

AGUILAR-VALDÉZ, JEAN ROCKFORD, Ph.D. DREAMing of Science:
Undocumented Latin@s' *Testimonios* Across the Borderlands of High School Science.
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This qualitative study uncovers the voices of five Latin@¹ students who are high-“achieving” and undocumented and have strong aspirations in science, in a Southern, Title I high school. Through critical race methodology and these students’ *testimonios*/counter-stories, these students’ struggles and successes reveal their crossing of cultural and political borderlands and negotiating structures of schooling and science. The students dream of someday pursuing a trajectory in the field of science despite racial, ethnic, and political barriers due to their undocumented status. I use three key theoretical approaches—Borderlands/Anzaldúan theory (Anzaldúa, 2007), Loving Playfulness/World Traveling (Lugones, 2003), and Latino Critical Race Theory (in which many Latin@/Chican@ studies contribute)—to put a human face on the complex political and educational situations which the students in this study traverse. Data were collected during a full school year with follow-up contact into the present, with over 133 hours immersed in the field, involving 22 individual student interviews, six student focus group interviews, 14 teacher interviews, field notes from over 79 contact hours with participants in formal and informal science education settings, and document review.

This study reveals high-“achieving” students flourishing in formal school science and informal science settings, starting a STEM (Science, Technology, Engineering, and

¹ This study uses the term Latin@, as is the preferred term among Latin@ Critical Race (LatCrit) Scholars (Cantú & Fránquiz, 2010), instead of “Latino” or “Latino/a” to de-emphasize the androcentric or cisgendered “o/a” fragmented terminology regarding individuals of Latin-American heritage, and move towards more inclusive language which incorporates the full diversity and unity of gender among our rich and diverse communities.

Math) club and the first community garden in a Title I high school in their state, to benefit their immigrant-rich community. Each student professes agentic desire to follow a science trajectory but testifies to their struggle with racism, nativism, and state policies of restricted college access. Students persevere in spite of the additional obstacles they face, to “prove” their “worth” and rise above deficit narratives in the public discourse regarding students of their ethnicity and undocumented status, and hold onto hope for legislation such as Comprehensive Immigration Reform (CIR) or the DREAM (Development, Relief, and Education for Alien Minors) Act. These students’ lived realities, identifying as undocumented and DREAM Act eligible, also known as “DREAMers,” show that more work must be done, beyond the Deferred Action for Childhood Arrivals (DACA) permits some have received, before these students’ dreams can be realized. The students’ *testimonios* call for a space in the U.S. where their talents and dreams in science are welcome and can thrive. These students speak to the injustice inherent in shutting out talented youth with potential contributions to make to science due to an immigrant status that was never their choice. Given the dearth of highly skilled and committed contributors to the field of science in the U.S., especially scarce in Latin@ representation, these students’ prospects are vital in an increasingly globalized scientific world. This study makes this case as a deliberate appeal to interest convergence, while also attending to issues of social justice and problematizing the culture of school power that these students must navigate and assimilate into to “prove” themselves. This study adds to the science education research by providing insights into the lives of students who are Latin@ and undocumented, a considerable population in many science classes yet

rarely discussed in science education literature, and elucidating how they negotiate science and science education framed by the larger structures they must face.

Implications of this study suggest new ways of understanding this population in non-deficit ways that advocate changing the public dialogue and taking educational and political steps towards social change in solidarity with this group of students.

DREAMING OF SCIENCE: UNDOCUMENTED LATIN@S' *TESTIMONIOS*
ACROSS THE BORDERLANDS OF HIGH SCHOOL SCIENCE

by

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To the students who came out of the shadows as undocumented and unafraid, to make this work possible—*Yasmin, Oscar, Sergio, Javier, Uriel, Crystal, Silvia, Juan, and David*—Your strength and tenacity humbles me.
Junt@s, siempre, en la lucha.

APPROVAL PAGE

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My mother, Celia Herrera; my father, Arnold Rockford; my brother, Billie Herrera; my sister, Crystal Herrera.

What happens to a dream deferred?

Does it dry up

like a raisin in the sun?

Or fester like a sore--

And then run?

Does it stink like rotten meat?

Or crust and sugar over--

like a syrupy sweet?

Maybe it just sags

like a heavy load.

Or does it explode?

- Langston Hughes

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CHAPTER I
INTRODUCTION

*1,950 mile-long open wound
dividing a pueblo, a culture,
running down the length of my body,
staking fence rods in my flesh*

*splits me
me raja*

*splits me
me raja*

*This is my home
this thin edge of
barbwire.*

*But the skin of the earth is seamless
The sea cannot be fenced
El mar does not stop at borders.
(Anzaldúa, 2007)*

This study represents a mutual journey between the researcher and the participants that would not be possible without the brave students who contributed to it. Throughout this paper underlies the unshakeable conviction that youth are the experts of their own experience, and that the act of speaking back against oppression can be no more articulately or urgently expressed than by those who are experiencing the oppression. Therefore, as I proceed to describe the background, contexts, and approaches of this study, I wish to emphasize that these students who are undocumented and share their *testimonios* and dreams of science in Chapter IV, are intentionally at the heart of this work. It is their lives that are in limbo as the matters in this paper are discussed. It is they who risk the most by coming forward with their hopes, fears, and doubts for their tenuous

futures in science. People-first language is also used throughout this study to describe these students. Sergio, Crystal, Silvia, Juan, and David each bring their stories to this study as an insistence that they are above all else human, with aspirations, dreams, and fathomless scientific futures waiting just beyond the quagmire of current immigration law.

Statement of the Problem

Many within the field of science and science education have noted the increasingly critical shortage of participants in the fields of science and technology in the U.S. (Kettlewell & Henry, 2009; Partnership for a New American Economy, 2012; Taningco, Mathew, & Pachon, 2008). Concurrent with this situation are discussions of the dire need to compete scientifically and technologically as a nation (Domestic Policy Council, 2006). In addition to the already flagging numbers of students in the U.S. prepared and wanting to enter the field of science, there is a further scarcity of representation of people of color in the field of science (National Science Foundation [NSF], 2006). The discourse surrounding this problematic situation often refers to the “leaky pipeline,” where more and more students drop out of the trajectory of entering scientific fields with each successive year of schooling (Chapa & De La Rosa, 2006; Gandara, 2006). The scarcity of students entering majors and pursuing careers in the STEM fields in the U.S. has been called a “crisis” and a “brain drain” in recruitment into science and technology in our country, with a projected shortfall of 230,000 qualified advanced-degree STEM workers by 2018 (Partnership for a New American Economy, 2012). The need is so great that recently, in December 2012, the U.S. House of

representatives voted to pass the “STEM Jobs Act” (H.R. 6429) in which 55,000 visas would be allocated for foreign graduates of U.S. universities holding advanced graduate degrees in science, technology, engineering, or mathematics (STEM). Though it did not pass the Senate and the White House did not support the bill (McNaull, 2012), it is now added to the Comprehensive Immigration Reform (CIR) bill currently being debated in the U.S. senate. This CIR bill, proposed by the U.S. senate and backed by president Obama, calls for immediate green cards to immigrant graduate students who complete a graduate degree in a U.S. university specifically in a STEM field: a proposal called “‘stapling’ green cards to advanced STEM diplomas” by the White House (White House, 2013) and a Senate bill called the Immigration Innovation Act or the “I-Squared” Act, SB 169 (Decker, 2013).

In addition to this increasing void of people, in general, to fill positions in STEM fields, it is of further note that Latin@s are the most underrepresented ethnic/racial group in STEM in the U.S., making up only 4% of the STEM worker population (Matyas, Lowy, & Bruthers, 2012).

Paradoxically, the population of Latin@s in this country is booming. As of the last census in 2010, there are 50.5 million Latin@s in the U.S., making the U.S. home to the third largest population of Latin@s in the world (United States Census Bureau, 2010). This is without considering how many Latin@s who are undocumented may not have participated in the census, which would likely drive this figure higher. This same census showed that Latin@s are now the largest minority in the U.S., comprising 16.4% of the population (United States Census Bureau, 2010). The U.S. census predicts that by 2050,

Latin@s will comprise 30% of the U.S. population, with a projected 132.8 million people. Moreover, the 2010 census reports that of all the children currently in the U.S. under the age of 18, 22% of them are Latin@; of all Latin@s in the U.S., over a third of them are under the age of 18. This affects the demographics of U.S. public schools, where one in five students is Latin@, and one in four Elementary school students is Latin@ (Fry & Gonzales, 2008). Leal (2011) says, “if you want to see the demographic future of America, the best place to look is the public schools” (p. 5). These issues are also locally relevant as the Southern state in which this study took place has one of the largest Latin@ growth rates in the nation from 1989–2009, having increased by over 1,000% (Department of Public Instruction [DPI], 2009). This growth is especially relevant given that of the total Latin@ population in the U.S., 35% are under the age of 18, which projects a large increase in the next few decades of young Latin@s entering the U.S. workforce (United States Census Bureau, 2010).

Despite this demographic shift, all of the bachelor’s degrees awarded to Latin@s in science, math, and engineering combined accounted for only 6% of all degrees awarded, and only 1% of all Masters and 2% of all doctoral degrees (NSF, 2006). Furthermore, the percentage of Latin@s with a degree in any field is 11.5% compared to African Americans at 17.5% and Whites at 34.1% (Gandara & Contreras, 2009, p. 24). Latin@s also have the highest high school dropout rate (of 16–24 year olds, including General Equivalency Diploma [GEDs]) in the nation, at 17.6% in 2009 compared to 9.3% for African Americans and 5.2% for whites (National Center for Education Statistics

[NCES], 2010). Moreover, the dropout rate for Latino males in 2009 was 38.68% (Noguera, Hurtado, & Fergus, 2012, p. 28).

In addition to the issues Latin@s face as a whole, there is a subset of the Latin@ population that faces additional immigration concerns, either personally or by relation to a family member. It is estimated that there are 11.2 million immigrants who are undocumented living in the U.S., and the number of children born to a parent who is undocumented in the year 2010 was 350,000 (Pew Hispanic Research Center, 2011). Further, immigrants who are undocumented have been approximated to comprise 3.7% of the nation's population and 5.2% of its workforce (Pew Hispanic Research Center, 2011). Of all the immigrants who are undocumented living in the U.S., roughly four out of five are Latin@ (M. Lopez, Taylor, & Morin, 2010). Based on a 2010 survey of 1,375 Latin@ adults, 61% of Latin@s say that discrimination against Latin@s is a "major problem" that prevents them from succeeding in the U.S., with the plurality attributing this discrimination to immigration status. More than half (52%) said they worried "a lot" or "some" that they, a family member or a close friend could be deported (M. Lopez et al., 2010), with one in seven saying that in the past year, they have participated in a protest or demonstration in support of immigrant rights (M. Lopez et al., 2010). With such a strong force of Latin@s and Latin@ immigrants who are undocumented in the U.S. so intermeshed with our society and so passionate about social change and immigration reform, it is timely that this large demographic be discussed in terms of their role in our science classes and in the field of science. Only recently has attention been paid in the education literature to the issues of the Latin@ population who is undocumented in

educational settings (e.g., Huber, 2010; J. Lopez, 2010; Perez, 2009), but there have been few, if any, studies about students who are Latin@ and undocumented in science education. This dissertation endeavors to fill this void by examining the lives of students who are Latin@ and undocumented with specific attention to issues relevant to them in science education.

The population of those who are undocumented is important to consider in educational research and in considerations of the future of science and science education due to the fact that an estimated one third of the immigrant population in the U.S. is undocumented, and approximately two million of these are children attending U.S. public K-12 schools (Gonzales, 2009). Of these, approximately 65,000 students who are undocumented graduate from high school every year, yet only 7.5% of these ever go on to attend college (Immigration Policy Center, 2012). In the state in which this study was conducted, an estimated 1,500 students who are undocumented graduate from high school every year (S. Brown, 2012). All of these children who are undocumented came to this country as minors, with no legal culpability for the immigration policies they are accused of violating, as determined by the Supreme Court's *Plyler v. Doe* (1982) decision.

Many of these students, like those in this study, grew up alongside citizens within American culture, speaking English and belonging with their classmates as American high school teenagers. And yet, these children face harsh consequences as a result of their undocumented status, regardless of how much they achieve in school or how valuable their potential contributions could be. Children who are undocumented currently have no

clear path to citizenship, no “line” to get into to become citizens (Gonzales, 2009), even as they have grown up in the U.S. and many do not even remember their birth country. Recently, children who are undocumented, are 16 years of age or older and have been in the U.S. for at least five years, can apply for a stay from deportation and a worker’s permit through the Deferred Action for Childhood Arrivals (DACA) policy instituted on June 15, 2012. However, this permit gives no permanent legal status, path to citizenship, or any other right, and students are still faced with a future in which their possible deportation is “deferred” for two years at a time, pending DACA renewal, and their permit is subject to nullification by the executive administration in power at any time. As of the writing of this dissertation, proposals by a bipartisan group in the Senate and President Obama have put forth Comprehensive Immigration Reform (CIR) proposals which would offer a special pathway to citizenship to immigrants who are undocumented and were brought here as minors, similar to the DREAM (Development, Relief, and Education for Alien Minors) Act, which is currently being debated by the U.S. Congress.

Currently, in the state in which this study was conducted, students who are undocumented face a schizophrenic existence. They are guaranteed a free K-12 public education under the *Plyler v. Doe* (1982) Supreme Court decision, yet are denied in-state college tuition at all public universities and community colleges. Furthermore, they are denied all forms of state or federal financial aid. Even if they were able to pay the out-of-state tuition rate, in this state’s university system, out-of-state tuition ranges from \$10,000 to \$20,000 annually compared to in-state tuition which ranges from \$1,500 to \$4,000. Additionally, students who are undocumented must give up their seat in any class

in which enrollment is overfilled and a citizen wants their seat in the class, and they are prohibited from being granted any professional licenses (The Code/Policy Manual, 2007). Finally, the state public university system's School of Science and Mathematics holds a special additional addendum in which it will only admit legal residents (The Code/Policy Manual, 2007). The prohibitive policies in place that prevent students who are undocumented from facility and affordability of a college education has led many high school students who are undocumented to drop out of school, feeling that completion of high school is meaningless if they are prohibited from equal access to college (Potochnik, 2010). Trapped in a legal impasse with no remedy save deportation to a country these students hardly remember, many have been advocating the passage of the DREAM (Development, Relief and Education for Alien Minors) Act since 2001. This law, if passed, would provide a mechanism by which students who are undocumented and have lived in the U.S. since childhood may apply for legal permanent resident status if they graduate from high school and attend college or serve in the military for two or more years. However, as of the writing of this dissertation, the DREAM Act has not passed and these students who are undocumented still face considerable obstacles towards attending college, and no path towards U.S. citizenship. The current proposals by the U.S. Senate and the President towards Comprehensive Immigration Reform are a ray of hope for these students, as President Obama said at his inauguration address, "Our journey is not complete until we find a better way to welcome the striving, hopeful immigrants who still see America as a land of opportunity; until bright young students and engineers are enlisted in our workforce rather than expelled from our country" (Obama, 2013, para. 6).

Students who are undocumented also must contend with deficit perspectives in the public discourse and in societal perceptions, hostile anti-immigrant nativism, and dehumanization through a dominant narrative that permeates U.S. media and mainstream perceptions, and affects their educational prospects and feelings of self-worth (Murillo, 2002). The dominant, or master narrative, is the taken-for-granted story of “the way things are” that is accepted in mainstream discourse as “truths” or “common sense” and is constructed to paint those in positions of power (such as whites, males, citizens, etc.) in a positive light while depicting those in down-power positions in a negative light. In this study, the students often push back on dominant narratives they hear from the public discourse such as television, radio, and hostile encounters with anti-immigrant individuals. It is important to note that the teachers in this study, Ms. Grey and Mr. Aaron, are not considered among those that perpetuate deficit master narratives about these students. Indeed, the students in this study consider these teachers as deeply caring about and believing in them. Montecinos (1995) describes how

The use of a master narrative to represent a group is bound to provide a very narrow depiction of what it means to be Mexican-American, African-American, White, and so on [...] A master narrative essentializes and wipes out the complexities and richness of a group’s cultural life [...] A monovocal account will engender not only stereotyping but also curricular choices that result in representations in which fellow members of a group represented cannot recognize themselves. (pp. 293–294)

This master narrative in the public discourse renders Latin@s and immigrants who are undocumented as intellectually inferior and unable and unwilling to achieve educationally (J. Lopez, 2010). The dominant narrative heard in many parts of the public

discourse often depicts Latin@s as naturally prone to being criminals, being dirty and unclean, being oversexualized and unfit parents, and unworthy of basic resources such as education or healthcare as they are depicted as less-than-human (J. Lopez, 2010; Murillo, 2002; Villenas, 2002).

Furthermore, Latin@s and immigrants who are undocumented have had what is called a “Latino threat narrative” (L. Chavez, 2008) constructed around them in which Latin@ immigrants are depicted as a hostile “invading” element that is “flooding” the allegedly non-Latin@ domain of the U.S., “polluting” the U.S. with their presence, and refusing to assimilate to the English-speaking cultural expectations of the country they have “invaded,” thereby destroying the American way of life (L. Chavez, 2008). The Latino Threat Narrative lends credence to the construction of Latin@ immigrants who are undocumented as not human, but rather as some “illegal” force, delegitimizing their humanity and transforming them into an “illegal alien” object, or worse, turning an adjectival description of their immigrant status into a noun to denote their entire identity: an “illegal.” This makes it possible, for those that subscribe to the dominant narrative, to lack empathy and disregard these immigrants’ human needs, and see them as an “Otherized” objectified “virus” that can be easily spurned and scapegoated. Anti-immigrant laws are then passed against the integration or social mobility of this objectified “other,” without concern for the effects of those laws on this group’s struggle, trauma, living conditions, internalized self-image, or ability to survive. In this way, many Latin@ families, where even one family member is undocumented, live in fear of having their family torn apart by deportation, especially children being separated from their

parents, due to these anti-immigration laws. An unforgiving “punishing” narrative evolves in which this group, even its children, should be continually “punished” for their status as undocumented, due to perceptions and laws constructed through this master narrative (L. Chavez, 2008). At the source of these problems, “the idea that some lives matter less is the root of all that’s wrong with the world” (Farmer, as cited in Kidder, 2009, p. 294).

Given these realities, I frame the research problem for this study around the need to humanize the “crisis” of Latin@ underrepresentation and the leaky pipeline into science in light of a subset of high-achieving Latin@ students who are undocumented and hold high aspirations towards careers in science, and yet are stunted by deficit perspectives and structural barriers that prevent them from achieving their dreams in science. This study concerns itself with uncovering these lived experiences—from the voices of the students themselves—that underlie the issues raised in this section, as well as how Latin@ students who are undocumented negotiate the borders and worlds within these realities with regard to their science education and what it means for them in regards to their science aspirations. Although much has been written within science education literature surrounding the concepts of funds of knowledge, third space, and hybridity within cultural navigations of school science (e.g., Calabrese Barton & Tan, 2009; Tan & Calabrese Barton, 2008a, 2008b, 2010), this study offers a different way to look at negotiation within cultural boundaries within science education, using the concepts of borderland theory (Anzaldúa, 2007) and world traveling and loving playfulness (Lugones, 2003), which have rarely been used in the science education

literature. I focus primarily on Latin@ narratives that speak truths to power, called *testimonios*, in an effort to uncover their stories and translate them into flesh, in order to enrich understandings of this population and the issues they face within science education research.

Theoretical Framework

My framework and worldview within this study is marked by a critical perspective and attention to oppressions, especially regarding race, ethnicity, and immigration status. This framework leads me to gaze through the lens of Latin@ Critical Race Theory, or LatCrit. Through this lens, I see the connections between the status quo and the culture of power (Delpit, 1995) more clearly. Through a LatCrit lens, the particular racial, ethnic, linguistic, economic, political, and cultural oppressions specific to Latin@s and immigrants who are undocumented comes into focus. With this focus, this study looks critically at the Latin@ underrepresentation and science pipeline issues mentioned earlier, as fallout from multiple oppressions. However, LatCrit helps me not only see the struggles of the participants in the study, but also how the adversities faced by Latin@ immigrants who are undocumented can be reframed into unique flavors of perseverance and strength. It is this attention to the participants' resilience and tenacity that helps put forth their stories in ways that counter the narratives in dominant cultural discourses which paint them as a deficit, as illegitimate players in the academic and scientific world, and further, in the U.S. itself. Through this lens, too, master narratives are exposed and refuted with immigrants' own voices and experiences through counter-narratives, told through *testimonio*.

In addition to the LatCrit theoretical perspective which draws from many interconnected Latin@/Chican@ scholars (e.g., Delgado Bernal, 2002; Huber, 2010; Irizarry, 2012; Pizarro, 1999; Solórzano & Yosso, 2001a), a deeper understanding of the participants' *testimonios* is gained through the use of Borderlands/Anzaldúan theory (Anzaldúa, 2007) and the theories of Loving Playfulness/World Traveling (Lugones, 2003). This study offers an approach to cultural negotiation involving Latin@s in science that adds to the science education literature's discussions on third space and hybridity, through its usage of borderlands theory, with its concepts of the *New Mestiza* and *Nepantla* (Anzaldúa, 2007), and world traveling and loving playfulness (Lugones, 2003), which have rarely been used in the science education literature. Through a borderlands/Anzaldúan framework, students' lived realities can be seen as crossing multiple dimensions. This lens troubles binary, either-or depictions of these students' experiences and identities, and honors the complexities and hybridities that enable the negotiations of their realities. The additional Loving Playfulness/World Traveling lens enables a view of these students as plural beings with the ability to "play" within many "worlds" and construct multiple selves to contend with dominant realities in ways that help them thrive. Lugones's (2003) and Anzaldúa's (2007) concepts also come from a space of understanding what it means to be Latin@ in the U.S., and adds a distinctive Latin@ cultural epistemology to the ongoing conversation of hybridity and third space in the science education literature. These lenses, when combined with the overarching approach of LatCrit, help us see the bigger picture as the students share their *testimonios*:

where their struggles are also mediated by their agency and tenacity in ways that honor their complex and multidimensional humanity.

Purpose of the Study

The purpose of this study is to amplify the voices and lived realities of Latin@ students who are undocumented and have strong aspirations in science. The study attends to the students' traversing of cultural norms and boundaries within their formal and informal high school science experiences and beyond. This study explores the meanings and motivations of these students' achievements in science realms such as their honors and AP/IB science classes, their STEM Global Education (SGE) club and community garden through the students' own testimonial accounts, but also through ethnographic participant observation. In doing so, the study aims to better understand how culture, politics, and master narratives are at play within these students' experiences with science and schooling, in ways that are unique to these high achieving, low-income Latin@ students who are undocumented, and explores the specific circumstances and borders surrounding the worlds these students negotiate. The study endeavors to use these students' self-authored narratives to push back against deficit perspectives of these students' authentic knowledges emerging from their unique marginalized experiences (M. Chavez, 2012). As such, this study puts forth *testimonio* as a vital tool with which Latin@ high school science students who are undocumented can convey their negotiations and crossing of cultural borderlands from their respective linguistic, socioeconomic, political, and cultural backgrounds to ultimately create new politically-informed meanings for why and how these students engage in science and schooling, and

to what ends. As the economic and scientific needs of the U.S. press upon science educators' concerns for inspiring the next generation of scientists; and as the Latin@ and DREAMer population in K-12 schools becomes more prominent, this study purposefully puts forth the voices of students who speak their truths between these dimensions to inform stakeholders of their humanity, as well as their talents and potential in science.

Research Questions

Flowing from the purpose of this study, this overarching research question emerges: How do the *testimonios* of these high-achieving Latin@ high school science students who are undocumented—which tell of their lived realities as students, as undocumented, and as aspiring scientists—inform conversations on equity in science education; sociopolitical issues that affect science in the U.S.; and access to futures in science for Latin@ students who are undocumented? Below are sub-questions that elaborate on this main research question:

1. How do these students negotiate the borders and worlds of school, science, family, immigration status, and other sociopolitical educational realities such as access to college and careers in STEM given their undocumented status?
2. How do these students engage and counter master narratives about their abilities and futures in science?
3. What can the voices and knowledges of these students contribute to the increasingly global economic and scientific future?

Definition of Key Terms

In order to elucidate the meanings I give to common terms throughout this paper, I operationalize key terminology below, as well as within the text, when it first appears.

Borderlands: Anzaldúa (2007) considered multidimensionality of identity as being a crossing of “borderlands” as individuals traverse and negotiate social and cultural terrain. Anzaldúa considered that each of us is hybrid, inclusive, a mixture and many-voiced, and that we build our identities most noticeably at the “crossroads” between worlds, at the borders and intersections. It is a place of struggle and negotiation. “A borderland is a vague and undetermined place created by the emotional residue of an unnatural boundary. It is in a constant state of transition. The prohibited and forbidden are its inhabitants” (Anzaldúa, 2007, p. 25).

Counter-Story/Counter-Narrative: This study uses Solórzano and Yosso’s (2002) definition, which says “we define the counter-story as a method of telling the stories of those people whose experiences are not often told (i.e., those on the margins of society). The counter-story is also a tool for exposing, analyzing, and challenging the majoritarian stories of racial privilege” (p. 32). The majoritarian or master narrative is the common ideas, stories, histories, and understandings that are frequently told in public discourse and accepted as truth. They often depict those in non-dominant positions in a negative or deficit light. It is important to note that the teachers in this study, Ms. Grey and Mr. Aaron, are not considered among those that perpetuate deficit master narratives about these students. Deficit master narratives are often cited by the students as being heard from pundits, politicians, and law enforcement officials on television, radio, and

particular anti-immigrant, anti-Latin@ figures in their communities (cf. Yosso, 2002).

Counter-Story and Counter-Narrative, as told by the oppressed, are key elements in Critical Race Theory and Critical Race Methodology (Solórzano & Yosso, 2002).

Decolonization: In general, decolonization is about undoing colonialist epistemologies that frame Western, imperialist peoples and cultures as more legitimate, and entitled to “oversee” and be an authority over others who are not of Western, dominant cultures. This study focuses heavily on decolonizing research methodologies by deconstructing the typical, positivistic researcher-researched relationship, which is rife with power relations over those “researched,” and dehumanizes participants and renders them as objects. Decolonization of research methodologies entails working in solidarity *with* participants towards a common liberation (Tuhiwai Smith, 1999), and not researching *on* participants for the benefit of the dominant.

High-Achieving: The students in this study are defined as high-achieving based on the definition by McCoach and Siegle (2003) which considers high-achieving students those who not only get good grades in classes and assessments, but also pursue highly challenging courses, voice confidence in grasping complex concepts at school, feel as though they are self-disciplined to do well in school, and value doing well in school.

Lived Reality/Lived Experience: The concept of a person’s “lived reality” or “lived experience” is often used in Critical Race Theory and LatCrit to describe the experiential knowledge specific to people of color. Critical Race Theory centralizes this experiential knowledge as

critical to understanding, analyzing, and teaching about racial subordination in the field of education. In fact, CRT and LatCrit educational studies view this knowledge as a strength and draw explicitly on the lived experiences of the students of color by including such methods as storytelling, family history, biographies, scenarios, parables, *testimonios*, *cuentos*, *consejos*, chronicles, and narratives. (Solórzano & Delgado Bernal, 2001, p. 314)

Nepantla: The place and experience that Anzaldúa (2007) describes as being “between worlds,” a place of transition during crossing borderlands, where tension and transformation can take place: “living in this liminal zone means being in a constant state of displacement—an uncomfortable, even alarming feeling. Most of us dwell in *nepantla* so much of the time it’s become a sort of ‘home’” (Anzaldúa & Keating, 2009, p. 243).

Testimonio: Described as “stories of our lives, to reveal our own complex identities” (The Latina Feminist Group, 2001, p. 1). *Testimonio* is a “crucial means of bearing witness and inscribing into history those lived realities that would otherwise succumb to the alchemy of erasure” (p. 2). *Testimonio* is also an avenue for catharsis as “a verbal journey of a witness who speaks to reveal racist, nativist, classist, and sexist injustices they have suffered as a means of healing, empowerment, and advocacy for a more humane present and future” (Huber, 2009b, p. 644).

World: Lugones (2003) defines a “world” as any construction of people with a set of ways of being and doing that define them. These ways of being and doing can be associated with Goodenough’s (1981) ideas of culture or K. D. Gutiérrez and Rogoff’s (2003) repertoires of practice.

Delimitations and Limitations of the Study

This qualitative study investigates the particular experiences and first-person narrated life histories of a group of high-achieving Latin@ high school students who are undocumented and have aspirations in science. No claim to generalizability of these students' experiences to other situations is made, nor should be inferred. Generalizability "in the statistical sense cannot occur in qualitative research" (Merriam, 2009, p. 224). The students in this study speak only for themselves, but yet speak of larger structural issues that affect many students across the U.S. As with a qualitative narrative approach, "sample sizes in narrative studies are small and cases are often drawn from unrepresentative pools. Although a limitation, eloquent and enduring theories have been developed on the basis of close observations of a few individuals" (Riessman, 1993). In this way, these students' individual *testimonios* can still lead to transferability to other similar individuals or circumstances (Lincoln & Guba, 1985) and broader understandings of the political and social situations that these students navigate, even if their particular negotiations with larger structural realities are unique to them. By focusing on the voices of particular students, as is this study's approach, what is lost in generalizability is offset by offering concrete insights into the lived experiences of being Latin@, undocumented, and yet a high-achieving high school student with aspirations in science, directly from the experts of this experience, the students themselves, in complex specificity.

I also remain aware throughout the study that I, as the researcher, am an integral instrument within the study, and shape the study accordingly through my own perceptions and interactions (Merriam, 1998). However, as this study is approached

through critical race methodology, I make no effort at objectivity, and intentionally remain reflexive about my biases that emerge from my cultural, historic, and political subjectivity and my critical beliefs and assumptions. Undoubtedly, my subjectivity rubs against the places where I interact with my participants and influences the study, and my interpretations from the study, accordingly. While I try my best throughout this paper to reflect my understandings, which side with the subaltern in this study, I also note how my activist researcher approach (Dyrness, 2011) in this study leads more resolutely to the candid and transformative narratives that result.

Significance of the Study

Few if any studies have explored the lived realities of high-achieving Latin@ students who are undocumented and of a low SES, with strong aspirations in science as they navigate ninth- and 10th-grade honors level high school science classes across the cultural norms and political obstacles they must traverse. Neither are there many studies that look at how students navigate being prohibited by state law to equal access to higher education while maintaining aspirations and college readiness to major in STEM fields. This study adds to the breadth of knowledge regarding high-achieving Latin@s who are undocumented in a Southeastern state which has one of the largest growing populations of Latin@s in the nation, and does so by sharing their authentic voices and stories through *testimonio*. The use of LatCrit as a framework, and *testimonio* as a means to relate student experiences, has not been routinely used to inform science education research. And yet, the direct first-person accounts of these students' voices and stories, which *testimonio* can provide, can be helpful to education scholars and science educators,

by offering insights into these students' experiences that cannot be offered by most other means of data collection or analysis. Given the growing population of Latin@s in our schools and the increasing controversy and media attention to the issue of immigrants who are undocumented, compounded with the underrepresentation of Latin@s in science, the authentic perspectives of these students are vital to understanding these complex political and structural realities.

This study uses a critical and activist approach to trouble dominant narratives and deficit perspectives that too often permeate social and educational discourse. The experiential knowledge the students in this study offer can provide an opportunity for new awareness for educators who work with Latin@ and immigrant populations who are undocumented. Through putting a human face to the sociopolitical issues these students contend with, educators, politicians, and other stakeholders can more easily connect with the issues involved and see them in a less abstract and detached manner. Insights into how these students remain high-achieving and hopeful despite their barriers and challenges can help teachers to more deeply understand how students who are undocumented may succeed in, struggle with, and negotiate cultural expectations of schooling and science in ways that are complex and multidimensional. This study also offers teacher educators substantial student *testimonios* which can be shared with preservice teachers to help understand the issues that Latin@ students who are undocumented, which may likely be part of their future classrooms, face through their personal stories. Stories told in a *testimonio* tradition, as this study does, are powerful in their ability to ground others in the human experience, and also to extend solidarity with

others who share their struggles (Saavedra, 2011b). The stories told and the critical approach used in this study are also significant to students and their allies who face similar oppressions as those related here—and did not know there were others like them—fighting similar battles. This study is put forth as an act of scholarly activism in solidarity with students such as those whose voices make this study possible. This study is a plea, a challenge, and a source of understanding to policymakers, politicians, and all stakeholders to work toward a more socially just approach to education, particularly science education, that hears these students’ voices and recognizes their potential. Through the combined voices and reasoning in this study, recommendations are made for changes in educational and immigration policy at the state and national level that are not only beneficial for our economic and scientific future, but also which are affirming of a more equitable and inclusive humanity.

Summary of Chapter I

This chapter gives an overall description of this study, discusses the social and political issues that Latin@s and immigrants who are undocumented in the U.S. are facing, and discusses the science and technology workforce gap and the “leaky pipeline” in science, of major concern to those in the field of science education. This chapter introduced its framework and its focus on students’ voices and lived experiences, which will be discussed in greater detail in Chapters II and III. The purpose of the study is discussed with regard to uncovering the lived realities of Latin@ science students who are undocumented, along with the significance of the study regarding its focus on Latin@s who are undocumented within science education. The research questions,

limitations, and delimitations of the study were also presented within this chapter. Some key terms that appear repeatedly throughout this study were defined. In the next chapter, I present the three conceptual frameworks that work together as a *bricolage* (Kincheloe, 2001) to inform this study; namely Latin@ Critical Race Theory, Anzaldúan Borderlands Theory, and Lugones's (2003) theory of Loving Playfulness/World Traveling. I will also review the various areas of literature that are interconnected with these conceptual frameworks, including Latin@/Chican@ studies, critical pedagogy, and science education research for social justice.

CHAPTER II

FRAMEWORK OF THE STUDY AND REVIEW OF THE LITERATURE

What do we do? We focus our work on addressing the many forms of racism and their intersections with sexism, classism, and other forms of subordination.

Why do we do it? The purpose of our work is to challenge the status quo and push toward the goal of social justice.

How do we do it? We work by listening to and reading about the experiences of People of Color and approaching our work in a transdisciplinary fashion.

(Solórzano & Yosso, 2001a, p. 475)

The purpose of this study is to present the knowledges and lived realities of high-achieving @ high school students who are undocumented, with strong aspirations in science, within the context of their experiences with formal and informal science education and the larger structural realities with which they contend. In this chapter, I will situate this study within the lenses of Borderlands/Anzaldúan theory (Anzaldúa, 2007), Loving Playfulness/World Traveling (Lugones, 2003), and Latino Critical Race Theory (in which many scholars within Latin@/Chican@ studies contribute), and also discuss the underlying epistemologies that inform these three frameworks emerging from Critical Race Theory (CRT) and Chican@/Latin@ studies. I will also discuss some of the pertinent literature that informs this study surrounding equity and social justice in science education. Finally, I will connect these frameworks and studies with my research questions and with the approach to *testimonio* in this study.

Framework for the Study

This research is grounded in three interconnected frameworks: Latin@ Critical Race Theory (LatCrit), Borderlands/Anzaldúan theory (Anzaldúa, 2007) and the theories of Loving Playfulness/World Traveling (Lugones, 2003). These three frameworks have underlying epistemologies that will also be discussed as they inform the three frameworks to be used in this study. These epistemologies are Critical Race Theory (CRT) and Chican@/Latin@ studies. This dissertation implements the LatCrit lens as an overarching perspective in which to name and describe the issues surrounding Latin@ and undocumented immigrant struggles with power and oppression often at the hands of a deficit model within the master narrative. This uncovers the realities of Latin@ immigrants who are undocumented in the U.S. in order to establish the need for change. Then, this review will discuss the approach it takes to *testimonio* as it connects to the aims of LatCrit, to describe how this study's three frameworks and the study's reliance on *testimonio* complement this study's research questions.

CRT and LatCrit

Critical Race Theory (CRT) uses race as an analytic tool to understand inequity (Ladson-Billings & Tate, 1995) by exposing facets of our social condition that act as tools to subordinate some racial and ethnic groups and give privileges to others (Solórzano & Yosso, 2001b). Although CRT started as a framework for legal analysis, it has evolved to inform analysis of educational praxis (Delgado & Stefancic, 2001; Lynn & Parker, 2006). CRT has its roots in activism from its early applications in the legal system. It is part scholarly pursuit of understanding of our social structure, and part

advocacy for social change of injustices within these social structures. Activists, lawyers, and legal scholars originated CRT in the mid-1970s in order to move forward the then-stalled legal issues of the Civil Rights movement (Delgado & Stefancic, 2001). Derrick Bell was one of the leading founders of CRT. Among the powerful concepts Derrick Bell introduced within CRT was *interest convergence*, or material determinism (Bell, 1979), which he presented through examining the *Brown vs. Board of Education* decision, arguing that it passed more because of how it would behoove the self-interest of Whites in power than because of any moral obligation towards equity or social justice for African Americans. Bell proposed that social change often is *granted* by those in power, if they feel that there is something in it for them: little happens through moral conscience alone. Bell argued that because African Americans were pushing for acknowledgement of their civil rights through activism and legal remedies such as *Brown vs. Board of Education*, Whites in power saw an opportunity at the right time and the right place to economically benefit from African Americans returning with skills from war, as well as an opportunity to improve their tarnished image, just as civil unrest mounted. This coalescence of white self-interest with the demand for civil rights from people of color led to social and legal change because interests converged. This concept will be applied with criticality and realism to the issues presented in this study regarding students who are undocumented with strong science trajectories, and the possible convergence of interests with economic and social systems of power in Chapter V.

CRT has several distinct approaches that subsequently lead to transformations that allow for greater equity in education. First, it tries to understand the (often tacit and

subtle) realities within the current ways that power and oppression function, and in doing so, uncovers them so they can be less easily ignored: “It is through knowledge and critique that individuals can come to understand what changes need to be made. Eventually such individual understandings can reach a critical mass sufficient to tip the scales” (Vargas, 2003, p. 5). This knowledge and critique often comes about by continually asking the question of who benefits from the status quo, and examining the intersection of race and property that explains why the status quo is so zealously guarded by those in power. Next, CRT attempts to “explore the ways in which we can transform our society” (Jennings & Lynn, 2005, p. 16) by offering strategies that amplify the voices of the marginalized, so as to begin the dismantling of the structures that silence them. Often, this work is done through narratives and counter-stories voiced by those very people who struggle personally with oppression (Fernández, 2002; Solórzano & Yosso, 2002). Lastly, CRT holds fast to the tenet of hope for a different future through a “liberatory or transformative response to racial, gender, and class oppression” (Solórzano & Yosso, 2001b, p. 2).

This study is particular to the lived realities of Latin@ immigrants who are undocumented, and so the framework of CRT utilized in this study is augmented by the specific approach of Latino Critical Race Theory (LatCrit). LatCrit theory looks beyond the original Black/White paradigm of CRT, and examines power and oppression as it connects to issues most felt by Latin@s (e.g., race, ethnicity, language, national origin, gender, politics, culture, and immigration), and how these function to “otherize and politically disenfranchise” Latin@s and Latin@ immigrants (Lynn & Parker, 2006, p.

263). The specialized focus of LatCrit is informed by the unique issues Latin@s face in the U.S., which cause them to become “a racialized group subject to different types of racial discrimination” (Lynn & Parker, 2006, p. 264). Through the LatCrit branch of CRT, the concept of racist nativism gets uncovered (Huber, 2009a, 2010; Huber, Lopez, Malagon, Velez, & Solòrzano, 2008), which lays bare the issue of Latin@ oppression caused by the nationalistic, ethnocentric, and bigoted attitudes against “the other” that direct themselves against Latin@ “differences” from the dominant White culture. An example of this dominant narrative towards Latin@s exists within O. Lewis’s (1963) book on “the Children of Sanchez,” which blames Latin@ families for being innately beholden to a “culture of poverty” which makes them unable to engage with the more advanced dominant culture educationally or economically. Another example of this dominant narrative is the pervasive and misguided idea of nativism, where whites are considered the “true” natives of the U.S. and entitled to decide who is worthy to inhabit the U.S. (Huber, 2009a), ignoring the fact that whites are themselves immigrants from Europe.

By centering its focus on the narratives of Latin@ struggle, sometimes called *testimonio* (Huber 2009b, 2010; Saavedra, 2011b), the LatCrit lens originates from the authentic realities, positions, and voices of Latin@s as “critical ways of knowing” and naming the fundamental issues at play for Latin@s and Latin@ immigrants (Fernández, 2002). By uncovering the issues relevant to Latin@s through their direct voices and experiences, “LatCrit gives credence to culturally and linguistically relevant ways of knowing and understanding and to the importance of rethinking the traditional notions of

what counts as knowledge” (Delgado Bernal, 2002, p. 109). LatCrit theory is definitively operationalized in the *LatCrit Primer* (2000), which holds that

A LatCrit theory in education is a framework that can be used to theorize and examine the ways in which race and racism explicitly and implicitly impact on the educational structures, processes, and discourses that effect people of color generally and Latinas/os specifically. Important to this critical framework is a challenge to the dominant ideology, which supports deficit notions about students of color while assuming “neutrality” and “objectivity.” Utilizing the experiences of Latinas/os, a LatCrit theory in education also theorizes and examines that place where racism intersects with other forms of subordination such as sexism, classism, nativism, monolingualism, and heterosexism. LatCrit theory in education is conceived as a social justice project that attempts to link theory with practice, scholarship with teaching, and the academy with the community. LatCrit acknowledges that educational institutions operate in contradictory ways with their potential to oppress and marginalize co-existing with their potential to emancipate and empower. LatCrit theory in education is transdisciplinary and draws on many other schools of progressive scholarship.

CRT (and also LatCrit) can be further defined by five key tenets that “form the basic perspectives, research methods, and pedagogy of a critical race theory in education” (Solórzano, 1998, p. 122). These five tenets are

1. *The centrality and intersectionality of race and racism*, which points to racial oppression being a key underlying force in the maintenance of power through tacit acceptance of white supremacy;
2. *The challenge to dominant ideology*, which openly questions the status quo in the educational system and its promulgation of the myth of meritocracy, race neutrality, and “equality”;

3. *The commitment to social justice*, by continual attempts to question and abolish racism and racial oppression as part of also counteracting ethnic, gender, class, and other forms of oppression;
4. *The centrality of experiential knowledge*, where the lived realities and voices of the oppressed take precedence and become key to understanding subordination and the tools to counter it; and
5. *The interdisciplinary perspective*, which challenges the all-too-often singular focus on one discipline when addressing issues of academic research and educational theory, aiming instead to open up for examination a wide range of historic, social, and political considerations within the study of education (Solórzano, 1998).

All of the above five tenets inform my study correspondingly (see Table 1):

Table 1. Tenets of Critical Race Theory/LatCrit

Tenets of Critical Race Theory/LatCrit	How it is Addressed in This Study
1. <i>The centrality and intersectionality of race and racism</i>	By holding that Latin@s and specifically, Latin@ immigrants have become a racialized and oppressed group in the U.S. (Malagon, 2010; Oboler, 1995; Villenas & Deyhle, 1999), the centrality of racism becomes a key focal point for examining why and how Latin@ students who are undocumented must face and negotiate challenges in the educational system, and in science in particular (Research subquestion #1) .
2. <i>The challenge to dominant ideology</i>	By the study's emphasis on the voices and realities of Latin@ students who are undocumented in science, their narratives/ <i>testimonio</i> become a counter-story to the dominant ideology that often otherizes them and casts them in deficit molds (Research subquestion #2) .

Table 1. (Cont.)

Tenets of Critical Race Theory/LatCrit	How it is Addressed in This Study
<i>3. The commitment to social justice</i>	By countering deficit-based master narratives and proposing social change and equity within science education, sociopolitical issues in education, and access to futures in science for students who are undocumented, factors that lead to the oppression and underrepresentation of Latin@s and students who are undocumented in science are addressed and a commitment to social change is advocated. (Overarching research question).
<i>4. The centrality of experiential knowledge</i>	Through its primary focus on the narratives or <i>testimonios</i> of Latin@ students who are undocumented, the study makes these students' experiential knowledge central and necessarily valid (Research subquestion #3)
<i>5. The interdisciplinary perspective</i>	By linking the concerns of LatCrit with ideas in Chican@/Latin@ studies and science education research, this study brings together many disciplines in a unique way that fills a gap in the science education literature and students who are undocumented in science education (Overarching research question).

LatCrit is a particularly relevant lens for this study because of its direct critique of the status quo, and its predisposition with uncovering and naming structures of power.

LatCrit is a powerful lens to use in this study to view the larger political and sociohistorical patterns of intentional silencing (Briscoe, 2009; Cammarota, 2006; Noguera et al., 2012; Weis & Fine, 2005) in ways that few other frameworks can, especially when it comes to a Latin@ population. It is for this reason that LatCrit takes main stage in my critical approach to centering the voices of Latin@s and countering deficit perspectives about them.

LatCrit also foregrounds the realities and experiences of Latin@s as being relevant and a source of strength, such that their stories become part of a larger counter-

narrative to the typical narratives that are often promulgated by those in dominant positions, often called “Master Narratives” (Delgado Bernal, 2002; Solórzano & Yosso, 2001a, 2002). These master narratives usually look at the ways of being and doing of those from non-dominant backgrounds, and paint them with deficit perspectives. LatCrit offers this study a way to critically examine the usual views of what Latin@s and immigrants are “lacking” in order to be suitably “educated” or “scientific” by amplifying the voices, experiences, and stories of Latin@ immigrant students in school science as an alternative to these deficit models in school, particularly in science (Lee, Luykx, Buxton, & Shaver, 2007; Lee, Maerten-Rivera, Buxton, Penfield, & Secada, 2009), through what the genre often calls “counter-stories” or “counter-narratives.” The LatCrit lens, therefore, offers ways to see Latin@ students who are undocumented in the academic realm, and in science in particular, in ways that would otherwise be overlooked if the issues of power, dominance, and oppression were not highlighted with a conscious mission to counteract oppressive deficit theories. Part of what often needs highlighting is the way that non-dominant students such as immigrants and Latin@s find ways to navigate and thrive in dominant worlds, while retaining other non-dominant cultural structures. Therefore, to extend the framework of LatCrit, this study also uses Anzaldúan Borderlands Theory and Lugonesian concepts of loving playfulness and world traveling to examine the often overlooked strengths and resilience of the Latin@ students who are undocumented in this study, in more nuanced ways. These aspects of the framework of this study are discussed next.

Borderlands/Loving Playfulness/World Traveling

The problem with traditional American pedagogy and practice, says Antonia Darder (2011), is that it emerges from a monocultural standpoint, is taught by a majority of this dominant monocultural group, and is, at its heart, set up to reproduce that same monocultural system of power and hierarchies from which it emerged. Darder (1991) goes on to point out that there is a link between culture and power in the classroom, and bicultural students, like Latin@s and especially Latin@ immigrants, are silenced and disempowered if they cannot fully assimilate into monocultural, monolingual roles and negate their native ways, an act of “deculturalization” that has been a long-standing facet of U.S. educational history (Spring, 2010), a sort of “colonization” of the Latin@ heart and mind (hooks, 1994; Saavedra, 2011a; Villenas, 1996). Latin@ biculturality means that U.S. Latin@s “often collide at the intersections of native and U.S. identities” (Bejarano, 2005) and must negotiate the crossing of cultural borders, on a frequent basis. Darder (2011) proposes that Latin@s consider being “unapologetically bicultural” as an act of changing the misguided monocultural system from within. With the changing Latin@ demographics in the U.S. and in schools, it is important to realize that Latin@ immigrants bring with them a bicultural and transnational identity (Darder, 1995). If the education system—and the larger systems of power that inform it—continue to fight against these realities, what will result is disenfranchisement of a large portion of the students that schools serve. In fact, many might say this is already the case (De la Luz Reyes, 2011; Noguera et al., 2012; Valdés, 2001).

With deference to biculturalism as a marker of modern Latin@ immigrant culture, this study uses Gloria Anzaldúa's ideas of border crossing, *Mestiza Consciousness*, and *Nepantla*, and Maria Lugones's ideas of world-travelling and loving playfulness, as integral in the analysis of Latin@ culture as necessarily bicultural and multidimensional. Anzaldúa (2007) considered multidimensionality as being a crossing of "borderlands" as individuals traverse and negotiate social and cultural terrain. Anzaldúa considered that each of us is hybrid, inclusive, a mixture and many-voiced, and that we build our identities most noticeably at the "crossroads" between worlds, at the borders and intersections. Our trajectory is one of the integration of many selves. As a result of being in these "borderlands," an individual, especially a Latin@, can be stuck between these worlds, pulled in many directions, or can traverse them, finding a way to make them her/his own. The new, multiple being that emerges is neither fully in one culture or another, but is a *New Mestiz@*—a hybrid being that embodies many cultures at once, and even creates new forms from the old one, freely shifting between many states, at once. Further, Anzaldúa (2007) argued that ethnicity and language are inextricably intertwined for Latin@s, and so biculturalism and bilinguality were intermeshed into Latin@ identity, saying:

So, if you really want to hurt me, talk badly about my language. Ethnic identity is twin skin to linguistic identity—I am my language. Until I can take pride in my language, I cannot take pride in myself. [...] Until I am free to write bilingually and to switch codes without having always to translate, while I still have to speak English or Spanish when I would rather speak Spanglish, and as long as I have to accommodate the English speakers rather than having them accommodate me, my tongue will be illegitimate. (p. 81)

Anzaldúa draws parallels between being *Mestiza*, as most Latin@s are a mix of Indigenous, European, and African, to the “consciousness of the borderlands” or “*mestiza consciousness*” where Latin@s “continually walk out of one culture and into another” and yet are “in all cultures at the same time” (Anzaldúa, 1990, p. 377). The quality that Anzaldúa describes of being “between worlds” is that place of transition during border crossing, which she considers as

bridges [that] span liminal (threshold) spaces between worlds, spaces I call *nepantla*, a Náhuatl word meaning *tierra entre medio* [in between land]. Transformations occur in this in-between space [...] living in this liminal zone means being in a constant state of displacement—an uncomfortable, even alarming feeling. Most of us [Latin@s] dwell in *nepantla* so much of the time it’s become a sort of ‘home.’ (Anzaldúa & Keating, 2009, p. 243)

The “border-crossing” and “Nepantlera” facet of identity, as laid forth by Anzaldúa, integrates well with Lugones’s (1987, 2003) ideas of “world traveling” and the “loving playfulness,” or lack thereof, that may emerge based on comfort within each world. Loving playfulness can occur as those from non-dominant cultures “travel” from a “world” in which they are at home and comfortable, to different worlds, constructed of other ways of being and doing, that a person must travel to out of necessity or survival. Lugones defines a “world” as any construction of people with a set of ways of being and doing that define them. This set of ways of being and doing can be associated with Goodenough’s (1981) ideas of culture or K. D. Gutiérrez and Rogoff’s (2003) repertoires of cultural practice. Lugones (2003) holds that when a person “world-travels” to a world beyond their home “worlds,” they can be at ease in these other worlds by being (a) a

fluent speaker in the world, meaning they know all the norms and rules of the world; (b) being normatively happy in this world, meaning that they agree with the norms of the world; (c) being humanly bonded, in feelings of love with those in this world; and (d) having a shared history with those in that world. Lugones goes on to say that to exemplify loving playfulness in a world means that one is at ease in this world enough to unleash their multi-dimensionality and ability to be “themselves” as they are in their home “world.”

If a person lacks playfulness in a world, then that person is not a healthy being in that world, because playfulness has been constructed out of her/him. Lugones qualifies this attitude as “loving playfulness” to differentiate it from competitive, or agonistic, playfulness; loving playfulness is not interested in besting others, but rather, playing alongside their respective multi-dimensionality, in a world in which they are at ease, open to surprise, open to being a fool, open to self-construction and reconstruction, and not worried about competence (Lugones, 2003). This is similar to the possibilities and transformations available to one in Anzaldúa’s *neplanta*, only with the possibility of comfort and ease, instead of tension, in this “travelling” between “world” borders. This view of what it means to be “at ease” versus being uncomfortable within the many worlds and contexts that Latin@ students who are undocumented find themselves, lends itself well to the understandings in this study of how Latin@ students who are undocumented playfully traverse cultural landscapes within the science classroom and worlds beyond. These ideas also mesh well with LatCrit, as Huber (2010) points out that LatCrit/CRT is in a unique and powerful position as its lens affords “the ability to

examine how multiple forms of oppression can intersect within the lives of people of color and how those intersections manifest in our daily experiences to mediate our education” (p. 77). Delgado Bernal (2001) discusses how LatCrit examines how Latin@ student experiences and strengths draw from biculturality and their home’s cultural knowledge base to negotiate educational obstacles. This is how LatCrit, borderlands theory, and loving playfulness/world-travelling come together into a *bricolage* (Kincheloe, 2001) framework for this study.

This study is focused on the *testimonios* of -achieving Latin@ students who are undocumented with aspirations toward science in an effort to uncover stories of complex and multidimensional cultural negotiation that may enrich the equity conversation in science education research. As these students’ lived experiences and “lifeworlds” (Kozoll & Osborne, 2004) emerge, they are considered in light of the larger social and political structures that shape meanings of schooling, school science, legitimacy within the culture of power, and racial/ethnic and the realities of immigrants who are undocumented. In relating these *testimonios*, this study counteracts disparaging master narratives of Latin@ students who are undocumented to reveal a rich tapestry of Latin@ strengths which can inform, inspire, and/or provoke into action those who hold a stake in equity in science education. This study considers how these students’ lived realities are negotiated with the sociopolitical and cultural norms expected and valued by the culture of power (Delpit, 1995). Through a critical lens, the power relations negotiated and the cultural norms enacted and contended with can be set in relief with Latin@ cultural, socioeconomic, and political realities of race, class, gender, language, and immigrant status.

One concept which expands the focus on Latin@ cultural strength and resilience in ways that are typically overlooked is described through Tara Yosso's (2005) emphasis on the *community cultural wealth* of people of color, to push back on the deficit notion that they lack cultural wealth if they do not assimilate into the dominant culture. Yosso holds that marginalized groups have their own cultural wealth that they draw from, and that often goes unacknowledged. Through their own *testimonios* in Chapter IV, the students in this study reveal their own *community cultural wealth*, as well as the places where they cross borders and enter into the worlds of the dominant cultural capital, and create hybrid cultural capital in multiple forms.

In using LatCrit, Borderlands Theory, World Traveling, and Loving Playfulness to approach the issues surrounding the struggles and negotiations of Latin@s who are undocumented within systems of power, studies into the worlds and cultural wealth of family, Latin@ culture, schooling and science that Latin@ students traverse should be illuminated. Some important studies and overarching ideas have already emerged and been discussed in the field of Chican@/Latin@ studies. Those that are pertinent to further describing and understanding the worlds and community cultural wealth of the students in this dissertation will be examined in the following section.

Chican@/Latin@ Studies

Although by no means meant to monolithically describe all Latin@s, the literature in Latin@ cultural studies has found some common threads among Latin@ cultures that are worth noting. These findings of the many facets of Latin@ cultural wealth, or *community cultural capital*, are meant to counter the pervasive deficit

perspectives that Latin@s are culturally hindered in achieving scholastically or scientifically, and assume that “success stories” for Latin@s must include assimilation to the dominant culture. Latin@ studies literature has uncovered facets of Latin@ cultures described as communal and anti-individualistic, valuing the overall wellbeing of the group over that of one of its members (Darder et al., 1997; Delgado & Stefancic, 1998; Huber, 2009a; Levinson, 2001; Stanton-Salazar, 2001; Stanton-Salazar & Dornbusch, 1995; Valdés, 1996; Valenzuela, 1999; Villenas & Deyhle, 1999). Latin@ cultures have been described as valuing the tenet of familism (or *familismo*), which upholds the family as a unit to be valued over individual interests (Delgado & Stefancic, 1998; Huber, 2009a; Orellana, 2003; Valdés, 1996; Valenzuela, 1999; Villenas & Deyhle, 1999).

Closely related to this is a kind of social and cultural capital within Latin@ networks that values kinship as a primary support network (Hondo, Gardiner, & Sapien, 2008; Huber, 2009a; Levinson, 2001; Stanton-Salazar, 1997, 2001; Stanton-Salazar & Dornbusch, 1995; C. Suárez-Orozco, Suárez-Orozco, & Todorova, 2008; Valenzuela, 1999) and language as being a primary marker of their membership and value within the network, as well as a marker of their identity as Latin@, Mexican, Chican@, Cuban, Salvadoreñ@, etc. (Bears & de Jong, 2008; Cardenas, 1997; Ek, 2009; N. González, 2001; Hondo et al., 2008; Valenzuela, 1999; Delgado & Stefancic, 1998; Michael, Andrade, & Bartlett, 2007; M. Suárez-Orozco & Pérez, 2009). The concept of *ganas*—“the will or determination to achieve” (Contreras, 2011, p. 115), closely coupled with the opportunity narrative (Michael et al., 2007) have also been cited as motivating factors for Latin@s. Further, humility (or *humildad*) has been attributed as a strong value in many Latin@

cultures, where one is expected to take focus away from oneself and respect others (*respeto*), especially those considered to be of higher status, such as adults or teachers (Ek, 2009; Elenes, Gonzalez, Bernal, & Villenas, 2001; Valdés, 1996). This facet, however, has led to another colonizing master narrative of Latin@s, in which Latin@ students are characterized as being “obedient” in class (Wortham, Mortimer, & Allard, 2009); those subscribing to this narrative often confuse this student behavior with thinking Latin@ students have culturally assimilated. This facet especially will be examined as this study looks at how these high-achieving Latin@ immigrant students “play the game” of school, what informs it, and to what ends. These negotiations are complex and multifaceted, as the discussion in Chapter V will show.

The literature has also described some Latin@ cultures as also valuing the giving of *consejos*, a kind of familial cautionary advice, candidly dealing with the struggles and realities that Latin@s must endure and find ways to overcome (Elenes et al., 2001; Michael et al., 2007; Urrieta, 2003; Valdés, 1996; Villenas, 2001; Villenas & Deyhle, 1999; Villenas & Moreno, 2001). Compounded with this are Latin@ values of *educación*, which are broader than Anglo understandings of what it means to be “educated.” *Educación* goes beyond academic knowledge, and consists of respect, social and moral values, and loyalty to group and family which adapts to both tradition and ongoing change, and values improvisation and contestation as an act of resilience to ongoing but cohesively faced challenges (Carger, 1996; Elenes et al., 2001; Hondo et al., 2008; Huber, 2009a; Levinson, 2001; Valdés, 1996; Valenzuela, 1999; Villenas, 2002; Villenas & Deyhle, 1999). Finally, Latin@ cultures have been described as valuing the act of

being *hermenable*, or brotherly, in how one gets along with peers in an air of solidarity and group unity, in order to help others instead of only helping themselves (Levinson, 2001; Valdés, 1996). These descriptions of “Latin@” cultural capital, as described in the literature, are considered as they become themes across the participants’ *testimonios* that help to illustrate the worlds they have in common and traverse together, and become markers of these students’ *Latinidad*, which are “the wide range of different Latina/o identities and experiences” (Urrieta, Kolano, & Jo, in press, p. 4).

It is important to note that these cultural descriptors are not static traits of a group or individuals, but rather, may be considered as “repertoires of practice” (K. D. Gutiérrez & Rogoff, 2003) which individually vary, but draw from common histories and experiences. Nevertheless, many of the cultural practices described above have a long historic pattern of being viewed as deficits: as counter to the individualistic, Eurocentric, Androcentric values of the culture of power (as depicted in O. Lewis, 1963; and countered more fully in Delgado Bernal, 2002 and Fuller & García-Coll, 2010). Pushing out, subtracting, and painting as deficit these Latin@ cultural understandings, is one of the primary ways that Latin@s get excluded from the culture of power, and oppressed by it (Cammarota, 2006; Murillo, 2002; Quiroz, 2001; Spring, 2010; Valenzuela, 1999).

Angela Valenzuela’s (1999) ethnographic study shows that Latin@ students’ potential in school is continually thwarted by “subtractive schooling,” or systematic stripping of Latin@ cultural ways of being and doing, through assimilationist mindsets that equate academic success with the cultural loss of Latin@s’ necessary cultural resources of language, practices, and values, determined to replace Latin@ ways of being

and doing with those of the white, privileged culture of power. The result is the erosion of Latin@ students' cultural capital and loss of social networks which are necessary to students' development of a sense of belonging, direction, and positive identities (Stanton-Salazar, 1997, 2001; Stanton-Salazar & Dornbusch, 1995). It has been shown to be challenging and traumatizing for Latin@ students to negotiate educational spaces that value the culture of power, without these social support networks (Stanton-Salazar, 2001; Yosso, Smith, Ceja, & Solórzano, 2009). Valenzuela (1999) also shows how teachers who incorporate the values, perspectives, practices, and language of their Latin@ students, along with caring (inspired by Noddings, 1984) in deeply socially aware ways, leads to markedly positive achievements in the students' school experiences and identities. Other examples of how caring affects Latin@ students positively include Cammarota and Romero (2009); De Jesús and Antróp-González (2006); Irizarry and Raible (2011); and Ochoa (2007). Highly relevant to this study, Valenzuela ethnographically presents the experiences of Latin@ students in a large urban high school in Houston, Texas. Valenzuela's ethnographic approach highlights the first-person narratives of Latin@ students and the incorporation of Latin@ values, practices, and the meaning of academic achievement. Cammarota's (2006) piece on Latin@ racial experience and invisibility further argues that there are damaging effects to ignoring and silencing Latin@s in education, and calls urgently for an inclusion of their voices. My study strives to do this with high-achieving Latin@ high school students who are undocumented, while highlighting the aspects of their *Latinidad*, which they draw on for

success in the dominant spaces of schooling and science, by not sacrificing one cultural space for the other, but finding ways to “play” with each, in tandem.

Another deeply-held aspect of *Latinidad* is language (Cardenas, 1997; Corson, 1991; Delpit & Dowdy, 2002; N. González, 2001; Nieto, 1993, 2010; Salomone, 2010). Norma Gonzales (2001) points out that among Latin@s,

to speak of language is to speak of our ‘selves.’ Language is at the heart, literally and metaphorically, of who we are, how we present ourselves, and how others see us. ‘I am my language’ says the poet Gloria Anzaldúa. ‘*El idioma, alma de las culturas*’ (language, the soul of cultures) proclaims the theme of a banquet honoring the thirtieth anniversary of bilingual education in southern Arizona. (p. xix)

Luis Moll’s (2000) conceptual study addresses this as he introduces the concept of “funds of knowledge” to counter the deficit view of non-English-dominant students in the classroom. Moll uncovers the pervasive attitude of many in education which insists that differences in dialogue, or ways of being and doing, must be eradicated in order for all students to assimilate to the White, middle-class culture of power: a process of “deculturization.” Moll points out that

this dual strategy of exclusion and condemnation of one’s language and culture, fostering disdain for what one knows and who one is, has another critical consequence in terms of schooling—it influences children’s attitudes toward their knowledge and personal competence. (p. 13)

This fundamental link between language and Latin@ self-concept is also pointed out in Cardenas’s (1997) and Jimenez’s (2001) studies. These authors show how the exclusion of Latin@ ways of being, doing, and speaking causes Latin@s to “create a social distance

between themselves and the world of school knowledge” such that “someone else, not they, possess knowledge and expertise” (Cardenas, 1997, p. 13). This can disassociate Latin@s from fields such as math and science, but this study presents an alternative to the dichotomous situation that either students assimilate to the dominant culture in order to succeed in schooling and science, or disassociate from schooling and science in order to retain their Latin@ cultural wealth. This study presents Latin@ students who are undocumented and high-achieving in school culture, aspiring deeply towards careers in science, by creatively crossing borders between the worlds of the dominant culture and other *Latindades* in ways that are playful, nuanced, and necessary.

In addition to the cultural, racial, ethnic, and linguistic oppressions particular to Latin@s that have been discussed, political and economic factors are a part of the lived realities of Latin@ immigrants who are undocumented as well. Huber’s (2009a) study challenges pervasive racist nativist anti-immigrant narratives through the direct *testimonios* of ten Chicana undergraduate students. Huber points out how the anti-immigrant policies that make it difficult for immigrants who are undocumented to enroll and pay for college are disenfranchising a large population of promising young minds from contributing to the U.S. economy and its quality of life. Through the narratives of these Chicana undergraduates who struggle to succeed in college against all odds, Huber conveys the “community cultural wealth” (channeling Yosso, 2005) that is being ignored and vilified by the racist nativist politics in government and school policies. The ideas put forth here and in much of Huber’s work deeply inform this study’s lens when it comes to

the struggles and perseverance of Latin@ students who are undocumented in educational settings.

