EILEEN PERMAN BAKER

1. BECOMING A SCIENCE TEACHER

Abstract In this chapter I recount my personal history as it relates both to the immigrant experience in contemporary American schools and to some of the challenges faced by students in the cogenerative dialogue I formed as a teacher-researcher in my classroom at a suburban junior high school on Long Island. After experiencing turmoil in schools in the Bronx during the 1960s and 1970s I found that my perspective of the society around me mediated the way my students, many children from immigrant families, approached their schooling. My gender and immigrant background made me empathetic to problems faced by students and teachers of science and math.

I am an immigrant, and being one has always given me a slightly different perspective on the society around me. Many of the students I have taught have also been immigrants or come from immigrant families. This is the story of one immigrant who came to teach others from backgrounds different from her own but whose experiences in an unfamiliar new world tie them in some common way to their teacher. All immigrants, both children and adults, face the challenge of determining how they will fit into their new society. They need to decide to what extent they will maintain the culture of their place of origin and how they will reconcile that with the new, American, mainstream culture. Sometimes, this can result in conflict between immigrant parents and their children as they clash over how to triangulate between their old and new environments in terms of cultural norms, mores, and self-identification. This, of course, has an effect on the way children from immigrant families approach their schooling. Even though the mainstream culture, which existed when I was growing up, has fragmented today and no longer provides a single model for my students to follow, as an immigrant, I have nonetheless faced some of these challenges myself.

In 1950 at the age of three, I emigrated from Germany to the United States. I was born in a displaced persons' camp where my parents, both Polish Holocaust survivors, spent five years awaiting entry to the United States. I received my primary and secondary education in the Bronx, New York, and attended college there as well. I majored in science and minored in education at Hunter College in the Bronx, which is now Lehman College. Following my college graduation, I became a science teacher at a junior high school in the Bronx and later at a high school in the same borough. Years later I taught at Suburban Junior High School on Long Island.

K. Tobin et al., (Eds.), Transforming Urban Education, 1–17.

In this chapter I briefly recount my personal history as it relates both to the immigrant experience in contemporary American schools and to some of the challenges the students in my cogen group face. Some of my students are native African Americans. In some ways, I believe that the African-American experience is analogous to the immigrant one. Their ethnicities and immigrant or non-immigrant status have played an important part in their level of success as students. In this chapter I also explain my experiences as an outsider–at least to some extent–and how my identity as a science teacher was formed during trying and often exciting times. The experience of being Black in a dominant White culture gives these different groups some common ground, but different ethnicities and the status of being immigrant or native born have played an important part in the level of success students from different backgrounds have achieved.

GROWING UP AS AN IMMIGRANT

As a teacher-researcher, I have found that I draw on many of the experiences I had in and out of the classroom, many of which relate to my immigrant past. My first language was Yiddish, but as a child many other languages were spoken in my home, including Polish, Russian, Czech, and German–languages my parents picked up as they survived the Holocaust in Europe. It was not until I started kindergarten that I began speaking English. Nonetheless, I was always a successful student and entered accelerated classes at an early age. As an only child, school provided me with most of my social activities. As an immigrant, I faced several challenges trying to fit in. I was not allowed to speak English at home because my parents wanted me to remember my immigrant roots. The problems I encountered while growing up have helped me to be more empathetic to my students. I found through conversations in our cogenerative dialogue (hereafter cogen) that I experienced much of what first and second-generation students still experience today in adjusting to life in the United States.

In the mid-1950s to the mid-1960s, I lived in the Crotona Park Section of the Bronx. The apartment building I lived in housed Italians, Irish, Puerto Ricans, and Jews. On the street all children hung out together, playing games, sitting on cars, annoying grown-ups, and riding bikes. However, when gatherings included adult family members, all children present were of the same ethnicity and background as the parents. We did have opportunities to understand each other's ethnicities, but only on the streets.

Wanting to fit in

Neighborhoods can lead to the development of increased social networks, subcultures, and groupings that expand capital (Pitts 2007). Evelyn Gonzalez (2004) argues that Bronx residents created social areas that were composed of a street, a social block, and a neighborhood where residents socialized with family members

and friends. The social networks that were created allowed new immigrants like myself to learn how to become part of mainstream society. I remember wanting very much to fit in with other children. Although my best friends were from families similar to mine (from Europe), I remember wanting approval from children of other backgrounds as well. I remember Chickie, whose family was from Puerto Rico but who had been born in the United States herself, making fun of my family's green ways. Among ourselves, the immigrants, we called ourselves greeners, meaning we were new. We were learning new culture in the United States, but we were still clinging to the culture of the old country. Even being born here did not preclude misunderstanding when your parents are immigrants. When I tried to dress the way Chickie recommended, my parents were appalled. No big gold jewelry for me. Chickie didn't understand the culture any more than I did. Although the parents of children like me had made the move to America, they were reluctant to let us explore the many cultures America had to offer us, because they did not understand them yet. I came to America when I was three years old, and therefore, I never spoke with an accent. I was White, so I was indistinguishable from the predominant groups of people in the neighborhood who were mostly White. As I grew older, I learned not to wear the immigrant-type clothes my mother picked out for me. In kindergarten and in the early elementary school years, I didn't feel comfortable with the mainstream, although I wanted to be part of it. As my attire became more up-to-date, I was more comfortable with my American peers. My parents, however, still wanted me to keep my immigrant roots. In class I fully embraced being an American. At home, I fully embraced being an immigrant. Even today I still only speak mamaloshen, Yiddish, with my mother. On the outside I appear totally American; on the inside I am still an immigrant.

