refers to the extent that stakeholders have enough agency to bring about the change they desire and benefit from what has been learned from the research. These criteria have been widely used for judging the quality of inquiry and have been important constructs for guiding early cogen work.

As described earlier in Chapter 3, the cogenerative dialogue or cogen is a social field where participants engage in critical dialogue to make meaning of shared experiences (Tobin & Roth, 2006). It has proven to be an approach that catalyzes change at both individual and collective levels. Past research has revealed cases where cogens were successfully used not only to examine local issues within the classroom setting (meso level analysis), but also the many macro structures that saturate the urban classroom and consequently the teaching and learning of science there. However, as cogen-based research expanded, this criteria has been adapted and its theoretical basis has expanded appreciably. The cogen presents itself as a methodology that meets the described criteria and more, and understanding its theoretical framework provides strong reasoning to support this. For one, its very structure encourages authentic research since numerous voices are included in the cogen. Secondly, the credibility of cogen-based research is strengthened by the fact that any assertions are co-constructed by multiple participants, and the fact that these dialogues occur regularly and over a prolonged period of time reduces the possibility of misinformation and misconstructions of social life. Peer-debriefing at weekly research group seminars also allows for analysis of evolving constructions. Discourse with colleagues also engaged in similar research aims to illuminate both methodological and analytical shifts and further strengthen our

understanding of the cogen. Generally, cogen-based research is focused on positive social transformation and expanded agency with the necessary mechanisms for such shifts well embedded in its design.

Overview of past cogen research outcomes

Each of the NYC based researchers whose work was described previously in Chapter 3 (Emdin, 2007; Lehner, 2007; Shady, 2008; Wharton, 2009; Jackson, 2010; Woodburn, 2010, Tobin & Llana, 2010) used cogens as a means to encourage students to assume increased responsibility for their science learning through examining the ways both the teachers and the students in a classroom can alter their practices to overall improve teaching and learning. With the existence of a plethora of structures that can diminish the power of a student or the entire class to be successful, a cogen becomes another field where new culture can be produced. Students engaged in conversations where they shared their ideas, concerns and suggestions to improve social life in the classroom. Thus, participation in cogens allowed opportunities for students to become more agentic - having the power to act in ways to achieve their individual goals. Within the body of cogen-based work, each teacher-researcher chose the method but it was their students who decided what aspects of classroom life to discuss. Once these students returned to the classroom, they enacted the new culture that was created in the original cogen and slowly transformed the classroom field. All of the students who were consistently involved in cogens at their schools engaged in a democratic process of being valued and learning to value difference. These differences in race, ethnicity, age gender, social class, and language were not solely between students but also existed between students and teachers, like in Ed Lehner's (2007) and Ashraf Shady's (2008) classrooms. Cogens

allowed participants to better understand and learn from each other. Not only were these students involved in discourses in the science classroom and other fields that they formerly did not engage in, but over time, students began to focus on the motives of the larger collective. These were shifts from a pursuit of individual achievement to a focus on the ways to improve science learning of the entire class. Solidarity that emerged within cogen groups forged friendships, collaboration and in some cases like Theo, ripple effects in other fields. Not only were there attitude shifts in participants, the data also show that there was increased science fluency in these science classrooms. There was increased student participation as well as improved understanding of science concepts as demonstrated through the written work of cogen participants. Notably, these teachers also showed their students that they were willing to listen to them, and make the necessary changes to improve learning. Collectively, the work described above makes a strong case for the continual use of cogens and the need for unbroken sharing of cogen-based research not just to other science educators, but also to educators in an array of disciplines.

Significance of current research

Illuminating the private school experience

All of the recent cogen-based studies in NYC uses theoretical frameworks to support cogens and provides useful insights into how teacher-researchers used these dialogues to catalyze positive transformations of the science classroom and changed the roles and interactions between teachers and students. As a result, I decided to incorporate these ideas into my own classroom practices in order to observe possible transformations. Beyond simply adopting cogens as a panacea, I saw the opportunity to implement these

ideas into a setting that does not typically get placed under the urban umbrella.

Previously described research was largely based in NYC public schools with a student body that was largely either African-American, immigrant or from low socioeconomic backgrounds. Hence, existing research has focused on the use of cogens to improve the science participation and performance of arguably similar populations of students. I became interested in the ways in which cogens could benefit a sometimes forgotten populace of urban centers – the students attending small independent schools.

While a graduate student at Teacher's College, I worked in several independent schools as a substitute teacher. Through my interactions with students in several of these independent schools, my experiences showed that there are numerous students that are not representative of stereotypical private school students – White and members of high social class. Contrary to popular belief, in these schools there is great diversity in race, ethnicity, religion, language, sexual orientation, family structure, student learning ability and socioeconomic status. Many ISAAGNY students, because of their diagnosed learning disabilities and/or socioeconomic status have their tuition subsidized by the State of New York after legally proving that their neighborhood public school lacked the resources to address their educational needs.

Research setting and context

Pay Prep as described previously, is a small, co-educational ISAAGNY school that is a recognized college-preparatory school. For the academic year in which this research was conducted, there were 330 students enrolled with an ethnic breakdown as follows: White 86%, 8% Black, 5% Asian, 2% Hispanic and <1% Other. Many of Pay Prep's students typically come from families with high socioeconomic status. A small percentage of the

student body that does not fall into this category receive tuition assistance through other means. This includes tuition subsidizing by the state, academic scholarships or anonymous sponsorship by another family of a currently enrolled student. There were approximately 70 faculty members with 85% possessing Master's degrees. The ethnic breakdown of the faculty was also similar to that of the student body with about 21% from non-Caucasian backgrounds.

At Pay Prep, in both the middle and the upper schools, academic programs are organized according to a tracking system: Honors, Level I, Level II and Level III⁶. Placement is typically mediated by past performance and through standardized test scores (especially the ISEE⁷). Class size varies greatly ranging anywhere from 2 to 20 students. There is also subject differentiation in the high school. For example, 11th grade students in the Honors and Level I classes are tracked for Chemistry, while Level II and Level III juniors are enrolled in either Environmental Science or Zoology.