M. S. Gonzalez, Plata, Garcia, Torres, and Urrieta (2003) argue that the use of *testimonios* with students who are undocumented creates an effective means for them to feel safe in speaking their truths. These authors also argue that these students' *testimonios* are a powerful and approachable way to educate future teachers. By focusing on the stories and plights of students who are undocumented, M. S. Gonzalez et al. (2003) argue that immigrant children who are undocumented are often ignored in the literature, and that they

urge that *testimonios* be used as pedagogy, especially to educate future teachers and to raise the consciousness of people who do not have sympathy for immigrants, especially immigrant children, as they encounter an unfriendly and often hostile educational system. (p. 233)

M. S. Gonzalez et al. (2003) explain and justify the use of *testimonio* with students who are undocumented:

Rich in its Latin American roots, especially in indigenous villages, the *testimonio* is used by the narrator as a denunciation of violence, especially state violence and as a demonstration of subaltern resistance (Warren, 1998). The power of such first person, novel length accounts is in their metaphor of "witnessing" through real-life experience (Beverley, 2000; Tuhiwai Smith, 1999; Zimmerman, 1995). The urgency of the *testimonio* aims to bring immediate and emotive attention to an issue, and has been called by Jara and Vedal (1986) a "*narración de urgencia*" in an effort to raise the reader's consciousness. (p. 234)

Testimonio offers a useful approach that aligns with the tenets of Critical Race Theory and specifically Latin@ Critical Race Theory (LatCrit), which have not informed

science education research deeply. By making the issues of race and racism central, as well as privileging the voices and struggles of the oppressed in ways that work towards uncovering oppression in the tradition of CRT/LatCrit, many of the concerns regarding equity for students of color in science education will benefit from new insights. “If we look at the way public education is currently configured, it is possible to see the ways that CRT can be a powerful explanatory tool for the sustained inequity that people of color experience” (Ladson-Billings, 1998, p. 18). It is in this way that this study offers these students’ *testimonios* as a vehicle for conversation on equity and social justice within science education, as well as a way to counter deficit-based master narratives about these students, and instead present their complexities, resilience, and strength. These facets relate to several of the study’s research questions. As I approach the critical aspects of the *testimonios* of Latin@ students who are undocumented in science within this study, I am cognizant of how my study adds to existing studies that incorporate the issues of equity and social justice within science education research. These studies highlight existing voices advocating for social change in science education, multicultural approaches to science education, and understanding the negotiations of non-dominant students with systems of power within science education. These studies, discussed below, inform the direction and background of this dissertation.

Relevant Studies in Equity and Social Justice in Science Education

A focus on equity and social justice in the field of science education is becoming increasingly manifest in science education literature. Key studies that discuss equity in science education include many of those by Angela Calabrese Barton and her associates

(e.g., Calabrese Barton, 1998c, 2003, 2005; Calabrese Barton & Osborne, 1998; Calabrese Barton & Tan, 2010a, 2010b). For example, Calabrese Barton and Osborne (2001) told the story of two female Latina children in low SES schools (fourth grade) and how their voices are constantly marginalized in school science, from a first-person perspective. The girls reveal that they do not like school science because it is not presented to them in ways that are negotiable for them. The authors say the stories of these two girls “raise questions about how science, power, and privilege intermingle in the context of learning and doing science” (p. 9). The study then goes on to raise questions about what is valued in school science and what is not, and how what gets valued shapes power and privilege by defining roles and identities. This study’s approach to critical ways of defining science education vs. traditional science education encourages “teaching science in a way that values the lived experiences, ways of knowing the world and social identities held by all students, especially women and minorities” (p. 10) and further, how “students’ concepts of science constrain roles and expectations, shaping power and privilege in science class by defining roles and identities” (p. 10).

Another deeply impactful study by Calabrese Barton and Yang (2000) tells the story of Miguel, a young, homeless, Puerto Rican father who always showed promise in science throughout childhood, but because the culture of power valued within school science did not figure into his Latino cultural identity, he was positioned outside the realm of being scientific, and he grew resentful of this. The study analyzes the ideas of Delpit’s (1995) culture of power at play in science education and shows what can result not only for current identity construction and practices, but for the future trajectory of a

Latino from this oppressive and exclusive practice of rigidly defined traditional science (Costa, 1995; Kuhn, 1970; Shanahan & Nieswandt, 2011). In offering up counter-stories of other Latin@s still in high school science, to add to the portrait of Miguel when it comes to contending with the culture of power within science education, the voices of Latin@s who are undocumented, through *testimonio* in this study, become crystallized.

Varelas, Kane, and Wylie (2011) found that African American elementary students' ideological becoming in their worlds of science, both through how students positioned themselves and how they were positioned by others, had been constructed into meanings of "doing science" that were "intertwined" with "doing school," such that traditional notions of good behavior and vast knowledge became the capital that these students interpreted as "doing science." This shows the effects of the dominant school narrative reproduced in a new generation, even despite the best intentions; it also shows the significant work still to be done in broadening the meanings of science in our classrooms. In addition to this study, Varelas's body of work contributes in many significant ways to the field of identity construction of students in science education from discursive studies of children's science meaning making using semiotic tools via ongoing nurturing of students' participation and argumentation (Varelas et al., 2008), to how science/math experts negotiate the intersections of working in urban classrooms and their own academic identities, while also trying to become sensitive to issues of social justice through the lens of Ladson-Billings's tenets of culturally relevant pedagogy (Ye, Varelas, & Guajardo, 2011). Varelas also worked on a study that used multi-modal narratives to learn of students' identity formation through their self-concept as scientists, and the

meanings they make of scientists in the world through the artifacts of pictures they drew of themselves as scientists (Tucker-Raymond, Varelas, Pappas, Korzh, & Wentland, 2006). These studies aid in better understanding the inner and outer workings of both children and adults through the complex and nuanced realities of science classrooms on the frontlines of teaching non-dominant populations. The studies reveal the patterns of meanings of “scientist” created by the culture of power, and how marginalized students negotiate these, which emerge once again in this study when considering these students’ negotiations as high-achieving science students who are undocumented, and what that means to them in the present and future tense, including their relationship with science.

Tan and Calabrese Barton’s (2008b) study discusses how a Dominican sixth-grade student, “Melanie,” transforms her identity over the course of her sixth-grade year from one of marginalization in science to one of empowerment. The study found that the community of practice in Melanie’s science class and the role of her teacher in legitimizing the capital she brought to school science played a hand in transforming Melanie’s position from avoiding science to identifying with it. The teacher in this study allowed Melanie’s unique form of narrative and discourse and her funds of knowledge to enter into the science practiced in his classroom, and thereby made the science experience more meaningful to her by allowing Melanie to create a hybrid space between herself and science. Small group work and projects in which Melanie was allowed to interact with supportive peers (a social network) also played a role in her identity transformation. The support Melanie received through teacher and peers allowed her the agency to author her own participation within science. We will see in this study how the Latin@ students who

are undocumented used similar hybrid approaches to create their own spaces for transformation within and beyond their science classrooms.

Calabrese Barton, Tan, and Rivet (2008) empirically studied girls from three different schools, a majority of whom were Latina (15 Latina; four African American) from three different schools, and discussed practices that the girls took up in order to negotiate the spaces between their social selves and science, creating a hybrid space where they could maintain their sense of agency and social relations among each other, utilize their funds of knowledge and have them honored, “play with their identities,” and renegotiate their roles in science by re-interpreting the norms in the science classroom to suit their identities in such a way that they could still participate in science without compromising their desired ways of being and their perceived status among others in the class. This study effectively illustrates how bridging the space of Latin@ students and the space of school science, and creating a hybrid space (or third space) between them can lead to engagement of Latinas and other students of color in science. Other studies by Tan dealing with identity formation and cultural production for students of color include Tan and Calabrese Barton (2008a) and Tan and Calabrese Barton (2010). These studies form a background with which this study builds on the use of hybridity and funds of knowledge within science education research, to spaces of critical perspectives incorporating borderlands theory, world traveling, and other Latin@/Chican@ epistemologies.

Hybridity not only applies to identities, but also to discourse. There are different manners of speaking, thinking, and expression related to each “world” we consider.

James Paul Gee (2000–2001) calls the student’s natural social ways of expression “little d” discourse, while the more official ways used to communicate and express oneself in a field like science is called “big D” Discourse. Hybrid discourse is thereby a melding of discourse and Discourse, to make a third, hybrid discourse, that encompasses both the student’s manners of speaking and scientific manners of speaking, but is neither one nor the other, but a new way of speaking (B. Brown, 2004, 2006; B. Brown, Reveles, & Kelly, 2005; Buxton, Carlone, & Carlone, 2005; Calabrese Barton & Tan, 2009; Gonsalves, Seiler, & Salter, 2011; Kelly, 2005; Moje, Collazo, Carrillo, & Marx, 2001; Noblit, Hwang, Seiler, & Elmesky, 2007; Norman, 1998; Quigley, 2011; Rahm, 2008). Voice is essentially what students express to make known their identities, understandings, and feelings about what is going on around them (Basu, 2008a, 2008b; Furman & Calabrese Barton, 2006). Incorporating student voice, as Basu did in many of her studies (Basu, 2008a, 2008b), means allowing students to be involved in decisions about their own education, and being able to express their feelings, passions, vision, and curriculum recommendations. This study’s focus on *testimonio* takes student voice to not only the level of informing classroom recommendations, but speaking directly to the larger world of science education stakeholders, ultimately to enact social change.

While keeping the complexity and multidimensionality of students’ hybridity, voice, and positioning in mind, it is important to also take into account that some of the literature in science education suggests that the practices of school science are often guided by a “culture of science” that is Eurocentric, masculine, and privileged in its understandings of the nature of science and of what counts as scientific (Brickhouse,

2001; Calabrese Barton, 1998a, 1998b; Johnson, 2007; Rodriguez, 1997, 1998; Scantlebury, Tal, & Rahm, 2007). Such dominant values entrenched within the practice of school science would be seen, through this study's Latcrit lens, as actively oppressive and silencing to students from non-dominant backgrounds. Feminist critiques of the cultural structure of the status quo in science point out that what has counted as knowledge within the historic practice of science often consists of isolated facts, attained through dispassionate and detached objective observation, and following set guidelines, principles, and rules (Haraway, 1988; Harding, 1986, 1991, 1998, 2006, 2008; Keller & Longino, 1996; Mayberry, Subramaniam, & Weasel, 2001; Roychoudhury, Tippins, & Nichols, 1995; Tuana, 1989). Proponents of a feminist approach to science suggest that scientific knowledge be reconsidered as subjective, dynamic, emotionally-driven, and a co-construction of the communities, collaborations, and cultures from which they spring (Eisenhart & Finkel, 1998). However, if the school science practices are informed by what Calabrese Barton and Osborne (2001) term "traditional school science," or what Carlone (2004) terms the sociohistoric legacies of prototypical school science, then science takes on a single-right-answer, positivistic worldview where concepts are merely explanations to be mastered for tests, and knowledge is transmitted from teacher to student. This approach is also what Stanley and Brickhouse (1994, 2001) would term a universalist approach, informed by "Western Modern Science" (WMS), which is Eurocentrically ingrained, individualistic, and knowledge and skills-driven in order to identify individual achievements as claims to knowledge of a singular reality. Thus it is possible that school science practices, if informed exclusively by WMS or a traditional

approach to science, may be acting to exclude and subtract the lifeworlds (Kozoll & Osborne, 2004) and agency towards doing science for non-dominant students. Stanley and Brickhouse (1994, 2001) go on to unearth the problem with the cultural approaches in many traditional models of science as it is taught in schools and discussed in more Western societies as dominated by a positivistic “Universalist” paradigm which is informed by a very western, Anglo-centric rigid view of the nature of science and what counts as scientific knowledge. Because knowledge is often synonymous with power, this guarded approach transfers into a gatekeeping practice among those that propone this rigid Western approach to what counts as “legitimate” scientific knowledge. Stanley and Brickhouse point out the weakness of this universalist view, citing that it does not account for limitations in monocultural conceptions, the “flux” nature of reality, and a flawed acceptance that knowledge can be unbiased, value-free, and lead to a singular version of “truth.” The authors counter this Universalist view with a multicultural perspective of science, which accounts for multiple cultural understandings of the natural world and multiple opportunities for cultural identification with a more inclusive conception of the “culture of science.” These ideas are relevant in that they present a platform in which other cultures besides the Anglo culture have claims to knowledge and ways of “doing science” that are equally valid and should be included in a broader, multicultural understanding of science and science education. This broadens cultural meanings, allowing for a larger construction of what it means to do science, and be considered scientifically “legitimate.” This study will show how the participants in this study employ broader models of schooling and school science, and how that may factor

into the positions afforded to the students to be “high-achievers” in science and how they negotiate meanings of science and their future in it, within the contexts of their lived realities.

To bridge cultures is to connect one culture with another, or as this study has discussed, to “negotiate” worlds and cross borders. Prior literature has considered the idea of the world of traditional school science as a culture onto itself, and the world of students as another (Costa, 1995; Gilbert & Yerrick, 2001). Costa (1995) argues that without the practice of bridging the culture of the student to the culture of science, science could be impenetrable to the student. Hybridity, or third space, I interpret to also be interrelated to the topic of bridging cultures. Here, we consider that the world of the student comprises one of the student’s identities. The worlds of school science and science as a broader concept also have their own corresponding mantle that a student may take up if s/he incorporates the “official” language of science, or ways of doing science, into the student’s ways of presenting her/himself, thus giving students a traditionally recognized “science identity.” However, there is a space between the identity of the student and a “legitimate” science identity that constitutes a third space that is created when the world of the student and the world of official science interact.

A new identity is created that negotiates the two worlds into a new hybrid identity where the student still feels comfortable in her/his own self-view, but is able to penetrate the traditional world of science. Much of the hybridity and third space studies in science education take this interpretation when discussing the learning of science with students of non-dominant backgrounds. In this study, I offer a different way to approach cultural

negotiation involving Latin@s in science, in addition to the ideas already in the literature utilizing third space and hybridity within science education, by elaborating on the concepts of borderlands theory, with its concepts of the *New Mestiza* and *Nepantla* (Anzaldúa, 2007), and world traveling and loving playfulness (Lugones, 2003), which have rarely been used in the science education literature. Aikenhead's body of work has occasionally touched on these theories, though a more direct focus on Anzaldúan and Lugonesian theories is expanded upon robustly and applied to science specifically with Latin@ students who are undocumented and have strong science aspirations in this study. Below, Aikenhead's work is discussed.

When addressing issues of disparate cultural construction between a “culture of school” and the many cultural practices that students bring as part of their identity work, it is important to speak of the work of Aikenhead (Aikenhead, 1996, 1997, 1998, 2001a, 2001b, 2006, 2010; Aikenhead & Elliot, 2010; Aikenhead & Jegede, 1999; Aikenhead & Ogawa, 2007; Hodson & Aikenhead, 1993; Jegede & Aikenhead, 1999; B. Lewis & Aikenhead, 2001). As a recent example of Aikenhead's body of work, Aikenhead and Mitchell's (2011) book on bridging cultures speaks of the need to recognize indigenous knowledge as just as legitimate as the “official” knowledge of Eurocentric science, in order not only to broaden science education and its presuppositions, but also to enhance the identification of a larger spectrum of typically marginalized indigenous students (remembering, too, that most Latin@s are mestizo@s, with native American roots).

Aikenhead describes the current state of Eurocentric science and the narrow definitions it tacitly reproduces, and counters these with many of the indigenous ways of

knowing in groups around New Zealand, Canada, Africa, and the U.S. Aikenhead compares the dominant and indigenous ways of knowing and then suggests ways to build bridges that incorporate language, discourse, culture, and practices in ways that benefit science learning and also indigenous students' rightful claim to their senses of self, community, and cultural ways. Other studies that speak of indigenous knowledge (or some also call it TEK—Traditional Ecological Knowledge) in science education include Stewart (2010), Van Eijck and Roth (2007), and Snively and Corsiglia (2001). The concepts of building bridges and crossing into worlds of home, worlds of science, and other worlds plays a prominent part in my study, and Aikenhead's ideas of indigenous knowledge and border crossing, along with those of Stanley and Brickhouse (1994, 2001), Coburn and Loving (2001), and Carter (2006, 2010) deeply inform my approach to the negotiation and cultural border crossing of high-achieving Latin@ students who are undocumented within U.S. high school science classrooms.

Kozoll and Osborne (2004) urge science educators to move beyond the traditional figurations of success in school science defined as student assimilation of “official” science knowledge, and state that this practice distances students from science, as it has them learn an abstract science that is far removed from personal experience. This sets up “two disparate worlds—the student’s world and the world of science” (p. 158). Instead, they propose that students must find personal meaning and inspiration in science in order to be successful in it, and speaks of a student’s “lifeworld” and their “being in the world” as key to a student’s ability to personally become involved with science. Kozoll and Osborne stress looking at student identities in science, by which they mean not only

personal but also cultural identities, and identities in the long-term trajectory of who they want to become. The participants were college-aged migrant agricultural workers, most of them Latin@. The study shows how these students' views of science are imbedded within their own lifeworlds, identities, and senses of self. This article deeply informs this dissertation as it uses Latin@ storytelling as primary in its methods. This article is one of the few that takes this storytelling approach with Latin@s and applies it to science education. The study actively endeavors to interview those who have been marginalized by science (and by society) and shows first-hand how the “objective,” “removed,” “politically neutral” traditional view of science is fallacious, and a deeply personal, subjectively imbedded science is what really occurs. Kozoll and Osborne's study is most closely relevant to the framework and approach used in my dissertation—it applies a critical, narrative approach to uncover the issues Latin@s face in science classrooms, which is an avenue that has rarely been explored since then in science education research, and has never been explored specifically with high-achieving Latin@ high school students who are undocumented with stated aspirations towards science trajectories.

The Urgency of this Study

Little is known in the field of science education about the cultural negotiations of Latin@ s students who are undocumented, emergent from the complex nexus of their home, school, and social networks, and the larger racial/ethnic, linguistic, gender, socioeconomic, cultural, and political realities at play in their worlds. Studies in the science education literature regarding Latin@ students who are undocumented, at any grade level, are rare, let alone studies looking specifically at those high-achieving

students who are undocumented with strong aspirations in science. Focusing directly on these students' own voices and stories through *testimonio* is also rare in the science education literature.

Lee and Luykx (2006) write about the need for priorities in future practice for researchers of science education and student diversity. They review a number of studies in science education with a focus on diversity and equity, and call for future science education research to “conceptualize the interrelated effects of race/ethnicity, culture, language, and SES on students' science learning in more nuanced ways” (p. 155). In addition, Lee and Luykx posit that

There is a need for studies that combine cognitive, cultural, sociolinguistic, and sociopolitical perspectives on science learning, rather than focusing on one aspect to the exclusion of others. This will require multidisciplinary efforts bringing together research traditions that have too often been developed in isolation from (or even in opposition to) one another. (p. 155)

LatCrit and *testimonio* within science education research are such isolated research traditions. Given the changing landscape of Latin@ demographics in our schools and in our country, the hot political debate as more and more children who are undocumented become young adults and struggle with their realizations of the oppressive political realities before them, and the overwhelming need for equitable Latin@ representation in science, the multidisciplinary merging of Latino Critical Race Theory and science education research is timely.

This study fills a necessary gap in the literature as it utilizes a critical lens, through LatCrit, to address issues of these students' struggles towards legitimacy and a

future in science as central aspects of the stories told within. In doing so, this study engages with these students' *testimonios* in order to consider these students' fundamental humanity and desire towards a scientific future and convey it to the public. Moreover, paying attention to these stories helps to counter deficit narratives that cloud views of Latin@ students who are undocumented in high school science, often focusing on what they lack instead of what they offer (Camarota, 2006; Murillo, 2002; Oboler, 1995; Valenzuela, 1999; Villenas & Deyhle, 1999). Ultimately, this study highlights the necessity of amplifying the voices of Latin@ students who are undocumented and understanding how they may succeed, struggle, or traverse the norms of science and schooling in resilient ways. The rising population growth of Latin@s in the U.S. and the political issues currently debated regarding immigrants who are undocumented and the DREAM Act are here put into relief by Latin@s' underrepresentation in science. By honoring the voices and stories of Latin@ students who are undocumented in high school science and emphasizing their desire to pursue a scientific trajectory, this study hopes to add to the conversation in science education regarding more socially just and multicultural inclusions of Latin@s and immigrants in the field of science.

By considering the messages within the *testimonios* of these Latin@ students who are undocumented students with regards to science education, and allowing this to inform science education research, the voices of Latin@ students who are undocumented become the initiating and motivating force in their own liberation and transformation towards greater representation in science. In this way, the realities of Latin@s who are undocumented combine with the more widely discussed idea of "funds of knowledge" in

science education, to give way to the liberatory nature of first-person Latin@ student dialogue for transformation and equity in science.

Framework Connections to Research Questions

In addition to how the study's research questions align with how the study approaches Critical Race Theory (p. 29), the elements of this study's framework can also be aligned to its research questions as shown in Table 2.

Table 2. Research Question/Framework Crosswalk

Research Question	How RQ is Addressed within the Framework
<p><u>Overarching RQ:</u> How do the <i>testimonios</i> of these high-achieving Latin@ high school science students who are undocumented—which tell of their lived realities as students, as undocumented, and as aspiring scientists—inform conversations on equity in science education; sociopolitical issues that affect science in the U.S.; and access to futures in science for Latin@ students who are undocumented?</p>	<p>The framework puts forth the use of <i>testimonio</i> as emerging from Chican@/Latin@ epistemologies of Latin@ voice and culture, and centralized through the framework of Latino Critical Race Theory. The framework also builds on the conversation already occurring in existing literature regarding equity and social justice in science education, educational change, and Latin@ students who are undocumented, and puts forth ways of seeing students' lived realities in complex ways that cross borders and travel across worlds to further the understandings of these students' participation in science education.</p>
<p><u>Subquestion #1</u> How do these students negotiate the borders and worlds of school, science, family, immigration status, and other sociopolitical educational realities such as access to college and careers in STEM given their undocumented status?</p>	<p>By utilizing Borderlands theory and World Traveling, this study's framework uncovers the negotiation of the student's many worlds and borders. The background in Chican@/Latin@ studies regarding the many aspects of Latin@ cultural capital and political realities help elucidate some of the possible worlds the students traverse.</p>

Table 2. (Cont.)

Research Question	How RQ is Addressed within the Framework
<p><u>Subquestion #2</u> How do these students engage and counter master narratives about their abilities and futures in science?</p>	<p>Through attention to students' strengths and resiliencies which are a focus of LatCrit, and can further be examined through their enactment of Loving Playfulness within dominant cultures, this study reveals some of the knowledges, strengths, and abilities of these students—particularly when it comes to science—that negate deficit-based dominant narratives of students such as they.</p>
<p><u>Subquestion #3</u> What can the voices and knowledges of these students contribute to the increasingly global economic and scientific future?</p>	<p>Through an approach that honors LatCrit's emphasis on education emerging from the authentic knowledges of its students, this study offers these students' lived realities and <i>testimonios</i> as evidence of their cultural wealth, potential, and strength, who have much to contribute to global visions of the future of science.</p>

Summary of Chapter II

This chapter presented the three frameworks that inform this study: Latino Critical Race Theory (LatCrit), Borderlands/Anzaldúan theory, and the theory of Loving Playfulness/World Travelling. Chapter II also discussed the underlying epistemologies that inform these frameworks: Critical Race Theory and Chican@/Latin@ studies. I reviewed the literature dealing with equity and social justice in science education that offers a background to the findings in this study. I have connected these frameworks and studies to this dissertation's approach to the issues regarding Latin@ science students who are undocumented through *testimonio*/narrative-based research. I have further appealed to the urgency of this study's themes within science education research, given

the rarity of studies approaching the issues of high-achieving Latin@ high school students who are undocumented within science education, or utilizing *testimonio* in the science education literature. Finally, I have connected the frameworks discussed in this study back to the study's research questions. In the following chapter, I discuss how the framework presented here flows into the methodology used for this study, which employs Critical Race Methodology and *testimonio* as a methodological approach in order to advocate for social change in reflexive solidarity with the study's participants.

CHAPTER III

METHODOLOGY AND CONTEXT OF THE STUDY

In trying to become ‘objective,’ Western culture made ‘objects’ of things and people when it distanced itself from them, thereby losing ‘touch’ with them. This dichotomy is the root of all violence. (Anzaldúa, 2007, p. 59)

As Latino Critical Race Theory (LatCrit) figures prominently in the framework of this study, the qualitative methodological approach to this study intuitively follows the LatCrit lens by utilizing Critical Race Methodology (Solórzano & Yosso, 2002). This chapter lays out how this study uses Critical Race Methodology, which advocates for the use of participant counter-narratives such as *testimonio* and critically grounded and ethnographic methods, in order to understand, analyze, and communicate the lived realities of the study’s participants. In exploring the specific ways that this study implements Critical Race Methodology, this chapter will elaborate on how the ideas behind *testimonio*; Chican@ epistemology and decolonizing methodology; participant observation; open-ended, in-depth interviewing; and member-checking are used in this study as necessary approaches within a Latin@/Chican@ epistemological approach to Critical Race Methodology.

As qualitative research of this nature “is a situated activity that locates the observer in the world” (Denzin & Lincoln, 2003, p. 3) and constructs reality through the filter of the researcher (Glesne, 2011; Lichtman, 2010), this chapter will also elaborate on my own positionality as the researcher and also as one who believes that reality is many-

voiced and without a single objective, universal truth (Schram, 2006). Throughout the study's methodology, I endeavor to remain cognizant that my perspective plays an integral role in my performance as a living, participatory instrument within the study. This study's data collection and analysis is beholden to a decolonizing lens (Tuhiwai Smith, 1999) that will privilege participant meanings as they emerge in context, as valid interpretations of participants' realities, especially when countering the constructed realities of master narratives. This decolonizing approach to data collection is underlined by a critical (Lecompte & Schensul, 1999) perspective that is reflexively aware of my own positionality within the matrix of oppression as well as the critical worldview I hold, standing alongside these students against oppression (Schram, 2006). This critical approach necessarily privileges and highlights the emergent stories, perspectives, struggles, and realities of the students in this study. By making the experiences and voices of the non-dominant into the central focus, the methodological approach used in this study holds that the participants who are undocumented are the experts of their own realities, and my voice as the researcher works in solidarity with their experiences, and not as an authority over them. Ultimately, the methodology of this study endeavors to approach the participants as creators of essential knowledges that only they can speak, and that necessarily intermesh with the experiences of the researcher, and not as objects to be studied at a distance from the researcher, under a false pretense of "objectivity."

Critical Race Methodology

Critical Race Theory and LatCrit focus on the lived realities and struggles with oppression of people of color from a racial perspective, and through a critical lens. In so

doing, CRT must necessarily make the voices of the oppressed central, and work to amplify them. After all, “what gets left out, then, if we do not hear students’ voices? How complete of a picture can we get about Latina/Latino education if we rely only on the dominant school discourse?” (Fernández, 2002, pp. 45–46). Therefore, although CRT/LatCrit can be considered a theoretical framework, it also engenders a specific methodology. Solórzano and Yosso (2002) introduced a Critical Race Methodology as

an approach to research grounded in critical race theory. We approach our work and engage in various techniques of data gathering and analysis guided by critical race theory and Latino critical race (LatCrit) theory. Critical race methodology pushes us [...] to recognize silenced voices in qualitative data. (p. 38)

Critical Race Methodology highlights the use of counter-storytelling and grounded research approaches within educational research. Solórzano and Yosso speak of the need to explicitly address race and racism, and also note its intersections with others kinds of subordination, in order to put an end to deficit-based research that distorts the voices and thoughts of people of color under the guise of objectivity and neutrality, and results in reproduction of oppressive master narratives. The authors advocate that this methodology must take issues of racism and oppression on directly, since “substantive discussions of racism are missing from critical discourse in education” (pp. 36–37). Solórzano and Yosso propose that utilizing the qualitative narrative approach and counter-storytelling through the research participants’ own voices, grounded in their experiences and knowledge, can counter dominant narratives and challenge racism and oppression to ultimately work toward social justice. Solórzano and Yosso (2002) actively ask the question: “whose stories are privileged in educational contexts and whose stories are

distorted or silenced?” (p. 36). This study focuses on personal narratives as told through first person *testimonio* accounts by its participants, in its approach to Critical Race Methodology. Malagon, Huber, and Velez (2009) find critical race methodology is able to be “critically sensitive in [its] abilities to situate lived experience within a broader sociopolitical frame” (p. 253). In its centering of the voices and experiences of the marginalized, and the amplification of those voices to a larger audience, critical race methodology is posited as not just a research method, but a tool for social change and transformative consciousness. Critical race methodology counters the problematic “colonizing” nature that traditional educational research has often reproduced (see critiques by Tuhiwai Smith, 1999; Villenas, 1996).

Within Critical Race Methodology, the use of narrative allows the counter-stories of the oppressed to emerge and uncover alternate realities to the dominant narrative, and thus “remedy the underrepresentation” of their voices in educational research (Yosso, 2006). This approach uncovers the often unstated and hidden struggles that marginalized people contend with, making them harder to ignore. This can lead to feelings of solidarity and communal strength among those who also face these struggles, potentially awakening and galvanizing those who had tacitly internalized the dominant narrative, and rallying stakeholders (both those oppressed and their allies) towards social change. This approach aligns directly to this study’s relating of the authentic voices of Latin@ students who are undocumented within science education to counter the master narratives that often disparage their strengths and discount their humanity.

Solórzano and Yosso (2002) specifically define their Critical Race Methodology as a theoretically grounded approach to research that

- (a) foregrounds race and racism in all aspects of the research process. However, it also challenges the separate discourses on race, gender, and class by showing how these three elements intersect to affect the experiences of students of color;
- (b) challenges the traditional research paradigms, texts, and theories used to explain the experiences of students of color;
- (c) offers a liberatory or transformative solution to racial, gender, and class subordination;
- (d) focuses on the racialized, gendered, and classed experiences of students of color. Furthermore, it views these experiences as sources of strength; and
- (e) uses the interdisciplinary knowledge base of ethnic studies, women's studies, sociology, history, humanities, and the law to better understand the experiences of students of color. (p. 24)

Critical Race Methodology approaches research with students of color in the above manner in order to counteract deficit perspectives about these students, using their own counter-narratives. Solórzano and Yosso (2002) point out that deficit narratives about these students often offer, as their solution to their “deficit,” the cultural assimilation of these students into the dominant White, middle-class culture as a model of educational “success.”

This cultural assimilation solution becomes a major part of the curriculum in teacher education programs and is thereby brought to the schools in communities of color. Therefore, according to cultural deficit storytelling, a successful student of color is an assimilated student of color. (Solórzano & Yosso, 2002, p. 31)

Critical Race Methodology affords a space for people of color to resist these assimilationist master narratives through their counterstories, which can reveal the important and often unheard stories of “social, political, and cultural survival and

resistance” (Solórzano & Yosso, 2002, p. 32) that uncover these students’ strength in their own resources and navigation, and not in their assimilation to dominant paradigms of educational “achievement” or “success.” The *testimonios* of the students in this study will trouble assimilationist perspectives of their “high-achieving” nature in science classrooms, and reveal a more complex negotiation of their political and structural realities utilizing Anzaldúa’s Borderlands and Lugones’s World-Traveling ideas to understand this complex negotiation. This kind of understanding of these students’ complex lived realities is made more possible through Critical Race Methodology, which makes these students’ experiences central and counters the dominant, assimilationist, educational research gaze.

Critical Race Methodology also advocates the researcher’s use of Delgado Bernal’s (1998) concept of *cultural intuition*, which “extends one’s personal experience to include collective experience and community memory, and points to the importance of participants’ engaging in the analysis of data” (pp. 563–564). Delgado Bernal puts forth the idea of *cultural intuition* to describe when the researcher draws from her own personal experience within the culture, as well as from collective and community memory. Through this background the researcher uses (a) Personal experience, (b) Existing literature, (c) Professional experience, and (d) Analytical research processes in tandem to analyze their ongoing relationship with their educational research and with the study’s participants. This study utilizes *cultural intuition* within Critical Race Methodology in how it engages in member-checking with the participants and co-construction of counter-stories through follow-up conversations and focus groups. This

study also follows Critical Race Methodology through the reflexivity of myself as the researcher and the use of my *cultural intuition* as a Latina, scientist, science educator, immigrants' rights activist, and daughter of immigrants, throughout conducting the study, while interacting with the participants and analyzing the results of the study. I utilize Critical Race Methodology's understandings of *cultural intuition* as Delgado Bernal (1998) explains:

A Chicana researcher's cultural intuition is achieved and can be nurtured through our personal experiences (which are influenced by ancestral wisdom, community memory, and intuition), the literature on and about Chicanas, our professional experiences, and the analytical process we engage in when we are in a central position of our research and our analysis. Thus, cultural intuition is a complex process that is experiential, intuitive, historical, personal, collective, and dynamic. (pp. 567–568)

Ultimately, the counter-narratives that emerge from utilizing Critical Race Methodology are intended to have these purposes, according to Solórzano and Yosso (2002):

- (a) They can build community among those at the margins of society by putting a human and familiar face to educational theory and practice;
- (b) they can challenge the perceived wisdom of those at society's center by providing a context to understand and transform established belief systems;
- (c) they can open new windows into the reality of those at the margins of society by showing possibilities beyond the ones they live and demonstrating that they are not alone in their position;
- (d) they can teach others that by combining elements from both the story and the current reality, one can construct another world that is richer than either the story or the reality alone. (p. 36)

In honoring the counter-narratives of marginalized students, Critical Race Methodology exposes the “experiences and responses of those whose stories are often distorted and silenced” and “offers a way to understand the experiences of people of color along the

educational pipeline” (Solórzano & Yosso, 2002, p. 36). This methodology “focuses research on how students of color experience and respond to the U.S. educational system. From developing research questions to collecting, analyzing, and presenting data, critical race methodology centers on students of color” (pp. 36–37). The essential outcome of this methodology is not just research and narrative for its own sake, but rather as a form of activism and solidarity against oppression by highlighting the strengths and strategies of survival for people of color in ways that “turn the margins into places of transformative resistance” (Solórzano & Yosso, 2002, p. 37). Through its grounding in Critical Race Theory, Critical Race Methodology “explicitly listens to the lived experiences of People of Color through counter-storytelling methods such as family histories, parables, *testimonios*, *dichos* (proverbs), and chronicles” (Yosso et al., 2009, p. 663). This study utilizes the above understandings of Critical Race Methodology as the heart of how and why the research was conducted in the manner that it was. It is the voices and knowledges of the student participants who are undocumented that are the center of this study, to ultimately stand with them towards social change and open up opportunities for their dreams in science to take flight.

Decolonizing Methodologies and Chican@ Epistemology

An essential facet of Critical Race Methodology is its capacity to decolonize Western/Eurocentric paradigms in educational research methods, which often take on exclusive and dominant claims to knowledge that reaffirm the master narrative (Tuhiwai Smith, 1999). Critical Race Methodology is an approach to decolonizing these “majoritarian” (Solórzano & Yosso, 2002) and “whitestream” (Urrieta, 2009)

methodologies in order to honor the non-dominant knowledges of people of color. As such, Critical Race Methodology can be interpreted as a “counter-praxis” or a “researching back” (Tuhiwai Smith, 1999) against traditional research methodologies, and is intentionally geared towards the self-determination of people of color, rather than primarily for the benefit of increasing academic knowledge or power. Critical Race Methodology pushes back against research methods that deem themselves to be free of cultural bias and qualified to make judgments and conclusions about peoples and cultures that are “otherised” from dominant researchers in positions of power. By highlighting and respecting the culture and voices of non-dominant people and cultures, Critical Race Methodology breaks down the hierarchical colonizing researcher/researched relationship and does not seek researcher authority over the experiences of the researched. Instead, this methodology seeks solidarity with the movement towards liberation from oppression that originates authentically from the participants, and employs methods that might offer some means to those ends. This study is motivated by this idea of counter-praxis towards seeking ways through its participants’ *testimonios* to create spaces for contemplation and action towards social justice in science and science education for these students who are undocumented. This study recognizes that “research is not an innocent or distant academic exercise but an activity that has something at stake and that occurs in a set of political and social conditions” (Tuhiwai Smith, 1999, p. 5). As such, this study is not just an exercise in exploring the context of its participants or of science education for its own sake, but rather, as a means by which to advocate for social justice for its participants who are presently struggling with injustices that limit their access and futures in science.

Tuhiwai Smith (1999) proposes a decolonization of academic research through a decolonizing, indigenous methodology emerging from acknowledging the inherent validity of the participants' knowledge, and choosing to work "with, alongside, and for communities" (p. 5) rather than doing research *on* communities. Doing research *on* communities often embodies the Western research gaze, and tends to consciously or subconsciously coopt the political and social struggles of marginalized groups to serve "another master," considering that the "cultural homeland" of the researcher is often somewhere else, and the discourse, power and privilege of the researcher is often vested within the academy, and not within the community being researched. The tradition of Western research often assumes that the researcher should be imbued with the power to define what is found in the research, and subsequently make authoritative conclusions about the researched; what Tuhiwai Smith (1999) calls "research through imperial eyes" or "colonizing knowledges" (p. v). This can result in a research approach likened to "they came, they saw, they named, they claimed" (p. 80) in the name of benefitting academia, or educational research. Instead, Tuhiwai Smith presents several alternative postcolonial methods such as *community research*, where the community makes its own path and definitions towards a systematic action or emancipation; *claiming*, where marginalized participants endeavor to claim and reclaim their rights; *testimonies*, which intersect with claiming and involve participants bearing witness and speaking their painful "truths"; *storytelling*, or oral histories that contribute to a collective sense of the community; and *celebrating survival*, as the participants recount, often in story form, how they retain cultural values and authenticity in the face of a dominant assimilatory force, representing

their resistance as a source of strength. As such, the methods of *testimonio*, counter-storytelling, member-checking, reflexivity, solidarity within community with participants' self-determined paths toward social justice, etc. that are utilized in this study are intended as tools towards decolonizing this study's approach to research within the frame of Critical Race Methodology. These methods are utilized intentionally as alternative tools to more traditional methods, recognizing that "the master's tools will never dismantle the master's house" (Lorde, 1979). The methodological approaches in this study are further focused by a Chicana@ Epistemology.

Marc Pizarro's applications of Chicana@ Epistemology are a necessary link to a Critical Race Methodology informed by LatCrit. Pizarro's ideas are instrumental to the way this study approaches Critical Race Methodology from a Latin@/Chicana@ worldview. Pizarro echoes the decolonizing push by scholars like Tuhiwai Smith (1999) for a paradigm shift in educational research that does not make assumptions that researchers are the sole producers of knowledge, and instead "is participatory and transformative, particularly with regard to Chicana/os and their concerns related to social justice and educational empowerment" (Pizarro, 1999, p. 54). Pizarro (1999) argues that "the overwhelming obstacles Chicana/os face in the United States, just in trying to obtain an education, suggest that there is an urgent need to confront our epistemological and methodological obstacles" (p. 54). Pizarro posits that "social justice must become the measure by which we evaluate the strength of research in Chicana/o communities" (p. 54), and not traditional standards of measuring research by the validity and reliability of the research design, which Pizarro states is full of "baggage" that oppresses Chicana/o

communities and “does nothing to confront its traditions of ‘objectivity,’ which support both unconscious and blatant manifestations of racism” (p. 54). To push back against misguided assumptions for objectivity and neutrality imbedded in traditional positivistic research, this study takes as primary its capacity to contribute to the call for social justice regarding the particular injustices faced by its participants, in ways that are openly reflexive of the researcher’s political alignment with the struggles of the participants, and considers its research validity beyond traditional measures of its worth. So, this study takes into account its *catalytic validity* (Lather, 1991) as its alternate assessment of the validity of the work done with marginalized students, where “catalytic validity represents the degree to which the research process re-orient, focuses and energizes participants toward knowing reality in order to transform it, a process Freire terms conscientization” (p. 68). Lather concedes that catalytic validity “is by far the most unorthodox; it flies directly in the face of the positivist demand for researcher neutrality” (p. 68). For these reasons this approach to the worth of this study methodologically aligns with its home in decolonizing, critical race methodology. More on how this study uses catalytic validity will be discussed later in this chapter.

Pizarro (1999) holds that in educational literature, “Chicana/os and their voices have been almost completely excluded from educational research. Even the research that addressed the critical problems facing Chicanas/os in the schools did not include the students’ perspectives to any substantial degree” (p. 55). This study provides ample perspectives from Latin@/Chican@ students to fill this void and to function within the spirit of Chican@ epistemology as it aligns with Critical Race Methodology. In this way

the theories, frameworks, and methodology employed in this study are intertwined. Pizarro advocates the use of open-ended interviews that have as their goal to see schooling and struggle through the students' eyes, while discarding the misguided notion that the researcher has a "right to contextualize, critique, and explain the experiences and description provided by Chicana/o students" (Pizarro, 1999, p. 56). Pizarro strongly pushes against reducing students' lives to "catch-phrases" and categorizing their consciousness and meanings when conveying findings. He considers it to be colonizing and a kind of symbolic violence to "allow" students to tell their stories, but then to make authoritative and patriarchal decisions on what parts of their stories are relevant to the privileged lens of the researcher. Instead, Pizarro advocates that Chican@ students must be central to the analysis of their own stories, and shape the findings of the research towards their own transformation and desires for social change. This study holds to this worldview and gives deference to the stories and perspectives of the students within, letting go of the researcher expectation to codify, interpret, and categorize the students' words and meanings. This study considers this kind of authoritative analysis as an act of colonization and symbolic violence towards students whose stories and struggle have already been too often overdubbed by those in dominant positions. Students in these marginalized positions have been too often told that they are not the creators of knowledge, and that their perceptions must submit to some other authority. Through a Chican@ epistemology, then, this study considers traditional analysis methods that set the researcher as a positional authority as a "mutilation of the human being, an objective of the ruling class who have us convinced that there are people who are 'head' and people

who are ‘hands’ (Burciaga, 1995, as cited in Pizarro, 1999, p. 62). This study seeks not to reproduce these colonizing researcher/researched power dynamics, but rather to enact research in which “researchers and participants are engaged in social justice research, as Chicana/os fighting together for survival” (Pizarro, 1999, p. 74).

As an alternative to the colonizing nature of the traditional methodologies discussed above, Pizarro (1999) advocates a methodological shift “grounded on the epistemology of those with whom we work” (p. 62) in this case, informed by the historic and cultural practices of Chican@s. Pizarro recommends a methodology that emerges authentically from Chican@ researchers and the community together towards “the creation of new knowledge and ‘truth’ that attacks tradition” (p. 75). As Anzaldúa (1990) says regarding Chican@/Latin@ voices with regards to the academy:

Theory, then, is a set of knowledges. Some of these knowledges have been kept from us—entry into some professions and academia denied us. Because we are not allowed to enter discourse, because we are often disqualified and excluded from it, because what passes for theory these days is forbidden territory for us, it is vital that we occupy theorizing space, that we not allow white men and women solely to occupy it. By bringing in our own approaches and methodologies, we transform that theorizing space. (p. xxv)

In the spirit of “bringing in our own approaches and methodologies” that bring Chican@ epistemologies into a new decolonizing methodological “space” that levels power differentials among Chican@/Latin@ researchers and participants, Pizarro (1999) suggests methods “grounded in shared notions of love, family, and the need for justice” (p. 74). Pizarro draws from Latin@/Chican@ cultural studies along with his and his participants’ *cultural intuitions* to suggest methods based on Chican@ histories and

values such as the use of the Mexican institution of the *corrido*, which is a “means of passing on history for a people who rely heavily on the oral tradition” (p. 62). *Corridos* are usually grounded in the values of respect and love, and often tell of how individual Chican@s have fought against oppression to embody the importance of pursuing justice. Pizarro also draws from Chican@ values of group empowerment of their communities and families in collective ways, such as honoring “all the people who died, scrubbed floors, wept and fought so that I could be here at Stanford” (Burciaga, 1995, as cited in Pizarro, 1999, p. 64). Drawing on these facets of Chican@ epistemology to inform a new methodology, Pizarro (1999) proposes a method for Chican@ social justice research that is divided into five phases:

1. *Identifying “Subjects,”* in which the oppression and struggles of specific parties is foregrounded and those that are seeking change out of their own necessity and struggle with that oppression, are identified. Identifying these “subjects” follows from the question of “whose knowledge is being ignored and drowned out” by the master narrative (p. 65). These subjects’ voices are centralized, given that the primary concern of this research is to advocate for social change to better the conditions of the subjects.
2. *Project Definition and Descriptive Phase,* where the researcher and participants build a safe space where they can share their lives and stories. This involves the researcher showing that “s/he understands and shares the epistemological traditions” (p. 67) of the participants. The researcher is open to any issues that the participants find problematic, and establishes them as the authorities on their struggle. The researcher commits herself and the study to working towards solutions to those issues raised by the participants. “The research, therefore, is not seen as extraction from but as enrichment of the individuals and their communities. This facilitates breaking through the implicit power differential in the researcher-participant relationship” (p. 67). The participants are assured that their words and appeals will be heard by larger audiences, and solutions to the issues they raise will be sought. The researcher asks participants broad open-ended questions based in familiarity with common epistemologies, “so they talk easily about issues that are significant to them” (pp. 67–68). “Chicana/o students may also identify a

specific need that transforms the researcher's role into that of advocate" (p. 68). In this way, the study's direction is grounded and shaped by the participants, and not solely by the researcher.

3. *Analytical Phase*, where the researcher identifies the participants' perspectives and areas of concern together *alongside* the participants, through "researcher-participant conversations" (p. 68). Participants revisit their initial accounts and clarify for themselves and with each other what is at the heart of their experiences and testimonies, and what needs to have the attention of a larger audience to move towards betterment of their concerns and social transformation. Again, this cements how the participants are seen as authorities throughout the research process. Importantly, "through the analysis, researcher and participants will focus attention on how empowerment can be achieved for their community" since "Chicana/o students [...] have critical contributions to make to understandings of their world and efforts to change it" (pp. 69–70).
4. *Meta-Analytical Phase* is a reflection of the research process done by both the researcher and the participants, cognizant that the stories and knowledge passed through oral tradition are meant to be evolutionary, and transform over time, just as it transforms the listener differently each time it is heard. Each retelling of the story often reveals deeper levels of meaning. In this phase, the many layers of the stories imparted by participants can be explored, and where "the researcher and the participants push their discussion of concrete implications and interventions that they can then propose through the research" (p. 70).
5. *The "Product" and Empowerment Efforts* must ensure that the "product," meaning the writings, presentations, dialogic interactions, policy recommendations, etc. that may ensue from the research, require that "the researcher carefully recreate the process and problematics involved in the co-construction of knowledge during the research" (p. 71) under the understanding that the participants view and have final authority on the representations of the research, under solidarity between the researcher and the participants that they are "researching together for survival as a Chicana/o community" (p. 71). "In this final and ongoing phase of research, researcher and participants together are pushing toward knowledge, understanding, and interventions that are directed at improving the conditions of Chicanas/os and their communities. [...] As this research process is grassroots-oriented, so too must be the subsequent efforts at change" (p. 71). Participant empowerment rests on their centrality as the authorities of the research, and the architects of the efforts towards social change for their communities.

This five-phase method is implemented in this study, cognizant of how the study brings together decolonizing and Critical Race methodologies under a Chicana@/Latin@ epistemology. It is in this spirit that this study pays special attention to the authority of the participants as the experts of their own experience, and the grounding of the focus of the research on the concerns and struggles that the participants raise. Through this approach,

we are attempting to move beyond traditional research and academic roles, and the idea that traditional research can make productive change for Chicana/os. We are seeking to create new knowledge from within a Chicana/o epistemology that, although it attacks tradition, is helpful to Chicana/os in their activist efforts. (Pizarro, 1999, p. 72)

This study also emerges from Chicana@ epistemology's practice of oral tradition and community empowerment, as Pizarro (1999) described, and is further described by many scholars within Latin@/Chicana@ cultural studies, as discussed in Chapter II. Since a major facet of Chicana@ epistemology as it translates into research methods is its reliance on oral tradition through the custom in Latin@/Chicana@ culture of the *corrido*, the primary vehicle for this study emerges from the connection between Latin@ *corridos* and the practice of *testimonio*. How this study utilizes *testimonio* as a form of *corrido* is discussed in the following section.

***Testimonio* Methodology**

Testimonio is a form of testimony, or a bearing witness, which has its roots in “a tradition of Latin American literature in Latin America dating back to the chronicles of discovery and conquest of the New World” that emerged from the struggle for liberation

from oppression (Maier & Dulfano, 2004, p. 3). It has its roots in local indigenous oral tradition, and the tradition of the *corrido* stories of resistance to oppression, and was further honed by the revolutionary diaries of Simón Bolívar and Che Guevara. The revolutionary 1966 *testimonio* “Biografía de un cimarrón” [Biography of a Runaway Slave], written by a Cuban writer, Miguel Barnet, is considered the foundational text of the testimonial genre. The most famous modern *testimonio* is arguably that of Mayan/Guatemalan human rights activist Rigoberta Menchú (Menchú & Burgos-Debray, 1984), which told of the genocidal conditions her community was enduring, and for which she won the Nobel Peace Prize. Her work was later made controversial by the critiques of David Stoll (Stoll, 1998).

Testimonio can be considered a specific kind of narrative. Narratives within educational and qualitative research incorporate elements of personal experience stories that often contain “surprises, coincidences, embellishments, and other rhetorical devices that draw the reader in and hold attention” (Schwandt, 2007, p. 201). However, *testimonio* differs from conventional participant narrative in that it specifically deals with first-person accounts

by a narrator who is also a real protagonist or witness of the event he or she recounts, and whose unit of narration is usually a ‘life’ or a significant life experience. [...] The situation of narration in *testimonio* has to involve an urgency to communicate, a problem of repression, poverty, subalternity, imprisonment, struggle for survival, and so on. (Beverley, 1989, pp. 12–13)

However, *testimonio* is “not so much concerned with the life of a ‘problematic hero’ [...] as with a problematic collective social situation that the narrator lives with or alongside

others” (Beverley, 1989, p. 15). *Testimonio* is intended to speak directly to the listener (or reader) in ways that are meant to “wake them up” to the exigency of the oppression and injustice spoken, and provoke the listener/reader to react. It is the intentionality of the narrator that is key.

When we are addressed in this way, directly, as it were, even by someone who we would normally disregard, we are placed under an obligation to respond; we may act or not on that obligation, we may resent or welcome it, but we cannot ignore it. Something is asked of us by *testimonio*. (Beverley, 2000, p. 1)

Testimonio is also different from typical narratives in that it “always signifies the need for a general social change in which the stability of the reader’s world must be brought into question” (Beverley, 1989, p. 24). This study ensures the narratives and appeals for social justice of these students, as they urge others to hear them, become the central focus. In this way, participant *testimonio* becomes a larger method within a research approach that applies *testimonio* as methodology (Huber, 2009b; Urrieta et al., in press).

The overarching methodological approach of this study is centered on the lived realities and voices of the participants and the relationship of solidarity between the researcher and the researched as it developed over a full school year. The use of Critical Race Methodology (Solórzano & Yosso, 2002) and Chican@ Epistemology (Pizarro, 1999) to approach issues of oppression and struggle in a decolonizing way becomes a vector through which counter-stories such as *testimonios* can uncover deep truths and a kind of catharsis for these students. Through the act of giving and listening to *testimonios*, unspoken realities can be revealed as an act of healing for both the *testimonista* and the listener. Participant *testimonios* in this study are central to dispelling

deficit stereotypes about these students, and working toward social justice. This approach is undergirded by a lens which views lived realities as a connected whole, and cannot be isolated to a singular place or time. This interconnectedness of lived realities interweaves participant *testimonios* as they come together with students' experiences as observed in their science contexts and beyond, and crystallizes with their dialogue, conversations with each other and about each other, and through intentional and casual interactions between this group of students, their teachers, and the researcher.

Testimonio, as a form of narrative, becomes a methodology that communicates a story more than a sum of its parts, to truly humanize the teller of these stories and the stories they have to tell (Riessman, 1993). In doing so, *testimonio* becomes a powerful tool, especially under a critical lens, for counter-story. It poses challenges to deficit narratives, challenges which are grounded in personal experience and human voice (Clandinin & Connelly, 2000). What emerges from this method is a holistic approach that is mindful of connections to larger social structures, by taking into account the many contexts that shape experiences of students and reflecting it through “the wholeness of people’s lives” (Clandinin et al., 2006).

In this study, including whole stories as told by the *testimonistas* helps readers get a sense for who these students are and establishes their presence through their lived realities, as central to the study, as is the format of Critical Race Methodology utilized in this study. The use of *testimonio* here is also intended as “pedagogy to educate future teachers” as these “approaches to using *testimonios*, especially by students, may be quite effective in teaching future teachers of the realities of immigrant children, especially the

realities of undocumented immigrant children in U.S. schools” (Urrieta, 2003, p. 242). Most importantly, these *testimonios* are told as an act of bearing witness to lived realities that most readers will be unfamiliar with so that readers will know them: “Pa’ que lo sepas.” And “once you see it, you can’t unsee it. And once you’ve seen it, keeping quiet, saying nothing becomes as political an act as speaking out. There’s no innocence. Either way, you’re accountable” (Roy, 2002, p. 7). The use of *testimonio* in this study is done as an act of centralizing the often marginalized experiences and full “humanness” of the students involved to convey that these are real people, real students, sharing very intimate aspects of their lives so that perhaps some readers may be persuaded to relate to them, and ally themselves to their causes by taking on a deliberate sociopolitical awareness (R. Gutiérrez, 2010). As R. Gutiérrez (2010) points out, “For those using LatCrit theory, social activism is an important part of education and *testimonios* form the basis of the stories that people tell about themselves” (p. 6).

This study presents an approach for humanizing participants in science education research through its use of *testimonio*, which has rarely been used in the science education literature. The use of *testimonio* makes it possible to bring knowledges and understandings to the conversation in science education that may otherwise not be heard, especially given the rarity of the voices of Latin@ ninth- and 10th-grade high school students who are undocumented with aspirations in science in general, let alone within the science education literature. One notable example of where a discussion of *testimonio* has been found in the science education literature is in Guerra et al. (2012), which studies an African-American student named Kay and tells narratives about her identity work

through “narratives of navigation, protection, and endurance” (p. 8). While Guerra et al. (2012) speak about the usefulness of *testimonio*, Kay’s narratives are told in the third person about Kay, from the perspective of the researchers, with piecemeal quotes from Kay as well as fieldnotes brought in to support the researcher’s telling of counter-narratives about Kay. Guerra et al. (2012) present very powerful counter-narratives, but it is important to distinguish this from the “first person, novel length accounts [which are a] metaphor of ‘witnessing’ through real-life experience” (M. S. Gonzalez et al., 2003, p. 234) that are the hallmark of *testimonio* literature.

This study advocates for the use of *testimonio* as a tool to “reveal both the oppression that exists within educational institutions and the powerful efforts in which students of color engage to challenge and transform those spaces” (Huber & Cueva, 2012, p. 392) within science education research. The benefit of the use of *testimonio* in science education lies in its ability to uncover voices beyond those of the science education researcher, because in *testimonio*, the participant/narrator “uses the interviewer to get her/his message across to a wider, traditionally external and un(der)aware audience” and “allows the narrator the agency to speak in less restricted ways” (Urrieta et al., in press, pp. 3–4). Utilizing *testimonio* may give science education research additional avenues to uncover lived realities from many typically marginalized groups within science education whose voices may otherwise be overpowered by the dominant perspectives of science education researchers. As Urrieta et al. (in press) maintain, “*testimonios* matter because they reveal insights from a domain that would otherwise be overlooked” (p. 26).

As such, this study employs *testimonio* as a methodology and a methodological tool, which gives primacy and narrative authority to the lived experiences of the subaltern through their direct words (Beverley, 2000). Urrieta et al. (in press) explore the idea of *testimonio* as a research methodology within Latin@ communities as a decolonizing methodology which functions “as a confrontation to authority that ‘interrupts’ whitestream fieldwork narrative analysis and is political in nature” (p. 3).

The Latina Feminist Group (2001, p. 12) aptly and strongly suggests that *testimonio* should be the primary methodology to use when studying *latinidades* because it is “a more organic way of creating and generating knowledge.” *Latinidades* in this chapter means the wide range of different Latina/o identities and experiences. *Testimonio* allows the narrator the authority and power to negotiate and create self-authorship (identification) and voice by disrupting traditional, pre/scriptive, and soliciting confessional, semi-structured, and especially highly-structured interviews. (Urrieta et al., in press, p. 4)

Using *testimonio* as a methodological tool, the larger social structures of power that oppress marginalized peoples are uncovered and damaging stereotypes are countered with real human stories of the strengths of those traditionally marginalized. Urrieta et al. (in press) describe the heart of *testimonio*:

Testimonios are a strategic, oral art of Latin American origin and subaltern memory. *Testimonios* are [...] a narrative with the authority to convey conditions of truth and representation by those who have it historically denied to them (Beverley, 2000). Traditionally, the *testimonio* bears “witness” to a living “truth,” a body—the life of the person giving the account, acting, in practice, in a space that continues and elicits the listener’s (reader’s) consciousness in knowing that abuse and violence, physical and/or symbolic, exists (Poniatowska, 1971). *Testimonios* are also about survival and *sobrevivencia* as a testament to resiliency and triumph. (p. 1)

Testimonio is powerful, as M. S. Gonzalez et al. (2003) explain, through a professor's experience lecturing to preservice teachers about the "big systemic picture" involving immigrant students in schools and his "academic interpretations of the U.S. educational system and its false promises to some and special privileges to others" (p. 234). The preservice teachers were "not very receptive" to the professor's ideas or entreaties. Then the professor brought in students who were undocumented, one by one, to share their *testimonios*, "bearing witness to their experiences with prejudice, bigotry, violence, persistence, and courage in U.S. schools" (p. 234). The authors found that these *testimonios* of immigrant students were far more "effective in teaching future teachers of the realities of immigrant children, especially undocumented immigrant children, in U.S. schools" (p. 242).

The use of *testimonio* as a method is morally essential because too often,

The complexity of an immigrant identity as a child, especially that of an undocumented immigrant child, is often ignored. Children are at times brought to this country without being asked if they want to come, against their will, or are left behind with relatives until one, or both parents, get established economically in the United States. The risks involved in crossing the border as an undocumented child are dismissed or never mentioned, but are equally if not more dangerous than for adults. (M. S. Gonzalez et al., 2003, p. 234)

These students who are undocumented have deep insights and voices that bear witness to their struggles and experiences, and in giving their *testimonios* "we can no longer ignore or erase our knowledge of these experiences and of countless others like them" (M. S. Gonzalez et al., 2003, p. 242). It is up to scholars then, to check our privilege, step back, and hold in regard those spaces in which *testimonios* of students who are undocumented

can occur. This study considers giving primacy to *testimonios* as its central method to also be, then, a critical and moral act of decolonization.

Testimonios work to disrupt the “official” knowledge distributed by the structures of power and counter them with the alternate truths of the subjugated (Huber, 2009b). Cinthya Saavedra (2011b) speaks of the capacity of *testimonios* to “tell a collective story and history of oppression through the narrative of one individual” (p. 262), where *testimonios* are told to someone with the ability to take their words to a larger circle and raise awareness of their oppression. Further, *testimonios* become “maps of consciousness” not only of the storyteller, but of the larger structures of power that s/he inhabits (Saavedra, 2011b). *Testimonio* in this study becomes a vehicle of alternate truth and solidarity amongst the Latin@ students who are undocumented in the study. *Testimonio* also becomes a vehicle for the larger empowerment of those who identify with the *testimonista*, moved through solidarity by a singular voice that speaks truth to power. The fact that the amplification of the voices of the oppressed through *testimonio* has this power gives it a capacity for transferability in this study, where I take transferability to mean that “the findings of one study can be applied to other situations” (Merriam, 2009, p. 223). In my study’s case, the *testimonios* related may have the capacity to speak truths about similar situations involving other Latin@ students who are undocumented. However, because this is a qualitative study, it is not up to this study to dictate how much of the narrative of one person can apply to others. Rather, the paradigm utilized in this study will “leave the extent to which a study’s findings apply to other situations up to the people in those situations” (Merriam, 2009, p. 177). Nevertheless, one

way in which transferability is more adequately addressed in my study is in regards to giving enough thick, rich, and lengthy narratives in which others can have much to compare to, as is the case with *testimonios*, which are intended to be of considerable length and detail (Beverley, 2000).

It is important to note that “given the self-narration premise of the genre, we as researchers cannot demand that people give us *testimonios* while conducting qualitative or ethnographic research in Latina/o communities” (Urrieta et al., in press, p. 4). Instead,

testimonios happen because they are living narratives that belong to the narrator, not to the interviewer. Narrators seize the moment and the sympathetic ear of the researcher when the conditions and trust feels right to tell a *testimonio*. Emotion and *confianza* (trust) play an important aspect for when *testimonios* happen. *Testimonios* are a *gift* of trust and alliance. (Urrieta et al., in press, p. 4)

The researcher, then, must engage in solidarity with the community and be emotionally invested in the welfare of this community:

Because *testimonios* are a *gift* they cannot be demanded of people, or obtained by following pre-scripted interview protocols in qualitative research. *Testimonios* are *given* because of a sense of trust and alliance that should be determined by and under the control of the narrator, not the interviewer. As such, researchers working with Latina/o communities should be trained to understand and be able to recognize when a research participant is giving a *testimonio* and not merely “rambling” or “straying from” the focus of an interview, especially because *testimonios* may not follow a linear narrative style. (Urrieta et al., in press, p. 24)

The means of producing and sharing *testimonio* is multifarious, but in many cases, “the production of a *testimonio* generally involves tape-recording and then transcription and editing of an oral account by an interlocutor” (Beverley, 1989, p. 14). However, the

editing is done with a minimal amount of disruption to the meaning and intent of the *testimonista*.

Testimonio involves a sort of erasure of the function, and thus also of the textual presence, of the “author” [...] the author has been replaced in *testimonio* by the function of a “compiler” (*compilador*) or “activator” (*gestante*). (Beverley, 1989, p. 17)

In this way, the function of the researcher doing qualitative research within the framework of *testimonio* is engaged in a decolonization of the participants’ knowledge in the spirit of Critical Race Methodology and Chican@ Epistemology. This methodological approach in *testimonio* offers an

alternative to the patriarchal and elitist function the author plays in class-divided and in sexually and racially divided societies [...] the erasure of authorial presence in the *testimonio*, together with its nonfictional character, make possible a different kind of complicity,—might we call it fraternal?—between narrator and reader. (Beverley, 1989, p. 17)

As the researcher/author in this study utilizing a *testimonio* methodology, it is not my role to superimpose my interpretation or executive decision on what is important in the words and meanings of the study’s participants. Instead, I consider this study a vehicle in which the participants’ words have a venue, and I am offering this work as an act of solidarity with them, while also acknowledging my privileges as a Latina with citizenship and access to higher education. As the “interlocutor,” I remain sensitive to my privilege and to the primacy of the *testimonista*’s words. However, the practice of *testimonio* methodology is

not so much to insist on the *difference* in the social situations of the direct narrator and the interlocutor but rather on the possibility of their articulation together in a common program or front. In the creation of the testimonial text, control of representation does not just flow one way [...] Moreover, editorial power does not belong to the compiler alone. (Beverley, 1989, p. 21)

It is in this way that this study utilizes *testimonio* methodology as an avenue for analysis and meta-analysis in line with Pizarro's (1999) phases of analysis and meta-analysis.

That is, the work is produced in solidarity between the researcher and the participants, aligning with Pizarro's proposed five phases of Chican@ epistemological methodology.

This study engages in this kind of decolonizing analysis through member checking as well as shaping the focus of this study through the appeals for social justice and social change as voiced by the participants. This study utilizes what Urrieta et al. (in press) call a *composed testimonio*, which is

A novel-length account written in first person that addresses an urgent matter, but is not necessarily given by the narrator at one time. We believe that data from a series of conversations/interviews with one participant can be used to put together a *composed testimonio* over time. By drawing relevant narrative from multiple interviews a specific issue can be addressed as a *composed testimonio*, put together by the researcher, but always in consultation and collaboration with the testifying research participant. We cannot emphasize this enough. (p. 25)

My role as the researcher/interlocutor is to piece together the *testimonios* of my participants, in consultation with them through member checking and collective analysis, in ways that honor the urgency and wholeness of each participant's words.