This experience has relevance as it helped me to become a teacher who understood her students who were from immigrant-families. At the time I was acculturating, many people arriving in America left behind their old cultures and mixed together. They looked to join the American mainstream culture, which may have had little in common with the country from which they immigrated. Immigrants understood that some assimilation was necessary in order to gain resources such as jobs, schooling, and improved social status, but there were often struggles among immigrant parents and children as to the best way to maintain culture from the country from which they came while embracing mainstream American culture. As I mentioned previously, I experienced this need for balance with my parents. I see similarities with my current students. My Dominican student, Krystal, told her classmates that she had to be home after school everyday to help take care of her younger siblings. She also mentioned that her mother did not want her to stay at school because she didn't want her to have too many friends who were different than her. As I had, Krystal, too, needed to find balance.

During the 1950s as I was growing up in the Bronx, school did not prepare us very well to embrace different ethnicities. The point was to Americanize everyone. In our school at that time, there were very few Black children, perhaps 10 in a school

of 1,000. If we interacted with them at all, it was only in school. We never played together in the streets. These Black children lived only a few blocks away from us but lived in a different neighborhood and within a different culture. There was, as I've noted above, very little interaction between neighborhoods.

This was during the period when a great internal migration was taking place. African Americans were moving from southern to northern cities, and Puerto Ricans were moving from Puerto Rico to the U.S. Most of this migration occurred from 1930 to 1965. The migration of Puerto Ricans was precipitated by economic distress in Puerto Rico. Nearly 100,000 Puerto Ricans settled in New York City by the 1950s (Franklin and Moss 1994). Many eventually moved to the Bronx where rent was more affordable. The neighborhoods were changing, but as a child I was not aware of it.

In the elementary school I attended, I remember there being only one Black boy and one Black girl in my class, which had about 30 students. I don't remember any Puerto Rican students there at all, although there were some in my neighborhood. From kindergarten to 6th grade, we were tracked according to reading level, and most students, including those in my class, stayed together for many years. Our progress from grade to grade together defined the boundaries of our social as well as our academic lives. The school was in a big building with seven grades (K-6). I remember lining up on the first floor of the building by class and the teachers coming to get us to bring us to our classrooms. We left the building in the same way. We all lined up on the first floor of the building at the end of the day and were dismissed from there by our teachers. On Wednesdays we had assemblies and had to wear red, white, and blue. We felt that we were important to our school and community.

In the school district on Long Island where I taught, the elementary school went from K-4, the middle school from 5–6, the junior high school from 7–8, and the high school from 9–12. The school district has many activities that help students feel important to the community as well as the school, but not all students are able to access these services to the same extent. Just as in academics, marginalized students often are not able to access the structures that are available to them. In my class only Torie took advantage of the sports program. The others did not participate in sports or in activities that involved them in the community outside of school. In the 4th grade I became an American citizen. I still remember the ceremony in Manhattan, saying the Pledge of Allegiance, and the certificate that I was issued saying that I was now an American citizen. At the ceremony the judge called all the children onto the auditorium platform. When I looked around, we were all shades, shapes, and sizes, all with smiles. I didn't talk about it with my schoolmates. My friends at school were all born in the United States and were automatically citizens. Either their parents or their grandparents were immigrants, but they were not. I didn't want to call attention to my situation. The experience remains in my memory for another reason. At that time, although I gained my citizenship, my mother did not. My father had become a citizen the year before me, but my mother was afraid to take the literacy tests required to become a citizen. Eventually, at the age of 90, my mother

finally became a citizen. We went together on a day that was set-aside for senior citizens at the Federal Courthouse in Manhattan. As I looked around at the people gathered there, I saw a panorama of cultures similar to the one that I remembered from so many decades before, but many of the people were in wheelchairs or on walkers. My mother, as did all the other potential citizens, had to pass the same literacy test she had been afraid of so many years ago. It was very crowded, and there were a lot of anxious faces. She passed with difficulty. My mother did not go to a citizenship ceremony but a few months later a certificate of citizenship was sent to her. I was as proud of her as I was of myself that day so many decades ago.