A little more than one third of the student population is learning disabled and possess Individualized Educational Programs (IEPs⁸). The school is fully mainstreamed, which means that there are learning disabled students present in each grade and each class. Most diagnosed learning disabled students are enrolled in the Help Program. This is an in-house academic support program that works collaboratively with classroom teachers, parents and other professionals to assist students with specific learning disabilities to function successfully in the mainstream setting. In order to apply to Pay Prep's Help Program, an applicant has to submit several pieces of documentation, including his/her IEP (if one exists), a privately administered neuropsychological evaluation, and WISC⁹ test results. For the 2007-2008 academic year, there were 109 Help Program students. A

great majority of admitted students have difficulties that place them in one of the following categories:

- LD (Learning Disabled)
- NVLD (Non-verbal LD)
- Receptive & Expressive Language disorder
- Central Auditory Processing
- ADD/ ADHD (Attention Deficit Disorder/Attention Deficit Hyperactivity Disorder)
- Dyslexia
- Discalcia
- Disgraphia
- Autism (including Asperger's Syndrome)
- Poor organizational skills

Upon acceptance into the program, each student is matched with a Help Program specialist whose experience and expertise is best suited to his/her needs. Likewise, Pay Prep also attempts to provide gifted students with several opportunities to enrich their educational experiences. The school has a Smart Program that addresses the needs of the most academically able students through a rigorous curriculum. The Smart Program is a three-year sequence leading to a Pay Prep Diploma with Honors. The program is very selective with only 10-15% of all 10th, 11th and 12th graders being invited to join. These students attend two special seminars each week where they are introduced to advanced material not covered in the regular curriculum. For those students who qualify, independent study and advanced placement courses are also offered. In general, Pay Prep has a diverse student population and has a variety of programs in place that reflects the institution's attempts to cope with the differences in its student body.

Research design

A Seedbed for new research

The year in which my research evolved, I taught two sixth grade science classes and two ninth grade physical science courses. At the beginning of the year, the principal approached me about teaching a fifth course. There were three female students, all first-year transfers into Pay Prep who needed a special course in science. At their respective schools, they had completed Biology in the 9th grade and earned stellar grades. Not wanting these students to repeat a course unnecessarily (Biology is the only offered science course in the 10th grade at Pay Prep), the principal asked me to meet with the youth to generate a list of advanced topics in science that I could teach them. The young women were allowed exemption from attendance for three periods each week from their chosen non-academic electives (drama, music, art or physical education) and it was during these periods that we agreed that we would have our to-be-designed science course. At our first meeting, introductions were made.

Leslie is a second-generation immigrant from a middle class Dominican family who transferred from a NYC Catholic school. Rebecka is a Finnish first-generation immigrant from a family of high socio-economic status. She had previously attended a competitive high-performing ISAAGNY school. Ashley is an African American female from a single parent household. She transferred from another ISAAGNY school and was granted a scholarship to partially subsidize Pay Prep's tuition. Each student shared with me a list of science topics they were interested in. I also shared a little about myself, including my childhood experiences in Trinidad, my early experiences as an immigrant in a Jersey City public school, my engineering years and graduate work in science education, my teaching

experiences and my current studies as a doctoral student in an urban education program. The three students all expressed great interest in education and working with children. At the close of our first conversation, there was a consensus that our new course would center on science education and working in my sixth grade classes.

After our first meeting together, it was decided that there would be informal observations made of both my sixth grade classes (a 6-1 and a lower-tracked 6-2 class). Thus, the tenth grade girls visited both classes several times before we met officially as a group again. This 6-2 class comprised of ten students – six boys and four girls, all White. Nine of these ten students were enrolled in the school's Help Program. According to their IEPs, they were diagnosed mainly with ADHD and LD. Observations of the class revealed some of the difficulties that were hindering success: disinterest in science, hyperactivity, poor written expression, and poor reading comprehension. In contrast, the students in the higher-tracked 6-1 class appeared to be more interested in science and could be characterized as more focused, and more determined to excel. These observations were discussed and collectively, it was decided that it was urgent for us to employ new structures to transform the existing learning environment of the 6-2 classroom. They were assigned selected readings on cogens and coteaching and as a group, agreed that they were authentic ideas that could possibly transform the science classroom. As my tenth graders and I saw it, the infusion of cogens held the potential to catalyze and radically transform this class. It was decided that we would spend two periods each week having cogens and that a third period would be spent in the sixth grade classroom coteaching as a group of four. The first cogen would serve as a period to

engage in coplanning, the second day, we would coteach together and on the last day we would hold a cogen to debrief about our weekly experiences together.

The decision to coteach thus emerged as a principle outcome of our initial cogens together. Coteaching is the practice of teaching with more than one teacher and by doing so, each learns from the other and reproduces certain teaching practices (Tobin & Roth, 2006). Coteachers are co-present and there is a shared responsibility amongst coteachers as lessons are enacted. The idea of coteaching was introduced in a cogen with the tenth grade students, as a way to ensure collaboration through coplanning and working at the elbows of each other while in the sixth grade classroom. It was also presented as a way to have a shared responsibility in the classroom through capitalizing on each of our individual strengths. The students were very receptive to the idea of coteaching in the class because it was an opportunity to integrate their own ideas in the sixth grade classroom but doing so with each other's support and shared responsibility. Hence, from the very beginning, cogens and coteaching emerged as complementary methodologies that would serve as the basis of our work together.

Data analysis

The decision to use cogens in the sixth grade classroom came as a result of a collective desire for positive change. However, the question of how these changes were going to be evaluated was initially left unanswered. Responsible research and good analysis should ensure that a series of questions are consistently being generated during the course of the study. The following questions should serve as guidelines for evaluation of cogen-based work:

1. What was cogenerated?
2. To what extent were the motives of the group accomplished?
3. To what extent were the individual goals of each participant achieved?
4. Was there an emergence of emotional solidarity?
5. Were the authenticity criteria met?
 - Are participants experiencing changing perspectives?
 - Is there a growing understanding of different viewpoints within the group?
 - What are the changes that are happening in the cogen? Are there changes in other fields?
 - Is there equity within the cogen? Has participation become more equal?

When the idea of a cogen is introduced, students should be provided with sufficient understanding of the rules of cogens and the desired outcomes. They should also have a central role in any interpretation of their participation and in characterizations of larger science classroom. What this accomplishes is a dismissal of any possible claims by others pertaining to researcher subjectivity in the research. It also encourages a shift from students merely being participants to students becoming student-researchers.