Critical Ethnographic Methods and Participant Observation

This study draws from Chican@ Epistemology methodological approaches (Pizarro, 1999) and Pizarro's recommendations for grounded, participatory research that

is deferential to the voices and wholeness of the lives of the participants, and the larger sociopolitical structures in which they operate. While participant *testimonios* that emerge from interviews and focus groups are primary in this approach, researcher immersion into the community for the purposes of collective activism towards social change is also important. The goal is to create *community research* (Tuhiwai Smith, 1999) and not colonizing research in which a researcher comes to the research site solely to conduct interviews, taking the data that she needs, and academically benefitting from it in a “they came, they saw, they named, they claimed” (Tuhiwai Smith, 1999, p. 80) way. Therefore, this study engages in critical ethnographic methods through participant observation, engagement, and immersion with the students primarily to create a safe space and build researcher/participant rapport where the richness of participant lives and the full emotional brunt of their stories can be shared. These interactions also establish spaces for the researcher to engage with students in various contexts and to converse in ways that show that “s/he understands and shares the epistemological traditions” (Pizarro, 1999, p. 67) of the participants in settings that are familiar to the students, such as their classrooms, school hangouts, and afterschool activities.

This study therefore utilized participant observation (Spradley, 1980) of the students’ ninth-grade honors environmental science and biology classes, their 10th-grade honors chemistry class, the high school’s afterschool STEM Global Education (SGE) club, and afterschool Scholar’s Latino Initiative (SLI) events, through taking field notes with thick, rich, descriptions and being attentive to what the students communicate explicitly through words, actions, and practices and how they interact with one another,

the teacher/activity facilitator, and the researcher (see participant observation protocol in Appendix A). This lens that separates what students say, do, and produce with each other vs. with the teacher, helps us to understand the various worlds students draw from and their code switching between these worlds. By also looking at the researcher/participant relationship, I can pay attention to the dynamics I, as researcher, create through interaction with the students. Within this researcher/participant relationship, I attempt to remain sensitive to power dynamics, even as I try to level them as much as possible. While engaging in this more formal participant observation, I engaged with the students through conversations that are intentionally open to the students dictating the topics and direction of the conversations, whether it be casual conversation with each other, or more directed conversation involving a task assigned by their teacher or activity facilitator. I also drew from my own *cultural intuition*, shared epistemological traditions, and growing experiences with the students to engage in conversations that draw out commonalities and solidarity in the researcher/participant relationship.

The study's observation protocol (see Appendix A) pays particular attention to understanding the meanings of science, schooling, and knowledge emerging from the participants' everyday classroom activities using the combined information from what people do (cultural behavior), what they say, and what they produce (which includes the tools and products in use; Spradley, 1980). Those observed go beyond the five student *testimonistas* in the study, and also include these students' teachers, afterschool activity facilitators, and all other students in their classroom, as the student participants' lived realities include the larger contexts in which they are immersed, in addition to the much

broader social and political structures they navigate. Participant observation specifically entailed sitting in the participants' ninth- or 10th-grade science classes at least once a week for a full school year; attending their afterschool STEM Global Education (SGE) club meetings at least once a month, and attending their afterschool Scholar's Latino Initiative (SLI) events as often as I was invited. This approach involved participating as actively in the discussions and activities as the teacher, facilitator, and students were comfortable. I engaged in this involved level of active participation in the activities of the classroom, engrossing myself in the activities of the classroom by sitting with the student participants and engaging with them as they learn (Spradley, 1980). When the teacher involved me in conversation or tapped into my knowledge as a teacher, I openly collaborated. When the teacher was engaged in his/her own lesson, I engaged with the students and let them decide how deeply (or not) they were engaging with the lesson. I walked a similar line with the facilitators of the students' afterschool STEM and SLI activities. All the while during participant observation and in subsequent (and communal) data analysis, I was reflexively aware of my position as a former science teacher, Latina, and researcher with a vested interest in the welfare of these particular Latin@ students. All students, teachers, and facilitators in this study knew where I stood regarding issues of social justice for students who are undocumented, and my passion of science teaching and learning. This became an instrumental part of gaining rapport with students, teachers, and facilitators, all of whom shared similar views on the issue of immigrants' rights. During participant observation, I either tape recorded the activities and took notes after the event, or took detailed, descriptive field notes (Geertz, 1973) during the event, paying

specific attention to what the participants, teacher, or facilitator were doing, saying, and producing, with particular effort to record exact quotes of participant and teacher/faciliator dialogue (Spradley, 1980). Through these thick, rich descriptions, I got a better sense of the constructed cultures emerging from the learning environment (Geertz, 1973). As soon as possible after having collected participant observation data, field notes were re-read and I added bracketed personal perspectives and formative impressions with an eye both for how the data so far aligns with the research questions, as well as emerging themes from the interactions observed in the classroom or afterschool activity, in order to return and share these ideas in conversation with participants and construct collaborative meanings from them, with deference to the meanings the participants make of such observations, superseding my own. See Appendix B for a sample of the field notes collected during participant observations.

Due to this study's emphasis on the lived realities of Latin@ students who are undocumented emerging primarily from their *testimonios*, but also as a function of their experiences, culture, and sociopolitical contexts, participant observation allows me to crystallize what the *testimonios* speak of the cultural, social, and political "worlds" (Lugones, 1987) that students negotiate through their varied contexts and the "borders" of those worlds, as well as the way the Latin@ students who are undocumented lovingly play within those worlds. Participant observation allows for better understanding of the "repertoires of practice" (K. D. Gutiérrez & Rogoff, 2003) that are evident among the students, and among the contexts they traverse. This information serves as crystallization (a critical approach to triangulation) with data from student interviews/*testimonio*.

Crystallization is the process of using multiple forms of data and/or sources to cross-check findings (Merriam, 2009, p. 216). This study uses student *testimonios* as primary sources of data, but crystallizes this data through additional interviews of the students' teachers, member-checking with the students, and participant observation of various formal and informal science settings in which the students participate. After *testimonios* are presented in Chapter IV, examples of how their *testimonios* were crystallized with additional data from these other sources will be shown in Chapter V.

Given that this study's methods of data collection are approached with a critical lens in which lived realities are considered as a connected whole, interconnected with larger sociopolitical structures and histories, and cannot be isolated to a particular place or time, ethnographic methods employed in this study follow in Madison's (2005) conception of critical ethnography. Madison's model of critical ethnography strongly values building rapport with participants and being motivated by a political purpose aimed at social justice aligned with participants' desires. Madison's approach to critical ethnography holds as central that researchers be open about their positionality within the study and be sensitive to their participants through (a) reflexivity on the researcher's purpose, intentions, and frames of analyses; (b) sensitivity to possible consequences of the research; (c) maintaining a dialogue between the researcher and the participants; (d) being mindful of how the local story is relevant to broader meanings and operations of the human condition; and (e) how the research will make contributions to equity, freedom, and justice (Madison, 2005, p. 4). In this way, critical ethnography "attend[s] to avoiding the colonizing nature of ethnography by paying particular attention to the line

between the powerful and the powerless [...] and recognizes that researchers always speak from a historically, politically, and culturally situated standpoint” (J. Lopez, 2010, p. 52). These tenets are kept at the forefront of the participant observations, interviews, and all ethnographic interactions conducted within this study. Ultimately, all methods utilized in this study intend to draw from a critical ethnographic tradition of “reflexive, collaborative research methods” (Foley & Valenzuela, 2005, p. 217) and follow Angela Valenzuela’s example as a critical ethnographer who is politically active and is involved in research aimed at changing public policies (Foley & Valenzuela, 2005).

Context of the Study

The names of the participants, schools, communities, and cities and state in which this study was conducted have been changed or omitted to protect the identities of the participants in this study. The site where data were collected for this study is a Southern Title I public high school. “Jones” High School serves grades 9–12, where the majority of the student population is comprised of students of color. Considered one of the most diverse high schools in the Southern state where it is located, Jones High boasts students from many different countries, where close to 80% of the students receive free or reduced lunch. An administrator shared that the number receiving free or reduced lunch may even be higher if all students applied. The demographics of the school are roughly 70% African American, 15% Latin@, 13% Asian, 1% Native American, and 1% White. Jones High also serves nearly 1,200 students, where the district and state average is closer to 800 students per high school (School Report Cards, 2011). Jones High is one of only a handful of high schools in the district that offers International Baccalaureate (IB)

certification, and offers a small number of Advanced Placement (AP) courses, although it offers fewer AP options than other high schools in the district that serve more affluent, White communities. The school had previously had a reputation throughout the city of being a “bad” school to be avoided by prospective teachers and students, but had recently been gaining a more positive reputation through the work of a new principal and the offering of the IB program.

Jones High School was purposefully selected in this study not only because it has one of the largest Latin@ student populations (15%) in its school district, but also because of the exceptional graduation rate of their Latin@ population. While it struggled with lower standardized test scores and was on the lowest designation of the No Child Left Behind tier of Annual Yearly Progress during the year before this study was conducted, the graduation rate of their Latin@ population for that school year was over 93%, compared to the district’s Latin@ graduation rate of under 69% and the state’s Latin@ graduation rate of under 62% (School Report Cards, 2011). This unusually high graduation rate was what first attracted me to Jones High School for this study: I was curious as to what made this high Latin@ graduation rate possible. It is important to note that while Jones high school was in the lowest tier of Annual Yearly Progress with less than 50% of students at grade level (School Report Cards, 2011) during the year before this study was conducted, it became the “Most Improved School” with 60% of students at grade level by the end of the 2012 school year. Being “at grade level” entails students scoring a “3” or “4” on their End-of-Course tests, with four being the highest possible score.

The Southern state where this study took place does not allow students who are undocumented to pay in-state college tuition. The growth of Latin@s in this state in the last 20 years has been dramatic, with one of the largest growth rates of Latin@s in the nation from 1989–2009, having increased by over 1,000% (DPI, 2009). This has caused considerable backlash and racial tension from the established population in the state (Lippard & Gallagher, 2011) who feel “overrun” by this new Latin@ population, as well as a kind of panic within public schools to provide enough skilled educators to teach this changing demographic in culturally- and linguistically-appropriate ways (Wainer, 2011). This state also has one of the “highest ratios of undocumented persons to total foreign-born population [...] the undocumented make up 40 percent or more of the total foreign-born population” (Wainer, 2011, p. 173) and it is estimated that in this state, “one-third of all school age (5–17 years) Latino children are not citizens” (Wainer, 2011, p. 173).

Jones High is located in an urbanized area of a mid-sized city with over 270,000 residents. This city, “Greyberg,” also has historic ties to the 1960s Civil Rights Movement and has a long history of racial struggle and social justice efforts. Jones High is surrounded by many working-class neighborhoods with predominantly Latin@, African American, and Southeast Asian (e.g., Vietnamese, Cambodian, Korean, and Montagnard) communities. Also near Jones High are shopping centers with dollar stores, pawn shops, fast-food restaurants, and several businesses with signs in Spanish and various Southeast Asian languages catering to the various immigrant communities in the surrounding neighborhoods. Jones High has half as many books per student as the district average (10 vs. 20), and is an older school, built in the early 1960s, with a library last

updated over 20 years ago (School Report Cards, 2011). Jones High operates on a daily schedule of four 1.5 hour blocks, with each course running for half the school year.

This study initially began by focusing on high-achieving Latin@ high school students, and it was only through the process of trust-building and immersion in the school community that I discovered that most of the students (nine out of 11) in my study were undocumented. I used purposive convenience sampling by looking for high-achieving Latin@ students in the ninth and 10th grades. I wanted students in these earlier grades to be allowed the opportunity to continue the study longitudinally if possible. I was led by administrators to the honors science courses of “Ms. Grey,” an African American teacher who taught ninth-grade honors environmental science and biology, and “Mr. Aaron,” an African immigrant teacher who taught 10th-grade honors chemistry and was also chair of the school’s science department. I asked each of these teachers to allow me to become immersed with the block which had the highest Latin@ population, and that is how I settled on the ninth- and 10th-grade blocks that I observed.

I located Latin@ students by verbally asking each class’s students to self-identify as Latin@ if they considered themselves Latin@ and gave student and parent informed consent forms to every student who self-identified as Latin@. I verbally gave the students an overview of the study and participant rights, and more detailed information on these issues was made available on the student and parent informed consent documents, made available in English and Spanish. I verbally explained that I was a Latina and former science teacher who was interested in Latin@ students and their lives in their science classes. Several Latin@ students seemed excited about the study; Yasmin in particular

(who is an important part of the larger study but not included among the five in this dissertation), emotionally expressed delight during my introduction, exclaiming that “finally, someone is interested in us.”

The Latin@ students who ultimately participated in this study consisted of six ninth-grade honors environmental science/biology students who all had the same block class together, and five 10th-grade honors chemistry students who had their block chemistry class in common. Latin@ students were recruited from the ninth-grade honors environmental science/biology and 10th-grade honors chemistry courses, and these 11 ninth- and 10th-grade Latin@ students became participants upon giving signed consent on both student and parent permission forms. In the process of collecting *testimonios* with these 11 participants, it was revealed that nine of the eleven participants were undocumented. This study shares the *testimonios* of five of these nine participants, chosen for this dissertation due to their strong science trajectory, based on the amount of time they spoke about, as well as the intensity of their desires to engage in science in the present and in their future, as voiced in their *testimonios*. They speak to their direct and personal struggle with the reality of being of being undocumented, while dreaming of a future in science. However, it is important that I honor all 11 students who gave deeply of their time, voices, and realities in this study, and these voices will be shared in other future manuscripts. More on the specifics of each of the participants is discussed near the end of this chapter, as they are introduced before their *testimonios* are shared in Chapter IV. I wish to note that it was not my intention at the onset of this study to specifically study *undocumented* Latin@ students, nor did I inquire during recruitment about the

immigration status of the students. My intention at the beginning of this study was more focused on high-achieving Latin@s and what motivated their unusually high graduation rate. Much as is suggested for a study based on critical race methodology and more specifically, a decolonizing Chican@ epistemological methodology, the focus of the study changed as the realities of most of the participants came to light and the political struggles of their situation and the emerging needs of the community called for the research to take a turn into advocacy and political solidarity towards undocumented immigrants' issues.

The ninth-grade honors environmental science/biology teacher, Ms. Grey, was the subject of an ethnographic case study of her critically-minded science teaching practices during the pilot study that preceded this dissertation study. Immersing myself in Ms. Grey's classroom during my pilot study lent itself to establishing a rapport with the student participants in this current study. All 11 of the participants in this study had Ms. Grey as their teacher during or the year prior to this study. Ms. Grey spent a full year teaching these students environmental science in the fall of their ninth-grade year, and biology in the spring of their ninth-grade year. The students are considered part of an honors/AP cohort intended to travel onwards through additional honors and AP, and possibly IB level science courses.

Ms. Grey was chosen for the pilot study preceding this dissertation not only because she was an honors-level science teacher, but also because her science teaching practices were especially effective with her Latin@ students, often leading to her Latin@ students scoring the highest on benchmarks and End-of-Course science exams, and more

importantly, leading to glowing adoration by many of her current and former Latin@ students, who made of her class a kind of unofficial hangout. Ms. Grey was an African American veteran teacher of 15 years, from a socioeconomic background similar to that of the students who attend this high school, hailing from the very neighborhoods that surrounded Jones High. Ms. Grey utilized her background in culturally conscious ways to effectively connect with her students. Ms. Grey was also highly recommended to me by the administration as an excellent science teacher; the year prior to beginning the pilot study in Ms. Grey's class, Ms. Grey had a 100% pass rate on the End-of-Course Biology standardized exam. Being immersed with Ms. Grey's class and relating to Ms. Grey's background and critical worldview laid the groundwork for me to build relationships with the Latin@ students in her classroom (both those currently taking her class and those that came to hang out before school, during lunch, between blocks, and after school), so that this study, in which student *testimonios* were the focus, could be approached with greater trust and candidness between the students and the researcher. Critical ethnography holds as one of its tenets the need for the researcher to build a rapport with the study's participants (Madison, 2005).

In addition to participant observation conducted within the students' ninth- and 10th-grade science classes, and during lunch and before and after school in Ms. Grey's class where many participants "hung out," participant observation also occurred during the 10th-grade students' afterschool STEM Global Education (SGE) club, in which Mr. Aaron was the facilitator. Part of the activities of this SGE club eventually culminated in the creation of a community garden on the Jones High School grounds. Additional

participant observation occurred in some of the 10th-grade students' participation in events hosted by the Scholar's Latino Initiative (SLI), which was a college-readiness program specifically created for Latin@ students, a collaborative effort between Jones High School and a local Historically Black College/University (HBCU) which paired college student mentors with the Latin@ high school students. The context of SLI, however, was intermittent, and as some of the students in this study observed, poorly organized, so not very many field notes could be collected at SLI events, though it is mentioned here as students make mention of SLI in their *testimonios*. The main contexts in which field notes were collected were Ms. Grey's ninth-grade honors environmental science/biology classroom, Mr. Aaron's 10th-grade honors chemistry classroom, and the afterschool STEM Global Education (SGE) club, which includes the community garden. Snapshots of a typical day in each of these three contexts are elaborated on below.

A typical one and a half hour class block in Ms. Grey's ninth-grade honors environmental science/biology classroom consists of students coming in and answering "bell ringer" questions displayed on the front board. These questions usually deal with the content material discussed that week. Students then quickly check off each other's responses, usually with almost all students calling out 100% in a proud and playful manner (they often make jokes about being nerds). After this time, Ms. Grey often leads students in a discussion about the concept to be covered that day, where students sometimes read aloud in turn from the textbook while interspersing questions, connections, and playful banter between teacher and students. Laughter and witty banter permeated the block from beginning to end. The Latin@ students often take this time to

make connections in English and Spanish, and connect science with home cultures, pop cultures, etc. After these discussions, Ms. Grey either assigns the students to create “foldables” as memory devices for some of the concepts discussed, or they participate in a lab. Ms. Grey holds labs in her classroom about two to three times a week. The labs almost always have the students working in groups of four, in which the approach varies from observation labs of some phenomena through microscopes or over time, cookbook-like labs in which they then discuss the results and write down its connections to the topic discussed in class, or more inquiry-based labs in which they designed their own approaches to investigate concepts and collaborate and discuss conclusions. The block observed for this study often found the Latin@ students profoundly engaged in class discussions about science, and in the lab activities, often keeping each other on task and engaging each other in connections between various cultures they share in common, and the school science concepts being discussed in the classroom. Ms. Grey struck a balance between keeping students on task and engaged in science, while also allowing students to make playful connections and have side discussions as long as they were in some way connected to the topic at hand.

A snapshot of Mr. Aaron’s 10th-grade honors chemistry block would find Mr. Aaron starting off the class by introducing a chemistry concept, and his discussion/lecture style would often consist of starting a sentence and then waiting for the students to finish it with a word or two, as a check for understanding. Several of the students have tasks such as taking items to the front desk to prep for a demo or set up lab materials to prep for a lab. Students mill about throughout class on their tasks with an air of competence

and responsibility. Mr. Aaron often engages in demos at the front of the class to illustrate a chemical concept, and these often have a “wow” factor to them, such as a small explosion, or once, setting his hand on fire after coating it with alcohol and water. Mr. Aaron very frequently (three to four times a week) has students engage in inquiry-based labs in which they are assigned compounds to create or other chemical concepts they are to explore, and given much freedom to explore these ideas and come to conclusions without direct step-by-step instructions. Students flow in and out of two- to four-person groups, discussing ideas on what to do and giving each other tips on what to try. Students mill about the classroom engaging in these labs and take great responsibility to clean up afterward with little prompting necessary. Mr. Aaron walks around the classroom while they are engaging in these labs, answering questions and giving hints on what to try, as well as letting students know how much time they have left. The students socialize and make playful connections to their cultures mostly during these labs. I have found them to be more silent, engaged in taking notes, or finishing Mr. Aaron’s sentences with the appropriate one-word answer during lecture/discussions, rather than playful banter during this section of the class, as Ms. Grey does. However, this does occur during labs, and continues into their afterschool SGE club activities.

The afterschool SGE club met first in Mr. Aaron’s room where the club members gathered and chatted casually for a while before discussing what they were going to do that day. The club had two main areas of interest in which some students engaged more with one area or another: Energy Wise, which engaged in energy conservation activities throughout the school; and the community/school garden. For Energy Wise, the students

engaged in educating the school and community by posting reminders to turn off the lights, unplug equipment not in use, as well as personally going around to all classrooms after school and turning off and unplugging lights and equipment. They also measured the amount of energy being used around the school using voltmeters in order to raise awareness of energy conservation issues. In the community garden, the students went out to an area of land behind the school's football field and created and maintained the garden, working together, along with donations from school faculty, collaborating universities, and the county cooperative extension office, to put together garden beds, soil, plant seeds, water the garden, etc. Mr. Aaron would often go out with the students and support them, although the students' engagement with maintaining the garden was often self-directed and motivated by their knowledge and prior experiences with gardening, and sharing this knowledge with each other. Mr. Aaron networked with departments in several universities who supported the garden through grants, donations, and visits to the garden to speak with the students and help them improve their garden. Such visits included helping the students put together a rain harvester and multiple rain barrel system, donated by the university, to collect rainwater from the roof of the school, so that the garden was not only organic, but also fully sustainable. The students often engaged in community and school education through discussions with others about the garden and organic and sustainable gardening, as well as engaged in donating crops harvested from the garden to classmates in need.

Qualitative Study Design and Data Collection Procedures

The study largely follows Pizarro's (1999) five phases of Chican@ social justice research, as discussed previously on page 77 of this dissertation. More specifically, this study utilizes multiple critically grounded qualitative methods, as is suggested for Critical Race Methodology (Solórzano & Yosso, 2002), where open-ended interviews (Kvale & Brinkmann, 2009) of the students are the primary methods of data collection towards the construction of *composed testimonios* (Urrieta et al., in press). Critical ethnographic methods, through participant observation (Madison, 2005; Spradley, 1980), casual conversations, teacher interviews, and document review (which included online school information and statistics, student work, and school, district, and state policies) aid in crystallizing the study and building researcher/participant rapport and *confianza*. The ultimate focus towards advocacy and social justice, guided by the intentions of the participants, underscores the design and direction of the methods used.

Additionally, data previously collected from the pilot study of Ms. Grey, and participant data collected from the Latin@ students in Ms. Grey's class (who went on to become the ninth-grade *testimonistas* in this study) will be factored into the final data collected for this study for purposes of crystallization. The previous pilot study data consisted of participant observation of Ms. Grey's honors environmental science class, taking field notes with thick, rich descriptions (Geertz, 1973) motivated by critical ethnographic methods (Madison, 2005). Three of the four open-ended tape-recorded interviews with Ms. Grey, which were at least one hour long each, were also part of this pilot study.

Data collection continued after the pilot study and into the study described in this dissertation, which included:

Primary data for purposes of composing *testimonios*:

1. Individual one-on-one open-ended interviews and casual conversations with the student participants in various formal and informal settings;
2. Focus Group interviews with the ninth-grade group and the 10th-grade group of student participants, separately;

Secondary data for purposes of crystallization:

1. One-on-one member-checking interviews and conversations with each student participant;
2. Interviews of the science teachers, Ms. Grey and Mr. Aaron, and of other teachers, administrators, and support staff at the high school;
3. Participant observation (Spradley, 1980) of Ms. Grey's honors ninth-grade environmental science and biology block with the largest number of Latin@ students (nine of 27 [33%] of the students in this block self-identified as Latin@ students);
4. Participant observation of Mr. Aaron's 10th-grade honors chemistry block with the largest amount of Latin@ students (nine of 24 [37.5%] of the students in this block self-identified as Latin@ students);
5. Participant observation of the afterschool STEM Global Education (SGE) club and select Scholars' Latino Initiative (SLI) events;
6. A review of documents available online or through inquiry of teachers and administrators at the school. These documents had to do with descriptions, statistics, policies, and facts about the school, school performance, the school district, and the state.

Specifics on how each of these methods were utilized, including details on the participants, contexts, frequencies, and time involved in each of these methods within the study, are elaborated in Table 3. Note that all participants are mentioned in the table

below to honor their participation and the time involved with them in the study, although ultimately only five of the participating students were chosen to be represented in this dissertation, based on their strong stories related to science, through their *testimonios*.

Table 3. Data Collection Methods and Details

Method	Details	People & Context	Amount/Time
Individual Interview	First one-on-one interview with each of the nine student participants	(individually) <i>Yasmin, Oscar, Sergio, Javier, Uriel, Crystal, Silvia, Juan, and David</i> @ Jones High School	One interview for each student occurring early in the 2012 Spring semester Varying in time between 45 minutes – 3 hours each Approx. 15 hours total
	Second one-on-one member checking interview with these nine	<i>Yasmin, Oscar, Sergio, Javier, Uriel, Crystal, Silvia, Juan, and David</i> @ Jones High School	One interview for each student occurring mid spring semester 2012 lasting between 15 minutes—1 hour each; approx. 5 hours total
	One-on-one first interviews and member checking with two additional Latin@ students who are citizens	<i>Two students, names omitted, one 9th grader and one 10th grader</i> @ Jones High	Each student had one first interview and one member-checking interview 4 hours total
	One-on-one interviews with Ms. Grey	<i>Ms. Grey</i> , in her classroom @ Jones High School	Four separate interviews across the school year; 10 hours total
	One-on-one interviews with Mr. Aaron	<i>Mr. Aaron</i> , in his classroom @ Jones High School	Three separate interviews across the school year; 3 hours total
	One-on-one interviews with other Jones High teachers and administrators	<i>Curriculum coordinator, science coach, Latin@ parent liaison, 4 ESL faculty</i> @ Jones High	Seven separate interviews lasting from 30 minutes—1.5 hours each; approx. 7 hours total

Table 3. (Cont.)

Method	Details	People & Context	Amount/Time
Focus Group Interview	Ninth-grade focus group interview and member-checking analysis	<i>Yasmin, Oscar, Sergio, Javier, Uriel</i>	Three meetings at beginning, middle, and end of spring 2012 semester; 6 hours total
	10th-grader focus group interview and member-checking analysis	<i>Crystal, Silvia, Juan, and David</i>	Three meetings at beginning, middle, and end of spring 2012 semester; 3 hours total
Participant Observation	Observation during Ms. Grey's ninth-grade class	<i>Yasmin, Oscar, Sergio, Javier, Uriel</i> in Ms. Grey's class @ Jones High	Twenty-five separate class observations across the school year, each class 1.5 hours long; 37.5 hours total
	Observation before and after class and during lunch when students "hang out" in Ms. Grey's class	<i>Yasmin, Oscar, Sergio, Javier, Uriel, Crystal, Silvia, Juan, and David</i> in Ms. Grey's class @ Jones High	Numerous casual observations across the school year; approx. 5 hours total
	Observation during Mr. Aaron's 10th-grade class	<i>Crystal, Silvia, Juan</i> in Mr. Aaron's class @ Jones High	Nine separate class observations, each class 1.5 hours long; 13.5 hours total
	Observation during after-school SGE meetings	<i>Crystal, Silvia, Juan</i> in Mr. Aaron's classroom and at the on-campus community garden @ Jones High	Six meetings lasting from 1–3 hours each; approx. 10 hours total
	Observation during SLI events	<i>Crystal, Juan, David</i> in SLI meetings @ Jones High and also events @ the sponsoring HBCU	Five observations lasting from 1–3 hours each; approx. 10 hours total
	Observation of Jones High science faculty meetings	Ms. Grey, Mr. Aaron, other science faculty, and the science coach at Jones High	Three meetings about 1 hour each; 3 hours total

Table 3. (Cont.)

Method	Details	People & Context	Amount/Time
Document Review	Review of online school information and statistics, school, district, and state policies	Online from school and district website and state department of instruction, also state policies online	Several websites, see where they are cited in-text
	Reporting of students test scores	Ms. Grey, or the students themselves provided science test score information	Biology EOC scores
	Review of online national and state policies and laws pertaining to science access, college access, and immigrants who are undocumented	Online searches	Several websites, see where they are cited in-text
Informal Follow-Ups	Follow-up with group together, after DACA announcement	<i>Yasmin, Oscar, Sergio, Uriel, Juan, David, @ Jones High School</i>	One get-together during fall 2012 semester, after school for 1 hour
	Follow-up with individual students in 2013, during national immigrant reform debates	<i>Yasmin, Oscar, Sergio, Javier, Uriel, Crystal, Juan</i> on the internet through email or social networks	Intermittent online contact between January 2013–present
	Follow-up with Ms. Grey	<i>Ms. Grey</i> , through phone calls, emails, and in-person visit to her classroom during non-instructional time	Intermittently between June 2012–present

Note. Approximate total time immersed in the field: At least 133 hours (not counting many additional casual contacts and conversations in person and online)

Pizarro's (1999) five phases of Chican@ social justice research were applied to the study in the following ways:

1. *Identifying “Subjects”*—The under-researched, marginalized group of Latin@ students in high-achieving science contexts was selected through purposive convenience sampling and then a further subgroup of five of the 11 initial subjects were highlighted for this study based on their self-reported undocumented status and amount spoken about their desire to follow a science trajectory, making these issues, emerging from the participants, central to the study.
2. *Project Definition and Descriptive Phase*—The researcher introduced herself to the student participants as a Latina and former science teacher who is sympathetic to immigrant rights. The researcher immersed herself in the participants’ science classes and afterschool activities over the full school year and engaged in casual conversation with the participants on topics of their choosing. The researcher also engaged students in one-on-one interviews, asking open-ended questions meant to elicit life stories and conversation relating to their desires for a betterment of their lives, should their words be heard by a larger audience. Through additional focus group interviews and continued presence and casual conversation, the researcher and student participants built a rapport and established safe spaces, such as Ms. Grey’s classroom, to engage in increasingly personal and socio-politically urgent conversations, which ended up guiding the study towards advocacy for the rights of immigrants who are undocumented.
3. *Analytical Phase*—Through individual member-checking interviews with each student participant, as well as through focus group meetings with the ninth- and 10th-grade students (ninth and 10th graders met separately because they were in cohorts with profound familiarity with each other within their grade-level cohort) emerging themes were proposed by the researcher, and further themes were suggested by the students. These themes first emerged from the study’s research questions, and then over time were collaboratively whittled to reflect what the students found was most urgent to communicate to a larger audience, given their struggles and needs. More on this analytical process is discussed in a later section in this chapter.
4. *Meta-Analytical Phase*—During the final focus group meeting with the ninth- and 10th-grade students, implications of the study were discussed. Implications centered around the students’ desires for political change regarding the limitations due to their undocumented status, and the potential for the *testimonios* in the study to be shared with a wider audience in ways that could promote social change for the students’ benefit. The realities of each student’s individual stories were shared with the group, and in their retelling, powerful solidarity emerged among the member of the groups, towards developing a social network to support each other through their struggles and encourage each other’s perseverance.

5. *The “Product” and Empowerment Efforts*—The *composed testimonios* shared in this dissertation were shared with the participants, and the entire dissertation will also be shared with the participants. The participants have final authority on the *testimonios*, themes, and conclusions discussed in this dissertation and their final impressions and desired directions for social and political change and empowerment that should emerge from this work, will be included in the conclusions to this study. It is important to note that collaboration towards social and political change for immigrants’ rights is an ongoing relationship between the researcher and the participants, and so this dissertation reflects this ongoing relationship, respecting that the student participants who are undocumented are the final authority on this research and the activism that may emerge from it.

The observation protocol (see Appendix A) shows how participant observation (Spradley, 1980) was approached in the classroom, STEM Global Education (SGE) club, and Scholars’ Latino Initiative (SLI) contexts. I focused on what participants were saying, doing, and producing through their spoken and written words, actions, and practices. I noticed practices that emerged as patterns and as part of their practices in the various contexts the participants negotiated. I also paid attention to power dynamics and the differences between interactions participants had with each other, with teachers or facilitators, and with me, the researcher. Through this participant observation approach, I am better able to understand the participants’ and the contexts’ repertoires of practice (K. D. Gutiérrez & Rogoff, 2003) and their narratives of self (Clandinin & Connelly, 1994; Clandinin et al., 2006) to crystallize with participants’ *testimonios*. In addition to focusing on what participants are saying, doing, and producing with respect to science learning and scientific dialogue (B. Brown et al., 2005; Calabrese Barton & Tan, 2010a; Kelly, 2005), I also focused on participant conversations and expressions of their *Latinidad* based on my *cultural intuition* and theoretical familiarity with Latin@ cultural

studies, and on students' perceptions of the expectations that were set by schooling, science, and the larger social and political realities they navigate as Latin@s, and as students who are undocumented (as I found out in time). I use Urrieta et al.'s (in press) definition of *Latinidad* as they explain "*Latinidades* in this chapter means the wide range of different Latina/o identities and experiences" (p. 4). Above all, I developed a warm rapport with the student participants, and paid close attention to the direction of conversations they chose to have with me. The participants knew that I was a Latina who was sympathetic to immigrants' rights, and the conversations they chose to engage me in were important factors in my participant observation. Collection of data during participant observation was in the form of field notes taken during and shortly after each observation and consisted of thick, rich descriptions (Geertz, 1973) according to the participant observation protocol (see Appendix A), with special attention paid to getting as many direct quotes from the participants as possible (see Appendix B for a sample). I immersed myself in the Jones High School setting, with contact with participants through observation or interviewing at least once a week for the full school year, excluding weeks of standardized testing or intensive standardized testing prep. The total amounts and contexts associated with data collection methods, including those regarding participant observations, are shown in Table 3 of this dissertation.

Student *testimonios* were collected with respect to each student's own voice, perspective, self-authoring, and narration through individual open-ended interviews, individual member-checking interviews, and focus group interviews with their grade-level participant peers, as well as through moments of casual conversation during their

science classes, hanging out before and after school, and during lunch in Ms. Grey's class and at SGE club and SLI events. The interviewing process began with a first round of individual interviews for each of the student participants and then a follow-up member-checking interview where themes emerging from their first interview, as well as through participants' observation and casual conversation with each student, were discussed.

Three focus group interviews for each of the ninth- and 10th-grade cohorts were conducted, the first of which was a quick getting-to-know each other, the second was a quick checking-in of their thoughts so far on the study, and the final focus group engaged the group for a much longer timeframe to analyze and meta-analyze the final direction and themes of the study. Focus groups were divided to meet only with grade-level peers: one focus group for the ninth graders, and a separate focus group for the 10th graders, because these two groups travel together as a cohort and are familiar with each other, but not necessarily with those in the other grade level. This was done to maximize a sense of comfort and *confianza* for the participants in the study, as well as to keep the focus group sizes manageable enough to engage in constructive conversation.

The initial student interview, although open-ended, started with a list of questions which can be found in Appendix C, which were meant as prompts to elicit student narratives related to the study's research questions. The questions were constructed based on the initial research questions of the study, which focused on the student's home life, school life, views of science and school science, future aspirations, self-positioning, cultural values, and views of self in their context as a high-achieving Latin@ adolescent in a Title I school in the South with a demographic majority of peoples of color.

Following the model of *testimonio* methodology (Urrieta et al., in press); however, the open-ended interview allowed the student ample room to diverge and steer the interview in whatever direction they desired to speak. As the interviewer, I then asked follow-up questions based on the topics the student wished to discuss in a conversational style. If the conversation stalled, I would return to my prepared list of questions, as shown in Appendix C. Often, I found that the students naturally spoke on the issues I had on my question list, without even having to prompt them with those questions. The students also chose their own pseudonyms during this initial interview. This was done with particular attention to power dynamics and the desire to decolonize the traditional interviewing process, to allow the participant ample space to be an authority within the interview and to have ownership over the interviewing process (Chase, 2011; Glesne, 2011; Pizarro, 1999; Urrieta et al., in press). Note that the questions in the protocol for this initial interview were not based on documentation status, as that information was not known when these questions were first drafted. Information on participants' documentation status emerged over time as interviews and participant observation ensued, and increasing levels of *confianza* in the researcher/participant relationship were attained. The following focus group questions were crafted from the additional knowledge gained after spending significant time in participant observation and casual conversation with the students, as shown in Appendix E. The initial individual interviews and focus group interviews were tape-recorded with student permission, and then transcribed. After the initial student interviews, I compiled key points about the students' stories so far, as well as other casual conversations and comments they may have made during participant observation, and

created a set of notes for member checking with each participant. I gave the corresponding participant a copy of these notes and went through the member-checking notes with the student, asking for confirmation that these were the important points in their stories, asking for additional information, and asking about what themes could be drawn from their stories. These member-checking interviews were also tape-recorded and then transcribed. Appendix D shares the member-checking notes for all five students, which were shared with each corresponding student in order to elicit confirmation and analysis of their *testimonio* in its beginning phases. The most common response to most of the points from all students was agreeing that the point is something they said and still agree with, and are comfortable with it becoming a part of their story. Below is an example of student feedback that went beyond just a simple agreement with a point in the member checking notes that came up in the member checking process. The following interchange took place when David considered the bullet point in his notes that read:

- David feels that in many schools, they just don't care about poor students, and if they would only take the time to care and support them and show them science or math, they would get interested in it, but unfortunately they don't.

David responded:

David: Well this one [pointing to the bullet], I don't want to make it seem like it's all the school's fault. A lot of these schools and teachers really care about us students. It's more like society, or the government, the people who decide which school to give the money.

Researcher: Ok, would you like to say something else instead about schools and poor students, or just take this point completely out?

David: Just say that some government people don't care about poor schools as much as rich schools. Like they care more about schools that have the rich, White kids. And that's not right, you know?

Researcher: Yeah, ok.

Focus groups were divided by having one focus group for ninth-grade participants, and another for the 10th graders. The first two focus group meetings for each cohort were brief meetings and did not have a set protocol. The first meeting was a getting to know each other meeting so we would all feel comfortable with each other and with the study; it was not tape-recorded to ensure students' comfort. I answered any questions the students had for me about the study and told them a little about myself, such as my ethnicity, nationality, teaching background, and involvement with immigrants' rights. The second focus group meeting with each cohort was a quick check-in to make sure they were still comfortable with the study and to see if they had any more questions about it. The third and final focus group for each cohort did have a protocol, specially tailored to each cohort. As with the individual interview protocol, the questions on the focus group protocols are merely prompts for conversation. These focus groups took on the directions that the students wished to take, and the prompts were only used if there were lulls that needed a topic to be raised. Much as with the individual interviews, students covered many of the answers to the questions on the protocols without needing to be prompted. Students in each group discussed topics from their first two interviews and emerging themes in ways that brought students closer together or revealed each other's struggles in ways that build solidarity. In first sharing *testimonios* individually and then reconstructing them in new ways, with as little or as much detail as they are

comfortable within their focus groups, students uncover, modify, or build narratives from each other by being among peers with similar struggles. Analysis of themes and further directions from the *testimonios* and intent of the study were also discussed in this final focus group. Each of these focus group interviews were tape-recorded and transcribed. These interactions all lent themselves to the final *composed testimonio* for each participant. The ninth- and 10th-grade final focus group protocols are included in Appendix E.

For purposes of crystallization and to gain a better understanding of the “worlds” that the student participants negotiate, as well as how the students are perceived by others, some of the teachers and administrators at the school also participated in one-on-one interviews, which were tape-recorded and transcribed. Most notably, Ms. Grey engaged in four one-on-one interviews across the school year, and Mr. Aaron engaged in three similar interviews. The protocols for Ms. Grey’s and Mr. Aaron’s interviews are included in Appendix F. Additional teachers associated with ESL, as well as the Jones High science coach and curriculum coordinator were also interviewed for purposes of getting a better understanding of the workings of the school and crystallization with the “worlds” the students negotiate and the stories they told through their *testimonios*.

As this research is deeply concerned with decolonizing methodologies, I remain sensitive throughout the study to the power dynamics and privilege I hold within the study, and try to remain aware of how my presence, privilege, and interactions with the participants and the context enable, constrain, and affect my relationship with participants, the “worlds” that are encountered and my perception of them, and the

direction and results of the study. I acknowledge in this study that each of my participants has their own strengths, struggles, and *testimonios* to share. My contact and rapport with the students, and my stated focus on social justice for Latin@s who are undocumented, necessarily affect the worlds that are created in my presence. I honor and celebrate this, and acknowledge, as will be further discussed in Chapter V, that my own journey in solidarity with the participants also affects me and changes me just as it affects and changes the participants, in ways that disrupt and reframe the traditional researcher/researched relationship. I also acknowledge the need to be deeply reflexive throughout the study and cognizant of my position, as it influences my perceptions of everything involving the study. Critical, decolonizing approaches do not try to minimize this perspective, under a misguided attempt towards researcher “objectivity,” but rather, they stress the need to be openly aware and reflexive of one’s subjectivities and positionality as a necessary part of fully and sensitively disclosing the research. My positionality is decidedly politically, socially, and culturally situated, recognizing that “there is always a place from which we speak” (Bettie, 2003, p. 23). In the following section, I divulge my positionality as openly as possible, given that all of it relates to this study’s construction. Critical Race Theory, and critical pedagogy in general, hold that nothing in research is politically neutral. I make no attempt to be politically neutral in this study, and neither do my participants, nor the nature of the study itself.

Positionality and Reflexivity

Although there is much that the participants and I have in common, which in some ways led to our rapport, it is important first that I acknowledge and check my

privilege within the researcher/student relationship in this study. Keeping my privilege and the study's power dynamics in mind throughout this study helped me be more deferential to, and intentional about, the students' authority within the study, and helped me to be sensitive to their knowledges and needs which are too often overlooked and marginalized in many other realms. Most importantly then, I was born in the United States, making me a citizen. This imbues me with many privileges that the students who are undocumented in this study are prevented from having. I went to college thanks to federal student loans, which the students in this study cannot have, and scholarships which I applied for by providing my social security number and checking the "U.S. citizen box," often a scholarship requirement. Further, I went to college and paid in-state tuition, making my passage into graduate school and to this very writing of this dissertation, inordinately easier for me than it would be for any of the students in this study. I received my driver's license at the age of 16, without a worry as to whether I would be able to. I never worried that I would not be able to have a legitimate and legal job after I graduated. And most importantly, I never once worried that I would come home one day, and that either I, or a family member, would disappear, deported to a country I barely knew. I was privileged in that both my parents, while immigrants, had obtained citizenship when getting papers was far easier than it is now. The students in this study deeply and traumatically struggle with the intense fear of being torn from their families at any time, every single day. I grew up with the privilege of never even imagining this could be a possibility. This reality did not hit me until I was a science teacher and it happened to one of my students. But more on that later. Incidentally,

receiving a teaching license is also a privilege that the students who are undocumented in this study are denied.

Because of these privileges, I remain sensitive to the fact that the lived realities of the students who are undocumented in this study must be made central. My own understanding of what it is to be undocumented cannot eclipse their authentic experience, and must not overshadow the urgency with which the injustices they endure must be spoken by those who can personally speak to them in order to work towards social and political justice. However, within this process, I must necessarily be sensitive to my position as a researcher. I entered into Jones high school as an adult and a former science teacher, and as much as I tried to minimize it by repeatedly reminding students that I was there to learn from them and work with them as a graduate student and fellow Latina, the adult/high school student power differential is one of which I must remain mindful. Entering into the school with the *accoutrements* of a researcher—my laptop for observation note-taking, my tape-recorder, and my typed-up protocols—marked me as a potential colonizer: a person there to take information from students for my own benefit. Trying to overcome this perception took time and relationship-building. And even still, I am aware that these power dynamics may never really be completely erased, only minimized enough to build enough *confianza* to make the *testimonios* in this study possible. My hybrid identity as a Latina from a low-income background, but also a privileged academic and former teacher, solidified an insider/outsider identity with my participants. This hybridity worked in my favor in some ways, in that *confianza* emerged in the relationship not only due to the similarities I may have shared with my participants,

but also with the *respeto* (respect) that emerged from our mutual Latin@ cultural understandings, given my position as an adult and former *maestra* (teacher). Though I did not try to leverage these positions of power, they undoubtedly had an effect, especially within our shared culture.

A strong part of building this *confianza* also emerged from that which I shared in common with the participants. I am a Latina, born in Miami of Cuban and Panamanian immigrants. Although my participants come from Mexican and Salvadoran nationalities, our common Spanish language and *cultural intuition* united us in many ways—what Pizarro (1999) would call “shared Chican@ epistemologies.” We communicated very often in Spanglish, and conversed in a casual, non-linear fashion reminiscent of the way I have always interacted with my own family. Like them, I was also a high-achieving Latina while in high school, with an interest in science. Growing up in a working class Latin@ immigrant home, I bought into the narrative that going to college, and especially forging a path in science, were symbols of “smartness” and analogous with “success.” I saw education as my salvation. Coming from humble beginnings, I aimed to “prove” myself academically and scientifically, given especially that I was a Latina, a woman, and from a low-income background. I went on to college to major in Physics and Chemistry, and to attend graduate school in physics. Eventually, I became a seventh-grade science teacher at a Title I middle school in Huntington Park, California, which is located in the Latin@-rich area of East Los Angeles. All of the students I taught there were Latin@, primarily of Mexican, Guatemalan, Columbian, Honduran, and Salvadoran nationalities.

When I began teaching science with Latin@ seventh graders in East LA, I had the mindset that I was a role model for them to aspire to—a Latina from a low-income background who has “made it,” with several degrees in science. I thought that I could share with them my science knowledge and that they too could find “educational salvation” and become “smart” and “successful” like me. I was convinced I was “giving back” to my community. And I haven’t completely stopped believing that some of this is important. However, what soon became apparent for me is that against my well-intentioned homilies on college and careers in science, my students had counter-stories to share that would transform me. I soon learned from these seventh-grade students that many of them could not easily go to college, having no access to financial aid or ability to apply for jobs in high-tech science careers: many of my students were undocumented. During my first year of teaching, one of my most high-achieving, “straight A” students, always dreaming of a career in medicine, suddenly disappeared. My other students soon told me that immigration had stormed her home and her parents had been deported to Mexico. My student, just 12 years old, was given the choice to join her deported family in Mexico or enter foster care. This student chose her family. I found out years later that because school is not free in Mexico, this promising student never returned to school, and to this day the last educational achievement she had was in my seventh-grade class, though she is now pursuing a GED. I was very distraught by how a student I had grown to care for so deeply could just one day have her family torn apart and be forced to make such decisions. My frustration showed, and soon many of my students were sharing stories of heartbreak with me. An uncle deported, a cousin who died in the desert trying

to come to the U.S., a mother working three full-time jobs because ICE came and picked up the father, and he was never heard from again. Several of my students had already lost their entire families to deportation, and after school let out, some had foster homes to go to and some were functionally homeless, sleeping on the floor of friends' homes. Part of me was overwhelmed with the sheer number of stories, and how unnecessarily these children were made to bear such injustice. Another part of me was humbled by the perseverance, strength, and resolve my students showed every day. They still came to class, they still applied themselves outstandingly, and they still, even after all of this, shared with me their dreams for their future, no matter how improbable it seemed in light of the legal limitations on those that are undocumented.

While still teaching science at the same middle school in 2006, my students became very involved in the political conversation surrounding the national House of Representatives bill H.R. 4437, which, if it had passed, would have redefined immigrants who are undocumented and any who help them in any way as felons. Nationwide protests erupted against the bill, additionally calling for comprehensive immigration reform and the DREAM Act for immigrants who are undocumented. There were protests in dozens of cities across the United States, the largest of which occurred in Los Angeles on March 25, 2006, where 500,000 protestors lined the streets of downtown Los Angeles, considered to be the largest protest in the history of Los Angeles (Manzano, Ramírez, & Rim, 2007). Many students, including those in my classes, staged a school walkout to join the protestors. This event, and the situations and stories that spurred these students to action, deeply touched me and “woke me up” to the need to push for social change. As

these students' teacher, I became a strong ally, and remain one to this day. I feel that, as a teacher, our responsibility to our students does not end with delivering the content knowledge demanded of us by our content standards. I believe a teacher must practice Valenzuela's (1999) conception of *authentic caring*, where a teacher becomes closely aware of the political and social realities that students navigate, and becomes an advocate for one's students in the larger world. I continued—with this tenet as a priority—to advocate for my immigrant students and their families, and became involved in several immigrants' rights organizations, of which I am still a part. My strong commitment to immigrants' rights is an important part of my positionality in this study, and lends itself to the kind of relationship I was able to build with the participants in this study.

My positionality unapologetically is to act in solidarity with Latin@ students who are undocumented, and to admit my privilege but also to put my privilege to good use in amplifying these students' voices to relate their lived realities to the larger world. My own family, as well as countless other immigrants in the U.S., has sacrificed much. If my dissertation can serve as a possible means to bring about some relief from the injustices that many immigrants are facing by sharing the *testimonios* of those whose stories may otherwise be drowned out and made invisible by master narratives, then I would have felt that the pursuit of my doctorate through this dissertation is for a purpose larger than my own personal gain.

I also want to point out that in my years in science and science education, especially as a Latina within the White male-dominated world of science, I have borne witness to the marginalization and underrepresentation of Latin@s, especially Latinas, in

STEM fields. I have a very personal stake in wanting to see not only a better demographic representation of Latin@s in science, but also a culturally relevant shift within the practice of science toward the kinds of understandings and cultural practices that Latin@s can lend to the practice of science, which is right now overemphasizing Western and masculine mindsets (Harding, 1991, 1998, 2006, 2008). Although I have not had to struggle with the same kinds of political and social barriers that the *testimonistas* have in being undocumented, I have had my own struggles within the matrix of oppression as a Latina and child of immigrants from a working class background. I have seen my share of underestimation and silencing. My particular experiences within the matrix of oppression prompt me to critically ask why things are this way, who is the status quo serving, and how can I join in solidarity with those whose struggles with multiple oppressions intersect with mine, to rally together for social change. My framework and worldview is marked by a critical perspective and attention to oppression, as well as a yearning for transformative social justice. This positionality underscores the entirety of this study.

Role of the Researcher

I consider my role as a researcher to be sensitive to, and to centralize, the knowledges, voices, and positions of my participants in an effort to minimize the colonization or objectification of the students in my study. Second, I consider my role as one of an “activist researcher,” where my research is ultimately for the purpose of enacting social justice in solidarity with my participants:

Our primary concern must be to engage in research that investigates and helps to shift social injustice as part of a larger effort to empower Chicana/o students. As researchers, our contributions to these attempts at social change may be greatest when we consider how we can “co-create” new knowledge and challenge racist epistemologies in solidarity with the Chicanas/os with whom we are working. (Pizarro, 1998, pp. 66–67)

Finally, I consider it my responsibility to reflexively be aware of how the students in this study are being represented in the research (to be aware of the *politics of representation*), being critically conscious in pushing back against master narratives that may be invoked by careless representations of the study’s participants, taking care to “write in ways that attach lives to racial structures and economies, and construct stories and analyses that interrupt and reframe victim-blaming mantras” (Fine et al., 2000, p. 169).

As far as my sensitivity to centralizing the voices, knowledges, experiences, and stories of the students in this study, I keep in mind my own positionality and my effect on the research throughout the study:

When we enter into a research relationship with participants and ask them to share their stories with us, there is the potential to shape their lived, told, relived and retold stories as well as our own. These intensive relationships require serious consideration of who we are as researchers in the stories of participants, for when we become characters in their stories, we change their stories. [...] As personal experience researchers we owe our care, our responsibility, to the participants and how our research texts shape their lives. (Clandinin & Connelly, 1994, p. 422)

Conscious, then, to the researcher/researched power dynamic, and how my involvement with the participants affects their lives, I remain sensitive to allowing the study to emerge and move in the directions the students propel, being careful that the research is a living work which they have authority over, and not a vehicle for putting these students under a

microscope, exploiting them for academic gain, or a pulpit for me, as the researcher, to enact a “savior complex” in which I am here to “save them.” Above all, my role is to share these students’ *testimonios* and the research and theories surrounding it *con cariño* (with care/love), with the utmost respect for these *testimonios*, entrusted to me by my participants.

I recognize that social change “includes anything that participants need to change in order to realize their full humanity” (Dyrness, 2011, p. 205). My primary responsibility then, in the spirit of Critical Race Methodology, is to centralize not only the stories of the participants, but also their voiced desires for social change in the ways that they specify. Because “any situation in which some individuals prevent others from engaging in the process of inquiry is one of violence. To alienate human beings from their own decision-making is to change them into objects” (Freire, 1970, p. 85). As such, this study is firmly activist research.

While cultural critique is loyal to the academy, and produces products meaningful primarily to an academic audience, activist research has dual political commitments to the space of critical scholarly production *and* to an organized group in the struggle. There is an inherent tension between these loyalties. (Dyrness, 2011, pp. 201–202)

Whereas traditional forms of educational research have been critiqued as colonizing for using the group in struggle in service of academia (Tuhiwai Smith, 1999), academic research can also further social change for the participants: “The researcher plays the role of mediator or broker between disadvantaged community groups and legal bodies [...] and tailors his or her research products to these powerful governing bodies” and also

“put[s] specialized knowledge to work in the service of organized groups in the struggle” (Dyrness, 2011, p. 202). In this capacity, I make several arguments in the conclusion of this dissertation towards policy change regarding students who are undocumented, based on the findings of this research.

Finally, my role is to be sensitive to how the students in this study are represented, in ways that do not reify deficit perspectives and victim-blaming narratives, which are far too common portrayals regarding Latin@ students who are undocumented. It is important that as I discuss the findings and conclusions of this study, to the best of my ability, I “anticipate how the public and policy makers will receive, distort, and misread our data” (Fine et al., 2000, p. 195) and make sure that the research is represented in ways that can counteract this proclivity. For this reason, it is important to strike a balance between discussing and understanding the toll of oppression on the participants, without completely painting them as victims to be pitied. The students’ strength, perseverance, and resolve become just as important to reflect on and celebrate. But my role is not to shy away from the subject of oppression, as Fine et al. (2000) implore, researchers should “dare to speak hard truths with theoretical rigor and political savvy [...] researchers need to interrogate with deliberation—not camouflage with romance—some of the rough spots in our work. To obscure the bad news is to fool no one” (p. 199). Ultimately, my responsibility as a researcher toward representation is to ensure that all my participants are heard, and that my research engages in

telling many kinds of stories, attached always to history, larger structures, and social forces, offered neither to glamorize nor to pathologize, but to re-view what has been, to re-imagine what could be in communities of poverty and the working

class, and to re-visit, with critical speculation, lives, relations, and communities of privilege. (Fine et al., 2000, p. 199)

Analysis and Meta-Analysis

Testimonio is necessarily intended to speak for itself as the stand-alone and undiluted words of the marginalized. As such, analysis of the narratives generated by *testimonios* is very different from traditional qualitative approaches to narrative analysis. Most importantly, the researcher does not analyze participants' *testimonios* alone, without the input of the participants, and makes no assumptions to authoritatively know the meanings and themes raised by the participants better than they do. This is part of a critical, decolonizing stance that centralizes the voices of the subaltern while remaining reflexive of the privilege of the researcher. A critical approach to the analysis of these *testimonios*, then, must remain an act of solidarity between the researcher and the participants, just as deeply as the collection of the data had been. This approach pushes back against hegemonic and colonizing approaches in research:

Both traditional qualitative and quantitative research tend to prefer detached and omniscient voices in which we usually hear filtered versions of the lived experience of research participants (Urrieta, 2003). *Testimonio* removes or at least reduces the gap between the reader and the subject of inquiry [...] that voice should not be denied by either whitestream hegemony or the regular tenets of qualitative research (Urrieta et al., in press, pp. 26–27)

This study approaches the analysis of the participants' *testimonios* with a critical race methodology and decolonizing approach. This study draws upon Pizarro's (1999) *analytical phase* of Chican@ epistemological methodology in order to analyze participant *testimonios* alongside participants through member-checking (Creswell, 2008;

Merriam, 2002) and discussions of the emerging *testimonio* with the participants, with deference to the participants' expressed intentions. Whatever "themes" emerge from participant *testimonios* originate from the desires of the participants for the common experiences they wish to communicate and the social changes for which they wish to draw support. "This is a move away from a traditional theme-oriented method of analyzing qualitative material. Rather than locating distinct themes *across* interviews, narrative researchers listen first to the voices within each narrative" (Chase, 2011, p. 424). As such, this study considers coding fragments of participants' stories, especially if done separate from the participants, to be an act of colonization and symbolic violence onto participants' authentic and candid *testimonios* (Urrieta et al., in press). "Rather than dissect these stories into themes and patterns, the analysis process is often concerned with both the story itself and the telling of the story" (Glesne, 2011, p. 185). Further, in the spirit of Pizarro's (1999) five phases of Chicana@ Epistemological Methodology, analysis focuses on participants' whole stories, not fragments therein, and the participants' own intentions towards social change. Sense is made of these stories through a shared effort between the researcher and the participants, honoring the participants' interpretations and pushing back against the traditional practice of the researcher making authoritative "coding" judgments on participants' meanings, stories, and lives. As such, any codes or themes that emerge in discussing the participants' *testimonios* (in Chapter V) arise from the participants themselves and researcher/participant conversations which occurred either individually or in focus group discussions. Software or other procedures meant to fragmentize the wholeness of a testimonial text into pieces of "code" contradict the

concept of Chican@ epistemology, decolonizing methodology, and *testimonio* methodology, and so only collaborative conversations towards finding overarching themes, constructed in dialogue with participants, were attended to in this study. Final whittling into main themes was accomplished by the researcher of this dissertation, who identified three main themes; evidence for each theme across the *testimonios* was justified through color coding, a sample of which is shown in Appendix G. Final themes and analysis, as appeared in Chapter V, was member-checked by the student participants.

In addition to the *testimonios* themselves, which were collected through open-ended individual interviews, focus groups, and more informal member-checking conversations, analysis also entails piecing together understandings of those narratives by utilizing additional ethnographic methods such as field notes and participant observations (Riessman, 1993). As such, I was attentive “to the interactions of the embodied person with the social, that is, to the social, cultural, institutional narratives and to the minute-by-minute particularities of ongoing events” and also being attentive to “the places where lives were composed, lived, and relived” (Clandinin et al., 2006, p. 1). Attention to these contexts and experiences was paid through these additional ethnographic methods. As the Chican@ Epistemological and Critical Race Methodological approach calls for working within the community with the participants and sharing one’s *cultural intuition* in solidarity with participants, critical ethnographic methods and observations are fundamental not only to crystallize the findings and contexts invoked in participants’ *testimonios*, but more importantly, to immerse the researcher in the participants’ community and build the *confianza* (trust) that makes *testimonio* and collective advocacy

possible. Co-constructed analysis of the *testimonios*, along with crystallization of findings through what was found through participant observations complete the analysis as will be presented in Chapter V.

Emergent themes from the data, which in this case were each of the students' *testimonios*, were co-constructed in conversations with participants through a process of "storying and restorying" (Bishop, 2005, p. 126). Through the multiple open-ended interviewing, member-checking (Merriam, 2002), and focus group process, the study's participants engaged in concomitant data analysis through their restorying of their *testimonios* and through their mutual understandings through sharing experiences and meanings with the researcher, engaging their previously shared *testimonios*, and in conversation with each other. The concepts within the framework of this study, such as the Lugonesian "worlds" traveled and Anzaldúan borders crossed, as well as attention to issues of race and counterstory inherent in LatCrit, were imbedded into the the way questions were asked to the students during open-ended interviews and focus group conversations, as shown in Appendices C and E. For example, to engage students with the issue of traversing the world of *Latinidad*, I asked several questions that had the students reflect on what it means to be Latin@ and also a student, a teenager, a science student, etc., as can be seen throughout Appendices C and E. During the final member checking process as I shared the entire dissertation with the students, I shared the frameworks in terms of border crossing, world traveling, and racial issues inherent in Latcrit with the students as part of the entirety of the analysis throughout the dissertation. I even gave a copy of Gloria Anzaldúa's (2007) "Borderlands/La Frontera: The New

Mestiza” to one of the original nine students in this study, to further her interest in Anzalduan ideas of what it means to be a Chicana feminist. This approach aligns with Pizarro’s (1999) Chicana Epistemology method of analysis in which the narratives shared in this research are analyzed collaboratively with the participants, respecting that they are the experts of their own stories, and thus the authorities on the themes and meanings of their stories. Further, analysis is done in a culturally relevant way within spaces that are “normal” (Bishop, 2005, p. 126) to participants and emerge from them, rather than codes and coding processes constructed and dominated only by the researcher.

Because the analysis is co-constructed, I did have a hand, as the researcher, in interpreting the stories and ethnographic data, and iteratively noticing themes, ideas, and patterns that were emerging over time and across participants. These ideas, however, became worked into subsequent interviews, member checking notes, and casual conversations with participants to verify if the themes and patterns I was noticing were on the right track, according to the participants, as representative of their stories and intent. While initial individual interviews were guided by the research questions of this study, subsequent interactions became iteratively informed by emergent themes originating from participant observation, casual conversations, and teacher interviews that occurred during the pilot study. These emergent themes were continually checked, refined, and rechecked over time through “researcher-participant conversations” (Pizarro, 1999, p. 68). Through this process, themes were collaboratively constructed and became the subjects of shared conversations and crafted into interview questions that were asked in the final focus group, which then became a site for meta-analysis.

At the final focus group interview, all the students participating in my study gathered in their ninth- or 10th-grade groups and discussed their stories, perceptions, and insights together, often re-telling their stories and finding commonalities in powerful ways. This became a space where larger group and cultural meanings were explored, and a sense of solidarity between students intensified. In sharing stories, re-storying, and discussing common themes, thoughts and recollections were triggered across the groups as one student shared an insight, which elicited other related thoughts in the other students. The final themes drawn in consensus are presented and discussed in Chapter V. The themes are complex, interlapping, and are not easily embodied in simple catch-phrases, but for the purposes of describing the study, I have given the themes short names as seen below. Although we started with eight themes, we narrowed them down to three. However, it is important to keep in mind that these short names do not encompass the complexity of the emergent themes, which will be elaborated on in more profound ways in the final chapter:

1. Undocumented Science DREAMs
2. Complex, Multidimensional Border Crossing and World Traveling
3. Activism and Social Change

Evidence for each of these themes within the *testimonios* was then color-coded for all the *testimonios*, a sample of which is shown in Appendix G.

Meta-analysis also followed Pizarro's (1999) method for Chican@ social justice research through collaborative conversations, especially during the final focus group interviews. Participants retold their stories and searched for deeper levels of meaning

within them. I openly discussed the possibility of their stories being heard by larger audiences, who may be able to act as allies in ways that may affect social change. Keeping in mind that this research is meant for the participants to convey their voices and stories to others, the students explored the implications of their stories and what interventions they would suggest for those that would want to act as allies toward their call for social justice. These implications and recommendations for interventions are discussed in Chapter V.

As is necessary with Critical Race Methodology (Solórzano & Yosso, 2002) throughout data collection and analysis, I tried to be sensitive to the relationship of the unfolding stories and data within and against larger social structures of power and oppression. Each student's *testimonio* unfolded as the interviews, observations, and conversations came together that countered deficit perspectives of students who are Latin@ and students who are undocumented, especially when it comes to their scientific capacity and legitimacy. Using my *cultural intuition* and my critical lens, I acted through *testimonio* methodology (Beverley, 2000; Urrieta et al., in press) as *compilador* of the many lived realities each participant shared with me over various formats, and put together *composed testimonios* for each participant which were shared with each participant for a final member-check, which can be found in Chapter IV.

Following my positionality discussed in the prior section, my lens is openly and unapologetically critical and decidedly not neutral, having specific aims regarding advocating for social justice for students who are undocumented. As a result, my interpretations of emergent themes necessarily are influenced by my positionalities and

that of the LatCrit framework from which the study operates. However, another major feature of Critical Race Methodology, which is interlaced methodologically with critical ethnography, is the foregrounding and deference given to the participants' authentic voices and input into the research process. By approaching the data analysis methods this way, my study strikes a balance between privileging the voices, intentions, and lived realities of the students in this study, and openly and honestly disclosing the places where my own theoretical perspectives are positioned within the study.

Validity, Reliability, Credibility, and Transferability

My definition of validity for this study comes from a radical relativist interpretation (Schwandt, 2007) in which, because of the decolonizing perspective of my study, there is no "one true reality" and many perspectives are valid (Schram, 2006). This applies to both the study's internal validity, which has to do with congruence of the study with reality (Merriam, 2009), as well as the study's external validity, which deals with the study's transferability to other situations (Merriam, 2009). Because this study holds that there is no single definitive reality, "validity, then, must be assessed in terms of something other than reality itself (which can never be grasped)" (Merriam, 2009, p. 213). Therefore, for this study, validity will be considered as a function of the agreement of the students in this study with the findings through ongoing member-checking (Creswell, 2008; Merriam, 2002) built into casual conversations and interview questions as themes emerge from ongoing analysis. The use of many different sources of data, such as participant observation; interviews of students and teachers; focus group interviews; casual conversations with students, teachers, and administrators; and document analysis,

ensures crystallization (Denzin & Lincoln, 2003; Merriam, 2002; Tracy, 2010).

Crystallization of the themes that emerge from this study help guide the conversations I have with participants, which generates more data and discussion of the themes and the participants' desired direction for the study. In this way, validity in my qualitative study is more a factor of how data aligns and crystalizes with itself, and how participants agree with the depictions therein through member checking, than an approximation of a positivistic concrete universal truth.