There is a connection between my mother's experience of becoming a citizen and that of my students' parents. My mother was afraid to navigate the bureaucracy just as immigrant parents are today when it comes to navigating the school system's bureaucracy. These immigrant parents usually do not come to school to speak to teachers or administrators, and, if they do, their children serve as their interpreters. Sometimes this embarrasses parents and children.

Housing patterns change the Bronx

The early 1960s was a pivotal time of change in the Bronx. I lived in the South Bronx when Co-Op City opened in the northern Bronx, near suburban Westchester County. In a few short years the racial and economic composition of public schools in the Bronx changed drastically. As African Americans and Puerto Ricans moved into the Bronx, White residents who could afford to move did. They moved to suburban areas such as White Plains and Long Island and to northern sections of the Bronx like Riverdale and Pelham Parkway. I moved to Pelham Parkway in 1962.

In *The Bronx,* Evelyn Gonzalez describes how the deterioration of the Bronx began. The Mitchell-Lama law in 1955 provided low-cost mortgages and tax incentives to developers to build middle-income housing. This was meant to help families earning less than $10,000 a year who could not afford an apartment in the city. From 1955 on, the state subsidized housing for the middle class. Many of the original residents felt threatened by racial change and the slums that were spreading. However well intentioned Mitchell-Lama housing was a disaster for the Bronx. The co-ops that were built siphoned off White families from housing that was still in good shape. This left vacancies that were filled by poorer Blacks and Puerto Ricans who themselves were displaced or moving away from slums that were even worse. Gonzalez states that the best example of this was Co-Op City, which was built during the late 1960s. Its 35 buildings with 15,500 apartments encouraged many White Jewish residents to abandon the Grand Concourse neighborhood almost overnight. The Grand Concourse area was where I would begin my teaching career. As more minorities came into the neighborhoods, more Whites moved away.

Every mugging, whether rumored or true, became an incentive to leave. I can attest to this. It was the reason why my parents chose to move to the North Bronx at that time. We could not afford Co-Op City, so we moved into a public housing

project that was mostly White in the Pelham Parkway section of the North Bronx. The Cross-Bronx Expressway also created problems for neighborhoods in the Bronx. It sliced through neighborhoods and destroyed blocks of apartment buildings. Public housing, urban renewal, and highways helped to create slums. Housing created under Mitchell-Lama increased the separation of the White middle class from those who were poorer and disadvantaged. There already had been some economic segregation, but when I was growing up all the ethnicities were living together. Even though we didn't have much contact with each other, we were all of similar economic means.

In addition, landlords and tenants abandoned, vandalized, and burned apartment buildings that had been fully occupied a few years before. The apartment buildings on the Grand Concourse itself were too good to abandon, and the residents there went from being mostly White and Jewish to mostly African American. The streets radiating from the Grand Concourse, however, they were narrow and had been closely packed, with large apartment buildings and few trees. On these streets there was abandonment and arson. Making the arson more possible were the installation of a less reliable fire alarm system and the shuttering of firehouses in places where they were most needed. A delayed fire response meant that fires increased in number and severity (Gonzalez 2004).

These were the streets that sent students to Taft High School, the school where I would find myself teaching in 1969. Previously, Bronx apartment buildings provided homes for families and profits for landlords. Now, however, Bronx landlords had apartment buildings with no tenants. Tenants were sleeping in their clothes with their shoes on, because there was so much arson. I spoke recently to a retired fireman friend who was working as a fireman in the Bronx at that time. He said that people could be seen walking through the streets with their belongings after a fire had forced them out of their building. In addition, some landlords cut down on maintenance, rented to undesirable tenants, collected whatever rents they could, and left.

Living conditions for many tenants in Bronx apartments became squalid. Many of the newcomers were poorer and less educated than former residents, and newly arrived Puerto Ricans often spoke little or no English. There was frustration and a feeling of helplessness among the new residents and the teachers in the affected communities (Urban and Unger 2006). Local businesses and stores went out of business or moved elsewhere. Heroin moved in and became the friend of too many.

JUNIOR HIGH PORTENDS THE FUTURE OF EDUCATION IN THE BRONX

I felt all of this on a personal level, as this change was occurring as I entered junior high school. I was accepted into an accelerated class at Herman Ridder Junior High School. I traveled on two buses to get there. This was at about the time that the demographics of the Bronx began to change because of White flight. Those who had reached the middle class began moving out of Crotona Park. During junior high, my classes were mostly White, while the rest of the school was Black or Puerto Rican. All the White kids stayed together. We never met the kids from the neighborhood

who were Black and Puerto Rican. I don't remember even talking to one student from these ethnic groups. We traveled in bunches through the halls, keeping together. It is interesting to note that when we walked together in bunches, it was accepted, but today at Suburban Junior High the faculty is very uncomfortable with this practice.