As a result of participation in weekly cogens with my three tenth grade students, we cotaught several lessons across various science disciplines in my 6-2 class for one academic year. There has been a plethora of key outcomes as a result of the work done with these student-researchers with far-reaching implications for teaching and learning science. Never did we anticipate the extent to which we would observe changes in all of

who were involved. In line with research criteria described previously, the final sections attempt to take a closer look at the transformations experienced by the participants involved in this year-long research both in and out of the science classroom field. Additionally, I use the guiding questions presented above to evaluate the research that evolved at my school.

Multiple outcomes of cogenerative dialogues

Coteaching and the development of a student-researcher identity

Coteaching to me means working together with peers to create a better learning experience for students. Coteaching also means looking at clips of film we have taped and learning from our mistakes. Coteaching helps us improve our attitude, the way we interact with others, and teaches us how to work cooperatively with others.

(Ashley, Essay, December 2007)

During the academic year, the student-researchers and I participated in numerous cogens which centered on our work in my 6-2 class. Their initial experiences were largely observation based but with the girls freely engaging with the six graders and acting in supportive capacities. Future lessons cotaught were all their own ideas. Each future lesson had each student take turns at serving as a cogen leader with the responsibility of presenting a lesson idea to the group. The other cogen participants would then provide feedback and offer additional ideas to improve each lesson. Each cogen participant would assume responsibility of some aspect of the implementation of the lesson. Therefore, even though there was a cogen leader for each lesson, we each had roles in the design, implementation and assessment of each lesson.

The complementary practices of cogens and coteaching permitted new culture to be produced, reproduced in the cogen field and also in the sixth grade science classroom. The use of cogens was a giant step forward as students listened and learned from other participants. Once we accept that students are capable of understanding and applying theory and methods, we can make significant progress in creating research designs in which students' voices inform what was studied, how we study it, and what we learned. Weekly cogens with the tenth graders revealed that they were undergoing significant transformations during the course of this study. Leslie and Ashley, two formerly shy students, both experienced a gradual surge in confidence as indicative through their increased participation in cogens and also during coteaching. A striking moment that has remained with me was an occasion when Leslie, usually less participatory during cogens, directed a question at me during a cogen. This particular cogen was a debriefing on a cotaught lesson together two days prior. I had asked the students what their thoughts were on how the lesson unfolded. Rebecka had responded at length while her peers listened. The following transcript describes what happened:

Speaker	Video Transcript Silence for 2.0 s. My arms are folded across my chest. Ashley is seated upright, leaning forward with hands outstretched on the table directly facing Rebecka across the table. Rebecka has her elbows on the table with her hands on her face. Leslie also has her elbows on the table and hands positioned on each cheek.
Leslie:	Yeah (Short nervous laugh with elbows on table and hands positioned on each cheek. Ashley turns to look at her briefly before turning her head back to focus on Rebecka.
Rebecka:	So like ... (Elbows on table with hands positioned high on each cheek. Silence for 3.0 s)
Leslie:	What do you think? (Fixes hair with both hands and then returns elbows to the table with hands back to their original position on her face. Group collectively laughs nervously for 2.0 s) Ashley looks up and over to Leslie and then turns her focus to me. She tilts her head downward while laughing at the question.
Me	Putting me on the spot? (Question is overlapped by collective student laughter) Yes.

Leslie's actions were very surprising to me. When I first viewed this vignette, I interpreted in a way that supported my understanding that Leslie was the type of student who was very 'right/wrong' oriented. I had perceived her to be a student who was most concerned with 'what's the right answer' and she desired these right answers from an authority figure/teacher. However, when I asked her about this episode at a later date, I was pleasantly surprised. Leslie stated that since it was a cogen, each participant's voice mattered, including mine. This incident critically highlights the importance of not privileging one interpretation of an event. It also demonstrates that Leslie had a better understanding of the rules that govern cogens than I had understood even though her actions had appeared contradictory. By asking this question, she had also demonstrated that she was beginning to enact practices that suggested role switching from student to student-researcher.

During the course of our work together, my students were asked to write and respond to several questions in the form of short essays. These essay assignments were to serve a dual purpose. One, to learn more directly about the ways in which they were experiencing ontological shifts and two, as one form of assessment, as I would have to assign grades for our co-constructed science course. These essays formed the basis of their grades during the year. The following is a list of some of the questions that were asked across different assignments:

1. What have you learned about yourself thus far? Think about your role in the classroom and in our cogens. Identify both good and bad. How can you improve?
2. Give suggestions for improving our work together as a coteaching team.
3. What changes or accommodations do we need to make to better serve or instruct our students?

My experience with coteaching has been very insightful as to how teachers operate. Coteaching takes a lot of patience and teamwork, two things I have learned with this science class. Ever since we have started, I have paid a lot more attention to my teachers in a different way, examining their technique and sometimes criticizing it. Coteaching also has definitely made me a lot more sympathetic towards teachers and educators.

(Leslie, Essay, December 2007)

The above quote is a good example of the reflective practices of the students during their experience coteaching. This also was apparent in their lesson ideas. The actual content of their lessons also became more substantive as they have articulated an increased

appreciation for lesson planning that had to take into consideration student ability, time and resources among other variables.

A critical part of being a researcher entails sharing your ideas in a professional setting so that others can learn about your work. Near the end of our year together, I presented to the students the idea of sharing our experiences using cogens and coteaching at a professional science education conference. The idea of meeting other students and educators using these methodologies evoked nervous excitement from the group. We participated in two cogens in preparation for our very first presentation together. We decided that for the presentation, it would be important to share how they each had changed from the beginning of the experience. It was decided that our slideshow should contain key pictures that would offer rich examples of the identified shifts. For example, in Figure 3, Ashley is discussing her experiences coteaching and the bond she formed working with two sixth grade girls in particular who appear in the photographs with her.



Figure 3. Student-researchers with me, presenting our work together at a 2008 science education conference in NYC.

While they spoke to the audience about their own personal growths, I included an insight into the perceived changes of the 6-2 students we worked with. The presentation took place at New York University (NYU) in early May. At the end, the students received positive feedback from other science educators who congratulated them on their work and their willingness to share what they had learned. The following expresses how Ashley felt after this conference:

We also had the wonderful opportunity of talking about our science coteaching class to a group of people at New York University. It was a wonderful experience, although I was scared at first. When we got up and started talking, all my fears went away and I found the courage to talk. We started explaining how Rebecka, Leslie, and I became coteachers in the first place. We also spoke about our changing ontology and how I changed from a shy and timid person to a more outgoing and talkative person.