Further, as themes emerge and are discussed with participants throughout the course of the study, a participant/researcher form of inter-rater reliability (Creswell, 2008) is utilized through a participatory research approach (Pizarro, 1999) as the participants in the study become co-analyzers with me in noting themes within the emergent stories in the study. This reliability is organic and co-constructed through researcher/participant conversation and not subject to specific codes or percentage calculations of agreement, but rather a dialogic confluence of understanding emerging from shared goals towards social justice and social change for the particular issues the participants raise together. This occurred at several key points throughout the study. Themes began emerging as I interviewed students individually and collected the beginnings of their stories in bullet points for member checking, as shown in Appendix D. As I went over students' member checking notes with them individually, key points began to emerge which I noted, repeated to them, and checked for agreement or disagreement. Then, when meeting with the students in their focus groups, these key points informs the focus group questions and direction the conversations headed, through

the questions I asked and the ways I repeated to them what I was hearing from their collective contributions to the conversation. I would step in the process of co-construction by asking questions that aligned with the research questions and framework of the study as shown in Appendix E, culling their input together as they conversed in the focus group, and repeating what I was hearing with key phrases to summarize the themes I was gathering from the directions and responses they were sharing, in order to ask for consensus, disagreement, or more nuance about the themes and main points I was hearing from them. In addition to the corroboration and review that occurred with the participants in this study, this study is also subject to peer review (Merriam, 2002) as my advisor and committee members look at and/or discuss the study's *composed testimonios*, as well as the findings of the study and its conclusions.

Validity threats are also minimized by having immersed myself in the field at least once a week for a full school year such that the data became "saturated" (Merriam, 2002; Tracy, 2010) and patterns continued to reemerge within through my participant observations, interviews, and informal conversations. This prolonged immersion in the field, together with the multiple data sources utilized, leads to crystallization of findings through multiple sources and through multiple instances over time. Additionally, while collecting participant observation data, especially while taking field notes, I privileged thick, rich descriptions of events (Geertz, 1973; Merriam, 2002; Spradley, 1980), concrete detail, and direct quotes of what is being said, so as to ensure that I am showing, rather than telling (see Appendix B for one example). Throughout data collection, I made sure that the field notes I was collecting, the audio recordings of the interviews and the

subsequent transcription, and the iterative analysis of the data left an audit trail (Merriam, 2002) in which the methods, protocols, and artifacts generated during the context of the study are dated and securely kept in record. As data were collected and analysis ensued, I continued to write bracketed comments in my notes on my impressions during and after events with my participants (Maxwell, 2005), which archived my evolving thoughts in order to ensure transparency (Tracy, 2010) about the impressions I had during the study and how they are shifting, as well as the challenges, surprises, and counter-intuitive findings that were emerging in the study. Part of ensuring validity in this study is my openness to competing ideas and voices and my openness to discrepant data, as I am open to reality being many-voiced and with many perspectives, even contradicting ones, being valid (Maxwell, 2005). I tried to ensure that this study is not “simply a self-fulfilling prophecy” (p. 126), by opening the analysis and conclusions of the study to my participants’ voices, uncensored and open to any alternative perspectives and conclusions they may draw. Included in this is the study’s emphasis on the multivocality of the participants’ perspectives, regardless of contradictions, prioritizing authentic voices and perspectives over my own initial assumptions.

I also account for validity by being aware of my own subjective values and biases, and accounting for them throughout the study (Tracy, 2010), being critically reflexive as I continually position myself and my biases, which are decidedly to advocate for undocumented students and their perspectives against the social structures that oppress them throughout my research and my writing. I make no attempt to neutralize my perspectives throughout the study, as I feel that this is insincere and in fact, impossible. I

feel that my critical perspectives are a fundamental part of the analysis in this study, but will be kept in check ethically by my devotion to the stories and perspectives of the students in the study, first and foremost.

A final insurance of validity deals with the study's catalytic validity (Lather, 1991), where "catalytic validity represents the degree to which the research process re-orient, focuses and energizes participants toward knowing reality in order to transform it, a process Freire terms conscientization" (p. 68). This approach to validity regards how the participants "gain self-understanding and, ultimately, self-determination through research participation" (p. 68). This study examines how the process of *testimonio* and the process of the decolonizing methods used lead the participants to better use their own stories and life experiences towards transformational approaches towards social change in their own lives. The final chapter will discuss how the students in this study, through the process of this research, refined their stories and joined their stories in chorus towards calling for social justice for their shared situation as undocumented, and for a change in the master narrative that views them through deficit perspectives. The true test of catalytic validity is how much this research leads to action. Though this remains to be seen at this point in the writing of this dissertation, it is also important to note that this research is one small part of a much larger grassroots movement for immigrants' rights that is currently growing stronger, nationwide (Carrillo, 2013; Nevarez, 2012).

Through the ethical considerations I factor into my study, I work toward credibility of the results. Credibility is sometimes held as synonymous with internal validity (Merriam, 2009) and as such, the issue of credibility was just addressed in the

above discussion. Another definition of credibility, however, has to do with the ethical approaches of the researcher (Schwandt, 2007) and in this estimation I address issues of credibility through the ethical considerations in this study, which fall along two lines: ethics in the collection of data and ethics in the dissemination of findings (Merriam, 2002). In regards to the collection of data, since this study will work alongside “human participants” (Tracy, 2010), all procedural ethics mandated by the Institutional Review Board were adhered to, such as ensuring privacy and confidentiality of data collected and ensuring informed consent was obtained from all participants involved in the study. All data are kept in a locked cabinet or a password-protected computer, and results were discussed in confidentiality with the participants during member-checking. I ensured that participants were aware throughout the study of their voluntary participation in the study, and continually checked in with them on whether they wanted to be recorded, observed, or interviewed that day, even if they had consented to the study as a whole. I continually made clear the purpose of my study and the direction I saw it going on an ongoing basis and in dialogue with the participants. I was mindful of the participants’ time and ensured that my requests for interviews or conversations were no longer than necessary. I made sure students were aware that I was willing to cut any interview or conversation short as soon as the participant no longer wanted to participate.

Member-checking is also an ethical consideration in ensuring that the data I collected represents the participants in ways in which they were comfortable being represented. This is part of a larger overall respect for the stories and lived realities of the students in the study, as their voices and perspectives were given primacy. This respect

filters into ethical behavior during data collection, by being as respectful as possible while in the field, by participating only as much as teachers and participants find comfortable, and by establishing a relationship with participants that “stresses the primacy of relationships, compassion, nurturance, affection, and promise keeping” (Tracy, 2010, p. 847). I also made sure to be sensitive to the extra considerations that these students are minors, that they have shared legally sensitive and potentially dangerous information about being undocumented, and that their parents are aware of their participation in the study. I ensured parent knowledge through IRB approval, and also through urging the students to share their stories with their parents as they were member checking. In one online message in which I communicated with Sergio, he informed me that he shared one of the drafts of his *composed testimonio* with his father and said “I showed it to my dad. He was proud and he liked it, but [...]” in which he then related that his father wanted a detail extracted from the story. That piece has been removed and will not be related here or in any other publications. The focus on holding the participants in high esteem is tied to the study’s Critical Race Methodological approach which focuses on, highlights, and privileges the voices, stories, and lives of the students in the study. This approach may also be part of why such sensitive information as the participants’ undocumented status became possible to divulge and discuss in intimate ways, indicating the building of *confianza* which is crucial in *testimonio* methodology, as well as reverence for the students’ *testimonios* themselves, as Urrieta et al. (in press) urge. This perspective carries into the second ethical concern—dissemination of findings.

With respect to ethics in the dissemination of findings, I attempt to be as forthright as I can throughout the dissemination of my own biases and perspectives, being continually reflexive of my stand within the study as a Latina with the expressed intent of conveying the voices and stories of the students who are undocumented in the study, for the purpose of countering master narratives. While positioning myself with respect to others in the study, it is also ethically responsible for me to foreground the multivocality of all participants, regardless of contradictions, prioritizing authentic voices, and perspectives over my own assumptions and biases. In fact, the primacy of the stories and voices in this study are an ethical responsibility in and of themselves, as I consider it an ethical responsibility (Schram, 2006) to communicate the stories of the students who are undocumented in this study as a moral imperative in order to disrupt the status quo and help move the conversation away from deficit perspectives of Latin@ students who are undocumented and toward much necessary social justice towards their struggles. I keep in mind, however, that the *testimonios* I collect could be influenced by the fact that I will be the one asking the questions, at least initially, and what the participants choose to share and how they choose to share it cannot be extricated from the fact that I am the main instrument in the collection of data in this study. I try to be as transparent about this as possible.

In communicating the students' *testimonios*, I remain aware of how these stories risk essentialization to "all Latin@ students who are undocumented," and attempt to minimize this as much as possible. The multivocality, heterogeneity, and multidimensionality represented from the narratives of the students helps to push back on

essentialization. I also remain aware that “stories about people who are poor, stigmatized, abused, or otherwise marginalized can serve to further negatively portray such people—even if that’s not the intent of the author” (Tracy, 2010, p. 847), if it is misread by those too steeped in the master narrative. As the writer and researcher in this study, it is my ethical and social responsibility to strongly address the misrepresentations of the master narratives about Latin@s and students who are undocumented and openly represent the students in ways that are multidimensional and highlight their strength and complexity. This study’s credibility hinges on keeping in mind “poststructural understandings of identity and possibility [...] as we move through the nuances of ‘differences’” (Fine et al., 2000, p. 172) in order not to risk unintentional “otherization” of the students in the study.

Transferability, also known as generalizability or external validity, is when “the findings of one study can be applied to other situations” (Merriam, 2009, p. 223). “Generalizability in the statistical sense cannot occur in qualitative research” (Merriam, 2009, p. 224), but transferability can be considered in specific cases. The *testimonios* in this study may have the capacity to speak truths about similar situations involving other students who are undocumented, but they should never be essentialized to all situations involving all Latin@ students who are undocumented. Because this is a qualitative study, it cannot dictate how much or how little of the narratives in this study can apply to others. Instead, this study will “leave the extent to which a study’s findings apply to other situations up to the people in those situations” (Merriam, 2009, p. 226). Nevertheless, one way in which transferability is addressed in my study is in giving enough thick, rich, and

lengthy *testimonios*, intended to be of considerable length and detail (Beverley, 2000), as well as through participant observation which crystallizes the study’s findings. This helps provide “sufficient descriptive data to make transferability possible” (Merriam, 2009, p. 225).

Research Question/Methodology Crosswalk

The methodology utilized in this study can be tied to the research questions as shown in Table 4.

Table 4. Research Question/Methodology Crosswalk

Research Question	How Study’s Methodology Connects to Each RQ
<p><u>Overarching RQ:</u> How do the <i>testimonios</i> of these high-achieving Latin@ high school science students who are undocumented—which tell of their lived realities as students, as undocumented, and as aspiring scientists—inform conversations on equity in science education; sociopolitical issues that affect science in the U.S.; and access to futures in science for Latin@ students who are undocumented?</p>	<p>By privileging <i>testimonio</i> methodology, where the <i>testimonistas’</i> voices and interpretations in the study are given primacy, the data generated emerges primarily from the participants’ own lived experiences, which informs the conversation directly towards these students’ own struggle for equity and social justice, emerging authentically from their needs. This aligns with Critical Race Methodology’s focus on centralizing the voices of the oppressed and also making their oppression central.</p>
<p><u>Subquestion #1</u> How do these students negotiate the borders and worlds of school, science, family, immigration status, and other sociopolitical educational realities such as access to college and careers in STEM given their undocumented status?</p>	<p>Open-ended questions during interviews/conversations with participants, informs by these research questions, invite students to speak on these worlds and their negotiations of their borders within their <i>testimonios</i>. Additionally, participant observation helps to crystallize understandings of student worlds and negotiation at the borders of those worlds.</p>

Table 4. (Cont.)

Research Question	How Study's Methodology Connects to Each RQ
<p><u>Subquestion #2</u> How do these students engage and counter master narratives about their abilities and futures in science?</p>	<p>Within open-ended interviews that lead to student <i>testimonios</i>, and through insights students volunteer during other conversations, as well as through my own participant observations across various contexts, participants discuss and embody how they counter deficit-based perspectives embedded in master narratives, and discuss what effect these perspectives have on them.</p>
<p><u>Subquestion #3</u> What can the voices and knowledges of these students contribute to the increasingly global economic and scientific future?</p>	<p>By privileging these students' <i>testimonios</i>, their authentic voices and knowledge come through in ways that highlight their potential and current contributions. Also, by constructing themes and recommendations for social change, alongside the participants, ideas on what these students can contribute emerge in collaborative ways.</p>

Introduction to Participants

The central focus of this study, as aligned with Critical Race Methodology, is the voice and intent of the five student participants who are undocumented. Before presenting these students' *testimonios*, it is important to know a little more about these students and their contexts within the study. See Table 5 for demographics of the Latin@ high school student participants who are undocumented. I first met these students while engaging in participant observation in Ms. Grey's ninth-grade and Mr. Aaron's 10th-grade honors science classes. The ninth-grade class was honors environmental science in the Fall 2011 term and honors biology in the Spring 2012 term.

Table 5. Summary of Student Participants' Demographics

The Latin@ High School Student Participants who are Undocumented in This Study									
Pseudonym	Gender	Age	Grade	Nationality	Age on Arrival in U.S.	Aspiration	Bio EOC Score	Free/Reduced Lunch	DACA Permit Status
Sergio 	M	14	9	Mexico	2 years	Mechatronics or Chef (Mechanical & Electronic Engineering and Robotics)	4	Free	Applied
Crystal 	F	16	10	Mexico	9 months	Biology Teacher, Biologist or Genetic Consultant	3	Free	Received Permit
Silvia 	F	16	10	Mexico	2 yrs old	Forensic Science or Pediatrician	4	Free	Plans to Apply
Juan 	M	17	10	Mexico	5 yrs old	Biologist, Naturalist, Wildlife Conservation	4	Free	Filing for U-VISA instead
David 	M	17	10	El Salva-dor	9 yrs old	Scientific History, Archeology, Military Science	3	Free	Plans to Apply

The 10th-grade class was honors chemistry. Through participant observation and casual conversation, I familiarized myself with, and built a level of trust with, the participants. I soon accompanied them to afterschool STEM club and Scholars' Latino Initiative (SLI) activities as well. By the spring semester of the school year in which this study took place, I then began interviewing them individually and in focus groups. However, my relationship and the resulting *testimonios* emerged as a year-long immersion and regular contact with these students. Below is an introduction to who they are.

The participants are comprised of five Latin@ students who are undocumented (one girl and four boys) who were ninth graders during the school year, and four Latin@ students who are undocumented (two girls and two boys) who were 10th graders during that school year. There was also an additional ninth-grade boy and 10th-grade girl who were also involved in the study; since they were U.S. citizens, their *testimonios* are not a part of this particular study, although they will be included in separate publications. The four 10th graders were active participants in the afterschool Science, Technology, Engineering, and Math (STEM) club at the high school, some more active than others.

For example, Sylvia is the club's president, and Juan attended regularly, while Crystal and David became involved more when their involvement with SLI coalesced with the community garden started by the STEM club. These 10th graders are also a part of the Scholars' Latino Initiative (SLI), which paired undergraduate students of color who were engineering majors in the sponsoring Agricultural and Engineering University that historically serves people of color (an HBCU), with these Latin@ high school

students who voiced an interest in STEM. SLI held monthly events that helped these Latin@ students, regardless of their documentation status, to have a role model and get advice on how to gear themselves for and apply to college. I observed the four 10th-grade students through participant observation in their 10th-grade chemistry class with Mr. Aaron, as well as through afterschool STEM club and SLI activities, of which the community garden was a part. The five ninth-grade students were observed through participant observation in their ninth grade Environmental Science and Biology course with Ms. Grey. These students were not involved in the afterschool STEM club or in SLI activities, simply because these activities were not explicitly (in the case of SLI) or implicitly (in the case of the STEM club) available to ninth graders, and seemed to become available only once students reached the 10th grade. Despite not being in the STEM club, the ninth-grade students in this study had equally strong affinities towards high achievement in science class, and towards a future trajectory in science, as will be seen within their *testimonios* in Chapter IV.

All the students in this study were on an honors/advanced placement (AP)/international baccalaureate (IB) track within Jones high school, placed there due to their high eighth-grade standardized test scores in language arts, science, and math. All of the students had long exited any ESL programs, if they had ever been in ESL at all, and were considered mainstream by the time I met them at the beginning of the school year. This is an important point to make to push back against master narratives regarding Latin@ students who are undocumented: not all Latin@ students who are undocumented are ESL students; some are fully fluent in English, as the case of all of the students in this

study. In fact, for many of the students in this study, they spoke English well enough to be indistinguishable from their other honors/AP/IB classmates who were native-born. All the students in this study were bilingual in English and Spanish, and all of them were capable Spanish speakers as well. Many students chose to communicate with me and with each other in a mixture of sentences that were fully English, fully Spanish, or a mix of Spanglish, with code-switching embedded within each sentence.

All 11 of the student participants in the larger study returned IRB-approved student and parent consent forms for the study, including the five represented in this dissertation. All of the students who originally gave their consent remained in the study throughout its duration, and became more interconnected with each other and with me over time as the study progressed and *confianza* grew. All five students represented in this dissertation professed strong affinity and enjoyment of science and a desire to follow a career path into a science field. Information on their free/reduced lunch status was self-reported by each student. Biology EOC scores were either self-reported or provided by their Biology teacher, Ms. Grey at the end of the 2012 school year. It is also important to note that among information learned about each student in this study, all students arrived in the U.S. from either Mexico or in one case, El Salvador, at the age of nine years or younger, some even arriving here as infants. An overview of some of the participant data gathered from each student is provided in Table 6. The ages provided are the ages reported by the students during the 2012 spring term. Note that for the Biology EOC scores reported, a score of three is passing and a score of four is the highest possible score on the assessment. I also wish to note that all names and locations below are

pseudonyms, though I want to honor the fact that every one of the students below wished to have their real names used, as the act of “coming out” is an important part of the undocumented rights movement. Regardless, I converted them to pseudonyms to conform with IRB guidelines.

Table 6. Summary of Participants’ Observed Characteristics

Main Participants	
Sergio	Quiet strength. When he does talk he’s very mature and reasoned in what he says, asks re-directing questions to teacher, and wants to stay on task. Very interested in robotics and mechanics, also a poet and an artist.
Crystal	Very social-justice oriented and sensitive to immigrants’ rights issues, lobbied for the DREAM act in 2010 and is not tolerant of teachers disrespecting her or underestimating her. Is also very active in her Latin@ Christian church.
Silvia	President of the STEM club, enthusiastic about science and has very strong leadership tendencies. Will take charge of a group and direct them towards a goal when no one else seems to be.
Juan	His STEM club facilitator and chemistry teacher referred to him as “brilliant.” Softspoken but yet liked and known by nearly all Latin@ students, as though he has a quiet charisma. Embraces his Latino culture strongly, loving Latin dance and music. Also very inspired by naturalism and Jane Goodall, and an excellent nature artist.
David	Outspoken about schooling-related injustices and racism. Fiercely loyal to teachers who respect him, such as Ms. Grey, fiercely critical of teachers who disrespect him. Has been resistant to schooling at times, and appreciates those who understand his resistance as a product of his feelings of schooling-based injustice.
Supporting Participants for Purposes of Crystallization	
Ms. Grey African American ninth-grade honors environmental science and biology teacher	Ms. Grey is the teacher to the ninth-grade group and the focus of the previous pilot study. Skilled in caring, critical, and culturally responsive science instruction.
Mr. Aaron African American 10th-grade honors chemistry teacher and SGE (STEM Global Education) club facilitator	Mr. Aaron is the chemistry teacher and current SGE club facilitator to the 10th-grade group. He is working with this group and SLI on the community garden. He is active in immigrants’ rights and multiculturalism in education, aware that almost all of the STEM students are immigrants and/or students of color, thus “global” STEM.

Table 6. (Cont.)

Supporting Participants for Purposes of Crystallization	
Administrators such as the Jones High Science Coach and Curriculum Coordinator	These administrators help me understand the context of the school and the “worlds” these students negotiate, as constructed by school norms. They also sometimes have insights on particular students.
SLI facilitator and mentors to participants	The facilitators are themselves Latin@ and familiar with cultural and immigrant struggles, some of the mentors are Latin@, and all are students of color. They volunteer to provide guidance and support to students to overcome the obstacles they also faced to make it into college.

The participants were originally asked to be in the study based on their being self-identified as Latin@ in the honors classes of the teachers whom I was observing for my pilot study, Ms. Grey and Mr. Aaron. For each of the two teachers’ classes with the most Latin@ students, I asked the students to raise their hands if they considered themselves Latin@, and gave each of these students IRB forms, and told them about the study. Those students who returned completed parent and student IRB forms were included in the study. Overall, there were 11 student participants, of which nine disclosed their undocumented status to me at some point during the course of the study. While the 11 students participated fully throughout the course of the study, the five students who are undocumented, introduced above, are the focus of this current study based on their strong desire to follow a trajectory in science and also to limit the number of students in this dissertation to a manageable number. Eight of the nine students who are undocumented actually reported a desire to follow a science trajectory, and five of these eight were ultimately chosen to focus on in this dissertation as a function of the extent to which they spoke about their dreams for a future in science during my interactions and interviews with them. My initial impressions of these students, and some initial information I began

to learn of them, were reported in my field notes. Below, I include the notes for the five students included in this dissertation, made early on, as a brief introduction to my impressions of their personalities. I also include some information about supporting participants such as teachers, administrators, and mentors who helped to crystallize the data in this study. Keep in mind that my positionality highlights what I glean from my impressions of these participants, and these impressions are by no means intended to be definitive or complete.

With these brief introductions to the students in mind, I now hand the reins over to the students in the following chapter, where their first-person *testimonios* are presented. As this study holds strongly to decolonizing and Critical Race methodologies, the crux of this work is the students' own voices, as they tell of their own experiences in ways no other person but they could relate. In sharing their *testimonios*, the students make a direct appeal to the readers to hear their voices, and hopefully take action based on their call for justice.

Summary of Chapter III

This chapter describes the methodology and the methods used in this study, which are primarily guided by the approaches suggested by Solórzano and Yosso's (2002) Critical Race Methodology. This chapter introduced the underlying methodological concepts that follow from its approach to Critical Race Methodology, which de-emphasize the researcher's interpretations as primary and, instead, centralize the voices and lived experiences of people of color, in this case, the *testimonios* of Latin@ high school students who are undocumented. Decolonizing methodologies such as Pizarro's

(1999) Chican@ Epistemological Methodology and *Testimonio* Methodology focus the study on the reasoning behind the specific methods chosen, and how to approach the study in the field. The methods utilized in the study, namely *testimonio* collection through open-ended interviewing, critical ethnographic methods, and participant observation were elaborated as methods to obtain and crystalize the findings in the participants' *testimonios*. The context and design of the study was described, and the data collection procedures were articulated. I divulged my positionality and my reflexivity with regards to this study, and discussed what I feel my role was as a researcher. This chapter also described the collaborative analysis and meta-analysis process, and the validity, reliability, transferability, and credibility of the study. The chapter then aligned the study's research questions to the methods used, and finally introduced the participants of the study, in order to begin to get to know the participants. The following chapter will present the students' *composed testimonios* for each of the five students included in this study. The *testimonios* that follow are raw and real, and are intended for the reader to hear and contemplate, and ultimately act on, the urgency within the narratives given by each of these students.

CHAPTER IV

TESTIMONIOS: Narraciones de Urgencia (Jara & Vedal, 1986)

And they call me “illegal” but that doesn’t make them any better than me. I know what I can do and I know what limits me. Like that is a big limit but it’s not going to stop me completely. Because I know I can get far with hard work. I see me getting somewhere further in life than anybody thought it was possible for me getting, as a Latina. They probably think all Hispanics are dumb or all Hispanics are gangster. I’m not any of that. I know what I am. I’m at least proud of myself, because I’m getting somewhere and I’m getting my education. I at least know that I’m trying to get my personal best. And if they’re thinking “There’s no possible way for an undocumented Latina to go into science,” I would probably say, “Watch me.” (Crystal, Jones High School Student)

The following *testimonios* allow the reader into intimate and urgent understandings of the lives of these five Latin@ students who are undocumented. These *testimonios* show, in first person, the critical, time-sensitive issues that these students contend with, embedded into their life stories. Each of the students relates their dreams and accomplishments relating to science, and the barriers with which they struggle. This is a hallmark of the *testimonio* approach – a narrative of personal truth that is urgent to the speaker and that is an appeal for social justice.

This chapter shares each of the five students’ *composed testimonios* (Urrieta et al., in press, pg. 25) as I have compiled them as the *compilador*. As explained in more detail in the previous chapter, *composed testimonios* are pieced together from multiple conversations/interviews with a *testimonista*, collected over time. The compiler, or *compilador* has to make decisions as to what parts of the multiple sources of data are

relevant and eliminate repetition as well as how to weave these into a cohesive narrative. This does admittedly give the researcher/*compilador* of the composed narrative some power over the message and meaning of the story, however this is tempered by adhering to Urrieta et al.'s (in press) stipulation that *composed testimonios* must always be created “in consultation and collaboration with the testifying research participant” (Urrieta et al., in press, pg. 25). When considering Pizarro's (1999) insistence that research be approached in a fashion in which the participants have control over the direction of the research and that their voices are not overshadowed by the researcher's colonizing intentions, it could appear that by acting as the *compilador* of their stories, the researcher has more power over their stories that would adhere to Pizarro's ideal for Chican@ social justice research. However, it is important to note that Pizarro also emphasized that themes and ideas the researcher gathers from the research be checked, refined, and rechecked over time through “researcher-participant conversations” (Pizarro, 1999, p. 68). So while it is the case that the researcher here did compile these stories from multiple sources and made initial decisions about what to include and what to leave out, the following *compiled testimonios* were checked multiple times by their respective narrator both during its initial construction as bullet points (see Appendix D) and multiple times as their full story took shape, until it was finally carved through repeated member-checking and student feedback into the final stories you see below, which have each been approved in full by their respective *testimonista*.

With that said, a majority of the *testimonios* here were composed of large chunks of student oral narrative. These *testimonios* have been very minimally composed from

several interview sessions and conversations. Care has been taken to only omit repetitive information or excessive false starts, hedges, or other disfluencies. For example, in the following original sentence as spoken by Juan, he stated: “She always lectured me to – she always tells me to look at the – and see what situation they’re in because it’s not a good one, though.” In Juan’s *testimonio*, I have changed this sentence to read: “She always lectured me to look and see what situation they’re in because it’s not a good one.” I occasionally add an “and” or a “then” to tie *testimonios* together that may have come from different interviews, conversations, or different times within the same interview. While I attempted in the compiled *testimonios* below not to include repetition, it is important that I note that the data did often repeat itself as students repeated aspects of their stories and perspectives across multiple interviews and focus groups. I considered this repetition a type of self-crystallization that confirmed that the student really felt strongly and consistently about this point or aspect of their story. If a point or aspect of a student’s story appeared more than once in their interview and focus group data, it was an indication to me that this detail was very important to be included in their *testimonio*, but I tried to ensure it was represented only once. As an example, Juan brought up on at least four separate occasions that he is extremely inspired and motivated to dedicate himself to environmental conservation because he is such a fan of Jane Goodall. I made sure this point was included in his *testimonio*.

There were instances in interviews and focus groups where some chunks of interchange were omitted as they were part of conversation deemed irrelevant to the research questions and framework of the study. These were mostly idle conversation of

which an example is included below, merely to show the kinds of things that were not included. Although it is important to note that interchanges such as this are still relevant to show their access to teenage culture and social networking, though they were not directly relevant to the more pressing issues that were the heart of what made it to the students' testimonios, such as their relationships with science, being undocumented, etc. As such, the act of piecing together these composed testimonios based on what aligns with the issues at hand as the research questions and interview topics outline, is itself an initial form of analysis, which becomes an act of co-analysis as the students member-check their stories. The following is from the final 10th grade focus group:

Crystal: Dude, her hair's ridiculous. It's like this big. [holds her hands out wide to either side of her head] Why in the world are you guys –

Juan: That's 'cause she walked out and she came out ready to put the wig on.

David: Excuse all the gross stuff on my phone.

Crystal: All the what?

David: Gross stuff on my phone.

Silvia: I've seen worse.

Crystal: See? That's the girl with the wig right there. [pointing at the picture on the phone]

Juan: Yeah, that's her.

Silvia: Let me see.

Juan: She once ran out and forgot to wear the wig.

The majority of the text in the *testimonios*, however, remains unchanged. I tried to keep the cadence and manner of speaking and thought processes of each participant as unmodified as possible while still remaining readable. As a result, you will notice that the flow of the *testimonios* are more conversational and organic. “Orality and experience are privileged in a *testimonio*” (Urrieta et al., in press, p. 3), and so in the stories below, it is important to remember that “Testimonios may not follow a linear narrative style” (Urrieta et al., in press, p. 24), and this lends itself to the authentic voices of the students as they share their stories orally. One may notice a similar flow in the topics of each testimonio, and this has to do with how I, the *compilador*, chose to arrange each testimonio, starting with a family history, and then going into issues of their relation to science, to *Latinidad*, to their struggles with undocumented issues, etc. It is important to note that most of the testimonios are pieced together from interviews and focus groups where the students responded to questions I posed as can be seen in Appendix C and Appendix E, and so you will find similar topics discussed as a result. I chose what is relevant based on their adherence to these topics, though if a student had something they spoke at length about, which went beyond the initially designated topics, this was also included because it was particularly relevant to the *testimonista*, either due to its length, or due to the *testimonista*'s feeling during member-checking that the topic they raised must be communicated to the readers of their story. An example of this can be seen in David's testimonio, and how strongly he feels about ESL. Although this was not one of my initial topics, his feelings about this topic and the length at which he spoke on it, makes it clear that this is a truth he needs others to hear—which is the very spirit of *testimonio*.

Sergio: “They’ll be like ‘wow, I was wrong.’ It changes things”

I was born in San Luis Potosi in Mexico, *mas al este* [more to the east]. My mom is from San Luis, and so is my dad, we’re all from there. I came over here when I was like 2. My dad came before us, so he worked in different places in California and Florida, but my mom, my sisters and I, we came here, straight to Greyberg. We came here because him and my uncles would really go around and search for places with a lot of work, so he could kind of find a place where he could get a job, and where my mom could get a job. For some reason, he liked Greyberg. My dad *era federal*—he used to be a Federal Agent in Mexico, and one day he really—he had an epiphany because he saw some of his friends were dying, and some of them weren’t happy. He used to be a body guard for the Governor, and the Governor kind of made him see that he wasn’t happy with his life. He was always at the front and a lot of times he was an inch, or two inches away from getting shot like in the head or in the chest cavity. So he wanted to have a family, and he couldn’t do that as *a federal* because constantly your life is on the line. He was a driver, so he would drive the Governor to and from places, and lots of times they did assault him. There was lots of violence, especially there. He worked in the Federal District, and there’s a lot of wackos there. So we really came here for protection because he did have a lot of enemies. And we really came for protection because he didn’t want me and my two older sisters getting hurt, or my mom getting hurt. And that’s why the idea of deportation really scares me because if they do send us back, it’s not safe for us. Because my dad has a lot of enemies. So we came over here to kind of start fresh.

I started remembering stuff I guess from when we crossed here. I remember a little. I was really small, but I remember some about the night because I remember crossing with a coyote that my uncle had already used to cross over here, my mom’s brother, *Porque el, si es ciudadano* [because he is a citizen], but anyways. So we crossed with that coyote, and we came over by the bridge, and I came under another name, I don’t even know what name. So I crossed over using another name, and I think first we went to [another city in this Southern state], and we lived with my uncle a little while. But it really wasn’t working out because we were really packed in.

My dad started working in this restaurant. It was a Chinese restaurant. It was really weird, a Mexican working with a whole bunch of Asians. He told my mom not to work, but she wanted to work anyway because she raised all her siblings, like four or five siblings. *Como* [like], her mom abandoned them at a young age, and her dad, my grandpa, I love him and everything, but he’s a drunk. He’s a really big drunk, and he abandoned his other wife for a younger woman. It just didn’t work out, and her step-siblings would mistreat her a lot, and when she got over here she was already used to working, so she started working at like

McDonalds, whatever job she could find. But then she died when I was like four in a car accident because a drunk driver ran into the back of their car.

So my oldest sister had to quit school. She was studying biochemical engineering and she quit it because I was young, so she kind of raised me. My other sister, I mean they both got through high school, but neither one of them could go to college. My oldest sister because she had to raise me, and my other older sister because she didn't have papers. She wanted to study nursing; she wanted to be a nurse. *Entonces* [so], I guess that's why there's pressure on me because they all couldn't for some type of circumstance, and since I don't have any circumstance, that's kind of a motivation for me. Especially because I want to give my dad a break. He's been helping everybody all his life, so it's time for somebody to help him. That's pretty much it. We came here.

One of my sisters, she works at a DWI [Driving While Intoxicated] center. So they kind of help alcoholics recover, and kind of help them fix their problems they got while drinking, so she works there. I think what happened to my mom inspired her to work there, to make a difference, cause some guys change their lives completely. My other sister, she wanted to be a nurse, but because I was kind of young at the time, it was kind of hard for her, so she gave up on that. She couldn't go to college. I mean she really wanted to be a nurse, and before that she wanted to be a mortician. It just couldn't happen, because of the out-of-state tuition. I mean my family just couldn't afford it, you know, when she was kind of steering towards her career, my mom died, so my older sister had to kind of take care of me. So it was just really hard. She said she doesn't feel bad about it, but I don't know, I think she should feel bad. I mean after all it wasn't her fault. My mom died when I was four, and so my sister had to take care of me, and they still live with us. Because my older sister, she's only working part-time right now because she had an accident on her job a few years back, so she is very limited. I mean she's not handicapped, but she's very limited, like she has back problems. So she lives with us so we can help her out. My other sister kind of wanted to help us with some bills, so she stays with us, and she pays a few bills.

When my mom died, she was doing the legalization process, or naturalization. She couldn't get a job anywhere. The only place that would take her was McDonald's. She was going to go into a nursing job whenever she did get her citizenship because she liked being a nurse. So she was working at that McDonald's, and her friend was a manager there. That night, my dad was a little late going to get her, so she told him she would ride home with the friend. Her friend was driving, she was in the passenger seat. They left McDonald's, and right beside the McDonald's is a gas station. They were passing the gas station and this guy in a truck rammed them from behind because he was drunk. So he rammed them from behind. Her friend still has the car in her backyard. She kept it there as kind of a memorial piece. It dented all the way in. He had a truck and

she only had a little 2-door sedan. So it dented it in all the way, and her friend wasn't hurt because she was in the driver's seat, and she had her seatbelt on. As soon as the impact happened, the airbag opened. My mom didn't have her seatbelt on. She was carrying something. When it hit, she was pushed forward, and her neck broke. When it happened, it was pretty hard. I think with the support of my dad and my sisters, we've gotten through it. I don't know, it was an impact that ruined everybody's life.

My older sister, the one who took care of me a lot, she was going to be a biochemical engineer. She had gotten a scholarship for it. She was just studying. She had gotten a scholarship and she was studying for it. She was studying at home so she could take care of me at first. Then she had an accident at work, and it was kind of her fault because she didn't report it. She used to work at Tyco where they make parts for cars, electronic parts, like mother trips and boards. It's also where I learned to like it. She slipped on a spill. She didn't report it. Everybody was like 'are you okay' and she said yeah. She didn't think anything was wrong. A couple of years passed and she starts getting pains in her back. She goes to a chiropractor and the chiropractor said we need to take some x-rays, so they did some x-rays and tests, and she had thin feather-like fractures on her hip joint, and they take forever to heal. She constantly had to go for sessions. It will heal, but it takes years and years of treatment. She kind of stopped because she was going in debt going there since she doesn't have insurance and she couldn't afford to keep getting the treatments. It was just one thing led to another. At least if my mom was still there to take care of me, my sister could have kept going to college and finish her courses. Since she had to take care of me, go to the sessions, still try to work, it was just too much, so she had to leave college.

I think most of my friends think I'm serious because sometimes when people joke around too much, I will get kind of heavy. Or sometimes I will notice somebody is down or something and I will ask them 'hey what's wrong?' But maybe they would say I'm serious. You know sometimes people get into my bookbag or something, they will see I do carry around some of my poems with me, and they'll read some of those and be like 'you wrote this?' I'd be like 'yeah.' I was thinking of having a book published, but I haven't gotten around to it yet. My English teacher liked them a lot. I should have gone back because she has a friend who works in publishing, and she said I definitely know that she can get these published.

Even if we are Latinos, we all have a culture that kind of intertwines. It's really nice the different types of food and music, and the fact that if you're Latin you can go to different countries, and people will really look at you like you're different, but it's not like here. If you're Latino here, they look at you like 'why is he here?' Most of us are kind of alienated because they always see—again it goes back to the old problem of the skin tone. They'll usually be like, 'oh what's this

guy doing here, you can tell he's not from here.' The first thing they always do is ask, 'hey are you legal?' I don't think that's right. Why does it matter to you? It would be different if you were maybe a Federal worker or something, then that's your job to be interested, but people on the street, you can just hear them whispering, 'oh look at that guy.' I don't think it's right. That's what they used to do to the African-Americans. Now I think it's kind of a vicious cycle that they're doing. They go from race to race, and I don't think that it should keep going because after the Latinos, what other race will they focus on? They would treat them poorly, and always try to exclude them from certain things. They would keep them from attending college, and segregate them in schools. That's kind of what they do to us. I mean after all, we do have some rights because of Civil Rights activists, but I think more should be done because the work did help, but they're still the same, everybody always judging you based on your race or nationality. You can look like you're a certain race, and people will still ask you where you are from. Well, it kind of forces you to maybe lie because you're like, these guys, you can tell that they're superficial and judge people based on their nationality, so if I tell them 'oh I'm Mexican' or 'I'm Cuban.' then you know they will say something about it, or just stop talking to you, so you might lie and be like, 'oh I'm American.' It kind of makes people, I don't know, betray their country. I've seen some of my friends doing it, and I don't think it's right. I mean you should be proud of where you're from, after all, it is where you're from. I mean, no matter where I am, I'll still have Aztec blood. I'm not afraid to admit it.

Usually if they see you are a little more toward the Aztec side, they'll treat you—even in Mexico, they'll treat you like you're not as educated, maybe they think of you as the native indigenous people, and they'll treat you as limited. They maybe say 'oh this guy, oh he works on a farm.' If you go into the office, they'll be like 'oh you're not a worker here, what are you doing?' Usually as a Latino, you have to be very careful what you do, or personally I am, because again I don't want to fit into that stereotype, but also keep your roots, so usually I will go towards traditional, people that are more close to where they're from, like Yoon, right, he's Vietnamese. He's Vietnamese all the way. I mean he eats Vietnamese, acts Vietnamese, and usually I'll hangout with him. I'll hangout with maybe my cousin Jonathan. I mean he's Mexican, but he'll act it. I speak completely in Spanish with my family. Other people, other Hispanics, I see here, they lean towards like the American way. I don't know, that just—I don't like it. It's like they try to mask their Latin side, and try to embrace the American side more. When both of your parents are Hispanic, and you act American because it's kind of like you're hiding, or trying to distract people, and if they're like, 'oh he acts American, so he probably is American' and most of the time they're not. When I go with my family, and stuff, some of my cousins, I've been kind of Americanized. So they're always like on their phones, into that kind of stuff, but when you ask them, 'hey you want to go play soccer?' or something like that, they'll be like 'no, I'm okay.' They'll be like 'oh, that's an Indian sport', and I'm

like wow. I don't know, they lost their way maybe because even the food that we eat, they're like, 'oh no, it's too spicy.' I'm like 'what? This dish we've been making it for hundreds of years, and now you think it's too spicy?'

After high school, I would say—I'm really deciding between going after kind of like my chef dream, or getting a more balanced job, like mechatronics, like making drones and machines. Because I mean I'm really good at it. Like my friend was in the Robot Wars Club, and I went with him sometimes. My first time I built one really easy. I don't know, the teacher said I was good at it. I liked it though. It was nice working with circuitry and boards. I think it's fun. I signed up for an engineering and robotics class for next year here. Not until spring of 2013. I'm hoping for that. I think it's nice to be able to make something with your own hands that you can use, to make other jobs more efficient. Essentially robots in a way are superior to humans. They just need operators. They don't get sick. They don't get tired. They just need maintenance. I mean they'll never replace humans, but they can always help to cut down costs because it's cost efficient. In mechatronics you need a lot of dedication because the education, the classes, the courses, are very challenging from what I've seen. You really need to know your stuff before you take any of the tests because usually you will repeat the test twice. I know a lot of people that have tried to go for it, but they failed the test. So, I don't know, I'm kind of nervous. They give you a test like they'll say a certain company, like one of my friends that tried going into it, he got a test that they said that a pharmacy was trying to make its pharmaceutical staff more efficient, so they wanted kind of like a routing drawn so that it could bring medicines to and from the stations, so they wouldn't have to go through and sort every medication. So you had to make a drawing that would be able to go up, have a reader, and read the scanning bars so it could distinguish between medicines, grab it, and bring it to them. So it's difficult because you have to make it do multiple tasks, and his was able to read and distinguish, but it really couldn't bring it. It would like get stuck. He didn't code it right, so that's the thing.

Mostly I read magazines, like *GizMag*, and things about inventions coming out. I love inventions. I just love it. I'm aspiring to invent something. I have always wanted a chance like that, like the Noah's Ark project, and things like that which help cities expand. It's a project they have in New Orleans where they want to kind of expand the city, but they want to make a portion of it floating, with structures that could withstand wind, and also use sunlight as a generator, and moonlight as a generator. Since New Orleans is right by the bay, they could build on top of the bay so that way they could expand the city and accept more residents in, and they're building up like some Asian countries too, instead of trying to deforest places. They said it is more likely that there are hurricanes and stronger waves to come, they want to kind of build it because of the buoyancy of it, so it won't be affected. I've come up with some ideas. I think there should be a way to be able to transport people without using so many fossil fuels, like these airplanes.

I mean people use airplanes every day, tons and tons of gasoline that we're burning, but there should be a more efficient way of traveling without having to use natural resources that can't be replenished. That's why I kind of want to go and figure out how to kind of structure my research because after all, even if I can't do it here, I can always research in Mexico, especially because at a college in Mexico, they made the first car that runs on water. It still uses oil, but synthetic oil, so it uses almost no natural resources. So it's better hybrid, but for some reason, supposedly unknown, the government won't let them sell it. And I don't think inventions like that would ever pass because after all, it's a business, and if it did ever pass, one way or another, we would be paying more for water than gas, so either way, we're going to have to pay more. I think it's better with gas because water we use for more things, like drinking, bathing, so I don't think it is a smart idea to market water. Imagine if they marketed all water. It would be terrible.

Most people tell me [to go into Mechatronics you need to go to] a 4-year university, but you kind of have to have a gift with it, so I don't know. Because it's difficult and not anybody can do it. You have to really study into it, and you have to know all the codes, and it's kind of difficult, but I think it's nice. It's just a feeling you get when you make one, and it actually works for you. It feels awesome. I like that. But I think it's a possibility. Either that or I decide to buckle down because I always wanted to be a chef. I like cooking a lot. My dad used to be a chef, too. I like it. The only thing is that it is kind of difficult to have a family with it because it's demanding sometimes. It is kind of hard because you have to start at the bottom and climb up, so it takes a while. So I was rethinking it.

To go into Mechatronics, it will definitely take a lot of work, and I'd have to search around for maybe a club that revolves around that, maybe a technician's club or something. I think it should be not very challenging for me because I know like my uncle is a mechanic. He used to work for Ford. My dad, too, he used to do some work as a technician, and I have some friends that are electricians. It shouldn't be that hard. So I'm thinking of going to a two-year tech college, like Greyberg Tech, because most employers look for either—because Greyberg Tech has challenging courses. So if you take multiple courses from there, they will kind of go towards you because they think oh, this guy is disciplined, you know, he got through not just one course, but two or three. I think it's pretty expensive, but there's always a possibility of scholarships, or even just saving up for it. I'd have to pay out-of-state tuition, because of the whole DREAM Act thing. I think in a way it is fair, but in another way it isn't. I mean, a lot of us came when we were really young. I came when I was two, and like I was saying, man I'd go back in a heartbeat, but it's difficult to find a job that will let you study, and everything. I have no memories of Mexico—the U.S. is all I know. I'd have to get used to a whole different lifestyle. They were telling me like a lot of jobs that are available, it's difficult to study, I'd probably have to leave high

school, and then there's no chance of going to college at all. So at least I want to finish high school here.

And then I want to go to college to kind of disprove the stereotype, you know they always say you're Hispanic, you're not going to go to college. So I'm kind of looking for a way to, if I can, get a scholarship, but if that's not an option, then I guess—I've always wanted to just go back to Mexico because I think either way it's the same. Here some things are more expensive than over there, so I've always wanted to go back, and look for a safer place. Probably not go to my hometown, but look for a safer place, and return to Mexico. Especially because over there college is—It's not nearly as expensive as over here. It would be like 800 pesos. That's really not a lot. That's like around \$80.00, around like \$73.00. So, it's not a lot. I'll go. I'll study after. My uncle is here, and he could always send me money from here. He's a citizen because he came a few years before us. He's really the one that told us to look here because this is where he liked it, too. So he's a citizen. He's got a pretty balanced job right now, and he could send me money, I definitely think so. So those are the options because of the situation that wasn't even my fault. If I had citizenship, my plans would change. With citizenship, I don't think I would return to Mexico. I definitely would try to pursue my career more, and especially with citizenship, I guess I would look for a company, not only in the United States, but maybe a foreign company, too, to work for because citizenship would open new doors, especially because—Well I could always try to help my dad with the situation. I mean it's not like we want to bring anybody else over here, just take care of my family. I think I do well in school mainly in the hope to someday help my dad, or my sisters, in a way. Be it financially or support them because I don't want to be like one of those people who doesn't do anything. Because how are you giving back to your family that way? So that's really what drives me: my family.

It's hard without being able to get a license to do what I need to do. I mean one way or another I guess I will have to drive without one because there's always the need, when my dad is at work, and my sister is at work, I need some way to get around. So I guess just like—we've kind of already adapted to it, always checking and looking around corners. You never know. It's frustrating, really. It's frustrating, but it's necessary and I've got to have a way to get around. We don't want to do it, but taking buses and taxis are expensive. Taxis are really expensive. So it's just not an option.

If I could get that scholarship, first I would try to concentrate on my studies first because after all, a scholarship is a scholarship, but there's no guarantee, so take advantage of the scholarship definitely, and apply to maybe a university that I really like, and focus on my career first, find a company that I could work for maybe, and while I'm working, also have a side project, like an invention I can do, and put some years into that, and then try to market it. Maybe inventions to

help agriculture because the whole companies, the monopolies trying to control me, and everything, inventions that prohibit the use of antibiotics, and other things in the feed, so a natural feed that won't be as costly but that would sell, be healthy for animals, so we won't consume as many steroids or antibiotics when we eat, to make it healthier for everybody. I think my inventions would center around those because people really neglect them. They think everything is okay. They always say oh the meat is meat, the color is just blood, but there are so many things hidden behind those things, that I think certain films and documentaries have explored like Food Incorporated, and things like that, so I think somebody should do something about it.

When I saw Food Inc., I couldn't see some parts. It was terrible how they treated their workers, and the animals. I don't know who was treated worse. I don't think that's right. Especially because most of the workers are immigrants, they treat them very poorly. They do not give them any type of insurance, and if they have an accident on the job, they just play it off, and say they were drinking or something so they won't have to pay for them, and I don't think that's right. After all, these are your workers. A company without workers is no company at all. Some people have been kind of brainwashed into thinking immigrants are bad, and because of immigrants there is so much money going into border patrol, and things like that, but I just think people are misinformed.

I feel that the DREAM Act not only would help us, but it would also help the Government, because a lot of us just want a chance, a chance to get the education that we really deserve, and with that education we'd put it towards careers, and jobs. After a while, we would be contributing, so the Government would be making money. So that's why I mean there's really no reason why they shouldn't approve it, and there are a lot of Hispanics, a huge population. Most of us have to escape somewhere, so we come here. The Land of Opportunity is what they call it, so, that's what we're looking—We're looking for that, too.

Right now some of my family is like 'oh, it's never gonna happen, just skate through high school, why are you worrying about your grades and everything.' Most of the time it's my cousins, my other uncles, who say that because that's what they're doing. My cousins, they don't take high school seriously. The only one that does is my cousin Jonathan. He's a senior here, but the rest of them don't. They constantly get expelled from other schools, I think they went about it the wrong way. What they are doing right now is only feeding into the stereotype. I think most people just think that—They have this stereotype of like us all being thuggish, always stealing, and what some of us have done because we can't really find work, or because they're too lazy to put the effort into the legalization and naturalization process, so I think that's what the stereotype that everybody has. They think we're all just looking for the easy way out. I don't think it's true at all, especially because some of us do it, but so do a lot of other races. Most of us

don't. I mean there's a lot of us that still even pay taxes here even though legally we're not here, and we still pay our bills on time, and we still put our kids through school, and so I don't think that stereotype is accurate.

If people could see that 'oh they are here to work, and why are we not helping them so they could help us?' Because after all, Hispanics, we do a lot of jobs that no other person wants. People say that we're stealing jobs, but who else wants to be in the field for hours and hours without a break, and for dirt pay? Nobody else. They get mad at us for coming here, but they go and they buy land in Mexico. And they don't understand that naturalization here is a long process. I believe that right now they are only accepting all of the applications before 2003. It takes a lot of years, and they still process it, and most of the time you'll get denied. Like I know my parents put in the application in like the '90s, and my mom just barely got accepted for her residency sometime last year, but by the time it got here, she was dead. My dad put it in at the same time, before I was born they put in the application, but they haven't said anything. My mom was pregnant when they put it in, in the '90s, so they still included me. And still nothing. They haven't even let us know if anything is going on. We've been to the lawyer, but the lawyer said that if she died, then everything dies because she was the one that was the main benefactor because they really put it in for her. She was our mother then, she could always help me, and my sisters, and then we could help our dad.

I don't know, I mean it's kind of harder not being put down, but if I had a guaranteed citizenship, well there's no reason not to. I would be a lot more comfortable definitely. Even with the citizenship, I could afford to get a job and help my family even though I'm in college, and after college, right away start looking for employment. I think if I at least put an effort into it, there is a possibility that it can happen, and if it does happen then I can help my family a lot. It definitely takes a lot of discipline, focus, but most of all some type of encouragement, somebody to push you to do well, and definitely a purpose for doing well in school. For me, that would probably be my older sister. If it's just to do well, chances are you won't keep on a track, but if you have a motivation to do well, some type of purpose for doing well, to help the family, to do better as an individual, to give back to the community, then you have a type of motivational goal, a milestone, that you want to reach, and I think that really helps.

As far as Ms. Grey's science class, we'll take a lot of notes. We'll read a section of the book, and sometimes we'll have a lab or an activity. Most of the time that's what I think I spend most of my time in her class doing, just taking notes, and kind of trying to understand everything. She does give us an opportunity to come to tutoring every Thursday, and I've gone like once or twice. It helps a lot. But still I don't know, I think just the way they set up the questions on the standardized tests kind of misleads because sometimes the questions sound like other questions that we've already had, so we kind of just jump to an answer.

Some of the illustrations that they give you are kind of hard to distinguish so, it's not like on paper, where you can kind of make marks and X stuff out, but you can't really do that on the computer. Sometimes I don't think it is formulated well, like they use words that most people in the ninth grade, typically the grade that you take Biology in, wouldn't really understand. So I think they should use different words in the questions, so that we can understand them. It's just not the language the kids here at Jones would talk. It sounds more like how maybe a private school kid would talk, a little more reformed, more structured. That's my opinion. Some people say no, I'm wrong, but I think so. Or like this other public school but like the kids there act like they're in a private school. Not really the snobby White, but the preppy White, so they carry themselves differently, being a snob just because you have a better education or a reputable teacher, I don't think that's right.

I went on their campus for a few days and did not like it. Just kind of like the environment was like—even the air that you breathe, I was kind of choking. Everything was all preppy, everything aligned. I had to be like really aligned, and all buttoned up, and I was like—walking through the halls, your shirt has to be tucked in, and I just didn't like it. In class, it was like, nobody really socialized. It was like you going there, and that's it. Then you go on the courtyard and there they socialize, but right after it ends, you go back to that weird, I don't know, just solitary kind of thing. You're just listening to the teacher, and you're doing your homework instead of what we do here at Jones. We're always like 'hey man this happened', and stuff. You do your work, and then you talk and stuff. But them, even if they were done with their work, they were on their phones, or something. You could have the person sitting right next to you, and you know they're friends, but they don't talk to each other. I think it may have something to do with race, but mostly maybe like tradition. It's always been like an American tradition to break away. I think they took it to an extreme, took it too literally, to break away from everything because originally, the colonies tried to break away from England, but that was different, they were getting mistreated. So it was different if you break away because of necessity than if you do it just because you want to seem cool or something or maybe you don't like talking to anybody. It's weird. It seems unnatural. When you're in class it's like you don't even know each other. It's different. I don't know why, is it a race thing? Is it just a cultural thing? I don't know. I didn't like it. Definitely something very different than what I grew up in.

In our culture we're more interested in community, family. Family because most of the families that I've seen anyway, the white families that I've seen are kind of separated. Especially like in Latin cultures, we've always been taught that family is the most important thing, but I guess it's different with White families, and when people try to imitate that, it kind of makes them seem like they don't want to respect their families either, and it really makes it uncomfortable because in

reality you are nothing without your family because without your parents we wouldn't even be here. Without your siblings, maybe if you're younger, they may have helped you a lot. If they're younger, then it gives you a reason to strive to help them. If you have aunts and uncles, they are still your family, and they could have helped your parents, and grandparents, they gave birth to your parents, so without family, in reality we are nothing. I think they don't respect it as much. Like at schools like that, it really shows because if you look at the way they act, it's kind of like that snooty, Englishy behavior—yeah, just it doesn't make you feel down to earth. It makes you feel like you're trying to be something that maybe you're not. I think that's mostly because of the media that tries to make it seem like 'oh, you should only care about yourself, you, you, you', *como decimos nosotros, el yo-yo* [like we say, the me-me]. I think it's mostly because of the media though, they accept the media more, like Hispanics would be like, 'what?, they're crazy.' There's Hispanics you would respect. You definitely have to respect your wife. You definitely have to respect your parents, but the way the media makes it seem, it's kind of like a negative effect because then people are like oh, they're just worrying about themselves, they just take, take, take, but what have they given back? Have you helped your parents with something? Have you given back to the community? Have you made something that's had a positive effect on somebody else's life? Or have you just taken, taken and taken for yourself, and been selfish, not giving back? I don't like that anyway.

I think you can be successful in life, but when you strive more for the success than the happiness there's something wrong. If you think you're the only one that matters—yeah you can get good grades, and could probably get a really good job, but in reality are you gonna be happy working that really successful job forcing you to stay at work for 10, 11, 12 hours a day, coming home to nothing but an empty maybe 3-story house? It's not the way I want to live, anyway. You'll have money, yeah, and maybe you'll be happy driving a Cadillac or something, and your Fiat 500 feels really nice, but there's nobody to fill it.

But in Ms. Grey's class, I do like to be on top of things. I've always liked science. I love science. I don't know, ever since I was in elementary school, I loved science. I love the experiments, learning about different things, I love it, especially when we started talking about animals and stuff. I always loved going to the zoo, learning about the species, and the places where they are. I just love it. I remember, I think it was in first grade when I had this really, really bad cut on my left leg, where like the skin came off of it. I was in a bouncy house, I remember I was in a bouncy house that they had, but somebody didn't close the door, so I fell out, and there was pavement outside, so I came out, and scraped it off. I remember it hurt really bad, but then I went to science anyway, and they put this really long bandage on it, and wrapped it around, but in science they were telling us how the skin repairs itself, and everything. So that's kind of like my first experiment, they did it on my leg. She put a solution on it, and I can't

remember what it was. Maybe it was iodine, because it colored it. It colored it, and she took some cells from there, and she showed us how they repair themselves, and how they kind of multiply. It was really cool. She used to teach high school, so that's why. She came back, and started teaching elementary school. She said she needed to kind of slow down the pace, but sometimes she would just throw out this cool stuff like that.

In the years after that, I think in elementary school and middle school, science kind of slowed down a lot. For some reason, I don't know, science really wasn't pushed that much. If we had science, we would mostly be like take notes, read different articles, or something. It wasn't until like 8th grade when we started doing the nutritional stuff. I was really interested in that too because it got me to join the gym, and it was like whoa, learning about what stuff is made of, you're like 'oh man, I love that.' but how they make it is gross, especially the Twinkie. When we started on the Twinkie, I was like: No. Because the cream is made of one of the components that they used to make glue with, and that's what gives it the texture, and the cream. We did an experiment on it to see if the cream would dissolve. I remember, we even put I think it was battery acid on it, and it took like an hour to dissolve, so we're like imagine how long it takes to dissolve in your stomach. I was always like why because they're so delicious, or what? Then we did that, and I was like oh, that's disgusting. We were putting that into our bodies, and imagine in the '80s when Twinkies were so hot, and everybody was eating Twinkies. Yeah, I was like 'it's still in there floating around!' It changed my perspective on everything. So yeah, they got me. I don't know, I saw the science in everything. There is science in everything. The study of life, and that's what I liked about it. I do a lot of labs on my own in my spare time, but I think of a person just getting interested in Science, I think they would definitely impress, but the type of labs that I like are kind of more like chemistry labs. I love chemistry for the labs. I like biology for the information, but Chemistry for the labs. I mean you know, who doesn't want to see something blow up? It's just awesome, but especially right now that we're going into the dissecting labs, and stuff like that, I think that's more interesting because you learn not only about your own body but the body of like other animals, even animals that you eat, you know?

I'm also working with this Professor at [the local HBCU], he's Philipino and he came to give a lecture like two weeks ago, but I stayed afterwards and so kind of what they're doing here at Jones with the community garden, he wants me to do at my house, and record results and report it to him and they provide seeds and material. I report on things like the pH levels, growth, how high it grew, maturity, if it matured fast, if any of them died. Basically they give you the seeds they want you to plant—or he kind of lets you choose. Just kind of like that. And you plant it. He tells you the steps, how to apply the mulch and everything, and when to plant cover crops and everything. I meet up with him at intervals, every two weeks, four weeks, and kind of talk more about his field. Because he says they

are looking for Hispanics in particular because there are a lot of Hispanic countries that suffer from food insecurity, and they're misusing land. It's kind of an inspiration because this guy has traveled around the world, and he's so passionate. It may sound funny, the way he was talking and stuff, he obviously—English is not his first language, but I respect him. He came to this school and he presented in front of all these ninth graders and it was as if he was talking to his friend. He was always asking us questions. I get really nervous when I talk in front of a crowd. He was really confident, and I was like those are what people should see, those kind of people should motivate so many others. He was funny and all. He may say some stuff wrong, but he was really enthusiastic. Like those are the kind of people that get you interested in that kind of field. I also like that he was talking about majoring in that and helping your home country.

At home usually—sometimes we'll go to a mechanic or something and he'll have some spare parts he is throwing away, so I'm like oh you know, can I use this, or sometimes my dad will throw away pieces of metal or something, and I'll be like, hey I can find something to do with this, so I'll go and try to find a book in the library or maybe search records and see what experiment I can do with that material, what experiments can I do? So I was really interested in that. You can make reactions out of anything, so I was saying even something you think is trash, you can go to the dump and get something to use on an experiment. An old propeller you can use for a lot. It's rusted, and you can't use it on a plane anymore, but you can always maybe even fix it, so I got kind of interested in that. I love cars. Even when I was little, I would get the toy cars, look at the undersurface, and I got this kit when I was like eight or something, where you could disassemble a model car, and put all the parts in together. I still have it at home, I think. You get like separate wheels, stuff like that, and I would always do that to model cars, always work on it. I love it.

On real cars, I've replaced brakes, wheels, power steering fluid, struts, and I think it's a pretty cool job, and it's really cost efficient because if you go to a mechanic, he can charge you whatever he wants. You go to different ones, and some of them charge you a lot. If you can do it on your own, then you only pay for the part. I love it because cars are kind of like drones. They need maintenance too, and you can always take apart a car, and especially mechatronics, they charge a lot. The same with mechanics, they can charge you a lot too, so if you know how to work on cars, you pretty much have a good idea on how to work on a drone. I think it's kind of like a precursor job maybe.

So I keep trying to better myself and hope for some change to our situation because it would open new doors. You'd have a way to support your family. You'd have a way to get employment that is reliable, an honest way to make a living. I think that is something everybody should have. It would affect me because I would be able to help—well, my dad could retire. I know he's been

wanting to retire, but since he's the one that makes the most money so he has to keep working. It would definitely help my sisters because if the DREAM Act did pass, they could go to college, and I could pay for my other sister's chiropractic bills, and help her with her medical condition, and then she could go back and finish college. My dad has pushed me, but again he's been here a long time, and I think he's kind of lost some hope in it, but not totally because I still see him or hear that he is watching something about the DREAM Act or something like that, but he'll quickly change it. My sister would benefit from the DREAM Act too because she saw it was possible to get a scholarship, and she's even more studious than me. She was the straight A girl. She got one B in all of her high school years. She was taking honors classes, some AP, and she was in taking engineering classes too. She loved calculus and things like that. She wanted to be a biochemical engineer. She was really focused. I'm saying if she did it, I can do it.

And for me to go into science, it takes a type of motivation, but a specific type, like every scientist has been impulsed, whether it be to invent penicillin, or a mode of transportation like the trains, some type of motivation, hopefully positive, to help advance society because where would we be without medicine or where would we be without the knowledge of DNA? We couldn't distinguish our supposed parents. The criminal justice system definitely wouldn't be as advanced, so it's helped. It's changed society for the better. But what compels me every day to continue to try to do good in school is really, I think, the possibility that somebody will notice your hard work, whether it's a teacher, a counselor, or even maybe another student. There's always the possibility of somebody noticing your hard work and speaking fondly of you. Because it speaks fondly of your parents, and really your culture too because if they're like "look at that, you know, a Mexican guy, wow." If they had thoughts about 'oh Mexicans are just like dogs and stuff', but see you working hard, getting straight A's, they will be like, "wow, I was wrong." It changes things.

The DREAM Act would also impulse me to kind of *seguir adelante* [keep moving forward] and keep working on that. I really lose hope because I think if you go for an extended period of time, hope is like a candle and it would eventually burn out. So if there is even a glimmer of hope, then I know I would really keep at it, and always try to get more interested in the things that I love doing, especially leaning toward mechatronics or even cooking, things that would help me in my future. If I have steady employment, and help my family, then I hope that some day I can have my own family, and support them, too. So I'm hoping that there's a change, and that someday they will give us the opportunity to maybe attend college or university, or for those of us that have applied, and have been here decades, waiting. A change in the process, just a hope that something happens. And I know that most of our families here [at Jones High] are pretty much in the same situation. and it's really just about finding ways to push forward. It's not

like in other places where the majority have let themselves down, given up, dropped out of school, are in gangs or something. If you see everybody else doing it, it kind of discourages you, and tells you to do what they're doing, but when you see people around you here succeeding, you're like hey, this guy was my friend, and he did this, and he went on to college, or got a scholarship, grant, or whatever, then I can do it, and it gives you some kind of hope.

So I want to ask all those that are going to read this or listen to it: Make a list of the pros and cons, and the pros will definitely devour the page. There's more benefit to come from it. There are more benefits than liabilities. There will be an increased workforce, even by being able to drive. Anything is better than nothing, and we're here anyway, why not take advantage of potential resource. Why let it go to waste?

Crystal: "How can we make a change if they're not letting us?"

When my mom moved here I was like nine months old. She probably was 20 or 21. When I was small they didn't have a job. Her and my birth dad, they didn't have a job. So they couldn't afford to buy my clothes or they couldn't afford to buy anything that I, as a baby, needed. So I guess that was the main reason to get a better future for me and also be able to support me as parents. So that was their main reasoning for coming over here.

I came over first when I was nine months old, using my cousin's papers, and then my mom and my dad came after. We were going to come—they were planning on coming over when she was pregnant but they got in an accident. So they couldn't. It just set them back. When we got here, we were in L.A., Los Angeles, until I was like three.

Now, my parents are divorced, they used to fight a lot. Like fist fight, physically. They got a divorce when I was 3. So she finally got tired of it and supposedly he was always in Texas trying to get a job and help support us and also just to get away from it all so they wouldn't fight. But my mom eventually got tired of them fighting so she just decided to move. She went to Greyberg because my uncles had told her there are jobs here. And that it was cleaner and safer.

I went to Texas for the Summer, wanted the truth from my dad, never got it. I have two younger brothers with my mom and my stepdad, and I have two sisters from my stepmom and my dad. My two brothers live with me, they are six and nine, and my sisters live in Texas with my dad.