When I was in the accelerated track in junior high school, I experienced what would later happen to most of the South Bronx, where schools came to be made up mostly of Black and Puerto Rican students. White immigrant children of an earlier period, both first-generation and second-generation, had benefited from the opportunities that schools had provided, but Black and Puerto Rican students came into schools at a time when there was great turmoil in the society as well as in education. In addition, veteran teachers in schools were unprepared to deal with the diversity that the new minority students brought to the table. I remember that in junior high our teachers told us how grateful they were to have us as students. We reminded them of the way school had been before the White flight.

A special high school experience

I attended the Bronx High School of Science. Then, as they do today, students came from all the boroughs to attend this specialized school and similar ones in the city system. Entrance was and still is by exam. I attended Bronx Science because it was the only special school for which I qualified. When I went there, only one-third of any class was allowed to be female. Today more than half of the student population is female. At the time I went to Bronx Science, it was mainly White. Today, the school's demographics reflect the diversity of New York City as a whole, with dozens of ethnicities represented among its more than 2,600 students. Bronx Science was a place where students and faculty alike experienced the excitement of the motivated mind with a common goal of advancing the self and society. I got a wonderful education there. I wish that others could have had exposure to the same learning opportunities. After high school, I continued my education at Hunter College, where I graduated with a degree in biology and a teaching certificate. I chose a career in teaching because I wanted to help others. I chose a career in science education because I had accumulated so much knowledge at Bronx Science that I wanted to share.

The New York City teachers' strikes

After college I started teaching at a time that coincided with the end of the 1968 teachers' strikes. I was 20-years-old, female, White, and Jewish. The United Federation of Teachers (UFT), the nation's largest union, led a 14-day strike in 1967 and a 36-day series of strikes in 1968, which closed down the nation's largest public school system and threw the lives of one million students and their parents into chaos. The precipitating event that had started the longest strike in 1968 was the introduction of community control of local schools. A local school board in the

mostly Black Brownsville section of Brooklyn began firing its mostly White, Jewish teaching staff. These firings prompted the United Federation of Teachers' strike. Both incidents stirred up racial animosity, particularly between Black parents and Jewish teachers. Members of the union were called racist for opposing the black community's quest for greater self-determination and control over the schools. Behind the decentralization effort was a desire to give minority communities a greater voice in the school system. The strike brought to a halt the city's attempt to decentralize the school system. Union contract protections against arbitrary dismissal were preserved; the teachers returned, and the threat of community control diminished. The Ocean Hill-Brownsville strikes of 1968 left an indelible mark on New York City.

The strike ended and students returned to school, but the issues raised by the strike–bigotry and the future of community control–remained to be sorted out. I was supposed to start teaching in September of 1968 but refused to cross picket lines to do so. When I talked to teachers at Taft High School after I started teaching there, they were haunted by comments they had heard hurled at them during the strikes. Teachers told me that they were called ―white racist pigs, were asked "who's going to protect you when the police leave?" and heard "you are the enemy of the people."

I worked as a laboratory technician at New York University Medical Center until the strikes ended. The United Federation of Teachers comprised 55,000 of the city's 57,000 teachers. The union had wanted to close the schools down completely during the strike, but about 350,000 students were able to attend classes, either in schools that remained open with substitutes and teachers who crossed picket lines or in makeshift classrooms set up by parent initiatives. The strike was illegal under laws at that time, and Albert Shanker, the head of the U.F.T. served a jail term for sanctioning the strike. More than 7,500 union members violated union orders by teaching outside of the union-authorized schools. In many areas parents physically occupied their schools to make sure they stayed open (Kahlenberg 2007).

How the strike was relevant to my subsequent teaching experience

The teachers who found themselves caught up in the strike fell on two sides of the issue. The strikes made it apparent that there is no easy or safe middle ground. On one side were teachers who justly denounced the education taking place in many inner city schools in New York, which they felt programmed poor children for a life of adult poverty. On the other side members of one of the most progressive labor organizations in America, the United Federation of Teachers felt it necessary to assert principles of academic freedom and due process when professionals were dismissed from their posts. This was no simple conflict of right or wrong, but a fight between two rights. No matter which side the teachers involved took, they were educators who passionately believed that they were in the right place.

I finally took my place as a teacher at W. H. Taft High School in the Bronx in the immediate aftermath of the strikes. This assignment had a huge impact on the

formation of my identity as a science teacher. I realized very quickly that I would have to choose carefully which teachers with whom to align myself, as incredible acrimony between those teachers who had crossed picket lines and those who had participated in the strikes lingered after the strike.

Because I had postponed teaching until the strikes were over, I chose sides with those who didn't cross the picket lines, but I tried to be friendly and professional with all. The wounds never healed while I was at Taft. Colleagues who had previously been friends for decades could no longer tolerate each other's presence, and people on both sides tried to influence new teachers by denouncing their former friends.