(Ashley, Essay, June 2008)

These students were not required to participate in the conference but chose to. They did so despite having to sacrifice their personal time to co-plan, and arrive at NYU early the next morning in order to attend the conference. Rebecka's father also attended the presentation as well as another classmate of theirs. This dedication to our work is an indicator of a major shift from completing tasks for a course, being students, to a collective desire to learn and share their experience of being researchers.

Video as a reflective tool and implications for science teaching

One of the primary topics that surfaced during an early cogen was the issue of filming and the potential benefits and harms it may pose on all involved. The student-researchers

admitted to feeling uncomfortable during the first few video-recordings and reviews, but felt that it was an element that would become less intrusive as our work continued. In time, their views on filming our cogens and coteaching changed. A key benefit of filming as realized by the student-researchers themselves was that review of video allowed them to observe aspects of their practices that were both positive and negative. As one of them shared in an essay,

The filming of our cogens and lessons provides us with a tool to see things we missed during the actual lesson. By watching the cogens and lessons later, you point out your flaws and learn to not repeat the same mistakes. But it also shows the things you should repeat, the good points you brought up or the way you said or did something. You can also see students that needed help but none was given or a situation that could have been easily avoided. Filming the lessons help the students indirectly by showing us, the coteachers, how to further help them. As everyone learns from their mistakes and polishes their good talents, the lessons will go easier and better.

(Leslie, Essay, December 2007)

Video analysis was particularly powerful for Rebecka who began the experience as an assertive and confident student. Working with Leslie and Ashley, two very quiet and less expressive students, forced her to realize that in line with the rules of cogens and good coteaching, she could not dominate all discourses. Rebecka seeing herself on video being dominant in the 6-2 class and acting similarly during early cogens, allowed her to become more conscious of her talk time. She also created ways to effectively weave the voices of her peers into our cogens by directing questions at them or providing commentary about their practices to stimulate conversation from them. Video analysis also made her aware of certain negative practices that she was enacting in the classroom. Rebecka was

particularly impatient with a student who by most measures would be considered a difficult student in the classroom. He was usually very unfocused, at times disruptive to the flow of class and rarely completed the required assignments. After video review of an early lesson for a paper, Rebecka realized the need to find new ways to interact with this student so as to improve both his behavior and his performance in the class:

This vignette has the whole class, me, Ashley, and Ms. Grimes in it. When I first viewed this lesson I did not like the way I reacted to Zev at all. My problem is that I get very easily annoyed with him even when he isn't really doing anything particularly bad just talking a little loud or standing up. Actually, after I watched this I have been trying to make an effort to, when I see him, be a little warmer so he isn't as scared of me and so that I don't get annoyed as quickly with him. In this clip, I don't like in particular how I go straight to sit by him (though I think I went there because I like the seat) because he might get the impression that I'm there to keep tabs on his behavior alone.

(Rebecka, Essay, December 2007)

Through video reviews, Ashley realized after watching numerous experiences in the 6-2 classroom that she continuously found herself working with the same two students, Crystal and Janet. Upon review of both digital pictures and video, we confirmed that this was indeed true. Both Figures 4a and 4b indicate such practices. Figure 4a is a photograph of Ashley assisting the two students, with a fish dissection. This was a lesson that was planned by me and was one of the early activities that were observation based (coteaching was not enacted). Figure 4b shows Ashley again working with the two students during a later cotaught lesson that was led by Rebecka. The students were asked to review a slide show depicting animals endemic to the Galapagos Islands. They were

then required to answer follow-up questions on what they had learned. These handouts are on Crystal's desk and partially concealed by her leaning toward the laptop.



4a.

4b.

Figure 4. Evidence of student-researcher Ashley naturally gravitating toward Crystal and Janet during two different lessons in two different classrooms weeks apart.

With further discussion during a later cogen, we realized that Ashley had very similar personalities to both Crystal and Janet. They were all soft-spoken, shy students who lacked confidence in the classroom. Hence, such actions indicated that there was a solidarity that emerged among this group. With this realization, Ashley decided that during her future experiences in the classroom, she would make concerted efforts to work with other students besides Crystal and Janet. However, she remained very interested in working closely with Crystal and observing the ways she changed as a student during the year. For her final project, she chose to write a paper that chronicled the noticeable shifts in her own actions and those of Crystal. She used conversation analysis of several vignettes from different coteaching experiences to show how they were both growing as a result of the experience. In another essay, Ashley also advocated for the idea of having

the sixth graders review the coteaching lessons that were filmed. She explained why below:

We can increase the students' benefit of filming by showing them clips of the film and asking what they thought was significant in that specific piece. This can also show them what they can change about themselves, like we do when we watch the clips. Maybe someone could tell them that they can participate more while the other needs to focus more on their work, instead of distracting the class.

(Ashley, Essay, December 2007)

Leslie also learned a great deal through reviewing our filmed work together and cogens where we shared our own interpretations of each other's practices. She was able to reflect on her own transformative practices in the classroom toward the end of the year:

I have learned a lot about myself thus far. I have learned that I think too much and decide to keep it in when I could possibly be adding a good asset to the conversation and even lesson. In the beginning, I was very quiet and not participating as much as I should have. Towards the present, I have talked more and helped the students with their assignments and questions. I can improve by speaking up more, arriving more prepared, and really becoming a coteacher with the others.

(Leslie, Essay, December 2007)

Being involved in research should advantage its participants appreciably. Leslie, Rebecka and Ashley all expressed how much the experience had benefited them. They each initially thought that using video was slightly awkward but later became strong advocates of filming our work. As Tobin suggests, involving both teachers and students in video analyses can be viewed as emancipatory and what is learned can be used as a basis for

dialogue about the quality of interactions and transactions and possible ways of increasing levels of success (2007). Not only do students learn more about teaching and learning but also they expand their identities to include doing research and becoming educators. If more teachers make the professional decision to videotape their practices and analyze data for their own professional purposes, videotaping becomes a part of normal classroom practice. Using video data for research, however, is a concern of the IRB (Institutional Review Board). If more educators became involved in using video analysis to improve their professional practice and their work shows that there are more obvious benefits than harms to being filmed, then the IRB will finally begin to concentrate less energy on being highly critical of such empirical work like the type that has emerged through using cogens. Hopefully in the near future, no longer will educators have to work tirelessly to obtain permission to use the data resources in research.