At home my brothers are so annoying. They run around. At home I get headaches so I'm normally out: here in school getting my education, or right after school I'm playing a sport. This year I'm doing swimming and I'm doing soccer now. Right now after five I had to leave so I can go to work. So I'm really busy. I don't like being at home. My mom gets mad. She says I'm just trying to get away from the chores.

Also, I meet with my youth group at my church. Ever since I came here I've been going to church as long as I can remember. I have pictures at my church where I am in diapers. I've been able to see that my family is very involved in it. That has shown me that I should be involved in it as well. They've been able to basically mentor me and tell me this is the way you should go and that's the way I've been going. Like now I go to the youth groups when I can of course, because they're on Friday and Fridays are now my soccer games. But I also go today I have rehearsals for our church because I do sing for the church.

I try to keep busy because when I was smaller, I went through a lot of stuff, a lot of abuse, and I kind of ended up going into depression. My way of getting out of it was to keep busy and just not think about it. I got really into that and now I've gotten to the point where if I'm at home I get a headache. Just being in there just sitting there watching TV. It's just like, I should be doing something else and maintaining myself busy.

So like I said, I have two brothers and one on the way as well. I live with my mom and my step-dad. My mom is the one that—I don't think she really understands the whole school system and how if you're more involved and well-rounded you have more opportunities in life and also I like to stay in shape. I don't think she really understands that, so she gets really upset with me about not being at home or being able to clean the house.

I guess she got that from her mom because when I was working, my grandma would be like "Oh, well she should be over here doing this and like cleaning the house and that." Then my mom told me that she had said that. I was just like "Why does she want me to be at the house cleaning up the mess that I obviously don't have time to make?" Then she just started laughing and she's like "That's a good point, but I guess she's just trying to teach you how to grow up and prepare you for when you have a family."

My mom says I should get my education and that I shouldn't be stuck at a dead-end job like her where she just has to make carpets. She didn't really get her education, because they didn't have money and they couldn't afford it. She only went up until the 6th grade. So she can't really find a good job. Right now she's barely working. She's working two to three days a week. My step-dad he's

working so hard. He works almost every day except for Sundays. He's basically the one supporting our whole family.

Knowing that, I don't like them really putting money into me because I know that I'm old enough so that's the reason I work. I don't want to have to be depending on them and I don't want them to spend money on me when I know I can get my own money and I'm old enough to. I don't want to be an extra burden. To be able to feed—they do feed me and everything—but I don't want them to have to buy things like clothes or school materials that I need, because I know I can get that type of stuff myself. It's just like a helping hand that I'm giving them.

My brothers, I mean, they don't have it as hard 'cause they were born here. But they are also very intelligent, and I also want them to push, and to be somebody, to be their own person, and to get somewhere in life where they wanna be, and where they can choose their own goals, and not just take up what everybody else wants to be. I try to be an example for them. So I'm in honors chemistry and AP government and politics, honors geometry and honors native Spanish. I'm hoping to go into IB Spanish, next. It's like the best thing you can do to just apply yourself. Since you already know Spanish you can maybe get somewhere.

With all these AP and IB classes, I'm hoping it will get me into a good future and that maybe because of that I'm able to become documented. Even though I am a person with—I don't have that much hope. I'm not very over-confident, because I do believe if you put a lot of hope in something and it doesn't happen you're just going to let yourself down. So just whatever happens, it just happens. Even though I don't have a lot of hope, I do try to push myself and get somewhere.

And so I push in school even though I don't like school. But I mean you have to get through it to get somewhere or to graduate. I don't like how some teachers just don't teach or the way that: because they're teachers, they think they can be rude to you and say things that they shouldn't. They wish you to respect them, while they on the other hand, are not respecting you as a student. I don't like it. Kind of like if you ask a question and they just respond back in a rude manner. Then you get mad and then you respond back in a rude manner. Then they are like "You can't say it to me." Then you're like "You said this to me as well." Then they're like "Yeah, but I'm a teacher." That's what I don't like. And it's not all the teachers, just some. There's just like a group of teachers that are just like "Oh well, you're a student so I don't need to respect you. But on the other hand you need to respect me." Like my math teacher, she's very respectful along with Ms. Grey, she's respectful as well.

I like that Ms. Grey is actually hands-on. She actually tries and she actually teaches you. But now since you're in high school there will be teachers that are just not going to teach you at all. They're just going to be like "Here's the book.

You need to do this, this and this. Do it and its due by the end of class.” Ms. Grey is actually there and will be like “Okay, we need to do this and we’ll do it together so you can get a good grade on the test and so you can understand it. If you don’t understand it ask me questions. If you still don’t understand it, come for tutoring and I’ll explain it further.” She actually does—like she tries to at least the one-on-one. Even if she can’t do the one-on-one she at least tries to explain it to the whole class.

Ms. Grey’s very respectful and she just—she has a presence that she’s just like “Oh well I’m a teacher, if you need anything.” She’s more than a teacher. She can be like a friend. If you need anything you can come to her; if you need advice or if you need help or anything you can come to her and she’ll be there to show you the way or at least be able to give you some advice. Or at least just a simple “You’ll be okay” is fine.

When I was in Ms. Grey’s class, there would be times that I just didn’t try and she would be like “Okay, you need to come for tutoring.” Even though I probably didn’t like it at the time she’d be like “You need to come for tutoring this and this day for this amount of weeks so you could understand this and so you can pass my class with at least an 80.” And that’s what I liked about her, because she didn’t just like come to work and be like “Okay we’re going to do this and you’re going to do it.” She’s just more like “This is my job and this is who I am and I like this because I’m shaping young minds and I’m leading them in the path that they should be going.”

Spanish is really important too, if you’re Latino. If you don’t know Spanish, it’s a disgrace. You shouldn’t even call yourself Latino if you don’t speak Spanish. Because it’s part of your heritage, and your culture, and where you come from. So if you don’t speak Spanish, it’s basically like you’re denying your culture and where you come from. And that’s like—just speak Spanish; it’s basic. So, what’s gonna make us think that you’re gonna know so much about your culture, and where you come from, if you don’t even speak Spanish? I’m a Mexi-CAN. People that don’t speak Spanish are Mexi-can’ts.

But then when we speak with Americans we sometimes speak the way they want. We say things all gringo. It gets confusing because then Latinos get offended. Like my cousin even told me—she lives in Texas, and when I was over there, she was like—that she worked at Six Flags. She’s like, “And I was working at this place called El Mercado. So, there’s this guy that once walked in, and then, I was like, ‘Hey, welcome to Mercado.’ [With a forced “gringo” accent.] And he just looked at me.” And she’s like, “He just walked out. And he walked right back in, and I’m like, ‘Hey, welcome to Mercado.’ And then, he walked out, and walked right back in.” She said that he did that for about a good eight, nine, ten times until he’s like, finally told her. He’s like, “I know you can say it right, so I’m

gonna keep doing this all day until you say it the right way!” So then when he walked out and came back in, she’s like, “Hey, welcome to Mercado.” [Spanish accent]. And then, he just left. And I do that, too, when I’m talking to English speakers I’ll just be like, Mercado [“gringo” accent] just because that’s how they say it. I’m not gonna say, José like, “Where is José?” I say, “Ho-say.” Because one world to somebody may not be the world to somebody else.

And it depends, at home, to my [step]dad it’s—some time ago he told me he wanted to learn how to speak English. So ever since then I talk to him straight in English. So when I talk to him on the phone or I talk to him in person I talk to him in English. Sometimes when he speaks to me in Spanish, I talk back in Spanish. Sometimes I talk back in English. I know it’s mainly because I was trying to teach him and I just got used to talking to him in English. To my brothers I speak English. Sometimes I speak Spanish. My mom, I speak to her in Spanish. But when I get mad I speak to her English and she gets really upset.

But Spanish is still important to us, that’s why I’m taking Spanish for native speakers. That class started this year, and basically it is for Latino students so they can better their grammar. It’s kind of like an English class for Americans. I mean, they know English. They’re clearly born talking English but they don’t know how to spell it out. Maybe they don’t know how to read it. It’s the same with us. If we are here, how are we going to be able to read it and to really talk proficiently if they’re not teaching us here? So that’s basically what this program here at Jones is about. So we can learn more about our language as well.

Spanish all comes from the same—it comes down the same fountain. With our language there’s obviously—for us to speak Spanish, well obviously it comes from Spain. And Spain came down when they were taking over and when they were trying to find out about the land and all that. They were trying to explore the new world. By them being able to explore the new world, well maybe we don’t talk exactly like the Spanish. Well maybe somebody came before the Spanish, like the Aztecs, and started talking differently. That’s the reason why we talk the way we do. That’s how our cultures came together.

With my friends, if they speak Spanish then they’re going to speak Spanish back. Most of my friends are Hispanic mostly, because I guess it’s just like since they come from the same background as you, you can relate. We’re able to understand each other. Because of our culture we’re able to know how each one of us is feeling. Why we feel this way. While other people that come from different cultures maybe we don’t understand them with the situations that they are going through. Maybe we don’t understand the way they talk. Or why they talk the way they do. So I guess because of that—it’s just like different.

But sometimes I find myself talking to people, that didn't know Spanish, in Spanish and I'd get myself together and then ask them again in English. It's just normal to be bilingual and to be able to understand and come from one background that's completely different from another one. I feel that's also an advantage, because I'm able to speak both languages. I'm also able to learn more about two different cultures. I feel like being bilingual is normal. I feel like it's me and it's not just me. It's so many other people out here. I'd feel weird just speaking to my friends only in English. In this school it's common to just learn two different languages. Then there are some people that are just, "Oh well, *hola*." Then they say, "I know how to speak Spanish." Well you know how to speak Spanish but is that the only word you know how to say? What about the culture? What do you know about it?

Because most of my friends come from the same culture, they'd probably understand the whole undocumented thing. About not being able to work here and getting an education. We're able to grasp that in a conversation, while if I was talking to somebody that's from here they wouldn't be able to understand it because they wouldn't relate to it.

I know a lot of people that are in those types of situations, with immigration issues. So like, for me as a Hispanic, I wanna like, like show people that it's possible to like be successful in this country no matter what your status is. And just, be successful and be a role model to other Hispanics and DREAMers that are in this country in the same situation. And it's like aspiring to overachieve yourself. And not just for yourself, but for your whole community so they can realize that it's possible to be a successful person in this country no matter what.

'Cause I mean, it's frustrating, 'cause most of the people that actually want to make a change, and wanna help out and serve in the military and army can also be undocumented. And most of the workers that are like, the hard, hard workers, also happen to be Hispanics. And I mean, like, it's true. Like, all those buildings, if you even go outside and you see like a, like on Holbrook Road, there's a bank that they're building and like 75% of those are Hispanics. 'Cause they can't get anyone else.

So in my perspective and point of view, there is no point in everybody like, that actually died and gave their life to be free. 'Cause we're not actually free.

And when we went to see the art show on undocumented people, my thing is that if, if this art—and we were brought here to look at this art, right?—Why don't we just like, I feel like we should make it like more public to all the Latinos. 'Cause at Jones, it's like 45% Hispanic. And like, most of them, like 30% of the 45 are undocumented. And like, myself, I have a lot of friends that feel like, oh, well, there's no point in, you know, acting and being educated. We can't get anywhere,

what's the point? And I mean, I've actually said this myself, why be here in a place, in a country that it does have so much, so many opportunities, but I can't access those because of my immigration status. 'Cause I wasn't born here. And I mean, I have no fault in that. I came here when I was nine months old. I didn't have any, I couldn't even put in input, I couldn't even talk. I didn't get a vote. And I mean, that's my thing. Like, I actually told my mom, I told her if, by the time that I graduate, I don't have like, I don't have a good status, then I'm just gonna leave. Because I'm in the IB program, I hope that by then I can go study somewhere in Spain, or go back to Mexico. I know Mexico's like not really a good idea, because I mean, there's so much things going on. I mean, like, and especially like, Hispanics, they come here. And then once they have the proper documentation, they forget where they come from, they forget their roots. They're just like, oh, well, they should go back to where they came from.

And a lot of people have given up hope. Like if you go through the grade book, or if you just talk to them, they don't care. They will try to find easy money, they--most of them, I have a feeling that they're depressed. Because they are doing so many things that's not even, like, that's hurting them. And they don't even care. A lot of them have dropped out. And by them hurting themselves, it's also not only hurting them, it's also hurting their parents and their friends. But it's not just because they don't want to, they stopped caring. I guess it's because they feel they are limited. I know a lot of my friends have ended up doing things that have gotten them into jail and things that have gotten them to drop out. My friend recently dropped out because she was like "Oh well, I don't care. I'm not going to get anywhere. I'll just go do landscaping and things like that and just try to find the easy way out of it." She says because she's undocumented she said there is no point in even trying.

But there are also other people that are just doing it to be in it. Because their parents are telling them, no, you have to graduate. And like, for example my cousin, he's 23, 24. He's documented, he was born here. In Los Angeles. But he doesn't try. He dropped out. And I talked to him, and I said, "well, your mother came here, and you were born here, because she wanted to give you a better future." And he was like, "yeah, but I didn't ask her to." And I responded, I was like, "yeah, but even if, she was thinking about your own benefit. Like you should have kept going to school." He's like "what's the point of going to school if you're not even going to attempt, if I'm not even going to try?"

So I try 'cause I wanna be different. I don't wanna just be, like I tend to say, like an average Hispanic. I wanna be somebody that gets far and has a voice and can be heard and make a difference. Not only for the Latino community, but also for everybody. I wanna basically show them that if I can do it, they can do it as well. And to take me at least as an example, or you know, a little push to make them move forward and do something with themselves. And with their family that will

be in the future. And it's not because I'm better or smarter. Because everybody's smart, and there are people who are way smarter than me. But I try and I try to do my best. I know my best is not somebody else's personal best as well, but it's my best.

I think it's mainly going to take hard work and actually being focused in school because it's like school—even though some people don't take advantage of it and many Hispanics they're like “Oh well, I don't think I'm going to get very far so I'm just going to go into roofing or things like that.” I personally don't like that, because that's not my area of interest. I know when you go into school they're trying to teach you and lead to the path and the career that you want to take for yourself, not because you don't think that you can get anywhere else. But because you like it because it brings out your attention. We get those messages from school and I get it from my family. I guess it's because from where they come from they believe you have to work for a living. My mom told me that. She told me, this was probably a few days ago, she's like “Life is made for working.” I was like “No it's not.” She's like “Yes it is.” I'm like “No it's not. You live to be happy.” *Que no se te vaya la vida tratando de ganarla.* [Don't let your living pass you by, in trying to earn it.]

As a student, I pay attention to the teacher but then I want to argue about it or try to find out more information. I do talk back. Because I feel like I have a voice, I might as well use it. A teacher would be like “Oh well, this is how you do it.” I'd be like “But why? Why does it do that?” He'd be like “Because of this.” I'd be like “But doesn't that happen because of this?” He'd be like “No, this happens because of something else.” I'd be like “Well, why does that happen instead of this happening?” You know just trying to pull out as much information as I can. And I think that's a good quality for a science student to have. Or it should be, because that way they can sit there and try to get as much information as they can and just try to absorb as much. That way by the time they are graduated and going into their career they can be as well prepared as they possibly could by all the information that was provided to them. I imagine a scientist would always be looking at more information and curing diseases, doing a lot of research. And I like that about science, how you can learn more about it and just how everything evolves and forms into something else.

I wanna be a Biology teacher or go into biology or genetic consulting. I know that if I go into genetic consulting that is just basically what I'm going to be doing for a very, very long time. So that's actually what I want to do because I feel like every day should be a day that you should learn. So I feel like in genetics you can do that. And biology teacher, because I like biology, and teaching is just, it helps so many students. It's like a 50/50 thing though. Like you give them the material, it just depends on them to take it. And I feel like I could at least have a

positive influence on them to take that initiative, and also push themselves.

But, like, I don't really see most Latinos pushing themselves to be something in life, but I do know that there are a few, like Juan, that do care about their education, and want to do something in life. And I actually look up to him. 'Cause he's like, he's not only a good friend, but he's like, he cares about his future and where he's going to be.

Juan's in the STEM Global Education club but I haven't been able to participate that much in the garden. Because Mr. Aaron is really greedy about it, and he doesn't want us to like really go into it. He only brings the local STEM global education people to go into it. But I did get to help them drill the beds and we had a water fight. We were planting seeds, and were supposed to be watering the garden, but the hose didn't make it all the way, so we just had fun, and started squirting each other. And the next time I went, I saw the plants were like, I was like "ooh, they're growing!"

In school, biology and earth/environmental were the easiest because Ms. Grey taught us. In chemistry I didn't learn anything because I didn't understand anything. But I like chemistry class when we do labs. Because I understand how you have to evaporate chlorine from, I think, salt or something like that, and I put too much chlorine in there. So, we had to leave the room because—yeah—or we didn't have to leave the room. I think we had to open the windows or something. Because I was gonna kill everybody. Well, actually, we only did that at the beginning of the semester. And I think I remember the second half of the semester, we had to conduct our own experiment, like write the steps of how we did it because he said that's how we're gonna do it in IB. I like it better that way.

I don't like chemistry as much, mostly because it has a lot of math in it. I used to like math but, I guess, over time teachers started being less—you know like when a teacher shows passion it also brings out something in you that makes you want to learn more and more and more. In math, until I got to middle school, they just showed up there like "Okay, this is how you do it. These are the formulas. You need to memorize them. We have a test Friday." That's just like—there's no passion in the career you are going into so I kind of lost it and now I don't like it. It seems very boring and it's a lot of memorizing.

I prefer the way Ms. Grey taught me because I'm one of the people that if you teach me something and I get really curious I'll want to know more and more and more about it. What brought me in was how babies are made and why do you get this syndrome like Down Syndrome or why do you have the genes that you do or why is it that people get sickle cell or all this and that. That's what I mainly like. I would like to go into that career, genetic consulting, so I can learn more about it and also be able to explain it to other people and show them why they have this.

So I would like to go into genetics. Because I like genetics and I like science. Since I have been in the science programs since I was in sixth grade and I did that throughout my three years of middle school and now I'm in IB, I really like science. Next year I'll take IB Biology and I'm looking forward to it.

I'm into biology because I feel like it's interesting how our bodies function and like, the way things are formed, like the whole chromosomes and how we get down syndrome or cancer, illnesses and that type of thing. If I can go and pursue something further into it, then that'll be even better. And not only just be a biology teacher, but also be a biologist, and be able to find like, cures to so many things. Also, since sixth grade, I've been in a science and technology magnet program in middle school. I didn't like technology but I did like the science side. I just like the whole system about how our body works and the way plants work, what are the different systems, what gets them to live without eating like we have to. That's what I mainly liked. I also like how they actually had a passion for it. They taught the students and they taught them really well. They got them to understand just like Ms. Grey does. She tries to get the students to understand it and to at least be passionate about what they are doing as a student.

And if it wasn't for these laws I wouldn't ever consider having to leave to study in Spain or Mexico. I would stay here, major in biology. Yeah, I'd be working right now. I'd be doing so many things, like helping my family economically, 'cause my mom and my dad are having a hard time. You know, like economically speaking. So I'm working but it's not like, it's under the counter work. And I know that's like, that's gonna affect me, to be able to, you know, get the proper documentation. But I mean, it's just something that you have to risk, and to help not only yourself, but also your family.

But as it is now, to try to get a job here, I think it would be pointless. 'Cause you're just putting up money and learning something that you're just—they push you and they say, “oh you should focus on your studies so you can be somewhere in life, go to college, be something, make a change.” How can we make a change if they're not letting us?

Isn't that what everybody here in the school system and then the government tries to teach you? “Do good in school, go to college, be something in life!” But at the same time they're the ones that are going against it. They are the ones trying to limit you. The schools, they teach you, but the schools also give you a limited amount of education. The government is like “Yeah, go for education. Everybody try to get a good future.” Then they turn around and say, “Except the illegal immigrants that are here.”

They treat everyone the same, but they don't realize that we are more limited than most people here are. Because we can't just go and be like “I'm going to get an

education.” We are so limited to it and we can’t just completely go out there and try to be successful because there are just a whole bunch of closed doors that are just stopping us from being that “somebody” that they want us to be.

And the state tuition is ridiculous, and it’s not always so simple as just “go to a private school.” That’s really expensive, too. I know that you have to pay like at least \$10,000 for one semester. And we can’t get financial aid. So all that’s left is: study really, really, really hard and get a scholarship. And even then, it’s gotta be a full scholarship because we can’t get any loans. And my thing is, who is actually gonna give us that at a private school? That’s the main if. And what if you want to be a doctor? Then what?

I try applying for scholarships, like there was this program that came on the tv like, scholarships for Latinos. I was filling it out, and like doing my own thing so I could start applying. But the only thing was, I needed a social security number. And I didn’t have it. So I couldn’t apply for that.

And at least I’m in the IB program which will allow me to get like further and the IB classes are better than AP classes so I will have a somewhat better opportunity than most. I’m still kind of limited because I’m undocumented. Because of this, I feel like maybe I have some chance of getting into a college or university. By me being able to get in an IB program I know that it also permits me to get into universities that are not just in the United States; that are in other countries as well. And I had to fight to be in the program, and it made me so mad. They tried to pull me out of something that I am actually pursuing for myself. So I’m like, “it’s my education, not yours.” I told my STEM coach, and she’s also one of the IB teachers. So I told her and she got the IB coordinator to fix it. So, I’ll be straight.

So what happened with that was I heard they were not going to allow me to be in the IB program and I asked a teacher what was going on, that they were trying to pull me out. Then he said, “Oh, well Mr. Noblit doesn’t think you qualify. He doesn’t think that you are intelligent or mature enough to be in the IB program.” So I was just, “Well technically he’s not even the IB Coordinator and he has nothing to do with IB. He just started this year so he can’t tell me what I can and can’t do. He’s not going to limit me in my education because it has nothing to do with him.” So I went to Mr. Noblit and I told him—I actually started to cry. I don’t like when people get into my education, because that’s my future, not theirs. I really don’t think that they care. So I went up to him and he’s like “Oh, well you’re an AP student.” I’m like “No, I’m not.” So I went the next day to my STEM coordinator’s room and then I told her. She’s like “No. That’s bull. You’re not going to be pulled out for something that he doesn’t know anything about. He’s coming and asking her all these questions and the IB Coordinator doesn’t even know what he’s doing.

If you don't have papers, you can go to a community college to do your general studies. And then I guess improve while you're there. That's kinda what I told my friend, but he's like, "No." He's like, "I don't wanna go to a bummy-ass school. I don't wanna go somewhere where like what I know, and my knowledge, and what I can do isn't being recognized; not just going to a school because I don't have papers, you know? Or I don't have the money for it." Because he's incredibly smart, but I mean—well, I told him it was up to his decision, but, so he's leaving. He's going to Peru.

And I feel like it's very unfair, basically, just because if we go way back in time, like, the United States was formed on immigration. So, it's just like—it's interesting how almost everybody is an immigrant originally, but they're like, "Oh, no, you're an immigrant because you just came here." Like, "You're an immigrant as well." Everybody is an immigrant and it's just—my basic point is, "How can you say that we're something if you're that thing as well?" That's my thing. Like it's completely idiotic.

I always told my mom that if I didn't have papers and anything by the time I graduated I was just going to leave. If we're coming over here to get a future and a better education, they're providing it, but they don't want us here. They're giving us education and then they're pushing us out. That doesn't make any sense. How is that in any way helping them? By the time that I either graduate or by the time I go to college and I finish, if I can't go to college here then I'm just going to go out of the United States. Hopefully maybe Mexico or if I can't do it in Mexico then I'll just go to Spain maybe. Mexico because I've never been there and Spain because there's this one girl she was able to get into college—no she had applied to some colleges and they wouldn't accept her because she was Latina and she was undocumented. So they actually accepted her in one of the universities in Spain. So I feel like, if she can do it then maybe I can too.

I basically think that Jones, overall, lacks materials. But I think that certain classes have more—like for me—to me, it seems like Mr. Aaron has every material because he applies for grants; I think we're doing good. So, but I don't think that's fair because I think most—well, Ms. Grey has gotten grants, but what about Ms. Sumter or Mr. Thompson, who may not get grants? So not every single science teacher has a lot.

I think another thing is that nobody takes an interest in us because they think the students won't make any use of the money. If we get those laboratories, people would destroy it. People would just mess with everything. Or like textbooks, people are like, "Textbooks? What are textbooks?" We don't even have textbooks. They're old and torn apart. And they have like, "West Side" written in the back or "East Side" or whatever. It's ridiculous. And I think that's why nobody wants to buy us new textbooks. I met somebody this weekend and she

was like, “What school do you go to?” I was like, “Jones,” and she literally was just like: “I feel so sorry for you.” They were like “Oh you’re from Jones? Eew. That’s the worst thing you could come from.”

And even the SLI [Scholar’s Latino Initiative] program, that was supposed to help us, it was so poorly organized. Although, we got introduced to the university, but still, it was so unorganized. Like the leader would be—one day one would be the leader—They would change the coordinator like they changed their *calzones* [underwear]. If they even have that many. Like, “Come on, now. That was idiotic.”

So no matter how hard you try, it still feels like nobody cares. And they harass you if you’re a good student. Like, I’ll be going into the garden and they’ll be like, “Where are you going, young lady? Get back inside! You’re not going to the garden! I know you’re skipping.” And then, the guys will be smoking out here, and the administrator will walk out, and be like, “Go to class, you guys.”

And they think that because we’re minorities. That we’re up to no good. But I’m basically American, in a way. My English is good. When I think, I think in English. I’ve been here since I was nine months old, but I failed kindergarten because I didn’t know how to speak English. My mom says I’m basically American, because I have been here my whole life. But they look at us and they don’t see us as what we are. If I had papers, I would have to be facing so many obstacles as I am now. If I was White and American, they’d probably be like “Oh, well she’s really smart. She can do this, she can do that, and she can do this.” They wouldn’t be looking down on me like they do now because I’m a minority. They’d be looking, “Oh well, not only does she come from a good stable home but she’s also really pretty. I should be more like her.”

But then if I had to live like that I think I would be spoiled. Everything would have been handed to me, and I wouldn’t care as much. I actually prefer who I am, because I am able to actually try and be like “Oh well, this wasn’t given to me. I earned this myself. This is not your work. This is my work. This is what I was able to get in life, not what you were able to give me.”

But Americans, you can’t really convince them. We should make a slideshow of our lives now, and then, our lives if we don’t go to college later. Like Juan would have a moustache and he would have a taco stand, or a soccer team because he’ll have like 10 kids. He’d be cleaning up in his kids’ school. And someone with papers would come back to the ten-year reunion and say, “Hey Juan, I’m a doctor.” And Juan will be like “Oh, I forgot English,” or something like that. He’ll be like—I don’t know. He’ll be like their lawn mower or something. They’ll be like, “Juan, remember when we—when we both had dreams, and we were in that same IB class, and now, you’re my lawn person, and I’m a doctor?”

It's like—especially because all the mafias and things that are going on in Mexico, it's completely stupid how they're like, “Oh, Mexico is horrible,” or this, this, and this. “It's so violent out there.” But at the same time, the United States gave them the firearms. I do know that one of the main reasons why we're so terrified down there is because the United States sold weapons to Mexico.

But the government is selfish and ignorant, and the government, especially the one in Chicago and the one in L.A., I can tell it is trash. It is complete trash—the whole government, they don't care. It's just for their benefit. The government itself is ignorant, and they don't seem to care, they don't make a difference. They just aren't opening up to people and they're not, they're there to help out the citizens, and not just only the citizens, but all of the community. And they're not doing their job.

I'm part of a telephone call center, TCC. And we're making calls, political calls, political polls. And basically it's about their opinions and just why, from all the feedback I've been getting I could tell like Hispanics, they're having a bad government over there in Illinois and Texas and California. They should make a change. We ask Latinos around the nation about their jobs, do they think the job inflow is in a good affect, or is it in a bad one. And then we ask them about the teachers, and about the education of their kids, if they want it to be better. Like about the economy. We ask them about their community, and how it looks, and how it could be bettered. Like, and they say like in Cali that they need to fix the streets. They are having really bad maintenance and that they should at least put some type of money in to better up their community. But it's hard for many to say anything, because if they don't have the proper documentation, then they can't vote. But we can act upon it. Martin Luther King and Rosa Parks had a voice, and so do we.

What they need to understand is that we're just trying to make it through. We're just trying to be something that our parents couldn't be, and have a better future than what we're being raised up through. Give our children better opportunities than the ones that we are having and given. Basically, just the American Dream, I guess.

Basically, Mexicans, Hispanics, and immigrants all in general, aren't that very different from everybody else. We just come from different cultures and that's the main thing that's separating us, you know? But at the end of the day, we all have the same dream. We all are aiming for the same goal, which is just to get a better life for us and our children. I don't think anybody should really be denied much of that, but I mean, it is what it is. For right now.

And to keep denying us, I say that they're just being ignorant. That they don't want to give it to us because they feel like if they can avoid giving us these things

that we need to be successful here—if they can avoid it, they prefer for us to work and get paid less. If they can get us to work for three dollars an hour they are going to keep doing it, because that's cheap labor.

I mean if they want to be ignorant then that's on them. I'm not going to sit there and be like "Oh well, just pay attention, listen to them, do whatever they say." I'm not going to sit there and cry out to them. It's up to them if they want to be ignorant, if they want to give us an opportunity. But even if they want to be ignorant, that doesn't mean we're going to stop trying.

And if they want to stop being ignorant, they just need to come to Jones. They would see how different people are, and be able to see the people that are really trying. They'd realize that just because we come from a different background doesn't mean that we don't care. They'd also realize that we do care, but maybe the people that they think so high of, they're not doing as well as they think. Not everybody is exactly like everybody else. Not everybody is going to fit under one stereotype.

And I know they've been trying to pass the DREAM Act where basically we're going to be able to get into college and it's just going to help out the students but what's going to happen after that? They need to make a lot of follow-up after the DREAM Act, because it's just for students. What happens when you graduate? It's very limited, because it's not for everybody. My mom went to a lawyer and they told her that it wasn't for everybody. And if the Republicans won then they weren't going to—they were just going to completely shut off all the gates for the immigrants and they weren't going to offer us anything. Instead they were just going to try to kick us out. Like all together. And that if Obama won then we would have the possibility for the DREAM Act to be re-elected on and put back through. She said if it passed that my mom needed to sign me up right away because it wasn't for everybody. It had limited opportunities for some students and not everybody could get in.

Back in 2010 when I was like 12 or 13, when they were trying to vote to pass the DREAM Act, I remember telling everybody, "Oh, call and vote to pass the DREAM Act and everything." I was calling everybody to call and tell their representatives to vote for the DREAM Act. I just knew that without it, it's really limiting me. I'm very aware of what's pulling me back and what's trying to put me at a stop sign. It's like I don't want that to limit me. I want to get somewhere in life.

And what bothers me is how people are like "Oh, okay. We're gonna do one good thing for one person or a group of people." But like, in reality, there's so much more they could be doing. There really is. And like—I mean, I know you guys have different perspectives of it. And I mean my grandma is finally getting her

papers, but like me, I can't do anything. I know you can't really do much. You—you're just like, "Well, get the hell out of here," because you have them [papers]. And I feel like that they can't really say anything about, "Oh, go to your home," because America was founded on immigration and nobody is originally from here except the Native Americans. And they call me "illegal" but that doesn't make them any better than me. I know what I can do and I know what limits me. Like that is a big limit but it's not going to stop me completely. Because I know I can get far with hard work.

I see me getting somewhere further in life than anybody thought it was possible for me getting, as a Latina. They probably think all Hispanics are dumb or all Hispanics are gangster. I'm not any of that. I know what I am. I'm at least proud of myself, because I'm getting somewhere and I'm getting my education. I at least know that I'm trying to get my personal best. And if they're thinking "There's no possible way for an undocumented Latina to go into science," I would probably say, "Watch me."

And I, as a minority, know that many of my race and many of the Latinos just in general don't have as much of an opportunity or think that they can't so they limit themselves and then they stop trying and they drop out and do all this nonsense. Just because somebody tells them they can't do it doesn't mean they can't. It's just somebody else that knows that they couldn't succeed in life and they try to pull somebody else down and tell them, "Oh, you can't do this" because of some reason. You can do whatever you want, and if it's beneficial—if you set your mind to it. I mean you just—like this poem once said, "I am the captain of my fate. I am the master of my soul."

Silvia: "Better than everybody else just to be able to succeed"

When my family came to the U.S., I was two years old, my older sister was five and since then—it's been like a hard time since usually they don't allow Hispanics to work. So it was hard the first five years. But in Mexico, it was terrifying, because there was a lot of problems and the economic status was bad. So my parents were like, "let's come here and see if we could make a better future or at least get them something stable instead of having to worry about if we were okay, if anything happens to us, or anything." There used to be a lot of shootings around our neighborhood that my mom used to tell me about. And she said that one of my uncles was shot 22 times when he was coming out of his house, and died. And my mom was like "it's not good." So she came here, knowing if they [those that shot my uncle] knew about us and everything, they would try and do something against us since we were the youngest. So we came here because of that reason. After a while my dad got a maintenance job for a company and that

helped a lot. Then he put my mom in the business as well and they started working together. So it helped us a lot and since then, we've had a nice, stable home and everything. We've gone from nothing to something.

We're originally from Luvianos, Mexico. We had family members that had come here before us. My mom and dad had first come here, and then they brought the kids. And they came here for a year, and they were able to get at least a sort of job and raised money to get an apartment with my aunt. And so they shared an apartment with her. And then after another year, they brought us over here. I had family members that were documented, and we looked the same. Me and my cousin looked the same when we were babies, so they let us use their papers so we could be transported by airplane with my uncle and aunt. So that's when I turned two. But the only thing I remember from Mexico is my grandfather. Since basically since I was small he always peeled the grapes and he would make us eat like the grape, but not the skin of it. And since then, I suggested peeling the grape and they were like, "your grandfather used to do that to you." I was like, "no!" They were like "yeah, we have pictures," he was peeling the skin off the grape and just giving me the grape. I was like, "oh my God!" Since then I've gotten used to just peeling the grape. And then he would buy us yogurts. They have a picture of me where he smashes the yogurt in my face. I was like, oh my God, I had a whole yogurt face. So it's like—since then I've been loving yogurts. My grandparents and some of my aunts and uncles like my mom's sisters and brothers and my dad's sisters and brothers are still there in Mexico. We communicate with them every Wednesdays, Fridays, Saturdays, and Sundays. Lately, we use Skype to talk.

That's the best we can do to see them because we can't go back. I've wanted to, but my mom said it would be hard for me to get used to it since I'm already used to here and everything. And the way we have to be transported is by crossing the river and everything. So she's like it might affect us or something, especially since right now, there's a lot of gang members and everything, killing people as well. So she was like no. Right now, we're teenagers, and we're developed. If something happens to you or you get molested or something, so they don't want nothing to happen.

And my mom says we're pretty much American because we're used to the type of foods, the climate, and everything. I guess I speak better English because I came here when I was two years old. And I adapted to the ways they speak. Even my first words were in English. My parents were like "usually, they'd be like mama, papa, but no. Your first words were dog, cat. I was like "oh my God"—she was like "yeah, we have a video." Usually with my parents, we speak English with them. We speak English to them, so we can help them learn English, and they speak Spanish to us. Sometimes we forget our Spanish, and then we just speak to them in English, and they're like "no, speak Spanish." They'd be like "You're

forgetting your Spanish.” We’re like “we don’t know how to say this word.” And then they say it. So then we speak English to them, and they speak Spanish to us. And then sometimes, we flip flop. So it’s like okay. But it helps us. And so my parents say it wouldn’t make sense for us to go back to Mexico, because over there, they don’t really understand English. “How are you going to communicate with them? You only speak English. They speak Spanish.” I was like “I don’t know. Sign language I guess.” They’d be like “no.”

But with my friends, We speak Spanglish. A mixture of Spanish and English because sometimes we’re like we say this in Spanish. But then we’re like—they look at you like what do you mean? And then we say it in English to make them understand, and like okay. So it’s like we can mix Spanish and English and make Spanglish. So basically we’re speaking Spanglish with each other to express our point.

I have two sisters. One is older, she just turned 19. She goes here also. I have a younger sister named Emily, she’s seven, turning eight and she goes to elementary school. She was the only one of us that was born here, so we’ve been trying to be like oh, you’re gonna be this and you’re gonna be like that, she was like “no, I wanna be a teacher.” We were like, “okay. That helps us too at least.” She’s the one who is different because she has papers, and we try to tell her—we were like “Emily, you’re not Mexican, you’re a citizen.” She was like “no, I’m Mexican” and then like if we tell her she’s not a Mexican or an undocumented person, she gets mad. She’s like “no, I’m one of you.” So we’re like, “okay.” So she doesn’t really see the difference. She thinks that we’re all the same. She doesn’t see the difference that since she was born in the United States, she’s a citizen and we were born in Mexico and we’re undocumented. So it’s like it’s different since she’s the person that’s documented and can actually be somebody and be able to go to college without having to like save up money or anything like that. So I guess that’s like the difference I see into it. But at the same time, we are the same.

My parents divorced like five or six years ago, but they each have remarried. But they still get along well. I go back and forth between them. Like on weekends or most of the week I go with my mom and weekends or sometimes the weekdays, I go with my dad.

My mom recently had a seizure and since it’s the first one of the whole family, it’s been hard. She went to the hospital because at first—we were gonna go see my family members and she was sleeping but she woke up and all of a sudden she started like fainting and having like a snoring type of reaction and she actually had an accident on herself. So we were like okay, this is not normal. So we took her to the bathroom and she was pale, she turned pale, so that’s when we called the ambulance and everything. They told us she had a seizure. Instead of having

like the usual waves we have in our brains, she was having like thunderstorms in there. So it's like it affected her life and right now she can't work or anything. So I haven't been able to stay after school a lot lately. So lately I've been staying home taking care of my mom. And we don't have insurance so it's been really hard. Like right now she can't work, my stepdad has to step up to the plate and he's gonna work in her place. She has four jobs. She works in a cleaner's, and then she has three different cleaning businesses to do. And since she usually works morning, afternoon and night, we often say it's cause of stress and how much she works. So my stepdad is covering her jobs and also his job as well. So he has like five jobs to do. He sets a schedule for it. Like at the beginning I guess he wakes up like around four or five and comes out at 10 from his construction work and then goes into my mom's day job at 10 until two and then from six until like 11 at night, he comes out from the last three jobs.

It's hard because since we don't have insurance, we've gotta save money and everything. It's now not for us but for her and helping her be able to pay for all of the medical bills. So it's stressful. My sister is just now about to graduate and they took away her scholarship. So she's just about given up. Right now she thinks it's better for her to stay home and actually help my mom with the bills and take care of her as well, but my mom is like, "no I can do it myself, you go out and actually try to succeed and do something." But like she thinks that it's a downer for her like, "no I wanna stay and help you." But we're trying to like support her in telling her go do it, you can, we can take care of her. But at the same time it's hard to leave my mom like that.

According to the doctors, the medical bills are gonna be a lot. My mom's been I think to the hospital twice and usually it costs a lot. And then she has to go to the neurologist and that's a separate bill. Then they had to put her in the machine and they said they charged for that as well. So it's kind of hard and it's confusing because you're like okay, they gotta do a whole lot of stuff and why do we have to pay a whole lot of money for just a simple thing. So I've been trying to get a job to help pay my mom's doctor stuff. So yeah, so somehow my stepdad won't have to be working those five jobs. I've been trying to apply, but they're saying no, you have to be 18. Like at the dollar store, no you gotta be 18. I've been trying to work like in the gas station and everything and no, you gotta be 18 or 21 because you gotta sell alcohol and everything.

In the future, I want to make my own business as being a doctor or in forensic science. So later on, I'll probably make my own business on that. I'd like to be a pediatrician, or in forensic science, I wanna be the person that actually cuts the body or either like helps find like how the crime happened or anything. I watch a lot of CSIs and Criminal Minds and like usually I have like my best friend's mom had died like a year or two ago, and they were doing the autopsy and everything on it, I got into it more from that. They didn't actually let us see it, but they let us

see like the body of her, how everything happened or how she actually got to die. So since then I got motivated to get into forensic science.

So now I have gotten an invitation to go to Washington, D.C. from George Madison University to go over there during the summer to do criminal and forensic science and also lawmaking. They have invited me to go over there for the whole summer and help work with the Supreme Court and the CSI people over there. It also helps me get college credits, so yeah, I'm taking the opportunity. When the invitation came in the mail, I started crying. My mom looked at me, and she was like "what is wrong with you?" And I just handed her the paper. And she just hugged me and I was like "don't hug me, I'm going to cry more." And I started crying more, and then she started crying. And then dad came. And it was like what's wrong? And it was like they want me to go to Washington to do CSI and what I want to do. He looked at me like are you serious? And it was a shock for all of us. It was like "oh my gosh."

My parents were amazed when I got in since usually not a lot of Latinas get in. They're like "it's better to go ahead and take the advantage and do it and represent the Latino people." They think it's something to motivate other people to study hard in their works and everything. It also like helps me motivate myself and stand out in everything I can. So it helps a lot.

As far as being a pediatrician, I get along with babies and kids. I love kids and everything. My cousins and everything, since they were small I will always take care of them. So since then, I got interested in helping the babies and everything else. So since then, like basically since I was eight I've always wanted to be a pediatrician.

I'm hoping that if I keep my grades up and everything, keep how I'm going, then I will manage to get the full credits that I need to graduate early, like at the end of 11th grade or in December of my 12th grade year. After that, I plan to save up money and then go to a community college or something, because I don't think I can afford a 4-year university. I don't know if I can get like some type of program that helps me pay for it or anything. Because since I'm not a legal person here, it's gonna be hard. But I won't give up on achieving my goal of what I want to be.

I think my chances are one out of 50 because you know there's a lot of people out there trying to get into college and everything. So it's going to be basically one out of 50 or one out of 100 to be like "oh, yeah, she's better or she has more recommendations, so she could do good in this." So I guess one out of 100 would be the best shot I have of getting into college. Since there are a lot of people like me trying to get in to college.

But still it motivates me, because there are people that would be like “oh, I’m legal; I can do whatever I want.” There’s so much they don’t take advantage of. Sometimes they do things they’re not supposed to and it takes away their rights. So I’m like, “you’re legal, why don’t you do something to help make the place better or the country better?” That also helps me like “okay, if he’s not doing it, then I should step up and do it.” And I do it for me and my family. Since they don’t have papers and since basically right now my sister’s gonna be the first one to graduate from high school from all of us. It’s like a stopping point for all of us. Since my mom or my dad didn’t graduate high school. So my parents are proud of my sister and me because for us to achieve more than what they can, it’s like a relief and more an achievement for them. It’s like showing respect and pride in our family.

And it’s hard now because my sister was doing good in school, and they were going to help her pay for college, but then they found out she was undocumented and they took away her scholarship. So it brought her down as well. So like since then, her grades have been lowering. Like we motivate her, like “do it, we can help you get into community college or anything, there’s other opportunities.” She was like, “no there’s no point, we’re not gonna afford it.” So it’s like, it brings her hopes down and everything.

My sixth grade teachers really helped to motivate me. If I struggled on something I would always stay after school. With their help and me actually trying to succeed in it, it helps a lot. Like in my elementary school years I wouldn’t take things too seriously, like I would make bad grades, I would get in trouble a lot. And then since sixth grade, like my teacher told me straight on, “if you don’t do this, then you’re not gonna be able to be somebody that you actually want. You’ve got to be better than everyone else just to be able to succeed.” And at first I was just like, “okay, why are you helping me? I’m not gonna be able to do anything, I’m not gonna be able to succeed.” I guess just that type of expression towards you helps. She helped me change my attitude towards myself. Since then, like she actually helped me motivate myself. She helped me stay after school and everything. Like if I didn’t have a ride home, she would take me home and actually help me a lot.

After school, we would do like projects and more difficult types of assignments to do. She was like okay, if you can do this, then you’ll see how you can improve and how you can help others improve. I was like okay. So she gave me more difficult types of assignments and like different types of labs and everything. So it was like, okay. Then at points I wouldn’t understand it and I would just give up and she was like, don’t give up, just keep doing it, keep trying all over again. If you don’t succeed at first, then keep doing it and you’ll succeed the next.

One time we were doing a lab on electricity or how to make a bulb, but you had to use a battery and some type of wires. I was like, “I don’t know how to use this.” And at points I would get shocked so I was like, “okay, I give up, I’m getting shocked, I don’t wanna do it.” And like I would break the bulbs and everything and she just looked at me like, “she’s gonna break my whole class.” Like I would just give up. So like every three or four times I was just like, I can’t do it anymore. I just gave up and I would like push everything off the table and she was like, “don’t do that, you’re getting more stressed out.” She was like, just go outside, take a deep breath and come back in. I was like, okay. So I did that and then I came back in and then like I tried doing it again and then I found out what I was doing wrong. So it was like, okay. So that helped. I looked at her like, “how did you know that? How did you know I was gonna calm down and find things?” She was like, “I didn’t—it just came to you.” So then, since then I also started changing my attitude towards everything and with her help, I’ve succeeded a lot in science and I give thanks to her.

And that’s what people can do if they want to support Hispanics to get into science. What my teacher did for me. Like help me bring up my grades, help me get motivated or do like activities that I can understand. Or like, stay after school and do activities with them or help them do research on things they don’t understand or anything.

I used to think like “okay, if I’m illegal, why should I do it? I’m not gonna have the same opportunities as everybody else.” And then with her motivating me, and talking to my parents to actually tell them, “you’ve got to motivate her as well,” it helped. Since they started speaking to us and helping me and actually supporting me and my decisions and helping me maintain my grades, I guess that made me realize that even if I’m not documented, I could be somebody. So since then I’ve become a stronger person in everything I could. I’m in all honors classes now and they said by next semester, next school year, I’m gonna be having all IB, AP classes.

I’m proud of, to me, my pride is being able to get as far as I can. Like right now, high school is like a big thing for me because I used to not think school would be that important. And right now it’s like “okay, I gotta get this done, I gotta be able to do this, be able to be somebody in life.” So I’m proud of having achieved what I have achieved so far. Because people usually think of us like a person that won’t be able to get that far. They see us like a person down low someplace that nobody will notice us. So it’s surprising for them that I’m achieving something.

I think I’ve learned good skills. Like if we have a test or a quiz or something, study the night before or study the whole week so you can understand it. And if you don’t understand the subject or what you’re reading about, write questions about it and then come the next day to school and see if the teacher can help you

out with the questions or what the problems you have with the section you're reading. Then ask some questions during class. 'Cause sometimes people would be like, "no if I ask this and they might laugh at me, or they might think oh, she's dumb, she can't do it," so I think it's about asking questions during class and writing questions after class so you can have them answered during the same class you have.

I consider myself in like a big part in science; I'm good at science, most of the time. Not so in math, but for some reason I think science is my stronger subject, like I could do better in science. And since like, forensic science includes learning about science and chemicals and everything to help find things, I would consider myself like a big person in science. I'll go on websites and try to search any type of labs or things that I could do that doesn't incur—like hurting people or the community. So like little things basically. Like with my niece and nephews I made them do the penny drops with water to see how much water the penny holds. And then I tried doing the gummy bears, how much water the gummy bear fills—or how much it holds. And I did the one—the penny with soap and then the water to see if either, which one can hold more or which one lasts longer. I found these ideas in a science website. I Google 'science experiments' and then it has the web sites and you click on it. And sometimes they're fun and sometimes you're like, okay what do I do here? But you get through it.

And my cousins were like, "are we going to eat the gummy bears?" I was like "no." So we had to get a separate bag for them 'cause they love gummy bears. So I was like, okay. And then they saw the big gummy bears, how they're big after soaking up the water, and they tried touching them. They were like 'I'm not touching it, it's slimy.'" They were grossed out, but they had fun.

I consider myself more of a hands-on person. I don't stay in my seat. I would walk around. And sometimes I would just go up to the teacher and be like "what do we do now? Is there anything else to do? Or can we do any projects? Can we mix chemicals and see what they react to?" And then one day I just grabbed things, and I started mixing. I started mixing food colors and vinegar and salt and everything, and I put a balloon. And the balloon started blowing up. I was like "that's cool!" I was bored, and I had finished my test, so I started doing that. And then everybody decided to finish their test quick, and we started doing the experiment. And the teacher looked at us like—that was weird. And he was like okay, at least you're doing good. And then he let us do experiments. Because basically, I'm more of a hands-on person, more moving around instead of just sitting down in science. I want to learn more.

And usually you don't see that much Hispanic doctors, or pediatricians. Usually you see like Caucasians or African American people and in forensic science it's weird to see a Latina or a Hispanic be able to work and get that far as being in

criminal justice or anything. So it's like something I want to accomplish in life and be able to get to that point. So I've been wanting to do that to represent the Latino people. Because if they see somebody actually achieving it, they'll be like okay, if she can do it, then we all can. So I guess it helps them motivate themselves as well.

Ms. Grey was one of the teachers that helped motivate me in doing good in science and everything. I still remember we went to the Natural Science Center to see the bodies and how they were made and all their muscles and stuff like that. And it was nice. Now, in chemistry, It's fun because you do a lot of like chemicals and mixing, you do a lot of labs. It's fun. But it all depends on your teacher because sometimes you just take notes or you do like labs sometimes once a week or twice. But with Mr. Aaron, you do labs like mostly four times a week and then you have notes and then a test on it. So it's actually fun and interesting because you learn how to mix chemicals and you know how to make things out of it or how like iron is used to make a penny or stuff like that. It's fun.

I feel I'm stronger in chemistry than biology, since biology is more dealing with animals and plants and everything, and chemistry is dealing more with chemicals. I prefer chemistry because it's a challenge, and it motivates me more. And you usually do more with chemicals in forensic science because you have to mix chemicals to be able to find the blood or they clean it with Clorox. You mix chemicals to be able to spot it again. So I consider myself stronger in chemistry than in biology.

In chemistry class, we got the STEM club started as cultural but also with science. So then we had like a group discussion with the whole class and they were like, yeah, we'll do it. I was so excited because it was going to be about science and culture mixing. We get Hispanics, African Americans, Caucasians and Asians working in science and getting involved in different cultures and being able to learn about their cultures. It's something fun and more like—okay, Hispanics do this and this and this, this way and Asians do this and this and this, this way, how about we combine it and create a new way that we all can do it. So it was weird, but at the same time it was like helping us more, like learn about different cultures and everything.

And since we have in total in like our third block, we had students from a total of 11 different countries, it was nice because it was like we have a whole lot of cultures and also to do with science, it was good. So then Mr. Aaron was like, well we have to choose a president and everything. So we came up with the group and since then, we've been trying to get like the whole school interested in the group. Mr. Aaron asked us how we would communicate with the community culture-wise with science, and how would we help the community with that. I told him, I was like, we could have like either English and Spanish speakers on

there to actually help the community to learn. We have like Asians and everything. We wouldn't separate, we would keep them in the same group and we would have actually like different people that speak a different language and help us translate to them what we're planning to do. So all the class thought it was a better response for the most part. That's how I became president of the club.

The club really appealed to me personally because some people are undocumented and if they see this as interesting and it's about science—it could be also about math and any other subject, but mostly I guess science because things are involved with science, like most of the doctors, pediatricians and everything like that involve science. So if they learn more about science, then they could be like “okay, if this involves science, then okay, I'm good in science, then I should take this or do this or take more college classes dealing with science” or something like that. So I guess it helps us as well. It motivates Hispanics and any type of culture to be like okay, if we're doing this, then we can motivate other people to do it, other cultures to do it as well. Like it helps us combine ourselves. Like “okay, we like doing this, we're doing this, we have this type of personality, but at the end of the day, we're one person together.” So it brought us all together, but as well, it helps us to be like “okay, we have all these types of cultures, let's learn about them, let's communicate more.”

In the SGE club we've been starting a community garden, we're growing crops and we're going to help a senior at Jones, who is homeless. She's a homeless girl who recently the school helped her find an apartment. Right now what we've done, we've planted the seeds, we've built the beds and everything. We waited for them to actually sprout and are like helping them grow and everything. And we're gonna give her stuff from the garden if it's done already. We're going to—if our plants are ready, we're actually gonna go celebrate to an Indian restaurant next Thursday, and we're gonna take her with us, and we're gonna collect food—just canned food, and she doesn't have anything in her apartment. So, it'd be like if you find plates—if you buy plates that you could give her, anything. And we're going to give it to her on Thursday, and we're going to go celebrate, and we're gonna go take her to the restaurant to eat with us. And we already have the Golden Closet where people can go get clothes and stuff who need them, so that, too—we help.

We've been trying to find more ways to get the STEM club out to the community and to get them involved in helping us or helping them grow gardens in their place or around their community as well. We've been like coming up with ideas and how to actually get them involved and everything.

So I've tried to go around my community, I've been telling people to come to Jones, to see our garden, but since it's Jones High School and it has a bad

reputation, they looked at me like, “are you crazy? Why Jones?” and everything, since they heard Jones was a bad school. So it’s just like disappointing at points because you’re like, “no it’s not.” Since six years ago the school has been rising up, it’s been getting better. They’d be like “no, it’s Jones, it’s a bad school. Why are you going there?” It’s like weird. Back in the day, Jones used to be a gang school basically. There used to be a whole lot of fights, drug dealing, and everything. But since we got this new principal things have been rising up. And they don’t really think of that, they just think from back in the days, it was a bad school. But now it’s gotten better. Even now my friends go to other nicer schools and they ask me “like what school do you go to?”—“Jones.” “Oh, you’re in that ghetto school.” It’s not ghetto. Basically, okay, you say it’s ghetto because of the reputation it had before, but it’s not. It’s basically a mixture of cultures as well. Because we’re not only, like you can’t say we only have Hispanics or Black people. We have a whole lot more. We have Asians, we have the Caucasian people and we have the mixture of them. So it’s actually a good school.

And being multicultural like that helps us because we can communicate with each other’s race. Like sometimes you communicate with like Hispanic people and it will be like “oh, what are you doing—what class do you have?” “Oh, I have this class, can you help me?” “Yeah, I’ve taken it already.” It helps to motivate them to actually do better since we already took the class and they need help. Like okay, I’m gonna help you, but you gotta do good. It was like, it actually helps a lot as well. And like if you converse with many different types of cultures, it helps you a lot as well because you learn the way they’re doing it and the different ways that there are to actually like solve a problem or find a way to solve it.

And people underestimate, they’d be like “oh, you’re not gonna get nowhere, you’re not gonna be able to do this, you’re not gonna be able to do that because you’re undocumented.” They think of them like somebody that cannot succeed. And I just look at them: “just watch and see, I’ll prove you wrong.” And that, it hurts a lot because you’d be like, “I’m undocumented but you’re documented and you’re not doing it.” So it’s like, “if you’re not doing it, then I’m gonna do it.” And like they get mad and everything, but it’s like the truth. If you’re not gonna step up and be somebody to help the community or anything, it’s like okay, you’re not doing it, then I’m gonna do it.

I’m actually putting more effort into everything because I don’t have papers. But as well like if, right now, if I still want to do what I want to do, I’m going to keep putting that much effort, even if I was documented or not because it’s something that I want to achieve, and it’s something that I really want to do. But having no papers means I have to work a lot harder than someone with papers. At points, I think it’s not fair because why do we have to work harder for something that we want but people that are documented don’t have to work as hard as we do? So I think of it as unfairness.

Because it's like it's mostly bringing us down as well because why are we doing hard things if the documented people are not doing what we're doing? We try to work to actually change it or at least try our best to make it better. But we have to try harder. I think they consider us—now, they just think of us as immigrants. They think of us as a waste of time since right now they'd be like “why do we have more undocumented people here than what we used to?” So I guess they really don't see what we go through and how hard we try to actually succeed.

So I'd like to offer them at least to have a day for us to show you around our lifestyle, the way we live, the way we are, and the way we act towards each other because without that, they really wouldn't have no experience. They wouldn't be like “oh, we go through the same thing.” They would think of us like way different in the difficult situations in our lives.

For example, for us, it's hard because we get discriminated a lot. They'd be like—they won't let us have a decent job. They don't basically let us apply for any type of jobs, or they don't let us get into colleges just because we don't have—we're not documented or anything. So it's harder for us than for them. The same goes for driving or anything else basically. Because driving, if you're not documented, you can't have a license. And if you don't have a license, you can't have a car. You can't have the insurance for it. So if you don't have the insurance, there's no point in getting a car since you don't have a license. And majority of the time, you get stopped. And either you get a ticket, a DWI, or a different cost. And so all this causes people to give up on their dreams and be like “okay, I can't do this. Then why am I here?” So basically, it brings them down as well. And people that are documented are just like “okay, I'm at work. I have what I need.”

Another thing is that most of the time, you don't have that family bond that you want. You won't sit down at a dinner table with your whole family because you have either your dad is working late, your mom is working late, or your sister is going to her night job or something. You usually don't get that much of family time since your parents have to work to be able to have money and maintain a stable home.

All we really need is a chance to prove how we work and how hard we try to achieve something that we really want. And then probably give them an opportunity for them to actually see how a Latino or Hispanic can be able to find a cure for a type of disease or a cure for a medical issue or for when people have disorders, any type of disability. It's not gotta always be like a Caucasian or African American. It can also be a Mexican or a Hispanic or a Latino. It can be anybody. So if they just give us one chance then it'll probably help the community, help the country and help everybody else find a cure or anything else that we need around the community and the country. What we need is support so they can see that we can actually achieve. So if they at least give one chance to

the undocumented people then they'll see that there are ways that we can actually help them as well.

So I say to those that are undocumented: never give up on your dreams. You can get scholarships or anything else you want. If you just have motivation, passion in what you really wanna do, then you'll succeed in it.

Juan: "I'm not going to end up like them"

I moved to America from Mexico when I was five years old, with my little brother. Which I only have one little brother and my mom and my dad. So basically, that's all we have here. The rest of them are in Mexico. We're from Monclava in Coahuila—It's in the Northern part of Mexico. It's very close to the border. I'm really hoping to visit there, I mean to go again because that's where all my family is. The last time I've gone was, I think, six years ago. So I have—because of legal stuff, right now we're working on our legal process, and we got a lot of stuff already done. So we just have to wait a little bit more years and I'll be able to go.

We moved because of the job situation. My dad, he used to work in a plant. In Mexico, you'll just basically win as much money for your income, to just feed your family, basically. So he decided to move over here and get a job, and then he'll send us money. But that was only for a few years. I can't remember. I was small. And then after a while, he came back and took us with him. So I was small. I was still five when I came here. So that was maybe when I was three or four.

I lived in Florida for around eight, nine years before coming here. We had to move here because of my dad, he had an accident. Like four or five years ago, he like, some two male figures came and shot him. He almost died and stuff. He died for a day and he came back the next day. His heartbeat was again normal. So it was unexplainable. The doctor was surprised too. My little brother and I had to go in there and say our goodbyes and farewells and stuff. The next day, my mom called saying that he's alive. So for my dad, to protect us because he was just playing dominos outside and two people just tried to rob him, and they had asked for money, and when my dad would not give them the money, they just did him away and just shot him.

When we came here to the United States, we didn't have no one or anything. My dad was the first one to come. He came before we came. And he came here for work, to work. He works in construction. And the same person that, his boss at that time, had lent him an apartment and my dad got his own apartment there in

the same complex. So I guess he just brought us over there. So we lived in, not in a good neighborhood. So it was common that, well basically, they will trigger the Hispanics because they will get paid, in cash, on a certain day and everybody will know. So it was very common because my parents' friends would like always get robbed or something outside because they would know. And they would be afraid to call the cops because they're illegal, most of them are. So they will just stay quiet. And that happened to my dad. He was outside, just one day playing dominoes with his other friends, and two figures came. They were like covered with masks, and they asked for the money, and he was going to pull it out and they shot him. His friend died during that thing too. So for our own safety, we evacuated Florida and moved here.

And so now we are in legal process for a U-Visa, because my dad was a victim of this crime. I think that the U-Visa is for those who are injured, as my dad. Because he's not 100 percent functional with his body no more because he broke his elbow, I mean like his elbow bone, completely shattered. And he had a bullet go through his stomach and stuff. I just know that we have a lawyer and we have to go sometimes to Florida because the lawyer's over there in Florida, so we go sometimes. And I just know that we're on a good track right now. And they give you the U-Visa, I think, for four or three years. And within three years, you can apply for residence. So after we get the U-Visa, we'll apply for residence, and after that, later on, we will become citizens. So hopefully, I will have some kind of papers by the time I'm a senior.

My mom is a housewife. Although my mom did take over when my dad got in the accident, and she would work two shifts and then come back at night. So I would take care of my dad when she was gone and give him his medication, make sure he drinks medication and stuff, and my mom would like work day and night. And then during the weekends, she would make food and sell it. So yeah, food for the complex. At some point, my mom did work, but again, that time she didn't have a work permit. So we couldn't—like here it's very difficult to get a job. It's very difficult to get a job if you don't have a work permit. So during that time, we had difficulties, like she won't work, and my dad, how he works in construction, he didn't have a company though. He'll just work with a certain person for one day or a week, and go with another certain person. So my mom barely worked during that time. Now, both me and my mom are putting in applications around, and we're just waiting for a call. And my dad right now, he's working. He works out of town sometimes and in town, but within a company, so that's good. She always wants to help in the family. And my dad will sometimes say no, he doesn't want her to work. But my mom wants to work. So she's just—at least it will help out in the house sometimes. And I just want to like, I want to work because I want to start to become independent myself too. And at least help out in the house with bills and stuff.

I also help my little brother. We have our—like any brother, we have our good times—we have arguments, but we’re always there to support each other and he’s sometimes, like he’s very creative, and he’s very athletic. I mean sometimes he plays with his friends outside or he sometimes stays with me and I help him out with his homework and stuff. Since I was little, I came here when I was five, I went to kindergarten and he went to Head Start. So when I went to first grade, I was held a year because of my language. And it was very difficult for me back then because I didn’t know how to talk English. Well, I guess anybody that comes from a foreign language has difficulty. And not having, I mean your family is not talking that language, it’s very difficult. So thanks to my mom and dad, they would help out the most they could. And I appreciate it. And they will go outside, I mean they will go during—the complex we used to live in, we were very close to all the people. We were really close friends.

They would, some people in the complex—I can’t remember their names right now, they would come and help me, like when they were in high school. So they would help me in my English, and I had to take ESOL for, I think until third grade or fourth grade. And I just took it upon myself to—I mean I seen my parents: They worked so hard to give me what I want or what they think I need. And it’s my responsibility for my education. So I take my education seriously. And my little brother, I have never gotten a C after second grade, third grade. So I’ve been constant in my education. And that’s the only thing right now, I can make my parents proud. That’s the way I can repay them for everything they have done for me. And if that involves helping out my little brother with his education, then yeah, I’ll do it. So I’m always on him. I’m always telling him, “Do your homework” or if he doesn’t do something right, I have to go tell him. I’m like, “Do it right,” and he does it right.

But sometimes he—well, he’s 14, so sometimes he wants to like play with his friends outside, and sometimes he just does things quickly to just go play. So I have to always be on him and tell him, “Do your work first. Do it right, and then go play.” Or like make plans, like to focus on one thing first, and then do the other. Or if it’s a long—if it has a due date, he can leave it for one day and then do something else, and then finish it off that day. So to make use of his time. So I’m always there to help him out though, whenever he needs me. Especially since my parents can’t really help me or him, since they didn’t have the same classes. So some of the math that I take now, they never had it. So my dad missed it, and I ask him, when I joke around, like, “Dad, help me out with this.” He’d be like, “No.” He says, “*No puedo*” [I can’t]. Me: “I’m just messing with you.” And he’s like, “Yeah.” And sometimes my little brother, when he comes in with his homework, he doesn’t understand what some of the stuff are because he never had that type of math, so he always asks me to help him. And sometimes, I save up some of my—like in eighth grade, I had, most of all my stuff were in journals, my notebook things, and I saved them up for my little brother.

So I'm like, "Whenever you need help and I'm not here, you always have my stuff from eighth grade. They have all the notes in." So he's taking the class as I am. So my dad always tells him to—I feel kind of proud when he tells my little brother to always follow the steps that I take because he always tells him, *asi es como necessita a seguir sus pasos* [that is how you need to follow in his footsteps]. My little brother takes it into consideration, and he's always, whenever he needs help, he asks me. I try my best. Or if not, we look it up on the internet or something. But I always help him to the fullest.

It was pretty hard when I first came over because I was in an environment full of—like they'd talk and I'd be like, "they're talking a whole different language. I don't know what they're saying." And I had ESL, thanks to my ESOL teachers, I was able to—they were hard on me sometimes because I didn't understand some stuff, and they'll tell me that I have to learn. And I did. But coming here from a different country is pretty hard 'cause you can't communicate with others. And sometimes you don't want to say stuff because you feel you're going to be embarrassed, saying it wrong or doing something wrong. But in the end, I ended up learning English. Part of it is also that I had to be an example, not just to my brother, but to the family. And I also had to learn—because without it, without learning, I mean without knowing the language, I would not do well in this country. So I was forced to learn. But I also went beyond to show them that even though you come from a different place, you can always do more than what you're expected.