New York City was racially polarized (Kahlenberg 2007). During the strike many students were not being educated, but many students who attended school after the strikes were not receiving a useful education. The parent-teacher relationship had been transformed from one that seemed to represent an alliance between parents and teachers to one of bitter antagonism. After the strike inadequate schools were still the same inadequate schools, and hostility between Blacks and Whites and between parents and teachers were evident. When the strike was over, ideally those who were on different sides of the immediate issue but who shared common values and concerns should have once more come together. Without that reconciliation the only victors of the situation would be backlash and poverty. Unfortunately, when I started teaching at Taft in February of 1969 (three months after the strike had ended), I mainly experienced anger, backlash, and poverty. The only glimmer of hope was that out of the chaos some opportunities had developed for new teachers to expand their agency, utilize structures, and establish their own identities as science teachers by trying, inventing, and implementing a new curriculum.

My first day at Taft and beyond

My first day as a science teacher at Taft was not what I had expected. I had done my student teaching at my alma mater, Bronx Science, so I was prepared to deal with science questions, not questions of discipline. I had no orientation because I started mid-year. My first-period class on the first day of school had 40 students, and there were not enough seats. After students filled the available seats, others sat on the heaters. During my first break I went into the department office. There the science chairman mainly advised me to lock my door while I was teaching, as outsiders–mostly drug dealers looking to make sales–were often in the building. The rest of my classes that day were equally crowded, and I remember leaving school seriously considering not returning.

Of course, I did return the next day and for four years after that. Things did not necessarily get any better, however. Violence on the streets created by the change in the local neighborhoods had spilled into the schools, as had an epidemic of drugs. Outside, the streets were in chaos. Chaos manifested itself in our school as well. We had no guards, and other teachers as well as the department chairman advised me not to send students to the bathroom, because opening my door would expose me, and my

students to possible intruders. By talking to other new teachers, however, I realized that we could help our students and ourselves by helping each other. We were in the halls between classes and also when we weren't teaching because the school hoped that the teachers' presence would reduce the likelihood of intruders approaching students. We volunteered to spend time with the students in the lunchroom as well. This help was meager, but it was all we thought of at the time. Veteran teachers at Taft bemoaned how good the school had been and how the new students (Blacks and Puerto Ricans) had spoiled it. According to the teachers with whom I spoke, this school had been one of the top schools in the Bronx. Discipline had never been a problem, and the veteran teachers just wrung their hands in despair as they saw themselves losing control of the students. Although these veteran teachers had excellent reputations and thought of themselves as excellent teachers, they did not have success in this new environment.

I still remember to this day how disillusioned I felt as I listened to the veterans as I was trying to form my own identity as a science teacher. They were, unfortunately, part of the problem, not part of a solution. Wesley Pitts (2007) suggests that these experienced teachers may have felt that their core identities as science teachers were being challenged when they were asked to find alternative ways to teach this new population of students effectively. This, Pitts notes, might have elicited a culture of resistance. From my observation, I feel that this may well have been true. Pitts goes further and quotes Richard Valencia (1997, p.8), many adults who develop educational policies for students attribute school failure to students and claim success is due to their own efforts.

The culture of activism nurtured my own will to change my teaching practices

As neighborhoods changed, so did the composition of the schools. Veteran teachers in these schools were unprepared to deal with the new students. It would take several years and a new crop of teachers even to begin to facilitate change. Taft High School became a reflection of its neighborhood. It had been a school of mostly White students and White teachers and became a school of White teachers instructing a student body composed of mostly Puerto Ricans and African Americans. This happened within a span of a few years in the late 60s and early 70s. As owners were occupying Co-Op City, I began teaching in a school that also pitted culture against culture (that of White middle class teachers against that of African American and Puerto Rican students).

In the fall of 1969, a new crop of activists entered the New York City school system as teachers. The Vietnam War had increased the number of males particularly White men entering the teaching work force in the Bronx. These activists were mainly young men seeking a way out of the draft–one way to be released from service in Vietnam was to serve as a teacher in a disadvantaged, underserved urban area (Fosburgh 1969). Many of the men who came to these urban schools were liberal-minded, did not have roots in or prior allegiances to New York, and wanted

to make a difference. Black men were less likely to take advantage of this option because on average they were less able to pay for college (a key requirement to becoming a teacher). Many of the White males who took this option were from the Midwest and ended up teaching in rural and urban communities of color. One of the most pressing problems these activist teachers tried to address was how to reach out to Black students, whom the school system had been failing in disproportionate numbers.

The new teachers were excited to be there and hoped to make changes in the culture of the school. By talking to other new teachers, however, I realized that we could help our students and ourselves by helping each other. We were already in the halls between classes and also when we weren't teaching, and we volunteered to spend time with the students in the lunchroom as well. Here in this school that was changing and we saw an opportunity to create a community at the same time that we forged identities as science teachers. We wanted to create new structures within the school, and we tried to form social networks with other new teachers with similar ideas. We had some opportunities, because the veteran teachers (who in an ideal world should have been helping us) just wanted to be left alone. They were out the door when the bell rang at the end of the day.