Through the looking glass: cogen evaluation à la Guba and Lincoln

Previous discussion in this paper spoke to the need to question whether cogenerative dialogues in a study are indeed true cogens through using the authenticity criteria of Guba and Lincoln. These criteria ask researchers to ensure that participants in their work experience ontological, educative, catalytic and tactical shifts as a result of their involvement. As described in the previous section, cogens produced numerous outcomes in my research, outcomes that were far beyond those my student-researchers and I anticipated. The aspects of these authenticity criteria are well documented in the data presented in this paper. Most critically, cogens provided a space where each student-researcher could freely express herself. Throughout this paper, I felt it was important to

incorporate as much of their voices so as not to privilege my own interpretations of our experience together. These pieces of data were chosen in order to present a case that not only showed that the views expressed in this piece belonged to the collective and were not just my own. bell hooks (1994) earnestly calls on teachers to detach themselves from their roles as educator to critique the teaching and learning that unfolds in the classroom. She also asks that educators think critically about why they think and teach in the ways they do. hooks believes that teachers must be actively committed to a process of self-actualization that promotes their own well-being if they are to teach in a manner that empowers students. hooks' ideas on teaching and learning are well aligned with the rules of cogens. Not only did the student-researchers continuously think critically about their own ideas about good teaching and learning, but I too engaged in constant reflection of my own practices. Their ideas made me repeatedly think about ways I would design my own lessons and the reasons I planned in these ways. Through cogens, we each explained our own ideas and perspectives about the way a lesson should be implemented. Likewise, cogens encouraged participants to become both reflective and reflexive about their work with the sixth graders. The following excerpt from an essay written by Ashley during the year indicates her changing ontologies:

In this coteaching experience, I have learned that I am a very shy person. I speak with a low voice and that I also don't share my opinions during the cogen due to my fear of sounding "stupid." When I am speaking to the 6-2 class I also sound unsure of myself, which probably causes the class to doubt everything I say. I look down a lot while I'm talking in class and during the cogen and that is where I need to improve. I also need to speak louder and make myself known in class, instead of being quiet and letting Rebecka do all the talking.

(Ashley, Essay, December 2007)

Cogens also catalyzed many changes in other social fields. Firstly, the experience created a close friendship among the student-researchers in fields outside of the cogen and also forged amicable relationships between students in the 6-2 class. It can also be argued that this social bond was critical to helping these tenth graders adjust to their new high school. Cogens also initiated the coteaching that transpired in the 6-2 classroom. My student-researchers developed co-responsibility during their practices. Coplanning and coteaching both encouraged their working at the elbows of each other, with constant reinforcement of what it meant to be a coteacher. At the same time, it encouraged the acquisition of leadership skills through our method of rotating lesson responsibility. Co-responsibility also played out in the equity of participation. Through video review, student-researchers were also to observe how much they were/were not participating equally in cogens. They articulated these observations in essays, and at times, even developed the skill to ensure all voices were being heard during our meetings. Cogens were additionally used as means to assess the science knowledge of the student-researchers as they engaged in coplanning. Not only was lesson co-planning occurring, but the student-researchers were also actively learning science and sharing scientific knowledge, an outcome that was also prevalent in other cogen-based work (Roth, 2001). Our work together also served as an introduction to science education. The student-researchers learnt how their own perceptions about teaching were introduced in the classroom. This was illuminated through video analysis and discussion of our practices during cogens. They expressed an increased understanding of the difficulties associated with teaching and articulated a renewed valuing of what educators do each day.

Research implications

Much of the already published empirical work in science education that incorporated the use of cogens to address the complexities that exist in the urban science classroom, was done by the very classroom teachers or rather teacher-researchers who in turn, shared their findings about their own classroom experiences. The notion of a teacher as a researcher is not a new one, yet it continues to invite criticism from individuals who argue that there should not exist such a blurring of knower and practitioner (Cochran-Smith & Lytle, 1999). However, the promising results of the work of recent science educators to improve the teaching and learning of science in their own classes cannot be easily cast aside. Rather than a return to traditional beliefs about the roles of teachers and continuing to devalue the extraordinary work being done by such educators, we should be leaning toward an overarching acceptance of teachers as change agents, and that their doing research in their own classes should be regarded as good professional practice.

As a result of my work, I have learned that students themselves have strong perceptions of what 'good' teaching looks like, but through the use of cogenerative dialogues and coteaching, they were able to realize the potentials for improvement and learning that exist in the classroom. Employing cogens is one way to engage with students on a more extensive basis and touch at the heart of the individual experience. Despite the obvious larger similarities that may exist among certain groups of students, it remains the case where a tiny slice of information about a student's life can possess more significant value and consequently impact both the teaching and learning of science. As a result of my experiences, I believe it is critical to produce inviting spaces where students feel humanized within the science curriculum and believe that their own questions,

comments, objections and ideas are indeed welcomed and an integral and component of the science experience. A large part of becoming fluent in science involves knowing and understanding shared values and accepted practices within the scientific community.

However, attaining such fluency should not have to occur at the cost of exiling positive emotional energy and activity that I argue should run prevalent in the science classroom.

There needs to be a significant shift away, for both students and instructors alike, from dated ideologies that science classes should be places that are devoid of student input.

By no means do I intend to impart a positivistic feel onto the discussion of how to improve science learning. However, the outcomes of my own research combined with those produced in past cogen-based ethnographic work show that there should be real considerations made on the part of implementing cogens. These significant outcomes cannot be ignored. However, fields, like the classroom, are not deterministic and we cannot attempt to apply a one-size-fits-all solution to the difficulties that are encountered in these social spaces. I argue that we should not render cogens to be a sophisticated tool that can easily repair the typical problems associated with social life in the urban classroom. Rather, there needs to be a shift away from viewing cogens as a means to solve such problems and more as good professional practice. The benefits of cogens extend to schools, classes, and individual participants, including students and teachers. This and past research shows teachers who were struggling to work with students learned to teach in ways to build curricula around students' cultural capital. Students also learned to speak respectfully to their teacher, listen attentively, and change their roles in class. Key benefits for the students in my research include changes in identity, acceptance of a wider set of roles including coteaching with other students and the teacher, accepting

responsibility for the quality of learning and teaching, co-responsibility, friendship and exposure to the discipline of science education. Thus, cogens continue to be highly effective with different urban sub-populations of students and it is critical that these numerous success stories are shared not just within the science education community, but enter into other educational discourses.