It's just like, I feel education is important, and I know that many people struggle to be here, many Hispanics all around the world—or foreigners too. They struggle and they sometimes died just to get here. So I just feel sometimes that I'm honored to be here, because I'm here and I'm getting this education and I don't want to put it to waste, because many others wanted it too. So I think whoever comes here and is lucky enough to be here and get an education should take benefit. Because mostly in other foreign countries, the education is not as good as here, as they give you here. And it's free too. Also I know that my parents didn't have the opportunity. My parents, my mom, she didn't finish school because in Mexico you can't afford, you have to pay for education. In Mexico, you have to go six years for elementary. So she was in her sixth year or she was in her seventh year, which means middle school here. So she was either in the beginning of her middle school or the end of her elementary school, but she didn't continue. And my dad, he actually finished some of his high school, but didn't finish completely to get the diploma because you have to pay. So I want to take pride and show them that I can finish and get my degree. So I always try to get myself into a good environment so I can be influenced by my friends who are also getting good grades too. And we always help each other out. That's the good thing. And yeah, I've gotten all A's, so yeah.

And part of it is that for Hispanics, part of our culture is that it's more about family. Like you're always there for family. And you can always count on them. And they're always there to hold your hand. Like even, like when my mom says, *donde come uno, come tres* [where one eats, three eat]. So we're very friendly with each other. So if you see a Hispanic, it will be different from a Hispanic seeing an American, than a Hispanic seeing a Hispanic because you share similarities. And it's easier for you to communicate. And I think I have an advantage because I can talk both languages, and I can have the same similarities with an American. And I can communicate with both and make more friends or a closer bond.

Part of what motivates me is that Latino families are strict. They have disciplined us well. At least me. I mean, my mom tore up my homework when I was little. If I did it wrong, she would make me do it again because that's how I had to be disciplined. My mom, she always lectures me. And it's not a bad thing though. I actually like the lectures because they always remind me what I'm supposed to do. She always lectured me to look and see what situation they're in because it's not a good one. Although they're doing well, you could do always better. So my mom always tells me to look at my dad and do I want to be in his shoes, working construction? Or would I rather be in an office, a cool office? And I sometimes think about it and I'm like, she has a point. It's better to get an education and get a job with more money. So we won't go through stuff that they went, or many other people are going through. So my mom always tells me *que no se conforme* [don't give in], always keep going and do your best. So I try my best and do it for them too. And I know that it's for my own benefit too. So I just take it upon myself to do the best I can and I do.

So I do good in school because I think it's like the only way I could make them proud. Like for example, I think it was some days ago that we got—I think it was yesterday that we got our report cards, or past yesterday, and I'm always like proud to give *mi reporte a mis padres, que ven que agarre buen grado* [my report card to my parents, so they so that I got good grades]. I always like them, like a smile on their face, *puedo ver que ellos estan orgulloso de mi, y que soy su orgullo* [I can see that they are proud of me, and that I am their pride] and so that's the thing that motivates me, inspires me.

And my parents, sometimes they can't help me because they don't understand some of the stuff. I mean they can understand English. My mom, she talks some, and my dad, he completely understands you, but when it comes to speech, he sometimes messes up. Some stuff is confusing for them sometimes. So if I have to, I'll stay after school and learn more stuff. Or I will ask before I leave or use Internet, or friends. But I always find the answer to it. Sometimes I have to give up my time.

I'm the type of person, that when you tell them something, or if someone explains something and I'll understand it, I'm the type of person that will raise my hand and ask—I like to know as much as I can. And I think that science allows you to see beyond what you can see, or understand more than what you see. So I'm the kind of person that always wants to know everything, and like I try my best. So that's the only reason I'm interested—I mean that's one of the many reasons I'm interested in science too because I think that science gives you more understanding of other stuff. So that's the reason. I'm the type of person that's always looking for stuff on environments and stuff like that. So yeah, I try to absorb as much knowledge as I can get, so I can at least help my little brother or my parents.

I think it was like fifth or sixth grade that we had to do a project. I was to choose a woman as a leader, that I figured made an impact in the world. So I was researching and almost all the students, the classmates of mine, were choosing like singers or artists or stuff. And I came up—I always had this interest in animals and nature, so I googled up some stuff, and Jane Goodall came up, so I was kind of interested in what she did, how she worked with the primates, and so I looked more into her bio, and I actually found out that I'm more interested in what she did. So I actually wanted to learn more about animals and be more like what she did, like go outside and observe and explore. I want to be a naturalist or something along those lines, but I would study elephants or other big mammals. I watch like *Animal Planet* all the time. I like watching big, like the *Big Cat Diary*, like it's all about well, big cats, wild and like, I don't know. I just want to conserve our future, I mean let our future generation also see what we saw.

I really admire Jane Goodall because she was a woman, so back in her time, women were not that much seen as—they were not taken too much of importance. And she basically gave up her life, I mean her whole life, to study animals in Africa. So I think that's pretty neat. And she was, she actually found a lot of behavioral, like how the animals, how the animals behaved and like other stuff that they didn't know. So she discovered many other characteristics of the chimpanzees. And she also made a program called, I think, *Roots and Shoots*, something like that. And she's conserving the forest from deforestation. And that's something I would like to do, conserve the forests for our future years. I mean I feel like people can express their feelings, and sometimes animals can't. So we misjudge them sometimes, and like many species are becoming extinct, so I would like to conserve some as much as possible. Or put my help out there to at least help something. I want to work in biology and study life.

Something else that really moved me and that I really want to say, is that when I found out about Jane Goodall, also, during that time, I had a field trip in Florida. And like that field trip I can never forget. Like it was actually, it's called Nature's Classroom or something like that, and they teach you for three days in a cabin.

But you come in the day and you leave night, and then come back. So, and like literally, it's awesome. Like it's on a river. So you go canoeing, and like you actually see wildlife, not in cages, not tamed. It's just wildlife. There's actually crocodiles in the river. Like one of them went underneath our canoe, and we were like "oh snap!" It was fun. And then I have actually held crocodiles, snakes and other cool stuff. And I just think that if we take time as humans to like think: Without species, we wouldn't live. Because these species keep up our environment, because the environment needs them. It's a cycle. And with us killing them, the cycle is broken, and so will everything else. And we're killing things too, too fast. So I guess we should keep in mind not to be selfish and to always know that—I mean to realize that we're not the only things on the planet. That there is many other organisms, marine and land. And although we're different, we should all live together and help each other out to make this world a better place to live.

Last semester I had honors chemistry, and before that honors biology and environmental science. Now I have honors geometry and AP government and politics. I'm taking IB chemistry next because I was interested in doing biology, but then again, I just finished chemistry this—I mean the past semester, so I think it's still fresh in my mind, so I just want to get it over with and take IB biology on my senior year. Sometimes, to be honest, chemistry is not an easy subject for me. Because it's more mathematical and this and that. And I struggle with math a little, just a little. But I can handle it. Biology, and earth and environmental science, they come easy to me. Like it's really easy for me. I understand it really quickly. I learn the stuff. But as a science student, I think I'm doing good. I read like mostly about animals, like stuff about animals or environment, stuff like that. So I think I'm always, on a daily basis, tuned in to what I'm doing what I'm supposed to do to go forward and major in science. Because I'm the kind of person that always wants to know, know, know. And I think science is a very good subject that explains, or you can do experiments or experiment with stuff and get answers. So that's why I'm interested in science. And as a science student, I think I do well.

The most important things I like and enjoy to do, is basically observe animals, see how they live and what they do. I just think it's really neat how they do things because they don't have the same understandings we do, but they still function properly. And that's like sometimes I ask myself questions. Like why do they do this? Or why do they do that? And sometimes I read and it tells me what are their habits or what they can do or what they can't do. And then I get a better understanding. And like I said, I just think sometimes we take animals for granted. Just not, I mean not only domestic, but also wild because we, sometimes we get selfish and we want to construct construction that causes us to cut down trees, and trees are habitats and so forth. And I would just like, I would like to

somehow wake up the community or society and let them know that we're not the only things on the planet sometimes.

I had biology with Ms. Grey, too, and it was really easy. It came to me really easy. But I wish that we could have done more in biology like dissect more animals, look at more nature, but we didn't get to do that. I mean, I think we should have seen something, starting off, something in biology so we can just be exposed to it, so in IB Biology we will know what we're getting into. And I guess that like the school doesn't fund that much, so sometimes we lose out on opportunities, too. We can never be equal to the other schools because we don't have the same materials. Other schools are better funded. So we lack the materials to catch up to them. I mean—we want to do well, we want to make a change, just in general, in the school. But without the funds or the materials the other schools have, it's a barrier. I have friends that go to those other schools, the more White schools, and they're telling me that they have iPads and stuff they do their work on. And I don't want to say it's because of race, but I guess it's more because of previous scores, like how one does better than the other one, they want to keep up with the other one, keep constant. If they have to, they'll fund more so they can improve, improve, improve and just give us less, because of our scores and grades. That's my opinion. I mean that's what I think.

Our textbooks are so old and torn apart. And for example, in one of my classes, I can't even take a book home. I can't take a textbook because they only have a number of books, and the teacher can't afford to give us the book. But I do feel that sometimes I'm at a disadvantage being here. Like I said, our resources from technology are—even our books, sometimes the library doesn't have the book that you want or you need. You know, like okay, so you have to find a way to learn that stuff without actually having it. So we have to go out beyond our way to look it up online or actually getting that book or buying it. So yeah, we either have to absorb as much knowledge as we can from that class without having the book to take it home because we can't take sometimes the books.

So I guess if the schools were equally funded, it would be more, and we would be able to be compared more equally to other schools or better. And if you tell people you go to Jones, it's like the worst thing you could do. They think you're the worst if you go to Jones. But here we are basically growing crops and helping the homeless. What are they doing? And so we're helping one person in need right now. But, you know, it starts off as one, and then, we see that example, and we want to, you know, keep going. And it's one now; it might be two next. And it just keeps growing, and that's how you start helping people because you can't just start off helping, you know, 50 people. You have to start off small and see the resources you have. And I just truly believe that we're better than what people think we are. We, the SGE group, helped with the irrigation system, how we had to build a pipe, and put it underneath. I mean, just by building the garden,

we're being recognized. We're changing little by little our—the reputation Jones has. And also, some colleges have come over and we have introduced them to the garden, and they were impressed with our work. They probably will start funding us too, I think.

And we do community hours as part of SGE. And Mr. Aaron stays after school too. So that's how much he cares for students. He stays after school whenever you need to. So we respect him and like we talk to him like if he was a friend. Like he gains our trust basically by—because we might have a teacher and student bond, but sometimes we don't, you just stay and do your work and get out. But there, like you actually want to stay or prefer to be there instead of somewhere else because it's fun. For example, in SGE, just staying after school, in SGE we talk or plan and make posters about how different cultures and different countries deal with science. Or we compare and contrast how different, how we view things and stuff. And then we have the garden. At the beginning I was like I didn't want to do it. I never had done a garden. But I really saw how fun it can get with other friends. So it was fun and it was community hours too. And also you're growing your own food. So it's more healthy than what we eat here. We'll eat less processed food when it starts growing. And we're helping out the community. It's a good thing. I helped make the beds the first day. I made some of the beds. And I also put the soil and then put more soil on there. And then the seeds. I think that's all we have done for SGE for right now. We haven't done any like an actual action. We just like talk about it, for SGE, we're planning things out first. But we're also part of Energy Wise and we go out—like after school, we stay after school and turn off all the lights in the school. And we also put like a little Energy Wise thing that goes around the electric switches and the plugs, that tells you to disconnect it. So like to keep it in mind.

Right now, I'm interested in becoming a biologist. SGE has made me more interested in it. So, it has given me a boost. And I guess that I just enjoy doing it because I get to work with plants, and also with the environment. So, just taking a role in helping the environment satisfies me and it just makes me want to become more of a biologist. I'm trying to shoot for something in the science field and I'm trying to get into a four-year college at least. And then, later on, see if I can go higher than that. I mean, if I can get scholarships, it will help, too. So, I'm shooting just to go to a four-year college and then, later on, keep going. I might have to put a lot of effort into, put more effort into school. So I'm trying to get a scholarship. I mean try to get at least some scholarships. And right now, I don't know what college I want to go to right now, but I'm definitely going to college.

And I'm such a hard head, like if I get myself into something, I'm going to do it. So either way, if I couldn't go to college, I would volunteer at zoos or either go to Mexico and work there. So either way, I'm such a hard head, like I'll do it. I'll find a way. I won't give up. I will find a way to help. Even if it's small, my help,

I'll still be, I will give it. Because that's what I want to do and I know that it's like something inside me that tells me that I have to.

I'm not going to let their bigotry stop me. I mean, some children are brought here when they're small. So they grow up and they become, even though they're not American citizens, they grow up as one. Because basically they have, they follow the traditions, they talk their language. Sometimes they even talk in more than what their natural—I mean the language they were born in. So for them to be denied something they grew up with, and also stopping them from their future, is pretty rough. And I'm one of the people that would like the DREAM Act to happen.

We were brought here like at a really early age. So, we grew up here. But we're just deprived from our rights. You know when I knew that I was American? When I stopped thinking in Spanish, you know? It's like when they ask you a question and you'll be like thinking in English and answering in English. But we're bilingual, we can be both. Also, some of us, at a very early age—I mean, it's for the good of us—Our parents came here, and brought us here, but we were brought not voluntarily, either. So, I mean, we were forced to be here with them because it's our parents, too. But we learned the language, and we were raised here, but they also taught us our traditions, and heritage, and stuff. And we speak both languages, so, I don't know. It's just—we think like Americans, but also we are Hispanics, and we speak Spanish and English. And we just don't wanna become—at least I don't wanna become an American; I just want to have the same rights as them because I feel like I was born—I mean, not born— I was raised here. So I grew up and learned our history, and stuff. But I consider myself Hispanic, consider myself more Mexican, because I spend more time with my family, and we speak Spanish, and I don't know. When I go to Mexico, I feel at home.

So now in my house, I still only speak Spanish in my house. So, it's—my house is only based on Spanish because my parents—they know a little bit of English, so we have to talk to them in Spanish—but with my little brother, I talk in English though. But we're basically all talking Spanish most of the time. And basically I'm the translator for the family. Sometimes when I have to talk to the manager, the owner of the apartments, I have to go with my parents and tell him, like translate this and that. Or when we go to my brother's school, my mom takes me with her and I have to translate what the teacher said to her, or ask any questions that she says. So I'm basically—like I basically translate everything they say. When we go to a store—although they can do some, like they know some English, but not fluent English. So my mom struggles sometimes, but my dad, he can handle himself sometimes. So yeah, I'm always the one with them and trying to translate this and that. Bills are one of the biggest things my parents use me for, when they're behind sometimes and I have to go and tell them, the manager, and

the manager's really nice with me. Because basically, the manager appreciates what I do because I—because where I live right now, in the apartment complex, or where I used to live at, we always have a lot of Hispanics around. And sometimes Hispanics can't translate, so they use me as a translator too. Sometimes like at nine or eleven in the night, they tell me to translate this or that, and I'll go out and help them. Because I mean I know how it felt when I was small, when I couldn't speak fluently or not, so I know how they feel. And I think if I'm able to do something and I can help someone else, I'll do it. So I basically translate anyone that needs help.

It's like, you know, I'm a Mexican, but I'm not. I'm American, but I'm not. I speak English, but I speak Spanish. We're kinda like floating back and forth between two different worlds all the time, but we're used to it. Since we were little, we were raised like that. So, it just becomes part of us.

I was not born here, but I was raised here. I consider myself more American than what I actually am because I was raised in this environment for my whole life, and I talk English better than Spanish sometimes. I can write it more. I can read it more. I understand it more. So I'm used to the [U.S.] customs and traditions. I mean I basically know more about their history than where I'm from. Because I've been exposed more to the history here. So I believe if I go to Mexico right now, it'll be a disadvantage for me because I'll have to start from scratch and I'll have to learn all this new stuff. So although I wasn't born here, I was raised here, and sometimes it feels like you're one of them, but you're actually not because you need papers. So I don't consider myself as an American, but I consider myself more as I should have the same rights as they have, should have. Because I basically grew up like them, or somewhat like them, so why can't I have the same rights as they have, if I've been here the same, I mean almost the same amount of time they've been here? And I basically learned everything they learned.

But to be American, it means to have rights, to have a wealthy life—not completely wealthy, but not as poor as other countries. So American means that you can work and just go anywhere without being afraid of being caught by the police and being deported. It means not having to have grown up with fear and always having in mind that you probably won't go to college. It means that we have full rights and you can go to school or get a job or basically be free here, in the United States, to be free in the United States. It means that you get to be closer to your family, because right now all my family is over there and I'm over here for most of my life. It means that you have, you definitely have like a—you have a future ahead of you. Like you have education, if you take it to use.

And that's what many Hispanics want to do. We don't—sometimes you don't want to be American. You just want to have the same rights as them. That's

what many foreigners have, at least in Mexico because in Mexico, you have to buy your own books, your education. So if you can afford it, you can go. So that's why, I believe that's why it's the American dream. They probably don't want to leave their roots, but they also want to gain their rights, I mean the rights that they should have, their natural rights. So being American means you have your rights.

So others who have been through this, they understand. And we help each other. For example, right now, like the biggest people that are helping me, sometimes I don't understand something, and I'm always helping them too, are my friends. So we use each other as resources. Like if someone doesn't understand something, someone will text each other or call someone or make a meeting, or I mean like plan somewhere to be at and we'll work together. So we're always working in teamwork, I mean in teams. So if you don't understand something, we'll be there to help you. Because most of my other friends, they're foreigners too. Not from just Mexico, but from Asia and all different places. So they face the same dilemma. And we understand each other. And it's like we make, we somehow make a family, and we're always there to help each other out. Like if someone doesn't understand this and someone does understand that subject more, we're always there to help each other out. So we work as a group. So we basically look out for each other. We're always there to help each other out. And that's how we got so far. Because basically, the group I just mentioned, they're the high students here, they're high in academics. We somehow like form a family within friends, close friends, and we're always there to help each other out.

I think being an immigrant, I guess like we're used to challenges or used to so much challenge. We're like, sometimes we don't understand something because we come from somewhere else, so we start off from scratch. We have to understand. We're forced to understand. So I think it just becomes like part of us, like your own self wants to understand more and more and more. And if there's more to understand, I guess, like I said, from the beginning, I said science gives you the opportunity to know and answers your questions. I guess that's the reason why then, that we want to know. We want to learn.

I think no matter where you come from, I mean, we come here to America just for a better life. So, to come here and to go through all the struggles you have to go through and then, to be deprived from rights, or to education, is messed up. Hispanics are called a lot of mean things, beaners or wetbacks and stuff. And when you go to a school with a lot of majority of different—I mean a majority with a lot, like one race, they look down to you sometimes. So when they look down at you, when they realize that I'm a Hispanic, because sometimes they think I'm white. But when they realize I'm Hispanic, they sometimes say some mean stuff. They always look at Mexicans as people that are always trying to take their jobs, or any Hispanic. And when I hear that, I can't tolerate that. So I go out and

I won't say it in an aggressive way, I just correct them. I'm like, "Man, we don't take your jobs. We take the hardest jobs that others won't do. You all don't see that." Because we can't get any other job basically. So sometimes I put some sense into them and they understand then after that. I mean sometimes they don't. They just keep going.

But then again, words are words and they don't hurt me either. So I'm more mature than just to let a word get me mad or do something that I'll later regret. So yeah, people sometimes call other people wetbacks or sometimes Hispanics call other people other things too. But I guess sometimes, in the generation we're living, we get used to it. It doesn't affect me, what they say. So I just ignore them. But yeah, a lot of stereotypes, they stereotype a lot of people. And I guess you just grow up with it. You just get used to it and just let it be. Like it's not going to bother me. It's not going to affect me. It's not going to stop me from doing something, so why should I even pay attention to it?

And I think everybody can be as smart as anybody else. I mean, we can—we're all equal. We can be smart and, sometimes, you just fall into a stereotype. So, because we're put down, but we want a better future because of what our parents weren't able to have. They want us to have it. So, they want us—they want a better future for us, and we also want a better future. So, I mean, if they just gave us the rights to do so, this place would become better—more professionals and stuff.

And what ticks me off is seeing the people that they have the papers here. They have all the papers, and they have the ability to do things, and they just put it to waste. They don't even use it. Some people just don't care. Like sometimes it's sad. What sometimes frustrates me is that many people that have the chance to go to college sometimes, they don't use it to the fullest or they don't even use it at all, and that just sometimes makes me mad because like so many people want that opportunity, and you're just throwing it away, wasting it basically. So from my point of view, you have to be interested, and you have to do your best and don't give up.

Meanwhile, I have plenty of friends, or family friends, that stopped going to school because of their illegal status. Many of them decide to drop out, and they think it's just a waste of time. So they just think it's better just to start working and earning money. And they just either go into construction or end up cleaning. And so a lot of Hispanics, they fall into—they're stereotyped, and they—how do I say it? They become what they're stereotyped as. Because we're constantly told what we shouldn't be. I mean I think it's the reason why people are so much stereotyped, that they fall and they behave as what people think they should behave. Most of them, it's sad to say, that they're in gangs and they think it's the coolest thing in the world to be in a gang. Some of them do drugs. Others have

sex and it's all this. So they think it's cool. They're just a stereotype. A lot of students here are pregnant. And I think that you should never fall—you should always prove to them what you are, not what they think you are. And that's the reason why sometimes I stay quiet, and at the end I end up showing them wrong. I show them what I really am. And I think that shuts them up more than me going and being all vicious and them having the pleasure to see what they think I am. I'm not letting myself fall into that. I can prove that a Latino can become someone important, as many other Latinos have. And I'm not willing to follow a crew. I'm willing to follow myself and to know what I'm doing is right.

And sometimes I look at them and I'm like, "I'm not doing this. I'm not going to end up like them." So I try my best not to. I mean I might be able to go to college, and so I'm going to go and take full advantage of it. So right now, that's not going to stop me. I'm going to prove to them that I can get this far, and I'm going to prove to them that I can get even farther. I have to just keep focused and I'll get there. My dad, he's told me plenty of times that no matter how much it costs, he'll do anything just to get me to college. So I mean I'm not going to also just take that for granted. I mean I'm also going to put my effort into it, and like I said, I'm looking, the jobs, I'm going to pay for some of my stuff too, and also I'm looking for scholarships. That's why I'm trying my best to get the highest grades I can, so maybe they can give me some scholarships.

From my point of view, the United States would not function well if the Hispanics or other foreigners were not here. Because we do most of the work that is needed. And without them, I mean without the foreigners—because basically, they give the jobs to the foreigners, the more harder jobs. So I mean without us, the United States would not function. So I think sometimes it's just ignorance that people say that stuff. But like I say, it's just words. It's not going to hurt me. So it's your point of view too, so I can't change that. So I just let it be, if they're going to say that. I'll just later on shut their mouths with something, like showing them what I can do.

It's the least I can do for my family. Because I think sometimes we do it to bring pride and to also show that their hard work, all the work they have done for us, and all the sacrifices they made for us, it's put to use. And we also, we want to prove it too. So that's one of the many reasons we try our best. Because we appreciate what they have done. It's like they sacrifice a lot. They sacrifice a lot of things for you to get an education. They had to leave their families to be here. So yeah, my family, they made huge sacrifices just for us, and I guess in many other families too. So I guess it's the only way we can repay them for all the things they have done. And to let them know that their sacrifices were put to use and they're in a good use.

And it's the simplest thing in the world, just knocking down them barriers. I mean sometimes I think about: why do you have barriers anyway, when we're not causing any harm? So I guess just letting other people, or immigrants in general, just to get a full education. I mean we can, like for example, if the United States blocks a student from going to college, he could probably be the next Einstein, and we could just completely have denied him and he won't be able to do what he was supposed to do. The country will lose a very important person that could have become an important person if you just gave him that opportunity.

The people that have power to change should put it to use for good. It has happened for generations, that a lot of immigrants from worldwide have come to the United States for an American dream, and an American dream that they struggle so hard to get, I mean to come here, then at the end it's denied. And on that process, many of them die just trying. So at least for those who die, you could at least give them the hope of there actually being an American dream. Because many of them just cross deserts and they have died because they had no water or food, and others have drowned.

So they just come for one hope, just to make their life better. They seek a better world because other countries, it's not the same. And to open up schools, I mean to open up the education system, just not to citizens, but as well as many other nations because people can't afford, some people can't afford to get educations. And with just having an education paid for you or free education, it allows someone to feel important and actually take interest in the future, and they can also make a better world for someone else. So I guess opening, allowing others to come here without limiting them to stuff, can also make the United States more, make this country more, make it progress a lot more.

And the opportunity, they're actually dying to have, so it won't go to waste. So I think just knocking down them barriers of education, I mean for immigrants. Just become united basically, as a whole. Open up many doors for many people and also make this country progress. If their laws change and stuff, you probably will see more Latinos in science because they all come for something, and they're denied. So they all have dreams, and sometimes their dreams are denied. But if you're able to let them accomplish their dreams, you'll see more Latinos in society. The barriers that they put on, not only us, but on others, they just stop us. But if they were able, if they want to see what we can fully do, just take off the barriers. They should just like open up the education system for everyone, and you'll see. I mean because we all come for the American Dream. And if you come for the American Dream, you must have a dream to become something. I mean I think if you can cross one country to another and sacrifice, leaving your family or your loved ones behind, then you must really, really want to have that dream.

David: “And that’s when racism comes in”

I came here from El Salvador when I was nine. It was difficult because I had to learn a whole new language. I came here and my first year, you know I used to cry, I used to go home crying every day because I was nine. I was back in the third grade and I didn’t know a word. So kids used to make fun of me, you know, the new kid. And so I was like God, what can I do?

And this teacher named Ms. Dale; I can truly say that everything I know I owe it to her. She basically took one-on-one after school with me and she told me that she was not gonna stop until I knew English and I spoke it well. And she was always there, she was always pushing me, she was one of the teachers that always pushed me. And since she was always signing me up for stuff that I probably was like “no, I can’t do this.” But she was like “yes you can.” She actually signed me up for the talent show. My first talent show was in third grade. I didn’t even know any English whatsoever and she made me learn the whole—the Pledge—I Pledge Allegiance in front of the school. And I did it all and actually I won second place and I was so happy because I didn’t know nothing. And for me to win second place in a talent show that’s just for Americans, I was like wow. So I wanted to improve and become better. And I loved it here so I just put my head into it and I started learning. And after that it was just easy for me. I just started getting good grades and started doing good.

My family, we come from a very, very poor country, and it’s starting to pick up, it’s still very slow. I was born two or three years right after our civil war and so my family was completely destroyed. We were a very rich family. My great grandfather, he used to plant—harvest stuff and he made tons of money because he used to send like stuff to the United States and get all the profits. So we were rich, we were very well set. But then the civil war broke out and everything that he worked for basically went to the trash. And nowadays we’re just a regular family. We went from being very well stable to not so much. But we love everything that he left to us. He was very special to all of us. I personally never got to meet him. I read a couple letters that he wrote because he used to write; that was his passion. And he wrote a couple of letters to me, and my mom actually has two letters that he wrote if my mom ever had a little girl.

So my little sister, who’s nine, is probably gonna get them in the future. She hasn’t gotten them yet, and I always look at them like big role models too because they lived through war. My great grandfather, he died for his wife. They took his wife so he went with her. He didn’t want to stay. He didn’t want to live without her. And it was hard for him because he had to leave his kids. But my aunt, she was probably 17, 18 at that time, he was like “you please take care of them, but I just can’t let your mom go.” So I appreciate being where I am. My family went

through so much struggles that I'm glad of being where I am now and appreciating what I have.

My aunt, she's been here for about 40 years now. She's about 50-something. She's a citizen and she's like any other American. She's not even Hispanic anymore. She's been here for so long that she considers herself American. And I look at her and I'm proud because there's people here that come here and they just waste their life. She came here and she started working and sending money back to my country to raise us, to raise her brothers and she took care of us.

Basically she's been here the longest and then the rest of my family started coming in like the '90s, maybe early '90s like '91, '92. And it's been back and forth on my family, going back, coming back here and most of them now, they're either residents or citizens from here. You know it's only a couple of us that we're still not there but we plan to get there. We are very American. We're not Salvadorian as much as we used to be. We're in a very American culture, we embrace it and we love it. So we're proud to be here. My mom, you know she's very happy that I'm here because she wants me to do something with my life that I know that I wouldn't do back in my country because of everything that goes on over there.

My dad left me when I was three weeks old. He left my mom. He was always there, as my mom says, because he was always sending money and looking out for me. But I never—I never got to meet him until I was 13 years old. I got a random call. It was actually a Saturday night in summer and I got a call and my mom's like "it's your dad." She's like "do you want to talk to him or not?" So I'm here and this is the biggest decision I had to take so far in life and I'm just like "what should I do?" But I've realized that it's not his fault or her fault and I just decided to pick up the phone. And he actually came that same weekend to visit me all the way from Boston. And since then I went to meet my brothers. I have two half-Salvadorian and half Italian, and the rest are fully Salvadorian. And overall they've been great to me.

I can truly say that my mom is my everything; I'm a mama's boy. I can never complain, you know if she gets on me. Sometimes people put on Facebook—"oh I hate my mom". I don't do that because I look at it as she gave her life for you. She's given her everything. She goes to work every morning for you. Because my mom gets up every morning for my little sister and me. My mom cries at night because sometimes maybe she can't pay something. But I always tell her "you have us" and she always tells me "you have me. As long as I'm here you don't have to worry about anything. I'll take care of you." And that just—I love that about my mom. She's always—she's a very strong woman, she's not someone that just gives up at the first stroke, and she just keeps going and I love that about her. She works as long as she has to just to provide us what we need. When she

comes home she's very tired and she's dirty because she works all day cleaning houses. So, you know she comes home and her hands sometimes are cut from using various chemicals and it hurts her and she's like "I wouldn't care if you're in a bank, as long as you're doing something better, something where you're improving yourself from where I am." She's like "I'll be happy with that."

Even my little sister now, she's—wow—she's amazing in school. She actually just won I think this past week the book contest where whoever read the most books, you know—She loves to read. My little sister has always been kind of like the smart one out of me and her. Because my mom, every single time my little sister said "oh, I want a toy," she didn't go and buy her a toy. She went and bought her a little book. But my little sister since then, my little sister now, if she goes to a store she's not like a typical nine-year-old that goes to like the candy. She goes to the book section. She's like "oh, I want a book. I want to read a book."

And my mom is like "I have nothing—I couldn't be happier because she's like 'I enjoy them.' You know my daughter wants to become something in life" and my little sister talks about how she wants to be a writer, how she wants to be—you know she wants to be something in life. She's not even sure yet, but she knows that she wants to be something in life. And I tell her that as long as she wants to be something in life she's gonna get there because she's very smart. And whenever she needs my help on her homework I help her because she's very smart and my mom has always been a big thing to us—to me.

As far as my future goals, right now I have many goals. I definitely want to go to college. I think about becoming a chef. So either that, or—this country has given my family everything, you know everybody in my family, they've given them so much that sometimes I feel like I should give the country back something, and I have always loved the military. And I come from a family that's—they've been 15 years in the military and they love it. And my uncles never talk about it.

But I've always been very interested in it, so, say there would be any way that I could just get a hold of a green card or something like that, I would sign up without a doubt to train with any branch in the United States to show that I appreciate it. Because I appreciate being here, I appreciate everything the country's doing for me and my family. So I guess that would be a way of showing that I appreciate what they have done for me. I truly want to be in the military. Right now it's looking like I can't, but every night I go home and I search for a little loophole, somewhere that I could just get in and I could be part of the military.

Also since I was a kid I have always been into architecture. Since I was—I think the first time I said that I wanted to be an architect I was around seven. I love it.

I'm not a cubicles type of person, I'm not a someone that wants to be an architect for schools. I kind of like designing like churches and stuff like that. I'm very—I love the gothic architecture. It was very interesting the way that they did it, the way that everything looked. It was very amazing and I have always been so interested in that, so now I'm taking drafting classes to see if that thing that I always had in my head was actually true.

I've done biology or I'm doing biology and earth/environmental. And I'll say, they're both easy. You just have to dedicate yourself, which I didn't, to start off with. And I did have Ms. Grey; she was good. It was my fault. I admit to that. But it's fun. Science is not so hard for me, if I really, you know, dedicate myself into learning. I'm actually not so bad at science because, you know, I look at things and I see how they connect, how they interact with each other.

You get to learn about, you know cells—how everything is—how everything works in life so, you know I kind of enjoy that and I kind of see that, you know it's not as simple as you see it in everyday life. It's not just—you're just not pieces of meat walking around. You're actually cells and when you break people down into what they really are, it's actually amazing. And I really enjoy science. Science is a very interesting subject overall. I've always been very, very big on it. I don't remember me getting really bad grades in science because science is, and it should be easy to everyone because it's interesting. And personally I enjoy it a lot. It's one of my favorite subjects. I enjoy knowing about cells and stuff like that because some people are like really ignorant and they're just like oh, it's easy to do this or that, and you're like no, when you actually look at it, it's very complex. It's not like you can just—you know, like one day, my mom, I think this year she told me about how someone needed a lung transplant or something like that. And she was like you know what? It's easy; just put something else in there, and I'm like no, it's not, you know you need to find something that will match with them. You know it's interesting when you go into it and you look at it. And it's not as simple as everybody thinks.

Science overall is a very big and a very diverse subject and not only white or blacks can know about it, but everybody can, because everybody's made up of the same things. It's not like just because you're black you have different cells. No, everybody has the same type of cells and I enjoy all that. I enjoy knowing that everybody's the same, not just because of the difference of your color skin or how you look doesn't mean that you're truly different in any other way.

You know, like a lot of people don't like science, but when it comes to biology, I like it a lot. I like it so much that, you know, I would even consider getting a career with something that has to do with biology because it's really fun for me. I just enjoy it, you know? On my off days, you know, we take an exam, and I'm literally half asleep, and I can score an 80 on it. So, I'm good at biology when it

comes to it. I think with the STEM Club and everything, I'm learning so much, you know, because biology has to do so much with just plants and animals that they both relate. And I talk to my teacher all the time about what's going on out in the garden, and, you know, it's good.

I really dislike how we have good science teachers, and they teach us what we need to know, but I feel like this school, overall, doesn't have enough value for science. So, we don't get to do as much because the school doesn't provide what we need. And I'm thinking—I believe that there's schools out there that get way more than we do, just simply because they have a name. I think that's unfair for us because, you know, I love science. I think science is fun. I mean, for me it is. You get to learn about how things work around the world. And I would like to learn more about it, but then teachers can't do as much because they have to pay for our experiments, which I think is not good because they're teaching us. And I think the government should provide that for us because we're the future of the government, you know? We're the future, so I feel like rich neighborhoods just get more than we do—excuse me—because they've gotten better scores before. But like now, you know, I'm like, “You should provide us the same that you provide them. Maybe we'd do at the same level that they do.”

And it's not only that. I now also go to the school for arts associated with Jones. And there they have a science class, and it's for people who want to become scientists in the future, but when you walk into the classroom, it's like in the movies. Literally, they have a desk, and it's like you can see it looks like a science class. It looks like a laboratory. And here, when you come in, it's, you know, books, and we have to read to find out. And our textbooks are so old and torn apart. We have to connect things and we don't usually do a lot. Like sometimes—we dissected a frog and that was fun to do. But then, I wanted to see, you know, what was inside the heart. I wanted to see the particles, the cells in there, and I just couldn't because we didn't have microscopes that were strong or good enough to do that, and I felt like that was unfair because there are schools out there that have ones that are way better than ours. Ours are like from the frickin '80s. And, you know, I'm like, we need—I mean, think about it, we need some new ones. We need some help here because if you were to give us help, I bet a lot of kids would be interested and they'll wanna, you know, follow that path—career in science.

And I also see that schools nowadays—back in the day they had a full lab. They had, you know—when you came in, your desk was not sit down and write down, they were fully labs. They were what scientists work with. And now the United States seems to not care about it. They don't give the funds for science classes to have what they need. And I'm like “that's not right” because my teacher has to spend his own money to go out there to give us a lab. I'm like that shouldn't be like that. These are the people who are finding out how to live a better life, but

you're not giving them what they need. You know you're not looking at the young ones and looking at it as I need them because they're the ones who are gonna make a better life for me in the future.

So I look at the movies and I look back in the '60s, '70s, '80s, where they had the full labs and I'm like I just wish I had that. I wish I had a class where I could just go into and it wouldn't be sit down and write down what a cell is about. I wish I would be able to touch it. I wish I would be able to look at it, see what it's doing, see what it does. It's very different nowadays and I wish schools would get the funds to do stuff like that. It's very interesting.

And I appreciate when my teachers go out and buy materials themselves to teach us what this is about. My current science teacher is very good, I found he goes out, you know he's like "I don't care, this is my class. I enjoy doing labs with you guys because it shows you what is really happening. It's not just—you're not just writing it down." I enjoy that and I'm very disappointed in that they don't get funds. I think they should support the science department overall to be better off, to have better things. But people don't look at things like that anymore. You know I don't know if the United States is the one doing it, but I know that certain schools have better science programs than others because simply of who's in charge.

And that's when racism comes in. Those white schools are the ones who get all the money for research, for science, for sports, for this and that. But schools that, just because here they have some bad scores, they're like, "no, taking them out. They're not worth our money. No." You know people have a lot of misconceptions about Jones itself—which they're not true. If you come in here you don't see a fight every day. But if you go to [the predominantly White high school] you see a fight every day. What's that? We're supposed to be the bad ones. We're supposed to be the ones that—we're the animals that people doesn't like. The place where people try to keep their kids out of. Like that's not right. Go to those schools, look at what they're doing and then come and look at us and you will see that we're not as bad as you think we are.

And it's all simply because of where the parents and the school stands itself. If you go to [the predominantly White high school], that's the rich side of town. We're the poor side of town. And you have to look at that and you just—it doesn't make sense, you know. It's like why wouldn't you help people who don't have as much money? Because maybe people down there—let me just put it to you like this: I come from El Salvador. When I buy a pair of shoes, I love it. You know why? Because I've learned to appreciate it. I don't take it for granted. So why not give the opportunity to the ones who are poor or middle income to get there too? Because those who are rich, they have the money to provide for the students. But those who don't have as much money, they don't have it and

they're not giving it to them. They're giving it to the rich who already have it, and they're just getting more.

But I'm gonna say this, and I've heard this from one of the teachers from here. I've heard that just because we're Jones, let's say a kid gets kicked out of another school because he was bad there, they send him to Jones. So Jones has to accept him, and it's not a choice. It's not like Jones can be like, "Oh, we're not gonna take him." So, Jones is kinda like—the students that are in here might not be bad, but those couple ones they throw in here—they force them in here—those are the ones that make the school look bad.

Because if you come to Jones on a regular day, yeah some kids are disrespectful, but that's everywhere, that's not only at Jones. And, you know, but we don't have fights every day. You don't see a fight breaking out in the courtyard every day. You don't—you know, you don't see gang violence every day like you do at some schools. Because some schools, like they have big names—like [a predominantly White high school]. I've been to there. I have a friend that goes there and he's like, "Yo, we have fights every day." And I'm like, "You're proud to say that, but yet, you know, when people talk about that school, it's the greatest school ever. But then, when you actually go there, it's not so great. People fight. People do this." But, you know, true, their grades our better than ours. But they're throwing the bad people in here, and that's what's making it look bad.

You know, and it's not—we're really not bad and this school wasn't bad until a few years ago, you know? And that generation went through it and it just killed the reputation of the school. But, you know, I have—I always tell people, I mean, "Look at us now. Don't look at what they did back then. Look at what we're doing now," you know?

We're one of the first schools to have a garden. We're becoming a green school. We're doing a lot of things. There's so many things going on at Jones. There's kids that help the community. There's kids that do much for the community, but people don't look at that. Automatically, when you say Jones, we're already bad, and I'm like, "Don't judge because of what people did before. Judge us because of what we are now," you know?

But, you know, it has to be an effort from everyone, and it will have to be everyone coming together to make better scores. And I mean—because I heard it from one of the administrators here that I think it was last year when the biology grades went from a 50 something to a 76 percent passing rate. And they came from downtown, telling Jones they had cheated—that they had done something wrong. That they didn't—it wasn't true that they passed just because they passed. So, you know? And, you know, that makes you think. So, just because we're improving, they think we're cheating? We're doing something wrong?

And yet here we are helping our community and helping people every day. Like I said, we started the garden and we're the first Title One high school in the state to have a community garden. And it was a group effort, and, you know, the thing was that they put us down so much, but out there, you saw everything from Hispanics to African Americans working on it. And, you know, I mean look at us, we're not as bad as they think we are because if you think you're really bad, but you're helping to build a garden, you're not so bad after all, you know? And people just need to look at that. Appreciate what we do.

You know what else I find really stupid? I'll put it out there. It's my biggest pet peeve nowadays. I was talking about this with my science teacher for like 30 minutes: I do not know how people miss a week and they're like, "You're suspended for a week." You're out for a week, but you want me to be out another week. It's like—I swear. Last time—I don't remember what I did. They were like, "You have a day of OSS." I was like, "Can I get Saturday school?" "No!" Well, I mean, you know, it's fine, that I thought it was gonna be better to be in school than to be out of school, but thanks. I'll take my day. It's ridiculous. Yeah, I just don't get it. Like you're out of SMOD [Standard Mode of Dress] and they're like, "You're horrible. You're suspended for three days." Thank you, just because I didn't have a shirt on today.

I have a friend, I push her. She missed last semester, I think 92 days. I told her, I was like please come to school, please. I pushed her. She's missed one day this semester. But what really upset me was that last semester I got her to start coming every week, and two weeks after she had come every day, they suspended her. Because supposedly she had missed too many days before, that now she had to get suspended for it. I'm like "that is the most stupid thing ever." Your punishment for being out of school is to get out of school. That's like if you're late three times to class, you go to ISS for the whole day. How does that make sense? You know if you do something really bad, then get suspended. But if you're missing days, when you're back they shouldn't try and suspend you, but try to get you caught up. Because it affects every class. High school's very hard, it moves fast.

When they ask me, "Are you Salvadoran?" I'll be like, "I am, but I'm American." Because I am American. I mean, you know, I think like an American. I think in English. And then, some Hispanics, you'll be like "What are you doing?" They'd be like, "nada." And I'll be like—when I think of it, I'll be like, "Nothing. I don't think nothing anymore." I have to think to say, "Nada," now. I don't have to think to say, "Nothing." You know? It's kinda like it's recorded. I speak—I speak English to my mom now. My mom, she's like, "What?"

Some people always look down on you just because you are not—it's not me being racist, but—if you're not Caucasian in the United States you're lower than

everybody else. And there's so many things out there, racism that, you know it's ignorant. People just need to stop looking at it like that because it's going on and like back then Hitler and all that. You know it's the same thing nowadays, it's just you don't see it in one spot; it's all over the place, you know. So people have been racist to me before but I just ignore them because there's no point—why should I pay attention to them? They're just trying to hurt me and it doesn't bother me. They're just ignorant.

For example, well, it was actually very funny. I was at a gas station and I walked in to pay for the gas and I walked back out and I was pumping the gas. And the gas station was packed, there was a lot of people there pumping gas. So I couldn't open the little thing where the gas goes, and I'm trying to open it and it wouldn't open. And then this white guy—he was actually a white male, very old—he was behind us and he got off the car and he was like—he called to us, “you f-ing Mexicans, you don't know anything, you don't know how to do anything.” And I looked back and my first reaction to all that, it's not that I am against Mexicans, but to start off with I was like “I'm not Mexican to start off with; I'm Salvadorian.” So I was like “don't do that.” And he looked at me surprised, like “oh he knows English” or something and I was like—“you're the ignorant one because, you know it's stuck, it's not like I can't do anything.” I'm like “I've been through a lot of life and it seems like you've been stuck in this same place for all your life, you know.” So he was very dumb, ignorant, like I said and I just—my uncle wanted to get out of the car and say something to him and I was like “you know what? It's not worth it.” Because when you say something back to them it just makes things worse. Just keep it to yourself and keep it rolling. You know people are like that all over the world. If you don't pay attention to them, one day they'll realize that they're just being ignorant.

I used to think this one teacher in middle school was very racist. She was white, she was a substitute. She came in and she made a joke about Mexicans needing to cross over the border and I was like, “you know I'm not Mexican at all. I'm not even close to it, I'm very far away, I'm from El Salvador.” But I was like, “we're all Latinos, but we're not all one group, you know.” And I was like “not all of us crossed the border, not all of us do all that.” So I was like “you shouldn't be so ignorant.” And she got really mad and she was like “you get out of my class.” And I was like “I'll be glad to get out of your class.” I'm like “this is not your class to start off with.” I mean I'm like “I'm glad to be out of here.” And she got mad and she wanted to call the principal and I was like “if you call him I'll just tell the truth.” And half of my class was African-Americans and they told her, they were like “we heard you and we will stand beside him.” And, you know I'm actually glad because I never saw her again—ever. And she never came back and I'm like “I'm glad you never came back.”

And that's the one thing that I looked at, that many people just because you're either Hispanic or African-American, you're less than them. And I can truly say that the only persons that haven't been racist to me yet—I hope I don't meet one, but African-Americans are not very racist when it comes to that. You know I've been very accepted by them and I enjoy that. I appreciate their culture and everything too. You know I don't have nothing against anyone either, you know. I guess they haven't been so racist towards me because they went through it so they know how it feels, I guess. You always feel how it is when someone's racist to you.

And it's funny, my favorite substitute now, it's actually the one that was substituting for Ms. Grey. One thing that she's African-American, she's amazing, and it's not because she lets us do whatever we want, it's because she's back from like the '60s, you know she was born in the '50s, '40s, and she went through the civil Rights Movement and now she's always telling me that whenever I need help, either if I'm going to college or something like that, she's like “if you ever need any help, you know you got me.” And she gave me a ride one time actually to—it was a—I think it was a museum or something like that. The bus left me and she said come on, I'll take you. So she has always been very helping towards me and I appreciate that and I told her, I was like “you're my favorite substitute ever.” And I don't care what anybody says, she has been awesome and I appreciate everything she has done so far for me. And like I said, she's very old so she has a lot of experience. So the advice that she tells me, I listen to it and I appreciate it because I know that it's gonna help me.

And I also love Ms. Grey, too. I can truly say that I love when people push me because I'm that kind of person that if you don't push me, I kind of just stay there or just keep my life going the way it is. But if you push me I try to get myself to a better place, to somewhere that it's gonna benefit me. And since I came in I was, you know I was a freshman and I came in and I was like “this is gonna be easy—it's high school.”

And it wasn't like that for me. I came in and everything just started going bad. I mean I went from being an eighth grader, which I was very popular, to high school and you lose everything, you're the little kid, you're the one no one cares about. And my studies just started—I didn't study, I didn't do anything and Ms. Grey always—she was always there telling me “push, I know you can do this.” And she always told me that I could do—I could be someone better in life, that I could get out of—I can be the first one to graduate out of my family and I always appreciate that. Because I probably have at most one person in my family that graduated from high school. She always helped me, she always—she was always there for me.

She always gave me advice, you know for anything. It could be about science, girls, it could be for anything. She was always there for me. So she's such a nice person that she's like a role model to me. I wouldn't mind being like her ever. She's very nice, very sweet and I appreciate who she is. And once again, she always told me that she's gonna try her best to get me to go to college. Because she sees that I can be someone big in life, so she's like "I'm gonna try to help you get there." And whenever I have problems in school or anything like that I come to her and she helps me out.

And when I didn't get to do biology with her—you know I can truly say that many students are like oh, it was the teacher's fault. She was the one who did it; I didn't pass the class because of her. You know I passed the class, but we made this agreement that if I at least had a C in her classroom, she would take me to biology. And I can truly say that it was my fault. I didn't want it enough to go for it and I just didn't do my best on it, and I had a D in her class. And she was like "I love you and I care a lot for you, but I made an agreement with you and you didn't meet it, so I'm not gonna give you a gift for being bad." She was like "I don't do that." And I sat down with her and I was like I completely understand. And I told her that—like I said many students are like "oh, it was the teacher's fault." It was not her fault, you know she tried her best. And it was my fault, I didn't want to take it.

But I'm glad that she did that with me because now I realize that it's my studies, that it's something that I have to take in hand. That it's something that I have to work on to get better in life and I've improved a lot. It's been a year but I can truly say I feel like I've grown more in a year than I did in 14, 15 years of my life. I enjoyed it a lot and I can understand more why she did that and I don't blame her, and I appreciate it actually. I still go visit her once a week, and when she's sick or something I get worried. Because if she had not done that with me I'd probably still be the same, thinking that I could just move on just because of who I am. No, it's not like that. You move on because you show improvement, because you do something. And I still go back to visit her; she's a big role model for me. You know if I have a science question or something, I ask her. If I have a problem I tell her about it.

I talk to her and I've talked to my parents about the legal issues and problems with going to college. You know it might sound kind of rude on my part, but when they start talking about that, I tell them that I don't want to hear it. It's not because I'm closed about it, but it's because I've seen things all over the place. Actually there's this poster about this one guy—I don't remember—I think it was Roosevelt. He said "never, ever, ever give up." Never. And this past weekend I saw the movie *The Lorax*, you know and there's just things that if you think negative you're never gonna get anywhere. I just don't like to think that I'm

never gonna go to college, you know, just because I don't have papers and I don't have the opportunities as everyone else.

I just—I try to keep my mentality clean and I just try to think that I'm gonna get there. I don't think no one can stop me because as long as you want something in life, there's no one, no one that can stop you. And that's proven. There's people who for 25 years they were out in the streets living as bums, and one day they realized that no one can stop you from trying and getting to where you want to get. And they are doctors now, you know—a friend of my mom, my mom's ex-boyfriend in El Salvador, it was her first ever boyfriend, he dropped out of school. He started to be in gangs and everything was bad for him. We found him in Facebook about I think a year and a half ago. Two daughters, married, he's a surgeon in the United States now. My mom was like, "wow, are you serious?" And he's like "yes." He's like "one day I woke up and it was just like I woke up and I had this dead man beside me." And he was like "I'm done with this; I don't want this for me anymore." He was like "I want to change." And he said that same day he went to a church and he started going to church and he started going to school. And in five years he got what he wanted and now he was—when we met him, you know when we found him on Facebook, he was actually in his last two years of medical school. And I think he's now five or four months away from actually having a full license and he's gonna open up his own place and everything. And he goes to schools and talks about it because if you lift up his sleeve, he has gang signs and tattoos and he knows everything about it. But he's like I never let that stop me. I just kept going because nothing can stop you.

So I know that the DREAM Act is for people who want to go to college—immigrants who want to go to college—that would help them get their paperwork and help them go to college. That's as far as I know from it. It's also for people to go into the military. Right now, many people, you know they look at the military like "oh, maybe if I go to the military I'll get my citizenship." But personally I don't look at it like that, just because this country overall is better than my country. Because in my country it's very difficult, you know gangs—you know and I see that and I realize that this country has given my family so much that I think of it as I want to give something back. And this country, they have a very large military and they're very strict when it comes to the military. And to think about it, I'm like I would love to serve just to give back. You give back, it will help them with what they love doing because they've given me so much in my life.

And many people, they look at it as "I want to get papers." For me, I look at it as I want to give back. I want to—I see them as role models. You know some of those guys, they're engineers, they're doctors—just because you're in the military doesn't mean that you're out there killing people. You actually have—you can be a medic, you can be an engineer, you can be making weapons. It's so much out

there, it's not just the simple military that everybody thinks about. And I would enjoy doing something like that in the future.

I'll probably say that my two favorite subjects ever are science and history and many people, like I said once again, military is very—it's a very diverse thing. And they do a lot of studies; they have a lot of science in them. The military gives millions to scientists for research. And I just look at that and I love science and history, and if there was careers that combine both of them, I would love that because science is interesting, history's amazing and combining both would be just—it would be amazing.

And I look at that and actually I have a friend right now that he is in the National Guard. And he said that he has this one friend that is a scientist, but he's a military scientist. And they research like—it's simple stuff from how boots work and stuff like that. But it sounds easy, but when you're a scientist you have to look at everything and I would love that. Scientists are awesome, you know they build stuff that regular people would be like what is this, you know. They come up with ideas and things to help the world that normal people can't. They work together as a group to make the world easier to live in. So science is interesting. I think that one of the things that I love so much about science is that science itself has history in it.

It's theory, you know it has a lot of history. It has you going back to early times and all that. And science works with cells. Cells have evolved through millions of years, and who discovered that? Scientists. Because they're the ones that want to show us something that people don't care about. But they're like "you know what? This does matter because if we could study this more we could solve big problems," like big diseases that are going around nowadays. Scientists are the ones that look into that. They're the ones that would try to find something that would help that.

You know and many people just don't care about it, but superheroes are not real. Though people who are superheroes are teachers, scientists, you know military guys, they're the superheroes.

I have always liked plants and stuff like that, too. Because I love nature. If I could be the whole day outside, I'd still be outside. I personally hate the inside; the inside is—we started off outside, I don't think we were meant to be inside of something, you know. And, you know if to learn—to go out there and there's scientists that nowadays they take plants and they see what they do and they see how they help earth. And they take simple stuff like a frog and see how they affect the world. I would love to do something like that because it's amazing. It's like you're really finding out what's really going on, you know, it's not like this frog is here useless, you know. Chances are the ones we discover that you can't

take any animal out of this world without it affecting something else, you know. So I'm like people need to listen to that more often.

Because nowadays people are—they're like "oh, superheroes." But the superheroes are the ones that are trying to get to us, our scientists, people like that, people who want to make a change. But some people just don't care. I'm like "those are the ones that in the future are going to help you. They're just doing it for your own good." It's something that people don't like to look at sometimes.

I mean like I said I love science and history, you know those are the two subjects that I just adore. Because, you know historically science has always been kind of like punished or they've been resisted against just because of what the views are. And I'm like, you know it's not that I don't believe in God, but I'm like, "you know there's so many things that the Bible says that some things just don't make sense. Where's the proof?" Well scientists have proof. They actually have proof of what went on. And you know I've always been a person that people, you know they're like "oh, you don't believe in it." I'm like I believe in God, but I also believe in evolution. I also believe in scientists. It doesn't have to be just one. It could be both.

People are like "no, God placed us here and we're here." But I'm like "if they found this, where did it come from? Did it just drop out of nowhere? Were they like already there? I mean you said God made it, so why would God put something like that there?" You know? It doesn't make sense. So they're both mixed. They're both—you know I always think like that. And like I said, I enjoyed both and I—I would love to be something like that in the future.

But I've never been around a lot of science myself. Like I haven't been around a lot of people who are very pushed by science. So I kind of never knew what everything was about. So if someone started to show me what everything was about, maybe it wouldn't be that there are so few Hispanics in science. Because see, that's happened to me: I love science and I love history, but I've never had someone that shows me. Someone that tells me about it. So you know there might be Hispanic kids out there that they're like, "oh, you know I want to be a scientist." But people don't think that they can be a scientist or they don't support them and that's when they lose interest in it. So I think that if there was more help or more information about it for Hispanics, I think a lot of people would be interested in it.

So I think if more people, you know maybe you're not a scientist, but maybe you're a writer. But if one day in a magazine, a Spanish magazine you write something about science, that one kid that might get interested and he might look into it, you know. So I think that if everybody got together and not—like I said, not just science, but for every end, they got together and they showed more to the

Hispanic youth, it would be—people would get interested and, you know they'll want to become something in life. And that's when, you know it might sound like he's just doing it for the heck of it, but maybe that's when he's gonna be like "I like this" and go into it. So I think we're influenced by everything around us, you know. I see so many cigarettes commercials out there, but you don't see commercials about becoming a scientist. When you go onto the internet you see about the new drug that's coming out, but you don't see that you can be the scientist behind it.

Another thing will be, you know science is never the one subject in school that everybody says, you know "teach them all this." And you know—Hispanics here usually don't get to big science classes just because—how can I explain this? It's if you're not good at reading, you're not going to move on in any other class. And that's ignorant. Because—I'm just gonna bring out big people back in the past—da Vinci, da Vinci didn't go to college. He didn't go to high school. But he knew it himself. He started going to school. He said I'm not good at this, but I'm good at this. So everyone has their own thing that they're good at. And you can't hold someone back on everything just because they're not good on one thing. And, you know schools do that nowadays. Schools—if you're not good at reading, they go: "we have AP, but if you're not good at reading you can't be in it." I'm like "maybe I'm not good at it, but I'm good at science. I'm a beast at science." But they're like all, "but you can't just because you're simply not good at reading." And that's ignorant. That's just—you shouldn't be like that, you know. People are good at certain things and you can't hold someone back just because they're not good at something else.

I think a lot of Hispanics, especially those in ESL are being held back like that. Because just think about it. ESL takes a block, correct? If that kid is at level three, he knows English well enough. He knows at the level that everybody else is at. Because normal kids from the United States are at a low three, and they were born here. They've been knowing this language since they're kids. So they take kids out and put them in the ESL block even if they're at a level three. Why does he have to take that one block and learn about the same thing—repeat the same thing that they repeated to him before when he could be learning something else? He could be, you know you're in ESL learning how to say "house" because—I went my sixth grade year and they were teaching me how to say "house." I was like "wow, are you serious?" I think I learned that the first three days that I was in the United States. I was like "I don't need to know that." And that just takes up your school time. That—the ESOL is good for the people who come in, the people who are really bad, the people who don't know anything. Those, holding them in there teach them, but those who have a three, a four, you know—get them out of there.

Because that one block, it's gonna help fit in, you know it could be ROTC, but it's helping them get better at something and it's helping them explore more. It's not holding them down in ESL. And that's what made me want to get out of there because I saw my friends, they were all like oh,—this was back in what? Seventh grade? All of them were saying, “oh I got physical science,” and not me. I didn't do much labs back in the day because they came to take me out of my class to teach me ESL. So I'm just like, this is taking my time from my class and then I was just like no, I'm tired of it—because I am a very hands-on person and I'm like I can't do much hands-on if I'm in this class. So I was like no, I'm not gonna be in here anymore. So I decided, you know, I'm gonna try to learn as much as I can so I can be out of here. And I did it and I was out of the class. And now I'm not even on the list for ESL anymore. I'm completely out. They took my name out on it. They don't test me; they don't do anything. I'm fine by myself.

Now I'm basically like I was born here. So I look at that and I'm like—“I'm glad.” And now I have my biology class, I have my math class and I don't have to get taken out of there. You know this might sound simple—but it does affect—it's only one time a year, but you have that one day maybe that you take that ESL test. That one day in high school affects you because high school goes fast. High school's not like back in the day when you had the same class the whole day. High school, one day that you miss, you know you might be talking about cells. When you come back you're talking osmosis and it's way different and you're like “what is this?” It might relate, but you don't know what you're talking about. You're getting pulled out. And that doesn't make sense—there's many things that I don't agree with in this school system of nowadays. But you can't really do much about it.

Coming back to the pairs of shoes I was talking about before, I think people who come from very rough places appreciate things more than people who come from—If you lived in a house and you got everything you ever wanted, you're not gonna appreciate simply a pair of shoes as much as a kid that was out in the streets all his life will. But people, you know I had a very rough childhood and I can truly say that I see some kids, you know they tell their teachers “F-you, I don't care about my studies. I do whatever I want with my life.” And they're like “oh, you know what, I'm gangster, I'm thug.” I'm like, “kid, I had my own cousin killed in front of me.”

So you appreciate things more when people just—when you don't have them, when you get to hold them you appreciate them more. And I think kids, especially here, if they had a large influence, if they were united, if they tried to work together I think that a lot of kids, African-Americans, Hispanics, Asians—I think they could do so much with their life if they had the support. But they don't get it. They don't because the government sees it as we give it to the rich kids because they're the ones who apparently are gonna make our country better. It's

not like that. They had everything. They don't know what living a rough life is. But I'm like, I know that if someone was good to you, you would appreciate it because you've been at a bad place, and when someone does something for you, you love it. And that's the same with me.

But they don't care about you, they just don't. So I think if someone cared people would just—those students, a couple students would do so much better if people cared, if people gave them money, if people support them, showed them what, you know science or math or everything was about, those kids would get interested. But they don't. Instead they just keep taking money and support away, and they keep saying, well you have to improve your test scores. Test scores—and it's all about test scores. And it's like “well how are you gonna do good on a test when you don't have labs and you don't have hands-on, you don't have anything so you can learn besides write it down in a book?”

**“Here We Are Weaponless With Open Arms, With Only Our Magic”
(Anzaldúa, 2007, p. 110)**

This is my own brief reflection on the process of relating these *testimonios* to the readers of this work. Upon entering this study, I had no idea of the deep political issues that would underlie and drive the ultimate directions of the research. I only knew I was interested in Latin@s in science, and that I would bring my whole self to the situation, with deep respect and solidarity with the students with whom I engaged. What I found was astounding. Of the original 11 Latin@ students who participated in this study, nine came out to me as undocumented. Of those nine, eight had strong passions for science and aspirations to pursue science in their future. Above are five of those stories. What also transpired during this research process was the growth of a years-long friendship and a community of science-oriented Latin@ students and scholars that is ongoing. Raw and candid truths were spoken, and a coming out of the shadows resulted which is testament to the courage and resolve of these students. What grew, and is still growing from this, is a level of strength and determination to change the political and educational structures

that bar these students from accessing the paths towards a future in science that they speak of in their *testimonios*. In this way, this research process itself has become an act of resistance to the structures that would silence and stifle these students, and a vehicle of activism to spring forth social change. This process of research and the act of *testimoniando* here is itself a powerful action for social change, as “oppressed people resist by identifying themselves as subjects [rather than objects], by defining their reality, shaping their identity, naming their history, telling their story” (hooks, 1989, p. 43). The stories of these five students “inscrib[e] into history those lived realities that would otherwise succumb to the alchemy of erasure” (The Latina Feminist Group, 2001, p. 2). And in their telling, are offered as counter-narratives and as acts of resistance that ask to be heard. These *testimonios* are an opening to a conversation, but the work has only just begun. Action and change must follow.

Summary of Chapter IV

In this chapter, the *composed testimonios* (Urrieta et al., in press, pg. 25) of five high school students who are undocumented were shared. Each of the *testimonios* in this study was composed in consultation and collaboration with the student for whom it belongs, and the final member-checked *testimonios* appear above. A final researcher reflection about the process of composing these *testimonios* was also included. The next and final chapter will discuss the findings, conclusions, and future visions, as examined through co-constructed themes that emerged and were created between the participants and the researcher. Theoretical connections to Anzaldúan theory, Lugonesian theory, and Latin@ Critical Race Theory are discussed, and methodological, political, educational,

and social justice implications of the study are set forth. Finally, concluding remarks and a call to action are offered in this final chapter.

CHAPTER V

CO-CONSTRUCTED FINDINGS, CONCLUSIONS, AND FUTURE VISIONS

In Lak'ech (A Mayan Prayer)

In Lak'ech

<i>Tu eres mi otro yo</i>	<i>You are my other me</i>
<i>Si te hago daño a ti</i>	<i>If I do harm to you</i>
<i>Me hago daño a mi</i>	<i>I do harm to myself</i>
<i>Si te amo y te respeto</i>	<i>If I love and respect you</i>
<i>Me amo y me respeto yo</i>	<i>I love and respect myself</i>

(Valdez, 1990)

Co-Constructed Themes and Analysis

This study's findings, as discussed in Chapter III, are identified through the themes of analysis emerging from a mutual effort between the researcher and the participants. Following Pizarro's (1999) five phases of Chican@ epistemological methodology, this section describes the results of phases three and four of the research process: The Analytical and Meta-Analytical phases. In these phases, I identified themes alongside the participants as their stories were shared with each other in focus groups, and elaborated on in re-storying during member-checking meetings. Themes generated emerged from the wholeness of the stories and their retellings at subsequent interviews and focus groups, rather than a line-by-line analysis. I asked students what messages they wanted those who read their stories to understand, and what did they feel would change their current situation to make their dreams in science more realizable. As they shared their themes in conversation, I summarized what I was hearing from them at several

points, and collected eight themes that the students seemed to bring up collectively and agree upon. I gave words to these themes as I was attempting to summarize them as they emerged from the students, based on my understandings of my study's framework, and asked the students for consensus as to whether these themes summarized their points as brought up in the focus group conversations. My involvement in co-constructing the themes emerging from the focus group conversations was felt in the questions that I asked to guide the conversations, as is shown in Appendix E. Meta-analysis involved discussing the implications of this study they envision when it is shared with the public. Students suggested concrete actions and interventions that politicians, educators, and allies can consider, based on the issues they brought to light in their *testimonios*. These implications and recommendations are geared towards improving the situations these students struggle with, as suggested by Pizarro's (1999) final fifth phase of research, and are discussed later in this chapter.