New curriculum is invited

Because of the declining academic performance in the school, teachers and administrators were open to any projects that might bring some change. I got a National Science Foundation grant the first summer I was at Taft to attend a two-week seminar at Stanford University on new ways to teach science to disadvantaged students. After my difficult first year the summer at Stanford reinvigorated me and taught me many things that I have subsequently used in my classroom. First and foremost, one of the lecturers at that Stanford teaching seminar, Harry K. Wong, expressed the firm belief that all children could learn and that a teacher's job is to get them interested. He demonstrated some novel hands-on experiments at which students could not fail. I returned with *Ideas and Investigations in Science* (Wong and Dolmatz 1971), which made fruitful use of these sorts of labs to teach science. My students loved cooperative learning, and I tried to encourage others in my school to pursue the program. With the support of my chairperson, soon the whole department was following this hands-on-teaching science program in the non-Regents classes.

Another way that the new teachers tried to make a difference was by adding to the curriculum. The principal at Taft also allowed another teacher and me to develop and teach a psychology class for seniors. We planned to cover college-level psychology material, trusting that the inherent interest and novelty of the topic as well as our rapport with the students would enable the class to be a success. James Gee (2004) could easily have been talking directly to the Taft High School staff of 1969 when he asked, what is it about school that manages to transform children who are good at learning–regardless of their economic and cultural differences, into children who are

not good at learning, if they are poor or members of certain minority groups? It was widely assumed by the administration and other faculty that our psychology class would be a failure. How could our students possibly read college-level articles in the field of psychology? However, our students proved them wrong, engaging with and mastering the material. The class, an elective with prerequisites and grade-point-average requirements, ran for many years as a permanent part of the Taft curriculum and was always oversubscribed.

Students came back year after year to tell us how meaningful the experience had been for them. The students, who were Black and Hispanic, were able to achieve the grade prerequisites in part because they were motivated to join the psychology class. The students saw this as an opportunity to learn in a distraction-free environment. When the opportunity presented itself, they took it and learned.

It was a turbulent time for the Bronx and for its schools. Teachers were unprepared for the changes that were taking place each day. The district where I worked in those years still remains one of the poorest in New York City. Although I left teaching in the Bronx in 1973, I kept in touch with my faculty colleagues for many years. Teachers who had been present during the White flight–the exodus of many White families from places where people of color were moving in–changed schools or retired. The school I had attended was turned into several mini-schools, which, unfortunately, to this day still rank low in the academic standings of the New York City school system.

The importance of the teacher-student alliance

Producing and sustaining solidarity involves continuous effort, not just from the designated leaders but also from the collective (Turner 2002). When I was at Taft, I formed alliances with Black female students, but I never learned their culture, nor did they learn about mine. At that time we were close in age; I was in my early twenties and they were in their late teens. I met some of these students at museums in New York City. We arrived separately, met at an agreed upon place, and we talked as we walked together. Then we went our separate ways.

The culture of urban neighborhoods is often not recognized by teachers who have lived their lives in different types of neighborhoods. In such circumstances the students' cultural capital may be viewed from a deficit perspective. Teachers may want to extinguish the urban culture because they believe that this culture may prevent students from learning science. At that time I felt that way too. It wasn't until 30 years later when I began using cogenerative dialogues (cogen) (Tobin 2014) that I realized there are better ways to understand my students and to help them understand me.

At Taft I started to understand that the only way for students to do science was to do what was familiar to them in their outside lives. They needed to be able to use their cultural capital to produce science culture. They could learn only if structures were in place that allowed them to learn. As a teacher, I needed to provide them with

those structures and to be adaptive. I needed to teach in ways that were appropriate to the students in the classroom. To be an effective teacher I needed my students to have my back, and I needed to have theirs. Using cogen years later, I was able to give back and have their backs.

At Taft during laboratory experiments, I spent a few minutes talking about students' home lives as we worked on science experiments and I walked around the room looking at the students, offering encouragement or asking questions about the experiment. I would overhear comments they were making to each other and would respond if it sounded as if I knew something about what they were discussing. For example, if I heard them talking about a rock and roll song I recognized, I would say I knew the song as well. This led to discussions about the kinds of song I liked and the kinds of song they liked. The Taft students participated in setting the curriculum for my elective courses, and they were very active during hands-on experiments. Looking for possible ways to improve science learning for my students helped form my identity as a science teacher. I realized that laboratory activities offered an excellent way for the goals of the individual and the collective to be achieved. I would continue to focus on laboratory experiments as a way to transform science education for marginalized students. I did collaborative work and had conversations with students that anticipated the research I did later. I was using some of the elements of cogen at Taft. This sort of collaboration between teacher and student is central to my research and to cogen.