CHAPTER VI

Renewed perspectives afforded by the dialogic nature of teaching and research

Traditions are group efforts to keep the unexpected from happening.

(Barbara Tober, unknown)

The re-imagination of urban, urban students and urban education research

The term ‘educational reform’ is one that can evoke robust sentiments of hope for the improved experiences of every global learner. It is essentially why many of us remain diligently at work in the field as we aspire to dismantle dated ideologies and traditions that bridle student success, all the while seeking improved ways to educate our children. When I began my doctoral studies, as much as I remained dedicated to teaching science to middle and high school students, I can admit that I was plagued with uncertainty and had difficulties envisioning the ways in which I could do meaningful work that would transcend the physical walls of my own science classrooms. Over the years, discourse with varied educators and my own research have collectively transformed my perspectives on what valuable research looks like.

It remains abundantly clear that individuals within a particular social field can construct the notion of what is privileged within their local field. Likewise, these social actors also privilege the experiences of some and dismiss others, a practice customary in research describing urban life. In this dissertation, one of my chief goals was to illuminate the salience of conducting research in any urban school community where I contend there is much to be learned. I argue that for far too long, the experiences of our youth in independent schools have been omitted from discourses surrounding urban

schooling. This is because the uninformed, deficit views of individuals and institutions have assumed that there is little benefit to conducting research in these spaces. However, as a teacher-researcher, something that I have reiterated throughout the research I have presented here, is that I remain committed to improving the experiences of all urban youth within schools.

There are numerous existing studies and emerging ones that continue to address widespread injustices within public education that serve to discourage our children and drive them out of urban schools. Such studies describe the experiences of urban marginalized youth, a few of which were discussed in Chapter 2 (Apple, 1982; Kantor & Brenzel, 1992; Anyon, 1997, 2005; Noguera, 1999). Generally, they induce discomfort and a parallel sense of distress that educational researchers should aim to denaturalize any form of injustice and exclusion that threatens the way our children grow and learn. I wholeheartedly concur. I also believe that this was the perfect opportunity to draw attention to the continued practice of excluding the experiences of some urban youth from much needed critical discourse.

Ethnography and polysemia

At the beginning of my research, I was armed with a limited toolkit of theoretical frameworks. These grew in number as I read more and my work progressed. However, from very early on, I realized that interpretive research (Erickson, 1986) remained the most appropriate way to incorporate the voices of urban youth who attend NYC's smaller private schools. Interpretive research had obvious benefits, as it would allow me means to more fully understand the perspectives and the experiences of these youth. Early parts of the research that emerged moved me to re-interrogate the brickolage of lenses that I

utilized to view my science classrooms and as my work progressed, I found myself transformed by the experiences in these spaces.

What remained extremely important to me in this dissertation was that I learned from my collective experiences within urban classrooms with the input of the students whom I conducted research with. It is quite common for individuals and institutions to concoct narratives of others without incorporation of their own interpretations of events. As researchers, we can behave as puppeteers who retain the ability to share knowledge that ultimately determines other people's jobs, their livelihoods and their identities. However, we must be careful to remember that even as puppets in a power game, people are still co-authors of history - that other enacted dramatic narrative in which they are also actors (Czarniawska-Joerges, 2004.) Thus, within my own research, I felt it was critical to preserve the voices of the many students who I interacted with. Both in Chapter 4 and Chapter 5, student voice was preserved as much as possible as a means to allow readers of this dissertation to further the multi-meaning and multi-voiced analyses I intended. These students were critical to forging my current understanding of how to teach science to mainstreamed middle school children (Chapter 5.) Our findings allowed me to modify my teaching in ways that facilitated the growth and increased academic achievement of those students.

The role of narrative and the autobiographical link

Experiential stories are an attempt to lend voice to tacitly held personal knowledge (Polanyi, 1966). Narrative inquiry is seen as particularly suited to get at such 'practical knowledge.' As early as the 1960s, educational researchers began to use narratives as a medium of data representation so as to preserve the temporal quality and contextual detail

of the schools and teachers they study (Fenstermacher, 1994). Today, it continues to show itself to be a congenial tool with sound methodological usefulness (Connelly & Clandinin, 1985), as narratives remain a perfect medium for the study of personal practical knowledge. In this dissertation, narrative was utilized to illuminate the lifeworlds of urban actors in schools that are typically omitted from education-based discourses.

Narrative research also served as a critical means to reflect as an educator and think about my own transition from student to teacher across time and fields. When a story is encountered experientially, one might typically react to it with a narrative of one's own. As a social actor within my own classroom, I frequently observed encounters that caused me to ponder other stories: "*This reminds me of*" In this way, a narrative segment of a lived experience follows, and this natural process serves to move inquiry along, producing even more and more stories through metaphorical connections (Conley, 1996). As I interacted with students at Pay Prep, it was easy to think about my own formative experiences in and outside the classroom. Thus, my research is a collection of smaller narratives that simultaneously serve to provide insight into urban private school life while sharing my own personal recollections particularly of schooling. This to me was a necessary component of my work, as it would allow the reader to hopefully understand my perceptions and interpretations presented in this dissertation.

In Chapter 1, I provided an insight into my former experiences as a student in Trinidadian schools and my subsequent journey into the American classroom. Chapter 4 also addressed this topic as I attempted to forge understandings about how shifting plural identities plays a critical role in teaching and learning. Here, I discussed how the

metonymic association (Lakoff, 1980) of Caribbean caregiver and teacher played an integral role in blurring boundaries of difference for some White students. For certain White students who had Caribbean nannies in their homes, my presence produced a positive resonance in the science classroom. It is here that I was left passive (Roth, 2007) to the ways in which these students co-constructed my identity, one of many, in the classroom. The metonymic relationship between teacher and caregiver was realized via numerous structures - my native Trinidadian dialect, dialogue, gender, gestures and other body language that is characteristic of a caregiver. It is here in the science classroom where events emerged that were both unexpected and exciting. Students subsequently appropriated many resonant structures in efforts to be successful in science (Tobin, 2006). This aspect of my larger study indicates that populations can share a commonality even if it is only temporary and contingent. Thus, the purpose of this chapter was to highlight that even across many socially constructed categorical differences between teacher and student, there are ways in which children can still learn science successfully.