This meta-analysis process occurred primarily during the final focus group meeting, and involved discussion of the themes that were emerging and how that informs the direction of the study. I would ask the students repeatedly what they would want others in positions of power, such as politicians, professors, etc., to really take away from their stories and from the recommendations for social and political change that emerge from the study. The students would often elaborate and nuance the study to ensure that their voices and intentions were clear. For example, when I suggested that I was hearing from the students that they wanted political change such as the DREAM act for themselves using arguments that invoke converging interests, such that their talents and

future contributions are being wasted when they have so much to offer society in STEM fields, Crystal pushed back by saying:

I don't want them to think that the only reason why they need to pass the DREAM act and give us a chance is just because we're useful to them in science. I'm more than that. I'm not just somebody's science worker. I'm a human being. That should be enough. I'm a real person with dreams and a life to live. I was brought here as a baby. If that's not enough for them to make a change, then I'm sorry, but they have no heart.

Crystal's nuance of the argument that I sensed emerging, which was one of the loss to society if current prohibitive laws remain in place, given the potential these students possess, led to my being able to analyze the students' testimonios in a more nuanced way that subdivided their arguments into ones that pushed for social justice through interest convergence, and then arguments that pushed for social justice as an appeal to morality and a common humanity. This will be explored more fully later in this chapter.

Analysis of the *testimonios* found in Chapter IV is approached as a co-construction of the storying and re-storying process that constructed these *testimonios* across individual interviews, focus group and casual conversations, along with my own *cultural intuition* (Delgado Bernal, 1998) as I conversed with the students, and crystallized by fieldnotes during participant observation and transcripts of teacher interviews. When the participants and I first discussed possible themes or ideas that seemed to be on all of our minds during our focus group discussions, there were eight mentioned between us. These themes emerged as we discussed what they ultimately

wanted readers of their *testimonios* to learn and take away from their stories. The eight themes mentioned and agreed upon were:

1. Struggles/Frustrations with School, Society, Laws
2. Our Strengths/Talents in Science and School
3. *Latinidad*: Being Latin@ and holding on to this identity
4. Our DREAMs for our future, especially college
5. We are many things at the same time, not stereotypes (I called this “Complex Personhood”)
6. What motivates us: proving our worth amidst under-estimation
7. Coming out as undocumented and unafraid
8. Calling out things that are unfair, unjust

I then collapsed these eight themes into three themes independent of the students, based on my observation that many of the themes overlap in ways that can be reorganized into three main themes based on the framework of my study. The final three themes and analysis as shown throughout this chapter were then showed to the participants for member-checking. Sergio’s comments when the final themes and analysis were shared with him through an online message was “Its [sic] fantastic! Can't wait to see the published work.” The participants had no objections to the final three themes or the analysis. These three final themes encompass the original co-constructed eight themes in the following way:

1. Undocumented Science DREAMs
 - a. Our Strengths/Talents in Science and School

- b. Our DREAMs for our future, especially college
- 2. Complex, Multidimensional Border Crossing and World Traveling
 - a. *Latinidad*: Being Latin@ and holding on to it
 - b. Complex Personhood
 - c. What motivates us: proving our worth amidst underestimation
- 3. Activism and Social Change
 - a. Struggles/Frustrations with School, Society, Laws
 - b. Coming out as undocumented and unafraid
 - c. Calling out things that are unfair, unjust

These three themes show the progression of the argument made in this study:

firstly, these are students who are undocumented and have strong talents and aspirations in science. Second, these students are able to successfully navigate many worlds such as the worlds of school, dominant conceptions of science, life in the U.S., and their own *Latinidad*, etc., in complex and multidimensional ways that allow them to be at ease in many worlds and carve niches within them, motivated by the drive to prove their worth amidst underestimation. Thirdly, the talents and dreams these students profess towards science, and the resolve and strength they show to follow that trajectory despite the barriers, calls for activism and social change to undo the legal, social, and educational obstacles that prevent them from fully realizing their dreams, which the students enact themselves, and urge others to also adopt.

In co-constructing the original eighth themes and whittling them down to three themes, I found it to be fruitful to have corroborated repeatedly with the students in order

to find nuance in the themes that were emerging, as well as to align myself in a more decolonizing approach in which the intentions of the students were given primacy. However, it is important to notice that my own interpretations based on my understandings of the framework and my own investment in the students' community also played a factor in the ultimate construction of the themes. Some challenges that emerge from this approach include the lengthiness and continued need to go back and re-check ones' finding with the students, as well as a nebulous demarcation of where my analysis ends and the students' begins. The ongoing collaboration created a hybrid form of analysis that begun with my framework and research questions posed, then moved in the directions students chose as they revealed their stories and re-storied throughout the interview and focus group meetings, and flowed back and forth between us as I made meaning of the points emerging from them, conversed with them about what I was finding, and asked for clarification, consensus, disagreement, or nuance. However, the final product becomes rich in insight from the blended way the themes, analysis, and implications emerge from us both in interwoven ways, as the chapter hopes to show.

The following interchange during the final focus group interview with the 10th grade students serves as a further example, in addition to Crystal's above, of how the students made sense of the themes as they were emerging between us, how I repeated what I was gathering to them and then looked for nuance or agreement or disagreement and how they stretched the boundaries of each other's suggestions. This is part of the conversation that ultimately led us to co-construct the theme "*Latinidad: Being Latin@ and holding on to this identity:*"

Researcher: Okay, so, one of the things you guys mentioned that I found interesting was that you said that if you call yourself Latino, and you don't speak Spanish, you shouldn't bother.

Crystal: That's disgraceful.

Researcher: So speaking Spanish is an important facet of being Latino? And you said [directed to David] that you're pretty much American because you think in English?

David: Yeah.

Researcher: So, how would you describe yourself then? If you think in English, but you can't be Latino unless you speak Spanish?

David: Because I know Spanish, and I can think in Spanish, and I can translate into Spanish, and I can write Spanish. I can read Spanish. But I can also think in English, and well, we're bilingual, we can be both.

Crystal: Basically, we're Latino by speaking Spanish, but we're American by speaking English. We're both.

Juan: Well – I just disagree. I don't care if you speak English and Spanish. I don't care if you are better at English or Spanish. Being Latino is about more than just what language you speak.

Silvia: You're saying you can be Latino if you speak only English more than Spanish?

David: More English than you are in Spanish, but how can you –

Silvia: You're Latino as long as you speak Spanish.

David: – be Latino and not speak Spanish?

Crystal: My background of them being disgraceful of not being able to speak Spanish is because it's like part of your heritage –

Juan: Yeah but also family is part of our heritage, and music and dancing and so much more than just our language.

Silvia: - and your culture, and where you come from.

Jean: So being Latino is a big part speaking Spanish, maybe, but not only, not necessarily? It's also about other things like family and culture too? Is that what you want others to know about what it means to be Latino?

Juan, Silvia, David [together]: Yeah.

Crystal: But if you don't speak Spanish, it's basically like you're basically denying your culture and where you come from.

Examples from the primary source of the students' *testimonios*, crystallized with additional examples from field notes generated during participant observation and from teachers' interviews, will be considered in the following section for each of the three themes. In considering how this use of crystallization aligns and diverges from Pizarro's (1999) insistence that Chicana social justice research be deferential to the voices and wholeness of the lives of the participants, it is important to note that the *testimonios* of the students, as originated and member-checked by them, are the primary source of data used, and the discussion, researcher analysis, and points of crystallization included from teacher interviews and participant observation are used as a place to add rigor to the already strong voices of the participants, as their testimonial data is held as primary. It is also important to note that the researcher and the two teachers whose observations and insights add to the students' voices in the discussion below are invested wholly in the students' communities. This aligns with Pizarro's call for community research where researchers and participants work together in epistemological unity towards social justice for the participant. Pizarro also felt that the researcher does not have the "right to contextualize, critique, and explain the experiences and description provided by Chicana/o students" (Pizarro, 1999, p. 56). Traditional research approaches to narrative

analysis, however, are often necessary in this juncture, and for this dissertation, to find a middle ground between traditional modes of research and the full spirit of Pizarro's intentions for Chicana@ social justice research. The analysis below tries to strike a balance between Pizarro's approach of giving as much deference as possible to the voices of the participants, and still meeting traditional requirements for rigor of research, through some researcher analysis. Even still, every step of this process is member-checked with the participants to ensure that they have the final word. Ultimately, however, the intention of this body of work and Pizarro's Chicana@ epistemology remain aligned: This is scholarship for the sake of social justice, as urged and voiced by the Latina@ participants in this study.

Undocumented Science DREAMs

All five of the students who are undocumented, represented in this study, demonstrated a profound enthusiasm for science, both in formal and informal science settings, as well as desires to follow a science trajectory for their futures. It is important to point out that of the nine students who are undocumented in the larger study, eight actually professed a desire for a science career in their future, of which the five discussed here are those with the strongest evidence showing their scientific aspirations and current talents in science. Their current capacities in science, as well as their future dreams to follow a science trajectory, will be elaborated on through this theme.

Dreaming of Science in the Present and the Future

Each of the students in this study has their own niche of science in which they are interested and are pursuing in the present, as well as aspiring to in the future. For

example, Sergio has a desire to become an engineer and exhibits a knack for mechanical and electronic engineering (mechatronics), engaging on his own time in building robots and reading magazines

like *GizMag*, and things about inventions coming out. I love inventions. I just love it. I'm aspiring to invent something. I have always wanted a chance like that, like the Noah's Ark project, and things like that which help cities expand.

In chemistry, Silvia brings her verve for trying things out on her own, and inspiring others:

I consider myself more of a hands-on person. I don't stay in my seat. I would walk around. And sometimes I would just go up to the teacher and be like "what do we do now? Is there anything else to do? Or can we do any projects? Can we mix chemicals and see what they react to?" And then one day I just grabbed things, and I started mixing. I started mixing food colors and vinegar and salt and everything, and I put a balloon. And the balloon started blowing up. I was like "that's cool!" I was bored, and I had finished my test, so I started doing that. And then everybody decided to finish their test quick, and we started doing the experiment.

Silvia's passion for hands-on science was evident during my observations in her chemistry class, as illustrated in this excerpt when Mr. Aaron did a demo in which he dipped his hand in water and alcohol, and then lit his hand on fire without burning himself, the students were gathered around him:

[Mr. Aaron turns off the lights and takes out a lighter]

Silvia [loudly]: "I want to light it!"

[Silvia quickly takes the lighter and holds it out]

[Mr. Aaron pours some of the alcohol and water solution onto the desk in front of him.]

[Silvia lights the solution poured onto the desk and a ring of blue flame burns for quite a while on the table. Students start to gather round excitedly.]

[Mr. Aaron dips his finger in the alcohol and water solution. Silvia sticks their fingers in the solution but Mr. Aaron doesn't set his finger on fire right away, but instead gets out a dollar.]

Mr. Aaron: "if this is a fake dollar, it will burn, but if it's a real dollar, it won't."

[Mr. Aaron takes the dollar with a set of metal tongs, and dips it in the beaker with the solution.]

Silvia: "I want to hold it!"

[Mr. Aaron gives the tongs holding the dollar over to Silvia. He sets it on fire with the lighter and it quickly surrounds the dollar in a blue flame.]

[Silvia screams but remains holding the tongs.]

[Many students in the class gasp and ooh and ah. The fire then goes out and he shows that the dollar is fine.]

[Mr. Aaron then dips his own finger in the solution and sets it on fire. The students are very excited.]

[Silvia and some other students beg to set their fingers on fire, Mr. Aaron playfully laughs with them but doesn't set anyone else's fingers on fire.]

Mr. Aaron [jokingly]: "No, but we could set your hair on fire!"

Silvia: "No, not my hair!" [then she holds out a lock of her hair.] "Ok, here!"

[Mr. Aaron laughs as he puts the materials away]

Juan comes in after the demo has taken place.

Silvia: "You missed it."

[Silvia then excitedly and animatedly tells Juan about how Mr. Aaron set a dollar on fire, and his finger, and it didn't burn.]

Mr. Aaron [to Juan]: Yeah, you missed it, but you can come back with a pass during fourth block and see me do it again.

Silvia: “Oooh, can I come back and set my finger on fire for them?”

Silvia’s passion for chemistry stems from her finding it more relevant to her future aspirations in forensic science, and because it’s “fun and interesting because you learn how to mix chemicals and you know how to make things out of it or how like iron is used to make a penny or stuff like that.”

Crystal is curious and motivated by a sense of wonder within her formal school science setting. Her interests fall in the biological realm, aspiring to study biology, with a desire of possibly becoming a biology teacher or genetic consultant. She credits her middle school science and technology magnet program and Ms. Grey’s hands-on and passionate teaching style with turning her on to the life sciences:

What brought me in was how babies are made and why do you get this syndrome like Down Syndrome or why do you have the genes that you do or why is it that people get sickle cell or all this and that. [...] Since I have been in the science programs since I was in sixth grade and I did that throughout my three years of middle school and now I’m in IB, I really like science. Next year I’ll take IB Biology and I’m looking forward to it. [...] If I can go and pursue something further into it, then that’ll be even better. And not only just be a biology teacher, but also be a biologist, and be able to find like, cures to so many things.

In science class, Crystal is persistent, self-empowered, and considers these traits valuable as a science student:

As a student, I pay attention to the teacher but then I want to argue about it or try to find out more information. I do talk back. Because I feel like I have a voice, I might as well use it. A teacher would be like “Oh well, this is how you do it.” I’d be like “But why? Why does it do that?” He’d be like “Because of this.” I’d be

like “But doesn’t that happen because of this?” He’d be like “No, this happens because of something else.” I’d be like “Well, why does that happen instead of this happening?” You know just trying to pull out as much information as I can. And I think that’s a good quality for a science student to have.

As an example from my field notes of Crystal in her formal science class, illustrating her ability to be self-empowered, ask questions, get information from the teacher, and engage with the teacher and other students without reservation to do science, this excerpt from her chemistry class finds her discussing results and answering questions in an assignment with her group which also includes Juan and Silvia, following completion of a lab about solubility as a function of temperature:

[After completing their experiment at their lab counter, Crystal, Juan, Silvia and Heather sit back down in their desk and the girls are all working on the worksheet. Juan starts his a little later. There is a graph grid on their handout that they are working on filling out. Mr. Aaron is circulating and interacting with groups, when he approaches this group and examines their graphs.]

Mr. Aaron: I’m so proud of Crystal.

Crystal: How do we say it?—the higher the temperature . . .

Mr. Aaron: The higher the temperature . . . what happens?

Crystal: So the higher the temperature the molecules tend to speed up and . . .

Silvia: They collide.

Crystal: She just said it, the higher the temperature increase, the more the molecules . . .

Mr. Aaron: Right, they collide.

Crystal: So I don’t think number 3 is possible.

Juan: *Mira las chemistry chingonas!* [Look at the chemistry beasts!]

Crystal: Shut up!

[Juan laughs.]

Crystal: So this says that 120 grams of the test will dissolve in 100 grams of water, I don't think that's possible, because it was dissolved at 90.

Mr. Aaron: What's the maximum it can dissolve? Remember let's say, let me ask you—think—how much would dissolve 100 grams?

Crystal: No, you said 40 right?

Mr. Aaron: 40 grams, show me the graph, think about it.

[They are doing interpolation/extrapolation of the graph they just made]

Crystal: Because, the maximum is gonna be super-saturated.

Mr. Aaron: So the maximum is 40 g.

[Crystal starts explaining in a knowledgeable tone to the others in her group]

“... So you have to convert it by multiplying by 2 and then you get 40 grams ...”

Juan's admiration for Jane Goodall motivates his current passion in science as well as his future aspirations. He first became interested in Jane Goodall after a formal schooling project in the fifth or sixth grade. Juan, like Crystal, has a strong curiosity that compels him to actively participate in formal school science settings:

I'm the type of person that will raise my hand and ask—I like to know as much as I can. And I think that science allows you to see beyond what you can see, or understand more than what you see. [...] So I think I'm always, on a daily basis, tuned in to what I'm doing what I'm supposed to do to go forward and major in science. Because I'm the kind of person that always wants to know, know, know. And I think science is a very good subject that explains, or you can do experiments or experiment with stuff and get answers. So that's why I'm interested in science. And as a science student, I think I do well.

Juan's informal science experiences with the SGE (STEM Global Education) club also figure prominently into his talent in science presently, and his aspirations for his future in science:

Right now, I'm interested in becoming a biologist. SGE has made me more interested in it. So, it has given me a boost. And I guess that I just enjoy doing it because I get to work with plants, and also with the environment. So, just taking a role in helping the environment satisfies me and it just makes me want to become more of a biologist. I'm trying to shoot for something in the science field and I'm trying to get into a four-year college at least. And then, later on, see if I can go higher than that.

The dedication Juan shows to environmental science and animal conservation showed from the first time I met him; our very first conversation was about the decline of the whale population in the oceans. He is determined and motivated to pursue his concerns, regardless of the legal or economic barriers in place:

I'm such a hard head, like if I get myself into something, I'm going to do it. So either way, if I couldn't go to college, I would volunteer at zoos or either go to Mexico and work there. So either way, I'm such a hard head, like I'll do it. I'll find a way. I won't give up. I will find a way to help. Even if it's small, my help, I'll still be, I will give it. Because that's what I want to do and I know that it's like something inside me that tells me that I have to.

Finally, David has many future paths he is considering, with one of the strongest being that he dreams of being able to study science in the military. He is also considering architecture, the culinary arts, and entering fields that combine science and history, such as archeology. Regardless of the path, however, he has a strong inclination for pursuing science with it:

I'll probably say that my two favorite subjects ever are science and history and many people, like I said once again, military is very—it's a very diverse thing. And they do a lot of studies; they have a lot of science in them. The military gives millions to scientists for research. And I just look at that and I love science and history, and if there was careers that combine both of them, I would love that because science is interesting, history's amazing and combining both would be just—it would be amazing.

In formal school science settings, David said that he found science easy, but didn't apply himself when he was in Ms. Grey's class. Now he is finding ways to apply himself through an interpersonal connection with his current science teacher. He has also found a connection with participation in the informal STEM club setting, and connecting it back to conversations with his formal science teacher. He successfully completed his formal science biology course with a three on his End of Course biology exam, and credits participation in the STEM club for piquing his interest, and with continued connection with Ms. Grey for motivating him. Of the STEM Club, David has said:

I think with the STEM Club and everything, I'm learning so much, you know, because biology has to do so much with just plants and animals that they both relate. And I talk to my teacher all the time about what's going on out in the garden, and, you know, it's good.

Each of the students' present and future abilities and aspirations in science can be further nuanced by underlying aspects of their inspirations within science that are informed by the commitment to community, multicultural, and activist aspects of the worlds these students traverse. In the next section, these students relationship with science is further elaborated with respect to how their identification with science has deeper underlying facets.

Doing Science as an Act of Fellowship and Multiculturalism

In addition to the ways the students in this study identify with science in their competencies and enjoyment of it in their present and their aspirations to continue to do science in their future, it is interesting how many of the students find overlaps between their doing of science and the other worlds they navigate, such as their doing science as an act of connecting and helping others, and as way to be an example to their fellow Latin@s, as if they felt compelled to be a spokesperson for their ethnicity: a diplomat from the world of *Latinidad* to the world of science.

Silvia considers herself “like a big person in science” and envisions herself as a pediatrician or forensic scientist, inspired by watching CSI and Criminal Minds and having personal experiences with each field, and relishing in her invitation to a summer program in Washington D.C. in criminal and forensic science. She credits her sixth-grade science teacher for turning her around and connecting with her through various afterschool science projects, and connects her teacher’s inspiration to pursue science not just on a personal level, but on a level that would be useful to all those of her ethnicity:

And that’s what people can do if they want to support Hispanics to get into science. What my teacher did for me. Like help me bring up my grades, help me get motivated or do like activities that I can understand. Or like, stay after school and do activities with them or help them do research on things they don’t understand or anything.

The Latin@ cultural value of familism also becomes prominent in how Silvia chooses to engage in science even outside of school settings. On her own time Silvia looks up experiments to do on the internet and does them with her family:

Like with my niece and nephews I made them do the penny drops with water to see how much water the penny holds. And then I tried doing the gummy bears, how much water the gummy bear fills—or how much it holds. And I did the one—the penny with soap and then the water to see if either, which one can hold more or which one lasts longer. I found these ideas in a science website.

Sergio seems to connect much of his scientific endeavors and aspirations to the larger goal of helping the community in a critically conscious way which ties his love of science to his activist identity and concern for others, such as thinking about crafting an invention

to help agriculture, because the whole companies, the monopolies trying to control me, and everything—inventions that prohibit the use of antibiotics, and other things in the feed, so a natural feed that won't be as costly but that would sell, be healthy for animals, so we won't consume as many steroids or antibiotics when we eat, to make it healthier for everybody.

Like Silvia, Sergio's love of science is bigger than himself – it is an act that ties him to others. For example, he also worked alongside a college professor to engage in home garden experiments on plants that measure “the pH levels, growth, how high it grew, maturity, if it matured fast, if any of them died,” which he liked because the project is related to helping one's home country. Sergio credits formal science settings with sparking his joy of science, which then carried over into the many scientific endeavors he does on his own, saying “So, yeah, they got me. I don't know, I saw the science in everything.” This dedication to science permeates Sergio such that he feels that it moves him, but always tied to larger social change:

And for me to go into science, it takes a type of motivation, but a specific type, like every scientist has been impulsed, whether it be to invent penicillin, or a

mode of transportation like the trains, some type of motivation, hopefully positive, to help advance society because where would we be without medicine or where would we be without the knowledge of DNA? We couldn't distinguish our supposed parents. The criminal justice system definitely wouldn't be as advanced, so it's helped. It's changed society for the better.

The afterschool STEM club, which led to the community garden, actually started in Silvia's chemistry class after a group discussion. Silvia became the president of the club after suggesting a multilingual approach to educating the community about their endeavors, and the club focused on cultural issues in science, honoring that the students in the club came from 11 different countries, which thrilled Silvia:

I was so excited because it was going to be about science and culture mixing. We get Hispanics, African Americans, Caucasians and Asians working in science and getting involved in different cultures and being able to learn about their cultures. It's something fun and more like—okay, Hispanics do this and this and this, this way and Asians do this and this and this, this way, how about we combine it and create a new way that we all can do it.

In addition to Silvia being motivated by the STEM club's multicultural angle, she was deeply motivated by the club's and their community garden's ability to reach out to, educate, and help the community. The garden was started as a joint effort between the students and Mr. Aaron as their sponsor; local universities and the county cooperative extension joined in with donations and support. Silvia's unflagging enthusiasm and devotion to its mission to help its community saw to it that the club and the garden thrived:

We're growing crops and we're going to help a senior at Jones, who is homeless. [...] Right now what we've done, we've planted the seeds, we've built the beds and everything. We waited for them to actually sprout and are like helping them

grow and everything. And we're gonna give her stuff from the garden if it's done already. [...] We've been trying to find more ways to get the STEM club out to the community and to get them involved in helping us or helping them grow gardens in their place or around their community as well. We've been like coming up with ideas and how to actually get them involved and everything. [...] I've tried to go around my community, I've been telling people to come to Jones, to see our garden.

Juan's inspiration in science is also intrinsically tied to how it can connect with others, in that he is deeply moved by his connection with animals and conservation of species and the environment. He watches *Animal Planet* regularly and deeply admires the work of Jane Goodall, wanting to continue her mission of conservation, compassion, and the message of reverence for the interconnectedness of living things and the earth: "I just want to conserve our future, I mean let our future generations also see what we saw." Around the same time that he became inspired by Jane Goodall and her program *Roots and Shoots*, he went on a school field trip called "Nature's Classroom" where he interconnected in a resounding way with rivers, wildlife, and ecology. These experiences inspired a deep environmental awareness and passion in him:

And that's something I would like to do, conserve the forests for our future years. I mean I feel like people can express their feelings, and sometimes animals can't. So we misjudge them sometimes, and like many species are becoming extinct, so I would like to conserve some as much as possible. Or put my help out there to at least help something. I want to work in biology and study life. [...] I would like to somehow wake up the community or society and let them know that we're not the only things on the planet sometimes.

Crystal bases most of her identification as a promising science student on her achievement within honors and AP/IB classes, as a way for her achievement to be an inspiration for other Latin@s. Her self-empowered spirit led her to believe she was an

outsider to the STEM club; however, this same spirit shines in her determination to pursue her dreams in science regardless of the many obstacles: “And if they’re thinking ‘There’s no possible way for an undocumented Latina to go into science,’ I would probably say, ‘Watch me.’”

David’s relationship with science seems to be on an existential and critical level. His criticality relating to science and how it relates to him and his schooling will be discussed in the third theme, but here, it is worthwhile to show that his criticality lends itself to thinking about overarching existential ideas in science that inspire him to look at the interconnection of science and history:

[H]istorically science has always been kind of like punished or they’ve been resisted against just because of what the views are. And I’m like, you know it’s not that I don’t believe in God, but I’m like, “you know there’s so many things that the Bible says that some things just don’t make sense. Where’s the proof?” Well scientists have proof. [...] I believe in God, but I also believe in evolution. I also believe in scientists. It doesn’t have to be just one. It could be both. People are like “no, God placed us here and we’re here.” But I’m like “if they found this, where did it come from? Did it just drop out of nowhere? Were they like already there? I mean you said God made it, so why would God put something like that there?” You know? It doesn’t make sense. [...] I always think like that. [...] I would love to be something like that in the future.

David’s critical perspective extends past his existential ponderings and into how he looks at inequity, as well. He speaks extensively on what he feels is lacking and what he would like more of for himself and his fellow Latin@s, in order to feel as if he has been served well in his science education:

But I’ve never been around a lot of science myself. Like I haven’t been around a lot of people who are very pushed by science. So I kind of never knew what everything was about. So if someone started to show me what everything was

about, maybe it wouldn't be that there are so few Hispanics in science. Because see, that's happened to me: I love science and I love history, but I've never had someone that shows me. Someone that tells me about it. So you know there might be Hispanic kids out there that they're like, "oh, you know, I want to be a scientist." But people don't think that they can be a scientist or they don't support them and that's when they lose interest in it.

This section showed how these students' relationships with science are deeper than just a surface interest in a scientific field or pursuit for its own sake, and has deeper connections to complex and multidimensional worlds that these students draw on to inspire them within their varied scientific interests. These ways of engaging in science that are, themselves, an act of traveling into world which bringing their other worlds with them, have dimensions that pull from worlds of *Latinidad*, familism, and sense of community. In the next section, the ways that these students engage and excel in science will be further corroborated with the teacher insight as well as participant observation.

Science in Formal and Informal Settings

Teacher interviews helped crystallize these students' capacities and success in science in formal and informal settings. Mr. Aaron (who is also the school's science department head) felt the students' participation in the afterschool STEM club caused a big improvement in one year in the students' formal school science biology End of Course scores, as he stated in his teacher interview:

Well, as I remember with the STEM club kids, [...] it was really a great experience and the kids, you know they had fun. They were doing all kinds of things, you know. They were doing Energy Wise, which they came up second in Greyberg County, they got an award. [...] And then, the garden, and they were watering, planting, learning how to assemble, you know, the beds and then finally they actually donated to this homeless student. She's graduating tomorrow. Which shows, you know—that's why I told them our score is high. 70 percent

[passing] in Biology. 70 in science—in biology, and 70 in English almost. The Biology score was the highest. So this is outstanding, you know, from where we started was I think like 30 or 40 percent in the last couple of years. That, as a department head, to me is great, because that is about working together, helping each other, you're gonna get somewhere. [...] Yeah it's awesome, and they do well. All the Latinos in my classroom, basically they did well. And even with the—I had about eight Hispanics in my Chemistry class, they all did well and performed excellent.

Ms. Grey offers insights about the students in regards to their aspirations as well as their drive and passion for rigor in school science:

I know they are looking forward to the more advanced science classes because I've kind of prepped them and said, you know they do better labs, more detailed labs—more independent studies. Because a lot of times kids will say, “well, what do you think would happen if we do this?” And we just don't have time to do it. And right now, I don't have any kids that are knocking the AP, IB track. Where usually you have kids that say, I don't want that because of the rigors there and I'm scared. These kids are so confident that they are saying “I'm looking forward to it.” And they're excited about it and looking forward to it, because they're making those connections. [...] I think they had so much buy-in in the Earth/Environmental [science] piece, I don't think we lost much ground there as far as wanting to be a scientist and wanting to discover new things and wanting to do labs. They still had that strong desire.

In Ms. Grey's classroom, I observed the students as deeply engaged with science activities and discussions around science concepts, very consistently. For example, when students engaged in a DNA extraction lab, one student mentioned that they did a similar DNA extraction using Gatorade, to which Sergio suggested the following, which seemed to draw on his tech and chemistry knowledge, showing how science connections and curiosity thread through his in- and out-of-school science experiences. His thirst to apply what they are learning to new situations mirrored what many of the other students in this

study do as well, and what Ms. Grey observed in her interview excerpt about her students:

Sergio: We should do something like that. Like with electrolytes. Like you take an orange and Gatorade, and then take it out and make sure it's dry, and you stick like an iPhone like USB, like into the phone, or into the iPhone or whatever and then into the orange, it'll charge it.

Michael: Oh, we gotta try that!

Ms. Grey: Sounds like a great idea to try at home.

Sergio: I'm seriously gonna do it, watch.

Oscar: Call me over to your house when you do it, I wanna see.

This theme exemplifies through many examples, primarily from the students' *testimonios*, but also crystallized through teacher interviews and my field notes, how each of the students in this study have strong science talents and passions in the present, dedicate themselves to science in both formal and informal science situations, and have powerful scientific aspirations for their future. This study, and the students themselves, feel that a major reason for their strength and resolve in these various scientific dimensions is due to their ability to navigate through many worlds and skillfully cross many cultural borders. The following theme shares some examples of these students ability to cross borders and travel through many worlds in a lovingly playful manner.

Complex, Multidimensional Border Crossing and World Traveling

Drawing on the concepts of crossing borders (Anzaldúa, 2007) and traveling across worlds (Lugones, 2003) as discussed in Chapter II, the students show in many ways how and why they are able and willing to cross the borders of many worlds and yet

feel at home in these different worlds, carving niches in them simultaneously. This is part of what makes them successful in their ability to access the worlds of high-achieving science students even while navigating within and beyond their American teenager, Latin@ and undocumented immigrant identities. Their ability to enact complex forms of themselves that are multidimensional and yet competent within each dimension is a fundamental part of their traveling into worlds that would otherwise be closed to them.

Latinidad: Being Latin@ and Doing Science Non-Subtractively

Many of the students in this study draw on what it means to them to be Latin@, in ways that emphasize that it is something they strongly want to hold on to, even as they traverse other worlds that often compel them to assimilate to White, American ways of being and doing. For example, Sergio navigates the world of *Latinidad* while pushing back against the trend he has noticed of Latin@s “betraying” their ethnicity by claiming to be “American” to avoid being discriminated against for being Latin@:

I mean you should be proud of where you’re from, after all, it is where you’re from. I mean, no matter where I am, I’ll still have Aztec blood. I’m not afraid to admit it. [...] I speak completely in Spanish with my family. Other people, other Hispanics, I see here, they lean towards like the American way. I don’t know, that just—I don’t like it. It’s like they try to mask their Latin side, and try to embrace the American side more.

This comes into play when Sergio described his experience at a majority White school, where he immediately felt out of place and he noted the culture clash between the culture he aligns with, and that of this “preppy White” school:

[T]he environment was like—even the air that you breathe, I was kind of choking. [...] In class, it was like, nobody really socialized. It was like you going there, and

that's it. [...] You're just listening to the teacher, and you're doing your homework instead of what we do here at Jones. We're always like 'hey man this happened', and stuff. You do your work, and then you talk and stuff. [...] I think it may have something to do with race, but mostly maybe like tradition. It's always been like an American tradition to break away. I think they took it to an extreme, took it too literally, to break away from everything. [...] It's weird. It seems unnatural. When you're in class it's like you don't even know each other. It's different. I don't know why, is it a race thing? Is it just a cultural thing? I don't know. I didn't like it. Definitely something very different than what I grew up in.

In contrast, Sergio aligns with his Latin@ culture, as he describes it:

In our culture we're more interested in community, family. Family because most of the families that I've seen anyway, the white families that I've seen are kind of separated. Especially like in Latin cultures, we've always been taught that family is the most important thing, but I guess it's different with White families, and when people try to imitate that, it kind of makes them seem like they don't want to respect their families either, and it really makes it uncomfortable because in reality you are nothing without your family because without your parents we wouldn't even be here.

Sergio critically questions the dominant whitestream narrative and suggests a different locus for his motivation towards being the kind of science student that he is. This establishes that while Sergio does well and identifies with science, he strongly pushes against the idea that he must assimilate to the dominant culture to do so:

[I]t doesn't make you feel down to earth. It makes you feel like you're trying to be something that maybe you're not. I think that's mostly because of the media that tries to make it seem like 'oh, you should only care about yourself, you, you, you,' *como decimos nosotros, el yo-yo* [like we say, the me-me]. I think it's mostly because of the media though, they accept the media more, like Hispanics would be like, 'what? they're crazy.' [...] they just take, take, take, but what have they given back? Have you helped your parents with something? Have you given back to the community? Have you made something that's had a positive effect on somebody else's life? Or have you just taken, taken and taken for yourself, and been selfish, not giving back? I don't like that anyway.

Sergio pushes hard against dominant White “American” culture and strongly identifies with a Latin@ culture that is family-oriented and motivated by giving back to one’s community. Sergio has a strong and critical lens towards the dominant culture but yet is able to maneuver into it when necessary, while keeping his other foot firmly planted in his Latin@ roots. His crossing into the border of the dominant culture manifests in the magazines he reads and experiments he does as illustrated in the previous theme, and also in how he engages with dominant school science in the classroom:

But in Ms. Grey’s class, I do like to be on top of things. I’ve always liked science. I love science. I don’t know, ever since I was in elementary school, I loved science. I love the experiments, learning about different things, I love it, especially when we started talking about animals and stuff. I always loved going to the zoo, learning about the species, and the places where they are. [...] I do a lot of labs on my own in my spare time [...] I like biology for the information, but Chemistry for the labs. I mean you know, who doesn’t want to see something blow up? It’s just awesome, but especially right now that we’re going into the dissecting labs, and stuff like that, I think that’s more interesting because you learn not only about your own body but the body of like other animals, even animals that you eat, you know?

It’s important to emphasize that Latin@ culture and the culture of school science are not necessarily mutually exclusive, even as many embodiments of school science have been shown to be overwhelmingly informed by Western, Eurocentric cultures (Carter, 2006, 2010; Coburn & Loving, 2001; Harding, 1991, 1998, 2006, 2008; Rodriguez, 1997; Rodriguez, 1998; Sammel, 2009; Scantlebury et al., 2007; Stanley & Brickhouse, 1994, 2001). In fact, that is what students like Sergio and the others in this study exemplify: the ability to retain and interconnect their Latin@ roots with doing science in ways that are recognized by the cultures of power in school science, while

remaining competent in both, not having to “subtract” (Valenzuela, 1999) their Latin@ culture for the sake of school science success. Sergio recognizes this ability to remain true to one’s culture and service to one’s community while doing rigorous science when he mentions his admiration for the professor he met and works with to establish a home garden:

I meet up with him at intervals, every two weeks, four weeks, and kind of talk more about his field. Because he says they are looking for Hispanics in particular because there are a lot of Hispanic countries that suffer from food insecurity, and they’re misusing land. It’s kind of an inspiration because this guy has traveled around the world, and he’s so passionate. [...] Like those are the kind of people that get you interested in that kind of field. I also like that he was talking about majoring in that and helping your home country.

Another powerful aspect of *Latinidad* that the students bring up many times is their linguistic identification. Crystal crosses many borders simultaneously as she navigates into multidimensional spaces of what it means to also be “American” even while being Latin@ and undocumented:

But I’m basically American, in a way. My English is good. When I think, I think in English. I’ve been here since I was nine months old, but I failed kindergarten because I didn’t know how to speak English. My mom says I’m basically American, because I have been here my whole life. But they look at us and they don’t see us as what we are.

Like many of the other students in this study, a major way Crystal crosses borders between *Latinidad* and being “American” is enacted around the languages she speaks and an ability to be in several cultures at once, going so far as to say that if you’re Latin@ and you don’t speak Spanish, “it’s a disgrace” and that

You shouldn't even call yourself Latino if you don't speak Spanish. Because it's part of your heritage, and your culture, and where you come from. So if you don't speak Spanish, it's basically like you're denying your culture and where you come from. And that's like—just speak Spanish; it's basic. So, what's gonna make us think that you're gonna know so much about your culture, and where you come from, if you don't even speak Spanish? I'm a Mexi-CAN. People that don't speak Spanish are Mexi-can'ts.

Yet Crystal finds herself assimilating into “American” patterns of English despite her strong affiliation with her *Latinidad* defined through speaking Spanish: “But then when we speak with Americans we sometimes speak the way they want. We say things all gringo. It gets confusing because then Latinos get offended.” Crystal recognizes that her world traveling shifts depending on who she is interacting with “because one world to somebody may not be the world to somebody else.” In this way, her ability to be what Lugones (2003) calls being “at ease” in many worlds and further, enact what Anzaldúa calls “consciousness of the borderlands” or “*mestiza consciousness*” where Latin@s “continually walk out of one culture and into another” and yet are “in all cultures at the same time” (Anzaldúa, 1990, p. 377; Delgado Bernal, 2001) manifests through her bilingualism and biculturalism:

It's just normal to be bilingual and to be able to understand and come from one background that's completely different from another one. I feel that's also an advantage, because I'm able to speak both languages. I'm also able to learn more about two different cultures. I feel like being bilingual is normal. I feel like it's me and it's not just me. It's so many other people out here. I'd feel weird just speaking to my friends only in English. In this school it's common to just learn two different languages.

While simultaneously drawing from her *Latinidad* and undocumented status as identity and motivation, like Crystal, Silvia also holds a complex “American” and

“English-speaking” identity that exemplifies her nationalistic complexity, and troubles ideas of what it means to be “undocumented” and the nativist sentiment that they should “just go home”:

And my mom says we're pretty much American because we're used to the type of foods, the climate, and everything. I guess I speak better English because I came here when I was two years old. And I adapted to the ways they speak. Even my first words were in English. [...] And so my parents say it wouldn't make sense for us to go back to Mexico, because over there, they don't really understand English. “How are you going to communicate with them? You only speak English. They speak Spanish.” I was like “I don't know. Sign language I guess.” They'd be like “no.”

Silvia also draws from her undocumented status and her Latin@ culture, particularly the aspect of familism, to motivate her to do well in school and in science:

I do it for me and my family. Since they don't have papers and since basically right now my sister's gonna be the first one to graduate from high school from all of us. It's like a stopping point for all of us. Since my mom or my dad didn't graduate high school. So my parents are proud of my sister and me because for us to achieve more than what they can, it's like a relief and more an achievement for them. It's like showing respect and pride in our family.

As a further example of how Latin@ cultural values (as discussed in Chapter II) manifest in Silvia's interface with science and her scientific aspirations, when Silvia got into the forensic science internship, her family encouraged her in terms of representing her ethnicity and being an example for others, with her personal gain being secondary:

My parents were amazed when I got in since usually not a lot of Latinas get in. They're like “it's better to go ahead and take the advantage and do it and represent the Latino people.” They think it's something to motivate other people to study hard in their works and everything. It also like helps me motivate myself and stand out in everything I can.

Silvia crosses over into the world of what it means to succeed in school and in science by being motivated to be an example for other Latin@s who are undocumented. She repeats this several times throughout her *testimonio*, that she does it to inspire others and to “Represent the Latin@ people,” and this applies to her aspirations in science, specifically:

And usually you don't see that much Hispanic doctors, or pediatricians. Usually you see like Caucasians or African American people and in forensic science it's weird to see a Latina or a Hispanic be able to work and get that far as being in criminal justice or anything. So it's like something I want to accomplish in life and be able to get to that point. So I've been wanting to do that to represent the Latino people. Because if they see somebody actually achieving it, they'll be like okay, if she can do it, then we all can. So I guess it helps them motivate themselves as well.

Her work in the STEM club's community garden is motivated by similar goals, in which Silvia explicitly states how the combination of Latin@ and immigrant cultures, brought into science, is a purposeful and necessary form of world-traveling for her, and evidence of her “consciousness of the borderlands” or “*mestiza consciousness*” (Anzaldúa, 1990, p. 377). A key quote to emphasize is when Silvia says that this interface between her identity as a Latin@, as undocumented, and an immigrant, along with the doing of science “helps us combine ourselves”:

The club really appealed to me personally because some people are undocumented and if they see this as interesting and it's about science, [...] if they learn more about science, then they could be like “okay, if this involves science, then okay, I'm good in science, then I should take this or do this or take more college classes dealing with science” or something like that. So I guess it helps us as well. It motivates Hispanics and any type of culture to be like okay, if we're doing this, then we can motivate other people to do it, other cultures to do it as well. Like it helps us combine ourselves. Like “okay, we like doing this, we're

doing this, we have this type of personality, but at the end of the day, we're one person together." So it brought us all together, but as well, it helps us to be like "okay, we have all these types of cultures, let's learn about them, let's communicate more."

This "combining" of themselves, or being in multiple cultures all at once, is something that Silvia feels is key to her ability to succeed in school. She acknowledges that there are many different cultures, and that students who are undocumented and Latin@ can recognize that different cultures exist, but that they can be joined with science in a way that "combines" multiple cultures with the culture of school science in ways that are recognizable (through the activities of the STEM club) and that are unifying and facilitate communication between cultures, through science. Silvia's talk of crossing between cultures in science, and "combining ourselves" is reminiscent of Anzaldúa's border crossing concepts, as bridging across the spaces between worlds. This space between worlds—what Anzaldúa (2007) calls "*nepantla*,"—is precisely where border crossing and growth can occur, and does for Silvia with respect to accessing the dominant spaces of school success:

And being multicultural like that helps us because we can communicate with each other's race. Like sometimes you communicate with like Hispanic people and it will be like "oh, what are you doing—what class do you have?" "Oh, I have this class, can you help me?" "Yeah, I've taken it already." It helps to motivate them to actually do better since we already took the class and they need help. Like "okay, I'm gonna help you, but you gotta do good." It was like, it actually helps a lot as well. And like if you converse with many different types of cultures, it helps you a lot as well because you learn the way they're doing it and the different ways that there are to actually like solve a problem or find a way to solve it.

Juan is also motivated to travel into dominant spaces of schooling and science through his Latin@ cultural values of familism as well as kinship and solidarity (Stanton-Salazar, 2001), saying explicitly:

So I want to take pride and show them that I can finish and get my degree. So I always try to get myself into a good environment so I can be influenced by my friends who are also getting good grades too. And we always help each other out. That's the good thing. And yeah, I've gotten all A's, so yeah. And part of it is that for Hispanics, part of our culture is that it's more about family. Like you're always there for family. And you can always count on them. And they're always there to hold your hand.

Juan is compelled to cross borders into the culture of school power through his cultural values of familism and also the *consejos* of his mother towards a career and future that is better than what his parents have to endure, and to prove that their family's pains in coming to the U.S. were “worth it”—a common consensus across many of the students:

Part of what motivates me is that Latino families are strict. [...] My mom, she always lectures me. And it's not a bad thing though. I actually like the lectures because they always remind me what I'm supposed to do. [...] So my mom always tells me to look at my dad and do I want to be in his shoes, working construction? Or would I rather be in an office, a cool office? And I sometimes think about it and I'm like, she has a point. It's better to get an education and get a job with more money. So we won't go through stuff that they went, or many other people are going through. So my mom always tells me *que no se conforme* [don't give in], always keep going and do your best. [...] So I do good in school because I think it's like the only way I could make them proud.

Juan's status of being in many worlds simultaneously is shown profoundly in its nuance and complexity as he struggles to describe what it is to be in-between things, or be in *nepantla*, this liminal space that exemplifies his multidimensional self:

It's like, you know, I'm a Mexican, but I'm not. I'm American, but I'm not. I speak English, but I speak Spanish. We're kinda like floating back and forth between two different worlds all the time, but we're used to it. Since we were little, we were raised like that. So, it just becomes part of us.

Juan feels that his ability to travel into many worlds, which Lugones (2003) says occurs when those in non-dominant positions must cross into dominant spaces out of necessity, have produced in him a thirst for knowledge that has become imbedded in his nature and emerges through his passion for science:

I think being an immigrant, I guess like we're used to challenges or used to so much challenge. We're like, sometimes we don't understand something because we come from somewhere else, so we start off from scratch. We have to understand. We're forced to understand. So I think it just becomes like part of us, like your own self wants to understand more and more and more. And if there's more to understand, I guess, like I said, from the beginning, I said science gives you the opportunity to know and answers your questions. I guess that's the reason why then, that we want to know. We want to learn.

David survived his family's loss during war in El Salvador as well as seeing his cousin killed in front of him, to cross difficult borders from a world where he spoke no English to one where he considers himself "very American." David, like other students in this study, makes a strong distinction between being "American" and being Hispanic/Latin@. Such that he describes them in terms of Hispanic-ness being a state of "otherness" and American-ness being a state of belonging:

My aunt, she's been here for about 40 years now. She's about 50-something. She's a citizen and she's like any other American. She's not even Hispanic anymore. She's been here for so long that she considers herself American.

David, and several of the other students in this study, qualify themselves as “American” based on the cultural and linguistic ways they have assimilated into dominant “American” culture: “We are very American. We’re not Salvadorian as much as we used to be. We’re in a very American culture, we embrace it and we love it.” Like many of the other students, David also sees language as a key facet of the borderlands between being “American” and being “Hispanic.” Once again, the state of being in many worlds at the same time is illustrated in David’s *testimonio* as well:

When they ask me, “Are you Salvadoran?” I’ll be like, “I am, but I’m American.” Because I am American. I mean, you know, I think like an American. I think in English. And then, some Hispanics, you’ll be like “What are you doing?” They’d be like, “nada.” And I’ll be like—when I think of it, I’ll be like, “Nothing. I don’t think nothing anymore.” I have to think to say, “Nada,” now. I don’t have to think to say, “Nothing.” You know? It’s kinda like it’s recorded. I speak—I speak English to my mom now. My mom, she’s like, “What?”

David has an additional struggle that is different from the other students in this study, because his nationality is Salvadoran, while the others are Mexican. This causes an additional facet of world traveling for David in which he identifies as both Latino and American, but also walks between the worlds of identifying with his fellow Latin@s, but then differentiating himself from their Mexican heritage. The fact that David often gets confused for Mexican raises his ire:

I used to think this one teacher in middle school was very racist. She was white, she was a substitute. She came in and she made a joke about Mexicans needing to cross over the border and I was like, “you know I’m not Mexican at all. I’m not even close to it, I’m very far away, I’m from El Salvador.” But I was like, “we’re all Latinos, but we’re not all one group, you know.” And I was like “not all of us crossed the border, not all of us do all that.” So I was like “you shouldn’t be so ignorant.”

Ms. Grey's interview also shows how the Latin@ students in her class consistently draw from Latin@ cultural aspects of familism to describe themselves in their science class, when she gave a class assignment that students were to bring in items that represented themselves in a small bag, what Ms. Grey called a "me bag":

[I]n that "Me Bag" they have to put several different items in it, small trinkets, so the bag is a certain size, it's like a lunch bag. So they have to put something they collect, something they enjoy doing, something no one knows about them, a picture or a drawing of something important to them. They get to pick an item of their choice, and then, their favorite treat. And what I'll find with a lot of kids from different cultures is they'll bring in like food and snacks and candy [...] but specifically for the Latinos, when they get to the point where they're talking about things and pictures of people that are most important to them, they always, it's always a family picture, or someone in their family. Yeah, it's never like, a sports figure, or you know, a jersey from my favorite basketball team. It always has to do with family, so they're giving a strong impression that that's what's most important to them.

Interconnected with the ways that these students access their *Latinidad* and do science such that new niches are carved that do not subtract from their Latin@ cultural identities but enable them to engage with science in new and hybrid ways, are the ways the students push against or internalize narratives about Latin@s and what it means to be undocumented, to underscore their motivations for why they engage in science and schooling in the ways that they do. These students live on the bridges between the worlds of science, *Latinidad*, being "American," being a teenager, etc., despite the tensions of having to persist in this kind of multiple identity *nepantla*, for very important reasons, which will be discussed below.

Navigating Dominant Worlds to “Prove” their “Worth” and “Be Somebody”

Crossing borders between *Latinidad* at home and approaches to science taught at school, or travelling between the worlds of home, family, mechanical- and tech-saviness, science experimentation, and pursuing book knowledge is best exemplified when Sergio speaks of what he does in his spare time:

At home usually—sometimes we’ll go to a mechanic or something and he’ll have some spare parts he is throwing away, so I’m like oh you know, can I use this, or sometimes my dad will throw away pieces of metal or something, and I’ll be like, hey I can find something to do with this, so I’ll go and try to find a book in the library or maybe search records and see what experiment I can do with that material, what experiments can I do?

Sergio is aware of the stereotypes and deficit perspectives often cast on his ethnicity, and finds inspiration to push against these stereotypes as a motivation to succeed in school and science. He forges an anti-assimilatory path that demands to be firmly Latino, and yet firmly science-oriented, simultaneously. As he negotiates the borders between what it means to be Latin@ and what it means to succeed in school and in science, it seems as though the constructed stereotypes cast upon Latin@s stay in his mind as a motivating force for crossing those borders/travelling between worlds:

But what compels me every day to continue to try to do good in school is really, I think, the possibility that somebody will notice your hard work, whether it’s a teacher, a counselor, or even maybe another student. There’s always the possibility of somebody noticing your hard work and speaking fondly of you. Because it speaks fondly of your parents, and really your culture too because if they’re like “look at that, you know, a Mexican guy, wow.” If they had thoughts about ‘oh Mexicans are just like dogs and stuff’, but see you working hard, getting straight A’s, they will be like, ‘wow, I was wrong.’ It changes things.

Crystal on the other hand, instead of pushing directly against master narratives about Latin@s as her motivation for “proving her worth” in science, internalizes some master narratives in accepting that success and “being someone” is defined in terms of school and career “achievement” and that most Latin@s she knows, or “average Hispanics,” don’t push hard enough to care about their future. Her motivation to cross into dominant worlds of schooling and science then becomes one of disproving this internalized narrative, which she sees as then having a voice and being an example for others, but it still comes back to a service she feels she is doing for her Latin@ community, much like Sergio:

So I try ‘cause I wanna be different. I don’t wanna just be, like I tend to say, like an average Hispanic. I wanna be somebody that gets far and has a voice and can be heard and make a difference. Not only for the Latino community, but also for everybody. I wanna basically show them that if I can do it, they can do it as well. And to take me at least as an example, or you know, a little push to make them move forward and do something with themselves.

Crystal navigates within the worlds of dominant deficit narratives about Latin@s, and yet sees herself as the exception. But her traveling within and pushing against these ideas is complex. Her identity as undocumented inspires a strong sense of advocacy and activism for her undocumented community, which will be discussed in more depth in the final theme. However, it is important to point out that her identity as undocumented and her traveling into dominant spaces in terms of wanting to “get somewhere in life” are intertwined:

Back in 2010 when I was like 12 or 13, when they were trying to vote to pass the DREAM Act, I remember telling everybody, “Oh, call and vote to pass the

DREAM Act and everything.” I was calling everybody to call and tell their representatives to vote for the DREAM Act. I just knew that without it, it’s really limiting me. I’m very aware of what’s pulling me back and what’s trying to put me at a stop sign. It’s like I don’t want that to limit me. I want to get somewhere in life.

Of the many worlds Crystal navigates simultaneously, she also brings these worlds together to prove herself through her aspirations in science. Her scientific pursuits emerge from her drive to prove stereotypes wrong through her status as an IB student, and embrace her identity as a dedicated student in science through a love of learning. She crosses borders into the world of the scientist, seeing herself within it, while drawing from the many other worlds she inhabits at the same time:

I imagine a scientist would always be looking at more information and curing diseases, doing a lot of research. And I like that about science, how you can learn more about it and just how everything evolves and forms into something else. I wanna be a Biology teacher or go into biology or genetic consulting. I know that if I go into genetic consulting that is just basically what I’m going to be doing for a very, very long time. So that’s actually what I want to do because I feel like every day should be a day that you should learn. So I feel like in genetics you can do that. And biology teacher, because I like biology, and teaching is just, it helps so many students.

Silvia explicitly draws from the fact that she is undocumented as her motivation for pushing into dominant school and science worlds to prove herself. She draws from this world to compel her to enter into the dominant worlds, in a way, in spite of those in dominant positions. She also intentionally pushes against similar deficit narratives as the other students in this study who want to “show them” that they are more than these

underestimations through similar understandings of what it means to “be somebody” in terms of school and career “achievement”:

I used to think like “okay, if I’m illegal, why should I do it? I’m not gonna have the same opportunities as everybody else.” [...] And then since sixth grade, like my teacher told me straight on, “if you don’t do this, then you’re not gonna be able to be somebody that you actually want. You’ve got to be better than everyone else just to be able to succeed.” [...] I guess that made me realize that even if I’m not documented, I could be somebody. So since then I’ve become a stronger person in everything I could. I’m in all honors classes now and they said by next semester, next school year, I’m gonna be having all IB, AP classes. [...] Like right now, high school is like a big thing for me because I used to not think school would be that important. And right now it’s like “okay, I gotta get this done, I gotta be able to do this, be able to be somebody in life.”

This feeling of needing to “be somebody” is catalyzed by knowing that she is going to have to try harder than everyone else just to get equal recognition, as well as to prove deficit perspectives wrong as Silvia observes, “Because people usually think of us like a person that won’t be able to get that far. They see us like a person down low someplace that nobody will notice us. So it’s surprising for them that I’m achieving something.”

Silvia’s undocumented status motivates her to cross borders into dominant spaces to push back on deficit narratives, but she also sees this border crossing as a necessary “stepping up” to “be somebody” that she seizes in spite of the fact that many with more privilege are not taking advantage of this:

And people underestimate, they’d be like “oh, you’re not gonna get nowhere, you’re not gonna be able to do this, you’re not gonna be able to do that, because you’re undocumented.” They think of them like somebody that cannot succeed. And I just look at them: “just watch and see, I’ll prove you wrong.” And that, it hurts a lot because you’d be like, “I’m undocumented but you’re documented and

you're not doing it." So it's like, "if you're not doing it, then I'm gonna do it." And like they get mad and everything, but it's like the truth. If you're not gonna step up and be somebody to help the community or anything, it's like okay, you're not doing it, then I'm gonna do it.

The *consejos* Juan's family gave him of "not giving in" to the bad influences of his peers draws on the stereotypes and master narratives that Juan, like the other students in this study, push back against. Juan draws on multidimensional motivators of gratitude to his family and pushing back against deficit narratives to "prove" that he is not going to become the stereotype that he perceives Latin@s, specifically Latin@ immigrants who are undocumented, are beholden to:

I have plenty of friends, or family friends, that stopped going to school because of their illegal status. Many of them decide to drop out, and they think it's just a waste of time. So they just think it's better just to start working and earning money. And they just either go into construction or end up cleaning. And so a lot of Hispanics, they fall into—they're stereotyped, and they—how do I say it? They become what they're stereotyped as. Because we're constantly told what we shouldn't be. I mean I think it's the reason why people are so much stereotyped, that they fall and they behave as what people think they should behave.

Juan's observation of how stereotypes adversely affect friends and family who are undocumented, translates into motivation for him to push back against this:

And I think that you should never fall—you should always prove to them what you are, not what they think you are. And that's the reason why sometimes I stay quiet, and at the end I end up showing them wrong. I show them what I really am. And I think that shuts them up more than me going and being all vicious and them having the pleasure to see what they think I am. I'm not letting myself fall into that. I can prove that a Latino can become someone important, as many other Latinos have. [...] And sometimes I look at them and I'm like, "I'm not doing this. I'm not going to end up like them."

Like many of the students in this study, Juan crosses borders into dominant cultures of school power despite having endured traumas during childhood. In his case, his father was almost murdered. This contributes to his great faithfulness to his family: caring for his father when he is ill, helping his little brother with homework, and being the translator for his family, and even for his community. Juan's bilingual skills and identity as translator are a major part of his border crossing identity, feeling comfortable living on the bridges between worlds, and helping others across:

And basically I'm the translator for the family. Sometimes when I have to talk to the manager, the owner of the apartments, I have to go with my parents and tell him, like translate this and that. Or when we go to my brother's school, my mom takes me with her and I have to translate what the teacher said to her, or ask any questions that she says. So I'm basically—like I basically translate everything they say. Bills are one of the biggest things my parents use me for, when they're behind sometimes and I have to go and tell them, the manager, and the manager's really nice with me. Because basically, the manager appreciates what I do because I—because where I live right now, in the apartment complex, or where I used to live at, we always have a lot of Hispanics around. And sometimes Hispanics can't translate, so they use me as a translator too.

Being a person who lives on the bridges between worlds, and helps others cross is what Anzaldúa (2007) calls a *Nepantlero*. Juan exemplifies his character as a *nepantlero* when he saves his notes and journals and provides them for his little brother to access the school knowledge he has acquired. His learning of English became his tool to help others, and he was compelled to acquire the language for that purpose: "I ended up learning English. Part of it is also that I had to be an example, not just to my brother, but to the family." These acquired norms of school success become tools for Juan to guide others into the world of the dominant, in part because he is able to more competently enter into

these dominant spaces than his parents can. This shows in how he helps his brother cross borders:

So I have to always be on him and tell him, “Do your work first. Do it right, and then go play.” Or like make plans, like to focus on one thing first, and then do the other. Or if it’s a long—if it has a due date, he can leave it for one day and then do something else, and then finish it off that day. So to make use of his time. So I’m always there to help him out though, whenever he needs me. Especially since my parents can’t really help me or him, since they didn’t have the same classes. So some of the math that I take now, they never had it.

Juan’s interest in science is in part compelled by his identity as a *Nepantlero*, who helps others across the bridges between worlds. This is the case both with his family and also with society, in helping them understand the issues and concerns of threatened species and environments:

I’m the type of person that’s always looking for stuff on environments and stuff like that. So yeah, I try to absorb as much knowledge as I can get, so I can at least help my little brother or my parents. [...] And I just think that if we take time as humans to like think: Without species, we wouldn’t live. Because these species keep up our environment, because the environment needs them. It’s a cycle. And with us killing them, the cycle is broken, and so will everything else. And we’re killing things too, too fast. So I guess we should [...] realize that we’re not the only things on the planet. That there is many other organisms, marine and land. And although we’re different, we should all live together and help each other out to make this world a better place to live. [...] I mean I feel like people can express their feelings, and sometimes animals can’t. So we misjudge them.

All the students in this study have reasons to engage in schooling and science that are tied to their understandings of the structural influences that construct and underestimate them, and push back on these structures through their words and actions. In the following section the “how” is discussed, to better understand these students ability to cross borders

into dominant spaces despite, or because of, these deficit constructions. They do not do it alone.

Being At Ease to Cross Borders into Dominant Worlds through Social Networks

Feeling comfortable to cross borders into the dominant spaces of schooling and science is made infinitely more accessible when one has friends to cross with you who are just as invested in the crossing/traveling. This aspect of world traveling is possible when, as Lugones (2003) explains, a person is “at ease” in dominant worlds beyond their home world when they feel as though they can be (a) a fluent speaker in the world, meaning they know all the norms and rules of the world; (b) being normatively happy in this world, meaning that they agree with the norms of the world; (c) being humanly bonded, in feelings of love with those in this world; and (d) having a shared history with those in that world. Sergio feels confident in crossing into the world of dominant school science and succeeding within the constructs of the school culture of power, because all four of these conditions, for him, have been met in his schooling experience, as he says here:

And I know that most of our families here [at Jones High] are pretty much in the same situation [undocumented], and it's really just about finding ways to push forward. It's not like in other places where the majority have let themselves down, given up, dropped out of school, are in gangs or something. If you see everybody else doing it, it kind of discourages you, and tells you to do what they're doing, but when you see people around you here succeeding, you're like hey, this guy was my friend, and he did this, and he went on to college, or got a scholarship, grant, or whatever, then I can do it, and it gives you some kind of hope.

During participant observation, I observed this confidence with crossing into the world of the culture of school power and school science, as Sergio proudly calls out his “100”

score on his bellringer after they are checked on many occasions and encourages other students in class to “focus on your schoolwork.” Sergio also takes many notes on his foldables in science class even though it is not required in order to help him as a study device for upcoming tests and quizzes. On one occasion he shares this strategy with Ms. Grey who then shares it with the class:

Ms. Grey [speaking to entire class]: I would encourage you to do as—I think it was Sergio . . .

Sergio: Yeah, it was me.

Ms. Grey: . . . who asked if he could write his notes on the back of the foldable, so I would encourage you to do that.

Silvia explicitly and intentionally learns the skills needed to cross into the world of the culture of school power, and knowing how to thrive in that world. This enacts many of Lugones’s (2003) requirements for being “at ease” when travelling into a dominant world: being a fluent speaker in the world, knowing all the norms and rules of the world, and being normatively happy in this world:

I think I’ve learned good skills. Like if we have a test or a quiz or something, study the night before or study the whole week so you can understand it. And if you don’t understand the subject or what you’re reading about, write questions about it and then come the next day to school and see if the teacher can help you out with the questions or what the problems you have with the section you’re reading. Then ask some questions during class.

Sergio also navigates through the trauma of his mother’s death and his sister’s dreams being limited by their undocumented status and financial situation, and yet

manages to cross borders into dominant meanings of school success despite these issues, or perhaps because of them:

I guess that's why there's pressure on me because they [his family members] all couldn't for some type of circumstance, and since I don't have any circumstance, that's kind of a motivation for me. Especially because I want to give my dad a break. He's been helping everybody all his life, so it's time for somebody to help him.

Crystal also navigates traumas, in her case, of childhood abuse and her parents' divorce, yet still finds ways to travel into worlds of success as defined by dominant school culture and crosses borders into the worlds of science despite these traumas. She characterizes much of the activities and dedication to school as "trying to keep busy" despite feeling that her mother may not understand why she dedicates so much of her time to school and school-related activities. Like Sergio, she also is sensitive to master narratives of Latin@s and immigrants supposedly not being capable of succeeding in school, and she pushes back similarly:

I know a lot of people that are in those types of situations, with immigration issues. So like, for me as a Hispanic, I wanna like, like show people that it's possible to like be successful in this country no matter what your status is. And just, be successful and be a role model to other Hispanics and DREAMers that are in this country in the same situation. And it's like aspiring to overachieve yourself. And not just for yourself, but for your whole community so they can realize that it's possible to be a successful person in this country no matter what. [...] I try to be an example for them. So I'm in honors chemistry and AP government and politics, honors geometry and honors native Spanish. I'm hoping to go into IB Spanish, next. It's like the best thing you can do to just apply yourself.

Several of the students attribute their ability to succeed in school to their support from their social networks (Stanton-Salazar, 1997, 2001) of similarly bilingual, bicultural friends in ways that again draw on Lugones's four requirements for being "at ease" in traveling into dominant worlds, most notably in the areas of being humanly bonded and having a shared history with others who cross with them. As Crystal shares:

Most of my friends are Hispanic mostly, because I guess it's just like since they come from the same background as you, you can relate. We're able to understand each other. Because of our culture we're able to know how each one of us is feeling. Why we feel this way. [...] Because most of my friends come from the same culture, they'd probably understand the whole undocumented thing. About not being able to work here and getting an education. We're able to grasp that in a conversation.

During participant observation, I observed this myself on several occasions, as Crystal time and again chose to work with Juan, Silvia, and other Latin@ students when given a choice of group members during activities in her chemistry class, one example of this is shown in the excerpt shared previously from my field notes that discussed Crystal's group work in chemistry class where they were learning about solubility as a function of temperature.

As discussed previously, Juan's capacity to travel back and forth between the worlds of *Latinidad*, the Spanish language, and his family, and the worlds of school success and science and conservation make him an expert world traveler between Latin@ and "American" worlds, and also allows him to form important social networks (Stanton-Salazar, 2001) across borderlands, that enable him to more competently cross into dominant worlds, along with others in his networks who must also cross:

I think I have an advantage because I can talk both languages, and I can have the same similarities with an American. And I can communicate with both and make more friends or a closer bond. [...] So others who have been through this, they understand. And we help each other. For example, right now, like the biggest people that are helping me, sometimes I don't understand something, and I'm always helping them too, are my friends. So we use each other as resources. Like if someone doesn't understand something, someone will text each other or call someone or make a meeting, or I mean like plan somewhere to be at and we'll work together. [...] And that's how we got so far. Because basically, the group I just mentioned, they're the high students here, they're high in academics. We somehow like form a family.