THE WAR ON POVERTY LEADS TO A DEFICIT PERSPECTIVE

Responding to a racially and economically divided country in the 1960s, President Lyndon Johnson called for a national War on Poverty. Johnson believed that the poor would lift themselves out of poverty by acquiring the skills demanded by a complex society. He called this the Great Society. One of the places where the Great Society would be built would be in the classrooms of the United States. As a result of the Federal effort, Taft created an annex for college-bound students in 1970. The annex housed students who had maintained grades that would qualify them for college admissions and students who were interested in improving their grades. It had its own set of teachers, so it was similar to what is now termed a mini-school. It lasted a few years, but the budget crisis that affected New York City in the early 1970s brought about its demise.

For all its good intentions the Great Society also led to pedagogical practices across the United States firmly rooted in a discourse of cultural deprivation (Ladson-Billings 1999). This perspective explained the disproportionate academic problems among low-status students as largely being due to pathologies or deficits in their sociocultural background (Valencia 1986). At Taft those teachers who were interested in helping these marginalized students bought into this argument. These deficit-framed pedagogical practices have proven unsuccessful. I have found in my teaching experience that students who don't conform to the dominant culture are often seen as

in need of fixing and teachers may try to replace behaviors that are not mainstream with others that are. I often tried to alter student behaviors. I recommended ways for them to enter the class quietly, talk quietly, and look me in the eye. After having conducted my research, I now realize I was trying to have them behave according to the rules of the dominant culture.

My career on Long Island begins

In 2002 I began the PhD program at CUNY Graduate Center. When looking for a topic for my dissertation I decided to do research on my school on Long Island because Long Island continues to become more racially and culturally diverse. In Suburban School District as well as in others on Long Island, rapid immigration is clearly the predominant cause of this increasing diversity. Since 1990, the Whites have declined from 84% to 72% of the population, and since 2005 the percentages of the population identifying themselves as Black, Hispanic, or Asian has edged up slightly. Hispanics are both the largest and the most rapidly growing minority group, having increased from 6% to nearly 13% since 1990. The Black population increased modestly, growing from 7% to 9% (Long Island Index 2005), but fully one-quarter of the Black residents of Long Island were born overseas (Long Island Index 2005). These data mirror both national and regional trends in terms of the general movement toward greater diversity.

Thirty-five percent of the students got free breakfast in our district at that time, and I had noticed as I stood outside my classroom that many of the students getting free breakfasts were Black. They passed by my room as I monitored the hallway in the morning before school began. I also noticed that teachers who monitored the halls constantly argued with and reprimanded those students as they passed on their way to the cafeteria. The teachers expected students to pass through the halls talking quietly to each other. Some students did pass through the halls quietly. These were mostly the White, Asian, and Hispanic students. In contrast, many Black students talked animatedly and often called out to each other across the hallways. The students were loud and traveled in groups. The teachers in this hallway were White, whereas most or all of the students passing were Black. Some teachers had a confrontational stance towards those students, and many times confrontations did occur. Female students were just as ready as the male students to enter a confrontation with a teacher or with each other. I also witnessed that Black students tended to walk in groups and to stay together as a group.

I witnessed an incident that occurred in the hallway involving one of the students and a teacher in the hallway in front of his room during the time students were passing from one class to another. After this incident the student was very affected and did not want to begin her next class. I feel that if a teacher reprimands a student before she enters the classroom, even if the teacher were not the student's instructor, the student will be less willing to engage in the classroom. This type of incident was common in my school.

Teacher observation as a structure

In 2006 during my yearly observation, I received an unsatisfactory rating for class control, because I did not shut down student behaviors like walking around the classroom, interacting socially with peers, and rhythmically tapping on desks. These are similar to the practices that Elmesky reported in 2003, which were often shut down by teachers. My intuition and experience had led me to the same conclusions that Elmesky reached. The principal summoned me to a meeting and asked me to explain why these practices were not evidence of poor class control. I did not show Elmesky's work, but I pointed out that avoiding shutdowns was a key component of the teaching methodology my research was examining. Pervasive shutdowns, I noted, suppressed important components of the cultural capital of my students, leading to negative emotions, frustration, and ultimately low interest in science on their parts. Even after that meeting and with the administration ostensibly expressing support for my research goals and methodologies, administrators watched me closely for several weeks thereafter. Had I not been a tenured teacher with an otherwise unblemished record, I might have been forced by intimidation from school administrators to discontinue my methodology. This lack of administrative support made it even more important for me to disseminate my findings to other science educators. Eventually, administrators at my school, as well as other teachers, came on board expressing the importance of this methodology, although they did not follow it themselves.

Teaching methods today

Teachers today in science classes across the country are still unprepared when it comes to teaching minority students. They still teach from a deficit perspective rather than by engaging with the cultures of their students. Shutdown strategies are still all too common in science classrooms, and, misunderstanding their students, veteran teachers as well as new teachers think that students are choosing to fail their classes. The use of cogen played an important part in my pedagogy and ultimately resulted in improved science learning in my classroom. The students in my classroom came from a diverse range of ethnic, racial, and socioeconomic backgrounds. My classroom provided a structure for whole-class interactions and offered opportunities for inclusion for all members of the class. Students who participated in conversations acquired more energy and self-confidence and became fully engaged in class lessons.