The emergent possibilities of cosmopolitanism, cogens and coteaching

In order to experience any structure that is different and be able to learn from it, a value for the other is a necessity. Conversely, a value for difference is necessary in order to fully experience and learn from someone/thing that is different. In Chapter 2, I explored the salience and possibilities that such a perspective affords. In urban spaces that are marked by dense heterogeneity, it is important to acknowledge the possibilities that are afforded by the copresence of difference, or cosmopolitanism (Appiah, 2006). That is, there is much to learn in richly hybridized urban spaces. In a city like NYC, urban students of varied socially and politically constructed groups are present in both public

and private schools. They are not always visible to each other and sometimes struggle to find ways to coexist, and achieve their individual goals. There are equally significant stories to be shared from those who work in differing spaces.

With the existence of a flood of structures that can diminish the power of a student, my research discussed in Chapter 5 shows how participation in cogens can allow opportunities for students to become more agentic (Sewell, 1992). In the current body of related research, students who were consistently involved in cogens at their schools engaged in a democratic process of being valued and learning to value difference. These differences in race, ethnicity, age, gender, social class, and language were not solely between students but also existed between students and teachers. Cogens allowed participants to better understand and learn from each other. Not only were these students participating in the science classroom and other fields that they formerly did not engage in, but over time, students began to focus on the motives of the larger collective. These were shifts from a pursuit of individual achievement to a focus on the ways to improve science learning of the entire class. Solidarity that emerged within cogen groups forged friendships, collaboration and ripple effects in other fields like other classrooms and academic spaces. Not only were there attitude shifts in participants, the data also show that there was increased science fluency in these science classrooms. There was increased student participation as well as improved understanding of science concepts as demonstrated through the written work of cogen participants.

This dissertation also illuminates the possibilities that coteaching holds in integrated urban classrooms. The approach brings teachers and students (diagnosed and undiagnosed) together, and their shared expertise expands opportunities for others to

learn. The learning that unfolds is not just relegated to science, but rather other forms of growth including student identity shifts through acquiring expanded roles in the classroom. Similarly, neither cogens nor coteaching could have occurred without a shared acceptance of difference. Participation in both of these methodologies required a valuing of different ways of knowing and could not be possible if all the participants did not embrace a cosmopolitan ethos.

Both methodologies also hold considerable potential to have a positive impact on teachers, pre-service teachers and science educators in terms of their confidence in learning science and teaching, improving science and pedagogical knowledge, enhancing professional development and deepening reflection on practice. In a science education field course, cogens and coteaching can be shared as a collaborative means to address a variety of issues in the urban science classroom. Christina Siry's (2009) research centers on the benefits of such an integration. She highlights the ways in which coteaching and cogens can be utilized as approaches to address the existing gap between theory and practice experienced by pre-service and cooperating teachers; ineffective student learning as a consequence of inadequate pre-service teacher practice; student disaffection in the science classroom; and declining student attitudes towards science.

In particular, this aspect of my research also speaks to cogen/coteaching implementation as a way to improve the educational experiences of mainstreamed students who are diagnosed as having special needs. Chapter 3 highlights the complexities associated with teaching in urban settings. Aside from the more obvious differences amongst students and educators, student ability remains a significant characteristic of the urban classroom. I argued that teacher education programs are not

adequately preparing educators for working within general education classrooms – classrooms, which are in reality, mainstreamed ones. Thus I rearticulated ways in which teacher preparation programs can work toward nurturing these sensibilities and improved dispositions toward working with urban learners. I also problematized some of the other aspects of urban teaching, including continuing discord amongst general and special education teachers, which afflict our classrooms.

Revisiting the authenticity criteria

Drawing upon what Guba and Lincoln (1989) originally describe as fourth generation evaluation and Tobin's (2006) adapted set of research authenticity criteria, I tried to ensure that all those involved in my research learned from the research; that all stakeholders learned about each other's standpoints and that collectively what was learned was used to catalyze positive changes in the school community. The application of a set of evaluative criteria placed me on a path squarely to conduct research *with* students rather than merely to investigate their practices. At the conclusion of Chapter 5, I revisited my research objectives in attempts to address how I felt the research conducted jointly with my student had transformed their perspectives on science and science teaching. I described the ontological shifts I observed with Leslie, Ashley and Rebecka as a result of our research together, and I also shared their personal interpretations of their experiences within our study. Firstly, these student-researchers each articulated a new appreciation for teaching and teaching science. They journeyed along a path that encouraged a continual reflection of their own practices during both coteaching and cogens. Particularly, they paid increased attention to their own body gestures, turns at talk, and revealed a growing sensibility toward making sure that they allowed each other

the ample opportunity to share both ideas and the responsibility of teaching science to the sixth graders. The research also encouraged reflexive work, where there were continued efforts to become aware of practices in and out of the classroom field. In the case of Rebecka for example, she realized that her dominant classroom participation could be perceived as negative and was possibly discouraging students in her other academic classes from optimal engagement.

At the same time, what this chapter did not highlight was my own evolving constructions of self as a teacher-researcher in my own science classrooms. As noted in Chapter 1, I was initially doubtful about the task of mediating the blaring cultural differences in the science classroom within Pay Prep. In Chapter 4, I described my journey into NYC classrooms and my continual experiences with children at this school. For the first few years, I did not believe that I could find ways to teach science successfully here. This concern was partly the rationale behind the mini-education course created with my students-researchers (even in my fifth year of teaching) in pursuit of ways to teach a middle school science class that was near 90% learning disabled. By this point, as a result of my experiences within a doctoral program, I had begun to learn about the possibilities that interpretive research held. I was fortunate to have initiated my studies at a time when noted journals like *Teaching and Teacher Education*, the *Journal of Research in Science Teaching* and *Cultural Studies of Science Education* were increasingly publishing work and making a strong case for interpretive/non-statistical studies in science classes. I had many exciting studies to draw upon, which helped me to think critically about the ways I could improve life in my own science classrooms. My research at Pay Prep unfolded agreeably and soon revealed that despite my earlier

perceptions about difference as a hindrance to positive classroom interaction, I learned that it can plainly afford successful teaching and learning in spaces originally deemed impossible.

These experiences working with private school urban youth have also allowed me to reconsider some of my prior reservations surrounding the tenure process in academia, another field marked by stark cultural differences. I also was fortunate enough to have read Gloria Ladson-Billings' *Beyond the Big House* (2005), which remains a compelling analysis of the experiences of seven prominent Black academics in White American institutions. In it, she describes the complex personal and professional considerations that have shaped the decisions of noted scholars like Carl Grant, Geneva Gay, William Tate, and Lisa Delpit to pursue teacher education as a career. Along with a deepened consideration of my personal identity shifts in the science classroom, this work allowed me a means to consider the possibilities of teaching others in tertiary settings with whom I do not share similar culture. However, similar to what occurred in the cogens and coteaching experiences within my own classrooms, I have seen how a shared ethos can transcend difference. Ultimately, it is the creation of a shared motive that can lead to the production of solidarity in spaces where learning may seem unlikely. It is the possession of a shared vision across difference that can afford both individual and collective success.

The road ahead

Through the research conducted that produced this dissertation, I aim to address three broader issues. The first was to deconstruct the associated myths, and misrepresentations of urban youth in private schools as students whom are a homogeneous group with little to learn from. My study has shown that similarly to their public school counterparts, they

too suffer disconnections from schooling and science. What I have provided is an insight into some of their experiences that can serve as a means to dismantle existing flawed constructions of life in private schools. There is considerable more to be learned here, but this research stands unique in prompting new understandings of the types of students in such settings and how they learn science. I hope to have provided a means for the voices of these students to become audible in the same way in which much research aims to represent the voices of silenced, dismissed and othered youth in urban settings (Emdin, 2007). It is in this way we can begin to understand how to improve teaching and learning in dissimilar urban settings. Simultaneously, it is the means by which we researchers help others to better comprehend their conditions in local contexts, and learn how to cope with unsettling aspects of school life. Secondly, I focused on the complexities of preparing teachers to work in urban mainstreamed settings. It was my own perceived lack of knowledge sense that spurred a general interest in how to better teach science to city youth, which in turn led to the research presented in this dissertation. I discussed the necessary dispositions, made a case for classroom collaboration amongst general and special education instructors and represented various strategies for successful urban teaching. Lastly, I shared additional research that explored possible ways to teach mainstreamed urban science students. While the focus of this particular study was the achievement of a group of learning disabled students, an unexpected yet pleasant surprise was the ontological transformations experienced by my high school student-researchers through their roles in this study. Our work dually revealed and authenticated existing research that speaks to the ways in which coteaching and cogens could improve students'

constructions of self, their knowledge of science, their perspectives on teaching, and ultimately catalyze ripple effects in other fields (Bayne, 2009).

This dissertation also adopted multilayered approaches (the utilization of ethnography, narrative research, cogens and coteaching) via several theoretical constructs (cosmopolitanism, identity formation, sociocultural theory.) It is hoped that we continue to consider them viable tools for studying the urban science classroom. I do not expect the research presented here to involve any sizeable changes in urban education. Instead, I focus on how continued research in private urban classrooms can enrich our understanding of social life- specifically, how these students themselves perceive social life and enact culture within these spaces.

As a result of my work, I understand the need to engage in objective and unbiased research as I concurrently hold an obligation to reveal, provide voice to, and expose the realities for students in urban science classrooms. In so doing (holding my stance and obligations as a researcher), I find it absolutely necessary to present the research standing upon my experiences as a science student and educator in urban schools. I present my subjectivity not as a bias, but as a means to insight and an avenue into facticity or accuracy of the research product.

Our role and responsibility as scholars must be informed by an ethical commitment to conduct research that is honest, people-focused, and serves to improve the life conditions of those people. Furthermore, I believe that what is required by anyone committed to urban education is an epistemological standpoint that our attitudes toward knowledge should not be one of knowledge for knowledge sake, but rather our pursuit of it should how we can utilize any insights into social life obtained from our research to improve

human condition and enhance the lives of all stakeholders involved. In the case of education, these stakeholders are our students, students whom are educated in an array of settings. Consequently, we should embrace all opportunities to learn about how to enhance their experiences with their diverse school communities. In doing so, whether we are researchers, educators or administrators, we move closer to fully freeing ourselves from domineering prejudices surrounding urban youth.

NOTES

¹ Slant Magazine writer Robert Keser's review obtained at www.slantmagazine.com.

² In preparation for the United States 2010 Census, a marketing and outreach plan, called *2010 Census Integrated Communications Campaign Plan (ICC)* recognized and defined African Americans as black people born in the United States. From the ICC perspective, African Americans are one of three groups of black people in the United States African Americans (Blacks born in the United States), Black Africans (Black Immigrants from Africa) and Afro-Caribbeans, which includes Haitians."

³ Retrieved on 6/2/09 from <http://www.nannylocators.com/newyork.htm>

⁴ The Individuals With Disabilities Education Act (IDEA), as amended in 2004 requires that children with disabilities be educated in the "least restrictive environment appropriate" to meet their "unique needs." The child's placement is determined by an IEP team who first considers placement in the regular education classroom. The purpose of these requirements is to carry out the intent of the IDEA, which is to educate as many students with disabilities as possible in the regular education classroom, while still meeting their unique, individual needs.

⁵ District 75 provides citywide educational, vocational, and behavior support programs for students who are on the autism spectrum, severely emotionally challenged, and/or multiply disabled. District 75 consists of 56 school organizations, home and hospital instruction, and vision and hearing services. These schools and programs are located at more than 350 sites in the Bronx, Brooklyn, Manhattan, Queens, Staten Island and Syosset, New York. (Retrieved on 6/3/09 from <http://schools.nyc.gov/Offices/District75/default.htm>)

⁶ The existence of the Level III track is contingent upon the number of students in the grade level each year.

⁷ The Independent School Entrance Examination (ISEE) is a standardized 3-hour admission test for entrance into most private schools.

⁸ An IEP is a legal document that states a child's present level of functioning; specific areas that need special services; annual goals; short-term objectives; services to be provided; and the method of evaluation to be implemented for children 3 to 21 years of age who have been determined eligible for special education.

⁹ The Wechsler Intelligence Scale for Children (WISC) is the most commonly used IQ test for US children between ages 6 to 17.

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