I found that solidarity emerges gradually and involves the exchange of social capital, cultural capital, and respect, a form of symbolic capital. Goals in cogen create solidarity grounded with a respect for difference and willingness to learn from others. Cogen became a tool to build community in my science class. Students accomplished their own goals as well as the goals of the collective. As a teacher-researcher, I found ways that cogen helped to increase student engagement. There was evidence of a shared mood and entrainment as the individuals in the group synchronized their practices and shared the resources they needed to progress with

the lesson. A community of learners formed and contributed to a positive learning environment. I hoped to find that students in my cogen group were successful in my science class and advanced to AP science classes at the local high school, but this did turn out to be the case.

As a teacher-researcher, I was able to examine the talk in my cogen and in my classroom. I observed alignment and synchrony. I looked for rhythmic patterns of gestures, rocking movements of legs or heads, and stressed syllables that were produced and reproduced in synchrony by members across the classroom. Because the conversations and actions associated with a science lesson were important to me as a teacher-researcher, I used primary data from the videotapes of classroom interactions to produce the transcripts that I then analyzed. When my students communicated in conversation they varied their speaking to communicate subtle cues like energy by being loud, or spontaneity in their expressions. These cues are open to interpretation. Video and audiotapes allowed me to understand the cues accurately (often replaying the tapes over and over to get my interpretation right).

As an immigrant, I have seen that my perspective of the society around me has an effect on the way my students, children from immigrant families, approach their schooling. Ethnicity is a complex and changing notion, one that I have dealt with throughout my teaching career. My current students come from diverse cultures. Their ethnicities, complex and dynamic, and their varied experiences in school helped forge their identities.

REFERENCES

Elmesky, R. (2003). Crossfire on the streets and into the classroom: Meso/micro understandings of weak cultural boundaries, strategies of action and a sense of the game in an inner-city chemistry classroom. *Cybernetics and Human Knowing*, *10*(2), 29–50.

Fosburgh, L. (1969, January 7). Teachers' ranks swollen by men avoiding draft. *The New York Times,* p. 43.

Franklin, J. H., & Moss, J. A. (1994). *From slavery to freedom: A history of African Americans* (7th ed.). New York, NY: McGraw-Hill.

Gee, J. (2004). *Situated language and learning: A critique of traditional school*. New York, NY: Routledge.

Gonzalez, E. (2004). *The Bronx*. New York, NY: Columbia University Press.

Kahlenberg, R. D. (2007). *Tough liberal Albert Shanker and the battles over schools, unions, race and democracy*. New York, NY: Columbia University Press.

Ladson-Billings, G. (1999). Preparing teachers for diverse student populations: A critical race theory perspective. In A. Iran-Nejad & P. D. Pearson (Eds.), *Review of Research in Education* (Vol. 24, pp. 211–247). Washington, DC: American Educational Research Association.

Long Island Index. (2005). *Population Survey, "What every Long Islander should know".* Retrieved from http://www.longislandindex.org/2005_report_key_findings.html

Pitts, W. (2007). *Being, becoming, and belonging: Improving science fluency during laboratory activities in urban education* (Unpublished doctoral dissertation) (p. 29). The Graduate School and University Center, The City University of New York, New York, NY.

Tobin, K. (2014). Twenty questions about cogenerative dialogues. In K. Tobin & A. A. Shady (Eds.), *Transforming urban education: Urban teachers and students working collaboratively* (pp. 177–186). Rotterdam, NL: Sense Publishing.

Turner, J. H. (2002*). Face to face: Toward a sociological theory of interpersonal behavior.* Stanford, CA: Stanford University Press.

Urban, L., & Unger, B. (2000). *Bronx accent: A literal and pictorial history of the borough*. New Brunswick, NJ: Rutgers University Press.

Valencia, R. (1986, November 25). *Minority academic underachievement: Conceptual and theoretical considerations for understanding the achievement problems of Chicano students.* Paper presented to the Chicano Faculty Seminar, Stanford University, Stanford, CA.

Valencia, R. R. (Ed.). (1997). *The evolution of deficit thinking*. Abingdon, England: Routledge Falmer.

Wong, H., & Dolmatz, M. (1971). *Biology: Ideas and investigations in science*. Englewood, NJ: Prentice-Hall.

AUTHOR BIOGRAPHY

Eileen Perman Baker serves as an adjunct professor for universities. Her specialty is science and math education. In addition she serves as the writing fellow for Weekend College at Queens College, CUNY. She worked for the NYC Board of Education as a science teacher in the Bronx, and as a science teacher on Long Island. Her gender and immigrant background make her empathetic to problems faced by students and teachers of science and math.