David has several paths he is considering, such as being a chef, an architect, studying for a career that combines science and history, or doing science within the military, citing that he has several family members in the military and he looks up to them. Regardless of future goals, David presently has a complex relationship with science, which he loves and finds easy, but is remorseful that he didn't take advantage of meeting school expectations when he had Ms. Grey as a teacher. His performance in her class, however, has not dampened his love of science:

I've done biology or I'm doing biology and earth/environmental. And I'll say, they're both easy. You just have to dedicate yourself, which I didn't, to start off with. And I did have Ms. Grey; she was good. It was my fault. I admit to that. But it's fun. Science is not so hard for me, if I really, you know, dedicate myself into learning. I'm actually not so bad at science because, you know, I look at things and I see how they connect, how they interact with each other. [...] You know, like a lot of people don't like science, but when it comes to biology, I like it a lot. I like it so much that, you know, I would even consider getting a career with something that has to do with biology because it's really fun for me. I just enjoy it, you know?

Despite David's admission of fault with not performing as well as the school culture of power would like, he is thankful for the experience because he feels that he needs to be

pushed and credits his third grade teacher and Ms. Grey, among other teachers who “pushed” him with his ability to do well in school. David’s need for people to motivate him to cross borders and not stay in his comfortable “home” world still connects with Lugones’s tenets of world traveling in that he still is normatively happy with entering those dominant school spaces, by feeling humanly bonded to his teachers, to contrast with other students’ bonding with their friends or family in order to cross into those dominant worlds. In fact, he accepts the norms of schooling from a mature perspective:

I can truly say that I love when people push me because I’m that kind of person that if you don’t push me, I kind of just stay there or just keep my life going the way it is. But if you push me I try to get myself to a better place, to somewhere that it’s gonna benefit me. [...] I didn’t study, I didn’t do anything and Ms. Grey always—she was always there telling me “push, I know you can do this.” [And when she didn’t let me pass into biology] I can understand more why she did that and I don’t blame her, and I appreciate it actually. I still go visit her once a week, and when she’s sick or something I get worried. Because if she had not done that with me I’d probably still be the same, thinking that I could just move on just because of who I am. No, it’s not like that. You move on because you show improvement, because you do something.

As a further example of how students draw from many worlds simultaneously and cross borders not only in their own lives, but in complex interactions with each other, the following shows a snippet from my field notes of the kinds of interactions these students regularly participate in with each other. Note how they draw on many worlds simultaneously: science knowledge, the norms of schooling, *Latinidad*, American pop culture, Latin@ pop culture, etc. in order to carve a niche for themselves as competent science learners while not fully assimilating to dominant expectations of “proper” school comportment or “proper” engagement with school science content. Instead, they lovingly

“play” with many worlds and ideas at the same time, creating new ways to interface with science knowledge that become their own. (Note: *Chivas* means goats or sheep, but also is the name for a Mexican soccer team.) What is important to note here is how the students play with the science language and show their fluency with concepts such as mutualism and parasitism, and yet also travel back and forth seamlessly between the Latin@ worlds of Spanish, soccer, and the Mexican legend of the Chupacabra, as well as teenage pop culture worlds familiar with the characters Edward and Bella from the at-that-time current Vampire movie “Twilight,” and other conversations about things they’re seen on TV. Note how the teacher, instrumental in this process of world traveling and border crossing, starts up the conversation and then steps back and lets it unfold, as students play with this scientific concept and make it their own by connecting it to the more familiar “home” worlds of Latin@ and teenager cultures, as well as bouncing it around among themselves in an act of making this science concept a facet of social networking. Further, this example illustrates how the students enact Lugones’ true intention for loving playfulness: that as one lovingly plays amidst many worlds and identities, one creates new worlds in which persons from non-dominant worlds can carve niches in dominant worlds (in this case, the world of science with its own set lingo). In carving these niches in these dominant worlds, non-dominant people can travel into these worlds and create new norms that are their own, and that enable them to engage and thrive within the dominant world – in this case, the dominant world of school science. And yet, note how the norms enacted here deviate from the typical norms expected in a traditional science classroom. The students take the reigns and play with ideas and have

conversations tht a traditional teacher might feel compelled to shut down as being “off-topic.” However, Ms. Grey, here, has the sense to step back and allow the students to play, knowing that as the students play, they are making these concepts their own:

Ms. Grey: “Remember mutualism, both get to hook up, parasitism: one gets the hook up, the other gets jacked up.”

[Some students join her in saying at the same time as her “jacked up”]

Shawn: “Do vampire bats bite humans?”

Ms. Grey: They can...

Uriel: There’s some vampire bats that drink cow blood!

Moses: And there’s like people who think they’re vampires they go round drinking people’s blood.

Yasmin: Nuh uh

Moses: They do, I saw it on TV.

Sergio: That dude is fake, he’s a Twilight wannabe

Mona: So like Edward is a parasite.

Yasmin: Edward is a nasty *cochino*. [pig]

Javier: Edward doesn’t get the hook up or the jack up.

Sergio: *Pobrecito*. [poor thing]

Mona: But Bella gets all popular.

Sergio: So it’s commensalism!

[Moses in the front left raises his hand, while Shawn next to him is chatting vigorously at him.]

Ms. Grey: Moses, are you all having a great debate?

Moses: No, he was asking who would drink blood filled with maggots. The dude was in India and he was going around sucking people's blood at night . . .

Ms. Grey: Well some people have a vitamin deficiency and feel that they need to drink blood.

Oscar: So what about chupacabras?

Yasmin: What about them?

Oscar: Are they parasites if I think they're yummy?

Yasmin: Then it's mutualism!

Sergio: Well only if la chupacabra finds you tasty.

Mona: Chupacabras eat goats, not you.

Uriel: Y ahora eres chiva? [And now you're a goat?]

Yasmin: Viva la chiva! [Long live that goat/name for a soccer team]

Sergio: Then you're just a chupacabra parasite.

Mona: Chupacabra got jacked up.

Class: Oooooooh. [laughter]

Sergio: Chupacabra and Edward can join a starving parasite support group.

Yasmin: Yes let the chivas live. I'm in a mutualistic relationship con mis chivitas.

[with my soccer team]

The interchange above is a good example of how the students in this study enact Lugones' (2003) idea of Loving Playfulness in which she claims that loving playfulness occurs when one is comfortable enough in a dominant world to unleash their multidimensionality and "be themselves," feeling at ease enough to take risks with their identities and with ideas without feeling judged, and can join with others in social

networks that enable them to enter into dominant spaces and in so doing, create new hybrid, multidimensional ways of being in those spaces. In this way, the idea of loving playfulness and world traveling introduced by Lugones (2003) adds a useful dimension to the discussions of hybridity and third space often discussed in the science education literature. Lugones' concept of world traveling and loving playfulness parallels the ideas of third space and hybridity in their emphasis on the beneficial nature of bring dominant and non-dominant worlds together to create new, hybrid worlds that are neither of the first two worlds, but are a new space where many can find ways to access new ways of being and doing hybridity. Where Lugones' (2003) framework of loving playfulness and world traveling can add to these concept of hybridity and third space is in more closely understanding the "how" of how non-dominant students can enter into and create these hybrid spaces, though the criteria Lugones establishes of 1. being a fluent speaker in the world, meaning they know all the norms and rules of the world; 2. being normatively happy in this world, meaning that they agree with the norms of the world; 3. being humanly bonded, in feelings of love with those in this world; and 4. having a shared history with those in that world. In the excerpt above, one can see that the students become fluent speakers in the dominant world of science and show that they understand the concepts of mutualism, parasitism, etc. They seem to be happy engaging with these concepts, even as they bend the traditional norms of how students are expected to engage with these concepts in a science classroom. They bond with each other through playful interchange laced with common cultural understandings of Latin@ and teenage pop culture, etc., and they invoke their shared history of playing with each other in this way,

as their comfort level shows that they have likely played with concepts like this before, and know that their teacher, Ms. Grey, will step back and allow it to happen, through a history of being able to do so.

The above interchange also shows how students' loving playfulness extends beyond just an adolescent experience and shows how their typical teenager identities which invoke pop culture, TV, movies, etc. becomes complex and multifaceted as they are used in service of expressing aspects of their *Latinidad* as well as engaging in the learning of science. In this way, Loving playfulness is a useful framework to understand how the adolescent experience is just one of many "worlds" that teenagers travel within, and as they travel to other worlds, one of their home "worlds," that of teenager culture and ways of thinking, being, and doing, becomes just one more identity which they can play with and intermesh with others, both dominant and non-dominant, creating endless iterations of hybridity or as Anzaldúa (2007) would term, creating endless varieties of the *new Mestiza* by constantly traveling across these borders between worlds. In fact, these students' very act of challenging the norms by playing with science concepts in such non-traditional and multidimensional ways, is itself an act of teenage rebellion to the typical established rules of traditional norms of schooling, which in this case, becomes part of their playfulness and ease in travelling to the dominant world of school science. This aspect of the fluidity of playing with identities and traveling between many worlds as an act of carving a sp[ace in dominant worlds, is an important and useful aspect of Lugones' (2003) framework of World Traveling and Loving Playfulness that can be useful to the ongoing conversation in the science education literature on hybridity and third space.

Ms. Grey discusses in her teacher interview that she has noticed how networks of kinship among the Latin@ students in her class leads the students to do well in science by holding each other accountable to classroom norms of school success in her science class:

Now, they kind of rally together and support each other. So like, if there's—like the one kid, I hate to call him a weak link, but in that group of kids, he's the one that if someone's gonna be missing an assignment, it's gonna be him. If someone's gonna half-do an assignment, it's gonna be him. And so, if they're calling out their scores, like for quizzes and things and I'm recording in the grade book, they all look to him like "you've gotta pick up the pace." It's almost like, you're an embarrassment to the group, we've gotta fix that. But they don't pick on him, they just say, "I'm gonna call you and make sure you have your report tomorrow," that kind of thing. So there's a sense of camaraderie there, and I think the other kids see that. I don't know how much it motivates them to do the same with their counterparts. But you notice that. That they don't leave anybody behind.

This exemplifies how the students draw on Lugones's (2003) tenets for being "at ease" in traveling to a dominant world as they agree and reinforce the norms of the world (are normatively happy), and fluent in the language of that world, are humanly bonded in feelings of love and caring with their fellow Latin@ students entering into this world, and have a shared history with those in that world. Lugones mentions that to exemplify loving playfulness in a world means that one is at ease in this world enough to unleash their multi-dimensionality and ability to be "themselves"—as they are in their home "world." One can see this kind of playfulness and ease in the field notes above, which is one example of their consistent ease of engagement with science in both formal and informal science settings.

The example above shows their ease with "combining themselves" as Silvia put it, while discussing science. To further illustrate loving playfulness in action within a

science setting, which shows the students incorporating many aspects of themselves as teenagers (and all aspects of being a teenager) while doing science within teenager-dominated social networks, the following example from my field notes finds the kids engaged in a lab in which they are to shake various items in test tubes with water, and determine which are composed of small or large molecules. Here, students draw on the doing of science, raunchy teenage humor, American pop culture, Latin@ language and culture, norms of school success (grades), and even make a metacognitive joke at the end about being research participants and teenagers, as I sit next to them typing out what they are saying and doing. You can also see some of the students' capacity to be normatively happy as they try to get back on task because they voice that they "wanna get a good grade." They show the ease with which they can "be themselves" while still participating in science, and the ways they draw from their shared teenager experience while also drawing from multiple worlds and creating complex multidimensional selves through new ways to travel across many worlds simultaneously as they play and challenge the norms of doing science:

Yasmin: Ok guys, let's get started.

Oscar: Tofu . . .

Javier: It looks like *queso fresco*!

Yasmin: Ok, she said to put the thing . . .

Sergio: We have to put the water in first.

Oscar: We have to put the water in first?

Sergio: Read the directions. Half fill in water.

[Yasmin puts sugar in a test tube.]

Yasmin: Shake each test tube for two minutes, record observation.

Researcher [sitting next to the taking field notes]: You guys have a timer?

Yasmin: Yes, Sergio?

[Sergio starts timing and looks at Oscar as he shakes the test tube.]

Oscar: This is like a workout, do the shakeweight! You like my shakeweight?

[Yasmin laughs.]

Oscar: *Now* it looks like queso fresco!

Yasmin: I want some pop tarts. [to Javier] you have to cook for me one day. You gotta cook some milanesa.

Javier: Funny monkey.

Oscar: How long has it been?

Yasmin and Sergio: One minute.

Javier: Oscar likes to shake it!

Sergio: 5, 4, 3, 2, 1, stop shaking.

[They all look at the result in the test tube.]

Oscar: Ew! It's all milky!

Sergio: This is lovely.

Javier: I'm doing the soy sauce.

Yasmin: I'm doing the . . .

Sergio: I'm doing soap.

Oscar: I'm doing butter.

Javier: start the timer.

[Yasmin is shaking two test tubes at the same time. Javier is shaking one, Sergio is shaking one, Oscar is shaking one.]

[They all start laughing hysterically as they shake tubes.]

[Ms. Grey, who's been circulating, approaches this group.]

Ms. Grey: [smiling] Yasmin, set them straight!

Javier: You got some skills!

Yasmin: Shut up! [They are all still laughing hysterically.]

Yasmin: Y'all are so immature, and I'm laughing too.

Oscar: I'm relaxed over here.

Javier: I bet you are.

Oscar: Gotta go ham.

Sergio: Gotta go baloney.

Javier: Ahhh, my thumb!

Yasmin: Ok stop.

Javier: It's all white and foamy everywhere.

Sergio: You did a good job.

Ms. Grey: I don't even want to know.

Yasmin: They look like leche descompuesta.

Ms. Grey: Hmm?

Yasmin: Rotten Milk.

Sergio: They use leche descompuesta to make cheese and put it on bread, like the stuff that Mexicans make, it's like cheese and they put it on bread.

Yasmin: Hey guys, let's get to work, I wanna get a good grade. Oscar and Javier, get to work.

Javier [writing observations]: Yes, it looks like...you said it's crumbled.

[Sergio is still shaking his test tube.]

Oscar: Sergio! Fist pump! Yasmin you should write a book about this.

Yasmin: I should!

Oscar: Teenagers in class, what do they do?

The final theme shares examples of how the students in this study harness the talents and dreams they've illustrated towards science through their multidimensional navigations in multiple borderlands into calls for activism and social change to undo the legal, social, and educational obstacles that prevent them from fully realizing their dreams.

Activism and Social Change

Persistence as an Act of Activism

The five Latin@ students who are undocumented in this study may have strong aspirations and talents in science and nuanced, multidimensional capacities to negotiate many worlds simultaneously in order to succeed in the dominant spaces of school science. However, due to the state and national anti-immigrant laws currently in place, their ability to follow their trajectories is extremely limited. Despite this, the students continue to show profound drives to go to college, which they see as a pathway to their science aspirations, even while knowing the difficult legal barriers in place. For example, Crystal takes her persistence as a push back against laws that to her seem like a personal affront:

And they call me “illegal” but that doesn’t make them any better than me. I know what I can do and I know what limits me. Like that is a big limit but it’s not going to stop me completely. Because I know I can get far with hard work. I see me getting somewhere further in life than anybody thought it was possible for me getting, as a Latina. They probably think all Hispanics are dumb or all Hispanics are gangster. I’m not any of that. I know what I am. I’m at least proud of myself, because I’m getting somewhere and I’m getting my education. I at least know that I’m trying to get my personal best. And if they’re thinking “There’s no possible way for an undocumented Latina to go into science,” I would probably say, “Watch me.”

Silvia’s persistence is more pragmatic, given the realities that tuition for students who are undocumented in this state is inaccessible to immigrants in her financial situation. Nevertheless, like all the students in this study, they see the legal obstacles as speed bumps, not barricades:

I plan to save up money and then go to a community college or something, because I don’t think I can afford a 4-year university. I don’t know if I can get like some type of program that helps me pay for it or anything. Because since I’m not a legal person here, it’s gonna be hard. But I won’t give up on achieving my goal of what I want to be.

Common to several of the students, Silvia gives an example of how the persistence to follow their dreams in science is motivated, in part, precisely because they are undocumented, as if their perseverance is itself an act of protest against laws they feel are unjust. They recognize that they will have to work harder, and be even better than those “with papers,” but they claim this as a point of pride:

I’m actually putting more effort into everything because I don’t have papers. But as well like if, right now, if I still want to do what I want to do, I’m going to keep putting that much effort, even if I was documented or not because it’s something that I want to achieve, and it’s something that I really want to do. But having no papers means I have to work a lot harder than someone with papers. At points, I

think it's not fair because why do we have to work harder for something that we want but people that are documented don't have to work as hard as we do?

Pushing Against Racist Nativism

Juan echoes this persistence despite unjust laws and further recognizes and names what he feels is behind these laws: bigotry and racism. Many students name racism and nativism behind many of their struggles, but add that they don't let it keep them down. David observes "if you're not Caucasian in the United States you're lower than everybody else. And there's so many things out there, racism that, you know it's ignorant." Juan further illustrates this injustice:

[W]e come here to America just for a better life. So, to come here and to go through all the struggles you have to go through and then, to be deprived from rights, or to education, is messed up. Hispanics are called a lot of mean things, beaners or wetbacks and stuff. [...] But yeah, a lot of stereotypes, they stereotype a lot of people. And I guess you just grow up with it. You just get used to it and just let it be. Like it's not going to bother me. It's not going to affect me. It's not going to stop me from doing something, so why should I even pay attention to it?

Sergio also sees the connection between racist nativist narratives and how anti-immigrant policies form when he observes that "some people have been kind of brainwashed into thinking immigrants are bad, and because of immigrants there is so much money going into border patrol, and things like that, but I just think people are misinformed." Sergio further describes how these narratives "alienate" them and connects this to historic acts of racism in the U.S.:

If you're Latino here, they look at you like 'why is he here?' Most of us are kind of alienated because they always see—again it goes back to the old problem of the skin tone. They'll usually be like, 'oh what's this guy doing here, you can tell he's

not from here.’ The first thing they always do is ask, ‘hey are you legal?’ [...] People on the street, you can just hear them whispering, ‘oh look at that guy.’ I don’t think it’s right. That’s what they used to do to the African-Americans. Now I think it’s kind of a vicious cycle that they’re doing. They go from race to race [...] They would treat them [African-Americans] poorly, and always try to exclude them from certain things. They would keep them from attending college, and segregate them in schools. That’s kind of what they do to us.

Juan brings up many points that push back against the “othering” that deems him and immigrants like him to be somehow “not American”:

I’m not going to let their bigotry stop me. I mean, some children are brought here when they’re small. So they grow up and they become, even though they’re not American citizens, they grow up as one. Because basically they have, they follow the traditions, they talk their language. Sometimes they even talk in more than what their natural—I mean the language they were born in. So for them to be denied something they grew up with, and also stopping them from their future, is pretty rough. And I’m one of the people that would like the DREAM Act to happen.

A Call for the DREAM Act

In addition to Juan, all five of the students support and speak of the need for legislative change, such as the DREAM Act, to discontinue the laws that currently bar them from equal access to higher education and many other rights. Often, the students use shorthand, calling the DREAM Act any legislation that would allow them equal access to college through national passing of the DREAM Act, and state-level passing of tuition equity two different things. What comes through, however, is that the students want some kind of legislation that will make it possible for them to go to college and have a future similar to their peers who have papers. Crystal, for example, confuses the national DREAM Act with state tuition equity (similar to state-level DREAM Acts that have been

passed in several other states, discussed later), but also realizes that the DREAM Act as it has been proposed is not enough to stem to injustices immigrants who are undocumented face, and that more is needed:

And I know they've been trying to pass the DREAM Act where basically we're going to be able to get into college and it's just going to help out the students but what's going to happen after that? They need to make a lot of follow-up after the DREAM Act, because it's just for students. What happens when you graduate? It's very limited, because it's not for everybody.

Sergio makes an entreaty for the DREAM Act based on an appeal to interest convergence. This aspect of interest convergence will be discussed further in this chapter, among the implications and recommendations from this study. Sergio voices his argument for the DREAM Act in these terms:

I feel that the DREAM Act not only would help us, but it would also help the government, because a lot of us just want a chance, a chance to get the education that we really deserve, and with that education we'd put it towards careers, and jobs. After a while, we would be contributing, so the Government would be making money. So that's why I mean there's really no reason why they shouldn't approve it, and there are a lot of Hispanics, a huge population. Most of us have to escape somewhere, so we come here. The Land of Opportunity is what they call it, so, that's what we're looking—We're looking for that, too.

To contrast with some of the students' appeals for legislation using interest convergence arguments, Crystal pushes back against this kind of begging and puts the moral decision back into the hands of those who wield power unjustly. These contrasting arguments (interest convergence vs. doing what's right) will be discussed later in this chapter regarding implications and recommendations. Crystal puts forth the moral argument succinctly:

I mean if they want to be ignorant then that's on them. I'm not going to sit there and be like "Oh well, just pay attention, listen to them, do whatever they say." I'm not going to sit there and cry out to them. It's up to them if they want to be ignorant, if they want to give us an opportunity. But even if they want to be ignorant, that doesn't mean we're going to stop trying.

Sergio's persistence is predicated on the hope that legislation which would remove the current educational and career barriers will soon pass, and he wrestles with this hope while also voicing his doubts and despair that these laws may not pass:

So I keep trying to better myself and hope for some change to our situation because it would open new doors. [...] The DREAM Act would also impulse me to kind of *seguir adelante* [keep moving forward] and keep working on that. I really lose hope because I think if you go for an extended period of time, hope is like a candle and it would eventually burn out. So if there is even a glimmer of hope, then I know I would really keep at it, and always try to get more interested in the things that I love doing, especially leaning toward mechatronics or even cooking, things that would help me in my future. [...] So I'm hoping that there's a change, and that someday they will give us the opportunity to maybe attend college or university. [...] A change in the process, just a hope that something happens.

This level of hope mixed with doubt permeates many of the students; they worry about whether they will have the future they want, and these thoughts overshadow their hopes, even at such young ages. And yet, they persevere nonetheless. Crystal, for example, says:

I don't have that much hope. I'm not very over-confident, because I do believe if you put a lot of hope in something and it doesn't happen you're just going to let yourself down. So just whatever happens, it just happens. Even though I don't have a lot of hope, I do try to push myself and get somewhere.

The Struggle of Being “Undocumented”

For many of the students, this hope to go to college and achieve their dreams in science is deeply connected with a discourse of “being somebody.” It implies that if laws stay as they are, and they remain undocumented, they will be “nobody.” Silvia illustrates this when discussing her sister, who was born in the U.S.: “So it’s like it’s different since she’s the person that’s documented and can actually be somebody and be able to go to college without having to like save up money or anything like that.”

Many of the students voice the specific struggles they endure as a result of being undocumented. These struggles are voiced so that others may understand what they are going through, which is usually kept hidden, especially from educators. Sergio, for example, voices what many of the students experience on a daily basis—an ongoing fear of deportation: “And that’s why the idea of deportation really scares me because if they do send us back, it’s not safe for us.” It is also not feasible for David to return to war-torn El Salvador, and Silvia’s family also fears for their lives in returning:

And she said that one of my uncles was shot 22 times when he was coming out of his house, and died. And my mom was like “it’s not good.” So she came here, knowing if they [those that shot my uncle] knew about us and everything, they would try and do something against us since we were the youngest. So we came here because of that reason.

Silvia also points out the difficulty of being undocumented and separated from the rest of their family, being unable to visit them due to the dangers involved in coming back:

“Lately, we use Skype to talk. That’s the best we can do to see them because we can’t go back.” Silvia further shows the many barriers she and her family face:

They won't let us have a decent job. They don't basically let us apply for any type of jobs, or they don't let us get into colleges just because we don't have—we're not documented or anything. So it's harder for us than for them. The same goes for driving or anything else basically. Because driving, if you're not documented, you can't have a license. And if you don't have a license, you can't have a car. You can't have the insurance for it. So if you don't have the insurance, there's no point in getting a car since you don't have a license. And majority of the time, you get stopped. And either you get a ticket, a DWI, or a different cost. And so all this causes people to give up on their dreams and be like "okay, I can't do this. Then why am I here?" So basically, it brings them down as well.

Sergio voices how neither of his sisters could go to college "because she didn't have papers [...] it just couldn't happen, because of the out-of-state tuition." One sister was going to be a nurse and the other a biochemical engineer, but could not afford the out-of-state tuition. Similarly, Silvia's sister had a scholarship to go to college, and had it taken away when it was discovered she was undocumented. Sergio's sisters also struggle with health issues which they cannot afford to treat because of denial of health insurance due to their undocumented status. This is an issue Silvia also deals with, after her mother's seizures, since immigrants who are undocumented are not allowed public health insurance, and employers rarely offer benefits to workers who are undocumented. The effects on the children of parents who are undocumented are also often overlooked, with parents unable to get basic healthcare, unable to drive their children where they need to go (or if so, they do so at great risk), and unable to find employment that will provide adequately for their families. As Juan points out, "like here it's very difficult to get a job. It's very difficult to get a job if you don't have a work permit."

Sergio is also troubled by the often-heard dominant narrative to "just get in line and do it the right way," and exposes it as a myth. His mother tried and died before her

attempt was processed. Because she was the one who applied for her children, when she died, that process came to a halt. Now Sergio and his family are left without recourse:

And they don't understand that naturalization here is a long process. I believe that right now they are only accepting all of the applications before 2003. It takes a lot of years, and they still process it, and most of the time you'll get denied. Like I know my parents put in the application in like the '90s, and my mom just barely got accepted for her residency sometime last year, but by the time it got here, she was dead.

Crystal, like several of the students in this study, have even considered pursuing their dreams by going to Mexico or Spain rather than stay in the U.S., given its prohibitive laws: "And if it wasn't for these laws I wouldn't ever consider having to leave to study in Spain or Mexico. I would stay here, major in biology." This highlights the talent that is being lost because of the anti-immigrant policies in the U.S. Crystal illustrates this loss through a story of a friend:

"No." He's like, "I don't wanna go to a bummy-ass school. I don't wanna go somewhere where like what I know, and my knowledge, and what I can do isn't being recognized; not just going to a school because I don't have papers, you know? Or I don't have the money for it." Because he's incredibly smart, but I mean—well, I told him it was up to his decision, but, so he's leaving. He's going to Peru.

Crystal points out the hypocrisy of the anti-immigrant rhetoric and the injustice of U.S. policies that have put her, and her friend, in the position they are in: "If we're coming over here to get a future and a better education, they're providing it, but they don't want us here. They're giving us education and then they're pushing us out. That doesn't make any sense. How is that in any way helping them?"

Despite all these barriers due to their undocumented status, what is true for all these students is that they hope and persevere regardless. They are aware that not all students who are undocumented do so: many give in to their despair, as Crystal observes:

I have a lot of friends that feel like, oh, well, there's no point in, you know, acting and being educated. We can't get anywhere, what's the point? And I mean, I've actually said this myself, why be here in a place, in a country that it does have so much, so many opportunities, but I can't access those because of my immigration status. 'Cause I wasn't born here. And I mean, I have no fault in that. I came here when I was nine months old. [...] And a lot of people have given up hope. Like if you go through the grade book, or if you just talk to them, they don't care. They will try to find easy money, they—most of them, I have a feeling that they're depressed. Because they are doing so many things that's not even, like, that's hurting them. And they don't even care. A lot of them have dropped out.

Maintaining Hope

Yet the students in this study hold onto hope in spite of the legal issues and barriers that have dissuaded many of their peers. David's hope is especially poignant:

I've talked to my parents about the legal issues and problems with going to college. You know it might sound kind of rude on my part, but when they start talking about that, I tell them that I don't want to hear it. It's not because I'm closed about it, but it's because I've seen things all over the place. Actually there's this poster about this one guy—I don't remember—I think it was Roosevelt. He said “never, ever, ever give up.”

What keeps many of the students excelling in school besides their desire to “prove” to naysayers that they can, despite deficit narratives, is that they know that the only possibility to be able to afford college is to get scholarships, since they must otherwise pay exorbitant out-of-state tuition, and are denied access to federal financial aid. Crystal describes the complexities involved:

And the state tuition is ridiculous, and it's not always so simple as just "go to a private school." That's really expensive, too. I know that you have to pay like at least \$10,000 for one semester. And we can't get financial aid. So all that's left is: study really, really, really hard and get a scholarship. And even then, it's gotta be a full scholarship because we can't get any loans. And my thing is, who is actually gonna give us that at a private school? That's the main if. And what if you want to be a doctor? Then what? I try applying for scholarships, like there was this program that came on the tv like, scholarships for Latinos. I was filling it out, and like doing my own thing so I could start applying. But the only thing was, I needed a social security number. And I didn't have it. So I couldn't apply for that.

Despite these complexities and uncertainties, the students still dream of getting a scholarship, complete with big plans of what they would do if they managed to get a scholarship big enough to cover their tuition, as in Sergio's case:

If I could get that scholarship, first I would try to concentrate on my studies first because after all, a scholarship is a scholarship, but there's no guarantee, so take advantage of the scholarship definitely, and apply to maybe a university that I really like, and focus on my career first.

This idealistic hope towards scholarships and college despite all odds is a common thread throughout all the students, and is a dream they often discuss together, sharing the latest scholarship information with each other, and meeting with Ms. Grey after school for help in completing scholarship applications and essays. Often, when these students congregate together, their hope, despite the odds, becomes infectious, sharing a dialogue of possibility, as Silvia shares directly to readers of her *testimonio*:

So I say to those that are undocumented: never give up on your dreams. You can get scholarships or anything else you want. If you just have motivation, passion in what you really wanna do, then you'll succeed in it.

Juan, as well, has no doubts he will go to college. For him, it's just a matter of working hard enough in school to get scholarships:

I'm shooting just to go to a four-year college and then, later on, keep going. I might have to put a lot of effort into, put more effort into school. So I'm trying to get a scholarship. I mean try to get at least some scholarships. And right now, I don't know what college I want to go to right now, but I'm definitely going to college. [...] That's why I'm trying my best to get the highest grades I can, so maybe they can give me some scholarships.

Science Teacher Influence and the Speaking of Critical Truths

The can-do attitude and hope the students display is likely inspired in part by Ms. Grey, who understands the issues they face and meets with them after school to find possibilities for them to overcome some of the barriers. Ms. Grey plays a prominent role in these students' attitudes and success. Ms. Grey shares her concern, and what she does to help and encourage them, in her interview:

They're very, what we consider high flyers. They do well academically, but they'll tell you sometimes, they shut down. I started looking online to see what could be done about it, I just hate that so many doors are closed for them, or they feel like all the doors are closed for them. So I tell the kids "I know a kid personally who went to a private school, and he had a full ride." And that gives them hope. So I say come in and see me; we'll fill out some applications and get your stuff ready to go. And then just from word of mouth they'll tell other people, you know, "Ms. Grey sat down with me and helped me fill out my applications" and then kids that I don't even know start coming. But I don't turn them away. I can see some of them, you tell them you have the opportunity to do something, they're like "really?" They don't know necessarily, especially a lot of the undocumented students. When you tell them that they can go to college and they can do these things that in their minds they've been told or they believe that they can't, they're like "how do you know that?" But they trust me. So when I say those things, they start to listen.

However, Ms. Grey is also aware of the mixed messages teachers often send to students regarding their possibilities, and the unfairness of it: “And we’ve trained them, if you work hard, if you do well in school, you know, if you’re kind to people, you can be anything you want to be. We tell them that, until your senior year in high school, and that’s not fair.” Crystal also has picked up on this myth of meritocracy narrative that teachers often feed their students, and critically questions it:

They push you and they say, “oh you should focus on your studies so you can be somewhere in life, go to college, be something, make a change.” How can we make a change if they’re not letting us? Isn’t that what everybody here in the school system and then the government tries to teach you? “Do good in school, go to college, be something in life!” But at the same time [...] they are the ones trying to limit you. The schools, they teach you, but the schools also give you a limited amount of education. The government is like “Yeah, go for education. Everybody try to get a good future.” Then they turn around and say, “Except the illegal immigrants that are here.” They [...] don’t realize that we are more limited than most people here. [...] We are so limited to it and we can’t just completely go out there and try to be successful because there are just a whole bunch of closed doors that are just stopping us from being that “somebody” that they want us to be.

Crystal’s critical understandings of the double standards also stem from her feelings that those in power do not really care about her and her education: “So no matter how hard you try, it still feels like nobody cares.” This comes to light across all the students’ *testimonios* when it comes to the condition of their school. It’s the consensus across the students that their education, and specifically their science education, is suffering because of the inequity between what they are provided at their school and what more affluent schools with a predominantly White population have in terms of science materials. They feel that the reputation of the school has something to do with its neglect. Crystal, for example, states:

I think that Jones, overall, lacks materials. [...] I think another thing is that nobody takes an interest in us because they think the students won't make any use of the money. If we get those laboratories, people would destroy it. People would just mess with everything. Or like textbooks, people are like, "Textbooks? What are textbooks?" We don't even have textbooks. They're old and torn apart. And they have like, "West Side" written in the back or "East Side" or whatever. It's ridiculous. And I think that's why nobody wants to buy us new textbooks. I met somebody this weekend and she was like, "What school do you go to?" I was like, "Jones," and she literally was just like: "I feel so sorry for you." They were like "Oh you're from Jones? Eew. That's the worst thing you could come from."

David echoes this and specifically highlights the loss to his science education because of the inequities between Jones and predominantly White schools:

I feel like this school, overall, doesn't have enough value for science. So, we don't get to do as much because the school doesn't provide what we need. And I'm thinking –I believe that there's schools out there that get way more than we do, and I think that's unfair for us because, you know, I love science. [...] And I would like to learn more about it, but then teachers can't do as much because they have to pay for our experiments [...] I feel like rich neighborhoods just get more than we do—excuse me—because they've gotten better scores before. But like now, you know, I'm like, "You should provide us the same that you provide them. Maybe we'd do at the same level that they do." [...] We need some help here because if you were to give us help, I bet a lot of kids would be interested and they'll wanna, you know, follow that path—career in science.

David specifically implicates racism as a factor in the disparities between his access to science and the access given to other predominantly White affluent schools:

[C]ertain schools have better science programs than others because simply of who's in charge. And that's when racism comes in. Those White schools are the ones who get all the money for research, for science, for sports, for this and that. But schools that, just because here they have some bad scores, they're like, "no, taking them out. They're not worth our money. No." [...] And it's all simply because of where the parents and the school stands itself. If you go to [the White high school], that's the rich side of town. We're the poor side of town. [...] Why wouldn't you help people who don't have as much money? [...] Because those who are rich, they have the money to provide for the students. But those who

don't have as much money, they don't have it and they're not giving it to them. They're giving it to the rich who already have it, and they're just getting more.

Juan also notes that his experience learning science could be greater if it wasn't for the inequities between Jones and other schools:

I wish that we could have done more in biology like dissect more animals, look at more nature, but we didn't get to do that. [...] And I guess that like the school doesn't fund that much, so sometimes we lose out on opportunities, too. We can never be equal to the other schools because we don't have the same materials. Other schools are better funded. So we lack the materials to catch up to them. I mean—we want to do well, we want to make a change, just in general, in the school. But without the funds or the materials the other schools have, it's a barrier. I have friends that go to those other schools, the more White schools, and they're telling me that they have iPads and stuff they do their work on. And I don't want to say it's because of race, but I guess it's more because of previous scores, [...] they'll fund more so they can improve, improve, improve and just give us less, because of our scores and grades.

The students in this study are aware that their school gets belittled due to the school's overall test score performance. This heavy emphasis on test scores is drilled into them everywhere they go. The teachers push for it; there are posters lining every hallway that emphasize getting a 70% or better on their End of Course exams. The school even has test pep rallies to encourage the students to perform on the tests. This overemphasis on test scores is not lost on David, who articulates the circular problem between emphasizing test scores, denying the students quality hands-on science, and the lack of concern for the students that Crystal also voiced previously:

I think they [students at Jones] could do so much with their life if they had the support. But they don't get it. They don't because the government sees it as we give it to the rich kids because they're the ones who apparently are gonna make our country better. It's not like that. They had everything. [...] Students would do

so much better if people cared, if people gave them money, if people support them, showed them what, you know science or math or everything was about, those kids would get interested. But they don't. Instead they just keep taking money and support away, and they keep saying, well you have to improve your test scores. Test scores—and it's all about test scores. And it's like "well how are you gonna do good on a test when you don't have labs and you don't have hands-on, you don't have anything so you can learn besides write it down in a book?"

Ms. Grey does not hide that the outside world has put the students in Jones in this position, and honestly points out the discrepancies to them, and has told them outright "They have thrown you away, and I'm here to scoop you up and brush off the dirt and keep you moving." With this, the complexity and nuance of hope and despair, aspiration and critical consciousness, is evident among these students, as it is openly discussed by their science teacher. In fact, it is evident in the students' testimonios and in the examples I have provided from my participant observation in her classroom, that Ms. Grey has had a profound affect on the students' engagement with science and with how they process their relationship with schooling and their own multifaceted identities. She inspires their love of science as well as their self-confidence in being able to achieve in school while still being aware of the unique challenges they face. She encourages their feeling of being "at ease" enough to enter dominant worlds of science and schooling that make it possible, as Lugones (2003) stipulates, to navigate into those dominant spaces and make them their own. It is important to note that these students agentic acts of pursuing trajectories in science and speaking out against injustices is strongly tied to their school community of which their teacher, Ms. Grey, and also Mr. Aaron, play a very prominent role. Returning to the initial question that first led me to wonder why the Latin@ graduation rate at Jones High is so unusually high, at above 90%, it is important to consider that Ms. Grey has

taught many of the Latin@ students in the school, and those that she has not directly taught, can often be found hanging out in her classroom after school, whether they've had her as a teacher or not. Other reasons the students cited in addition to Ms. Grey's influence, for why the graduation rate might be so high include the sense of community and support they feel among each other as Latin@ and immigrant students in the school; the aspect of Latin@ culture that often makes parents very strict in demanding school achieving from their children; and the fact that since many Latin@s in the school are undocumented, school success through good grades is the only way they can afford to go to college – by competing for scholarships.

The students push back against the injustices that Ms. Grey points out above in terms of having thrown them away, and they also push against the mindset that they and their school are less than more affluent schools, in many personal and collective ways through their science performance and voiced aspirations. But one act of profound resistance to the deficit mentalities that have led to the inequities these students articulate is seen in the garden they established, as Juan tells about in more detail:

If you tell people you go to Jones, it's like the worst thing you could do. [...] But here we are basically growing crops and helping the homeless. What are they doing? [...] And I just truly believe that we're better than what people think we are. We, the SGE group, helped with the irrigation system, how we had to build a pipe, and put it underneath. I mean, just by building the garden, we're being recognized. We're changing little by little our—the reputation Jones has. And also, some colleges have come over and we have introduced them to the garden, and they were impressed with our work. They probably will start funding us too, I think. [...] And we're helping out the community. [...] We're also part of Energy Wise and we go out—like after school, we stay after school and turn off all the lights in the school.

David continues this resistance to the deficit narratives associated with Jones, by pointing out:

We're one of the first schools to have a garden. We're becoming a green school. We're doing a lot of things. There's so many things going on at Jones. There's kids that help the community. There's kids that do much for the community, but people don't look at that. Automatically, when you say Jones, we're already bad, and I'm like, "Don't judge because of what people did before. Judge us because of what we are now." [...] We started the garden and we're the first Title One high school in the state to have a community garden. And it was a group effort, and, you know, the thing was that they put us down so much, but out there, you saw everything from Hispanics to African Americans working on it. [...] If you think you're really bad, but you're helping to build a garden, you're not so bad after all, you know? And people just need to look at that. Appreciate what we do.

David realizes, however, that no matter how much they do for the community and in so many other ways, the true measure of their worth as students and as a school comes down to test scores, according to today's culture of school power. David points out that even when they succeed in regards to test scores, their reputation still makes others question their abilities:

But, you know, it has to be an effort from everyone, and it will have to be everyone coming together to make better scores. And I mean—because I heard it from one of the administrators here that I think it was last year when the biology grades went from a 50 something to a 76 percent passing rate. And they came from downtown, telling Jones they had cheated—that they had done something wrong. That they didn't—it wasn't true that they passed just because they passed. [...] And, you know, that makes you think. So, just because we're improving, they think we're cheating? We're doing something wrong? And yet here we are helping our community and helping people every day.

Students showed in this theme that their critical nature and the ways their words and intentions become a form of activism, as they call for social change on many levels:

change of the legal barriers that keep them from achieving their dreams; change of the school inequities that limit the quality of their science education; and change of the deficit perspectives that underestimate what they are capable of. The three themes discussed here are meant to establish a progressional argument that shows, first, the talents, aspirations, and capacities these students possess in science. Second, how these students negotiate many worlds and cross many borders in ways that allow them to be successful in science while retaining their cultural roots. And this third theme establishes how the students call for social change on several fronts so that they can better realize their dreams in science, and so that social, educational, and legal injustices will be remedied. Now that the themes have been presented and analyzed as a co-construction with the students' own voices and intentions, the following section will discuss how the research questions of the study have been addressed by the findings.

Addressing the Research Questions

The students' *testimonios* have now been presented, as well as the themes, which were co-constructed between the researcher and the students. Further, this dissertation has shared an analysis of how the themes are supported through the students' words, crystallized with field notes from participant observation and their teachers' perceptions from their interviews. Using this analysis and the themes that emerged from the students and their *testimonios*, I now discuss the findings in light of the study's research questions. A summary of the findings is included in Table 7 as a crosswalk with the study's research questions, and a more detailed discussion devoted to each research question follows.

Table 7. Research Question/Findings Crosswalk

Research Question	Findings that Address the RQ
<p><u>Overarching RQ:</u> How do the <i>testimonios</i> of these high-achieving Latin@ high school science students who are undocumented—which tell of their lived realities as students, as undocumented, and as aspiring scientists—inform conversations on equity in science education; sociopolitical issues that affect science in the U.S.; and access to futures in science for Latin@ students who are undocumented?</p>	<p>The students’ <i>testimonios</i> revealed students enjoying and succeeding in school science and informal science settings, aspiring to do science in their futures, and struggling with and persevering against legal and educational barriers. The lived realities uncovered in the students’ <i>testimonios</i> advocate for the need for equitable access to science resources in under-resourced schools; the need for changes in national and state laws that limit access to these students’ ability to attend college and follow rigorous science trajectories; a need to counter deficit narratives that underestimate and denigrate these students’ worth; and greater understandings and support from science educators towards the specific issues and negotiations that Latin@ students who are undocumented navigate within and beyond their science classrooms and informal science settings.</p>
<p><u>Subquestion #1</u> How do these students negotiate the borders and worlds of school, science, family, immigration status, and other sociopolitical educational realities such as access to college and careers in STEM given their undocumented status?</p>	<p>The students in this study travel across cultural borders and inhabit many worlds simultaneously. Their ability to thrive in between many worlds invokes Anzaldúan theories of what it means to live in <i>Nepantla</i>, and maintain a <i>Mestiz@ consciousness</i>. Their capacities to travel in between the worlds of school science, informal and home science, their Latin@ cultures, teen/pop culture, political/legal worlds, etc. are evidence of the students feelings of being “at ease” in many of these worlds, meeting the four tenets of world travelling as set forth by Lugones. They are able to lovingly play within and between these many worlds, in ways that allow them to survive, and be competent, within these many worlds simultaneously, in a complex and nuanced manner.</p>

Table 7. (Cont.)

Research Question	Findings that Address the RQ
<p><u>Subquestion #2</u> How do these students engage and counter master narratives about their abilities and futures in science?</p>	<p>The students in this study counter master narratives that underestimate and try to limit their abilities and futures in science by embracing a dialogue and plan of perseverance to “prove” these deficit narratives wrong. They embrace the norms of schooling and excel in school science, and work together to develop a community garden and other extracurricular science activities, exemplifying their scientific dedication. Their ability to lovingly play with the many worlds they traverse, while traveling competently into the school culture of power is predicated by their desire to access their aspirations for science through a college education, which at the moment is best attainable through good grades leading to scholarships. While they struggle with the legal limits of their undocumented status, they continually illustrate their strength and resilience to pursue science despite them.</p>
<p><u>Subquestion #3</u> What can the voices and knowledges of these students contribute to the increasingly global economic and scientific future?</p>	<p>These students’ first-person lived realities, as told through their <i>testimonios</i>, reveal their deep understanding (What Anzaldúa calls <i>Facultad</i>) of the structures that limit their equitable access to a future in science. Given that the future of the U.S. would benefit greatly from the economic and scientific contributions of Latin@s and specifically students with the drive and talents of these, the students make two arguments: the first, that U.S. resources are going to waste by continuing to legally prohibit these students from achieving their dreams in science. The second, is that it is morally unjust to continue to deny these students access to their scientific aspirations, given that they were all brought here as children and culturally “American” in many ways, and more importantly they are humans with the same dreams and passions that have always embodied the “American Dream.”</p>

Overarching Research Question

This section addresses the overarching research question: *How do the testimonios of these high-achieving Latin@ high school science students who are undocumented—which tell of their lived realities as students, as undocumented, and as aspiring scientists—inform conversations on equity in science education; sociopolitical issues that affect science in the U.S.; and access to futures in science for Latin@ students who are undocumented?* Each of the three areas of equity in science education, sociopolitical issues that affect science, and access to futures in science will be addressed. The discussion surrounding this question emerges from the students' *testimonios* and the analysis of their *testimonios*, but also on crystallized information from teacher interviews, participant observations, and the researcher's *cultural intuition*, which “extends one’s personal experience to include collective experience and community memory, and points to the importance of participants’ engaging in the analysis of data” (Delgado Bernal, 1998, pp. 563–564). This question, and all subquestions below, are ultimately answered by the intentions of the participants towards having readers become aware of the issues they bring forth, and the ways these issues can be best addressed for the participants’ benefit. This is in keeping with Pizarro’s (1999) five phases of Chican@ social justice research which were adhered to in this study. This discussion is representative of the fifth and final stage, “The ‘product’ and empowerment efforts,” which ensures that the focus of the study is informed by the participants’ desires for social and political change.

When considering the conversation on equity in science education, a major concern among many science education researchers are the “leaky pipeline” issues

(Chapa & De La Rosa, 2006; Gandara, 2006) that see many students of color, students of low SES, and immigrant students disaffiliating with science, with Latin@s being the most underrepresented of all racial/ethnic groups in science (Matyas et al., 2012). It should also be noted that a large percentage of the growing Latin@ population in the U.S. is either directly or indirectly affected by immigration issues, and a significant number of Latin@ immigrants who are undocumented populate many of our K-12 schools and science classrooms, yet the struggles and stories of DREAMers have rarely been explicitly examined in the science education literature. Even in the larger educational literature, most of the stories of the experiences of Latin@ immigrants who are undocumented come from students in college, high school seniors, or older adults (e.g., Huber, 2009a, 2010; J. Lopez, 2010; Murillo, 2002; Perez, 2009), and not ninth- and 10th-grade high school students immersed in formal and informal science education settings. Uncovering what Latin@ students who are undocumented in ninth- and 10th-grade high school science settings, both in their formal science classrooms and in their informal afterschool and free-time science pursuits, is valuable insight into this population that otherwise has been rarely examined in the science education literature.

The students in this study raise many points through the realities they share in their *testimonios* that can inform the concerns regarding under-representation and inequity for students like them in science educational settings. Three of the main points that these students collectively contribute through their *testimonios* are:

1. The awareness of deficit perspectives that underestimate and denigrate what these students are capable of in formal and informal science education

settings, and the desire of these students to “prove” those deficit narratives “wrong” through their current and future science-related endeavors.

2. The desire to learn, excel in, and pursue rigorous science trajectories already exists in these students. The students feel that science educators also must be aware of and care about the sociopolitical and legal barriers that keep these students from achieving their dreams in science, which go beyond instilling desire to pursue science or understand scientific content.
3. The lack of equitable access to science resources in these students’ schools, which some students attribute to race and class discrimination, keep these science-oriented students from the quality of science education that they desire and deserve, which limits their exposure and readiness for college-level science and science careers.

First, the students name several master narratives that they have perceived, rife with deficit perspectives about their abilities in science that upset them such as there being “no possible way” for Latin@s who are undocumented to go into science; that science is reserved for Whites or African Americans; that people don’t think that Latin@s can be scientists so they don’t support them or think their school is worth investing resources into; doubting that Latin@s can work hard and get straight A’s; that if they do excel in formal science measures (Biology EOC scores) they must be cheating; and as David brings up, that if they are in ESL they cannot succeed in rigorous science courses. Consistently, the students in this study voice that they feel compelled to push back on these deficit narratives about their abilities in science, to spite these underestimations and

prove them wrong. As Juan voices, “I’m going to prove to them that I can get this far, and I’m going to prove to them that I can get even farther. I have to just keep focused and I’ll get there.” C. Suárez-Orozco and Suárez-Orozco (1995) similarly observed in their large-scale study of 189 Latin@ immigrant adolescents where many of the students attribute their success in school and dedication to learning in order to push back on the psychologically damaging deficit narratives in the public discourse, depicting these students’ achievement in dominant school spaces as an act of resistance. M. Suárez-Orozco (1989) also noted that a large motivator for these students desire to “prove” themselves comes from their Latin@ cultural value of familism, where students attributed their persistence in schooling to showing gratitude to their families for all they sacrificed in having to leave their homelands.

The students in this study do not just want to succeed in school, in general. They want to succeed in science, specifically—both in the present, because it is “challenging,” especially at the AP/IB levels to which they aspire, and in their futures, because they feel called to “become somebody” in various scientific careers. This trend has recently been noticed among immigrant populations to the U.S. and their increased aspirations in science compared to the general population (Lung, Potvin, Sonnert, & Sadler, 2012). It’s important to note that the larger study that this dissertation draws from found that of the nine Latin@ students who are undocumented who participated in this study, eight of them had aspirations in science (five of which are included in this dissertation), even though the initial study’s recruitment did not consider future science aspirations as necessary to participate in the study. It has also been my personal experience working

with activist youth who are undocumented, across many contexts, that a larger amount than would be expected of the average population also aspire to become doctors, scientists, and engineers. More large scale studies examining this larger trend of aspiring towards science among specifically Latin@ immigrants who are undocumented would be welcome. But as of this study, it is important to note that these students who are undocumented are motivated to excel and pursue *science* specifically, to disprove deficit narratives about their abilities. Knowledge of these desires among these students, and the underlying forces that motivate them, are important facets that science educators should be aware of regarding these students that can lead to a more informed understanding of factors involving Latin@ and immigrant students in our science classrooms, especially those that are high-achieving and science-oriented.

This leads to the second important point that can inform the conversation on equity in science education: given that these students are already strongly science-oriented and high-achieving in the ways that school science rewards “success,” there is another factor keeping these students from following through on their long-term scientific aspirations. This factor may also dissuade some otherwise talented Latin@ immigrant students from continuing to excel and may “give up” as some of the participants noted they’ve observed of their peers. This factor has to do with the legal and social barriers they face due to their undocumented status. It is important, then, for science educators to recognize that a focus on effective science content delivery, or methods for compelling students of color to want to follow science trajectories, is incomplete when it comes to Latin@ science students who are undocumented. In fact, for these particular students in

this study, the need to encourage them to excel in science or pursue it in their future is mentioned by the students to a lesser degree than their immigration problems and their wrestling with deficit narratives. These students benefit from, as is evident in the understanding and actions of their science teacher, Ms. Grey, their science teacher's knowing and exhibiting knowledge of their legal and social barriers, and helping them find ways to overcome these barriers by acting as an ally. Without knowledge of these additional obstacles, some science educators may look at these students' success in formal school science and assessments, as well as their enthusiastic involvement in informal science activities, and feel that these students' futures in science are a "sure thing." As R. Gutiérrez (2010) has advocated in terms of arguing that math education researchers and practitioners must consider underlying sociopolitical issues that affect their students, it is also important for science educators and science education researchers to understand and consider the specific sociopolitical issues that prevent students like those in this study from achieving their science-related dreams, even when all other indicators seem like their futures are ensured. More on sociopolitical considerations will be discussed later in this chapter.

Finally, the third point that the students raise that is important to the conversation in equity in science education is the inequitable science resources in their schools. Though this issue has been addressed in previous science education literature (e.g., Calabrese Barton et al., 2008; Tate, 2001; Varelas, Kane, Tucker-Raymond, & Pappas, 2012), regarding inequitable access to science in schools that serve students of color, schools in urban areas, and schools in low-income communities, these students echo the

concerns surrounding this issue from the first-person perspectives of ninth- and 10th-grade Latin@ high school students who are undocumented. The students in this study observe that the overemphasis on test scores and inequitable attention to White, affluent populations disenfranchises them and limits their access to the kinds of science resources, activities, and learning that they desire to have, and know will serve them well towards their future dreams for a science career. They point out the circular injustice that occurs when they are denied access to quality science resources and engaging science instruction, which then limits their ability to perform well on science assessments, hence marginalizing their school as low-performing, which then denies them more access to science resources and engaging science instruction, in a feedback loop. The students cite how they have inadequate access to good textbooks, let alone lab materials, and what little experimental materials they do have, their science teachers must purchase themselves. During my participant observation, I noticed their science classrooms had sinks that were taped off and non-functioning, and had been that way for years; cupboards ripped off at the hinges with shelves that had fallen and graffiti and tagging all over the desks and cupboards; rooms with large desks bolted to the floor with little room to move and do hands-on activities; and very few lab materials, many of which were broken. The few remaining must be shared among six to eight students in each class period. It's important to emphasize the level of persistence towards doing science that exists in these students despite all of this, in addition to all the legal and social barriers they already face as undocumented. They also contend with a school environment that does not have the resources to be the most engaging and progressive space to expose

these students to all that science has to offer them. And yet, these students remain resolute in their desire to pursue a scientific trajectory, and this is significant. They want to start gardens, form STEM clubs with a multicultural focus, make robots, attend forensic science internships, etc. It is also important to note how the students push back against the inequities that denigrate their school and limit the school's "worthiness" to acquire science resources by proclaiming the school's validity in terms of what the students are doing in their afterschool STEM club, especially when it comes to the garden; they are the only high school in the district with a school garden, and the only Title I high school in the state with a garden. This garden is a point of pride and holds a deep sense of ownership for these students, further embraced by their pride in the multicultural narratives surrounding the garden's conception.

Relating to the issues the students raise about the inequitable access to science in their schools, along with the deficit perspectives they are exposed to in the public discourse, is the fact that some of the students feel that the larger community doesn't "care" about them (this is excluding Ms. Grey and Mr. Aaron, who they recognize and voice their caring about them). David mentions in his *testimonio* that he feels that if more people would take an interest in Latin@ students and took the time to "show them" what is possible in science, more Latin@s would be interested in pursuing science. This leads to a consideration of the conversation surrounding the sociopolitical issues that affect science in the U.S. Whites comprise a major percentage of those in STEM fields in the U.S., with Latin@s as the most underrepresented group of all racial/ethnic groups, given the disparity between their sizable representation in the U.S. population (nearing 17%),

and their comparatively small representation in STEM fields (less than 4%). David calls for a concerted effort by all stakeholders to pay attention and encourage Latin@s to pursue science, as he points out: “I see so many cigarettes commercials out there, but you don’t see commercials about becoming a scientist. When you go onto the internet you see about the new drug that’s coming out, but you don’t see that you can be the scientist behind it.” David and the other students bring up the lack of caring in this sense, and also in the sense that they feel that many in society are ignorant of the issues they struggle with both on a legal and on a social level relating to their undocumented status. Their frustration with what they perceive as a lack of knowledge to their conditions emerges in a somewhat sarcastic but poignant example put forth by Crystal:

But Americans, you can’t really convince them. We should make a slideshow of our lives now, and then, our lives if we don’t go to college later. Like Juan would have a moustache and he would have a taco stand, or a soccer team because he’ll have like ten kids. He’d be cleaning up in his kids’ school. And someone with papers would come back to the ten-year reunion and say, “Hey Juan, I’m a doctor.” And Juan will be like “Oh, I forgot English,” or something like that. He’ll be like—I don’t know. He’ll be like their lawn mower or something. They’ll be like, “Juan, remember when we—when we both had dreams, and we were in that same IB class, and now, you’re my lawn person, and I’m a doctor?”

The students in this study show that not only educators, but all stakeholders in the U.S. should become better informed of the sociopolitical issues these students face and the repercussions for these students if the status quo is maintained. Some of the sociopolitical issues they raise are the constant underestimation and hostility that they sense in the dominant narrative due to their race, income level, and immigrant status; the state laws that prevent them from equal access to college; the national laws that prevent them from

a reasonable path to citizenship, such that they currently have a tenuous ability to seek employment, a driver's license, and federal financial aid for college; and most importantly, how their abilities and aspirations are thwarted by limits to their access to science in their schools and access to scientific trajectories in their futures.

This leads to the final issue addressed in this overarching research question, regarding how the students' *testimonios* inform the conversation around access to futures in science for Latin@ students who are undocumented such as these. As shown in the analysis, the students consistently show talents and drive in formal school science settings, afterschool informal science settings, and personal scientific pursuits. They desire to pursue scientific careers that necessitate additional college study. These students' access is tenuous due to state laws that force them to pay out-of-state tuition at state colleges, which ranges from \$10,000 to \$20,000 a year—an unaffordable amount for these students from low-income families. Their access is further prohibited by their inability to obtain federal financial aid, leaving their only recourse to afford a college education in the realm of obtaining scholarships. This steers the conversation in two directions. The first is that they justify part of their desire to excel within the norms of school science “achievement” due to their desire to get scholarships. To do so, they learn how the school “game” is played and demonstrate the skills needed to play it well. This issue is part of what drives their borderlands crossing and their countering of master narratives, which will be discussed when addressing research subquestions #1 and #2, respectively. The second consideration is that due to this limited access, these students' futures in science are uncertain, relying on luck and circumstance and whether these

students can persevere and continue to hope for social change long enough to actually see it transpire. In the meantime, the students point out what the larger landscape of scientific progress in the U.S. could be losing if they don't manage to navigate around all the obstacles that have been put in their way. They add that these obstacles are put in their way unfairly, considering that these students were brought here as children, sometimes infants, and are facing a lifetime of punishment for immigration issues beyond their control. These issues are injected into the conversation surrounding these students' futures and access, and will be further discussed when addressing research subquestion #3.

Research subquestions 1–3 expand on aspects of the overarching research question discussed above. Research subquestion #1 addresses how and why these students cross borders and travel into dominant worlds, using Anzaldúan and Lugonesian theory to better understand their negotiation. Research subquestion #2 examines the students' countering of master narratives about their abilities and futures in science, which is a key practice of CRT and LatCrit theory. Research subquestion #3 examines what the U.S. economy and scientific landscape is losing if legal and social barriers that limit students, such as those in this study, remain in place. Also aligning with CRT and LatCrit theory, as well as Pizarro's Chican@ epistemology, this final subquestion examines what is required to advocate for social change through the voices and intentions of the participants. The subquestions are addressed below.

Research Question #1

This section addresses the question: *How do these students negotiate the borders and worlds of school, science, family, immigration status, and other sociopolitical educational realities such as access to college and careers in STEM given their undocumented status?* In keeping with the theoretical framework of this study, this question will be answered by looking at the students' negotiations, as presented in the analysis earlier in this chapter, through the lenses of Anzaldúa and Lugonesian theory.

The students described at many points in their *testimonios* how they felt as if they were “American” but still Latin@; identified with English but also with Spanish (invoking Anzaldúa’s (2007) quote in Chapter II—“I am my language”); felt comfortable with the dominant spaces of school science and informal science pursuits, but for reasons that tie back to familism and other Latin@ cultural values; and identified with their immigrant and Latin@ peers even while aware of the stereotypes, and inhabiting that space with them while still pushing into the spaces of competent science student and future scientist. As Juan explains when he talks about the worlds, he vacillates with his identities:

We learned the language, and we were raised here, but they also taught us our traditions, and heritage, and stuff. And we speak both languages, so, I don’t know. It’s just—we think like Americans, but also we are Hispanics, and we speak Spanish and English.

Essentially, these students are living in between many worlds, and several of the students characterized themselves as being “used to” being in this in-between space. Anzaldúa (2007) describes this “in-between-ness” as the space of transition between borderlands—

what she calls “*Nepantla*.” She further explains how those who come from non-dominant backgrounds often have to cross these many borders between more comfortable and less comfortable dominant spaces in order to survive, and in doing so, they must hold a kind of “*Mestiza Consciousness*” that is the mix of native roots and dominant cultures. As Anzaldúa (2007) explains,

In a constant state of mental *nepantilism*, an Aztec word meaning torn between ways, *la mestiza* is a product of the transfer of the cultural and spiritual values of one group to another. [...] Cradled in one culture, sandwiched between two cultures, straddling all three cultures and their value systems, *la mestiza* undergoes a struggle of flesh, a struggle of borders, an inner war. Like all people, we perceive the version of reality that our culture communicates. Like others having or living in more than one culture, we get multiple, often opposing messages. The coming together of two self-consistent but habitually incompatible frames of reference causes *un choque*, a cultural collision. (p. 100)

As explained here and in more detail in the discussion of Anzaldúan theory in Chapter II, transformation takes place in *Nepantla*, but it also is a state of discomfort. And yet, these students persist in this state of discomfort, as can be seen by their *testimonios* vacillating between seeing the incongruences of dominant narratives and yet wanting to compete within the dominant world; feeling uncared for in many ways at school and in the larger social structure, and yet caring deeply about science, their family, and their community. As Anzaldúa and Keating (2009) explain, “Most of us dwell in *nepantla* so much of the time it’s become a sort of ‘home’” (p. 243). One can see in the students’ *testimonios* that the students exhibit this *mestiza* ability to live in between worlds as a point of pride: they even make it a prominent factor in their afterschool STEM club, focusing on multicultural intersections in science and multilingual ways of

communicating science to others. This recalls Antonia Darder's (2011) call for Latin@s to consider themselves "unapologetically bicultural," and taking it a step further into unapologetic multicultural forms of identity. But as Anzaldúa (2007) mentions, living in this in-between space is also rife with an "inner war" or "struggle of borders" where there are opposing messages, and *mestizas* often absorb the versions of reality that their cultures communicate. We also see in the students' *testimonios* how they struggle with master narratives that depict them as "less than" and incompetent, especially in science, and how they sometimes absorb these narratives, thinking that other Latin@s don't try hard enough and give up too easily, but they "aren't going to be like them." For example, Crystal differentiates herself from "an average Hispanic"—many of the students feel that they are going to show other Latin@s that they can "be somebody," using narratives that define "being somebody" in ways that value good grades in school, being in high-level science classes, going to college, and having a career in science. Science especially is a field that the dominant culture holds in high regard, and this is not lost on these students. Their work in science is a *mestiza* act not only of passion for science itself, but a deliberate border crossing as an act of resistance.

As these students are pulled in many directions while in *nepantla*, they create a new way of being that incorporates their many dimensions, and yet is able to thrive in new ways within dominant spaces. They are able to succeed on the terms of the culture of power within school science, and yet maintain their *Latinidad*. They are able to push forward with dreams towards a trajectory in science, while still speaking openly of their

undocumented status and what it limits for them. This hybridity is what Anzaldúa explains as a state of being where:

Soy un amasimiento, I am an act of kneading, of uniting and joining that not only has produced both a creature of darkness and a creature of light, but also a creature that questions the definitions of light and dark and gives them new meanings. We are the people that leap in the dark, we are the people on the knees of the gods. In our very flesh, (r)evolution works out the clash of cultures. It makes us crazy constantly, but if the center holds, we've made some kind of evolutionary step forward.

These students create these “new meanings” of what it means to be an Latin@ student who is undocumented but also a competent science student and future scientist. They do not wholly sacrifice one state of being for the sake of the other in a subtractive sense, as Valenzuela (1999) wrote is often the expectation in dominant educational narratives. These students thrive amidst this cultural clash, but find that in their situation, the “center holds” as they find ways to excel in science through their strong social networks among one another—as Stanton-Salazar (2001) describes—and through their strong reliance on familism and other Latin@ cultural values (as Villenas & Deyhle, 1999; Valdés, 1996; and others describe), and the understanding of their situation and support from their science teachers, as Valenzuela (1999) describes in terms of socially aware forms of caring and teacher success with Latin@ students.

This ability to create “new meanings” of what it means to persist between worlds and thrive in dominant spaces while holding on to one’s roots is also at the heart of Lugonesian theory of loving playfulness and world travelling, and also figures prominently in the analysis of these students’ capacity to negotiate many worlds, cross

borders, and succeed in the dominant worlds of school and science. Lugones's (2003) ideas of world traveling are in many ways complimentary to Anzaldúa's concepts of border crossing, but are able to add another important dimension to the *how* and *why* of these students' successful ability to navigate through borders. While Anzaldúan theory is able to view how these students struggle with many worlds and opposing narratives, Lugonesian theory helps this study understand how these students come to be "at ease" within dominant spaces despite their struggles. As explained more fully in Chapter II, Lugones (2003) illuminates how when one is "at ease" in a dominant world that one is traveling into, one is able to create new ways of being in that world that carve a niche into that world and make it their own. This happens while still simultaneously being able to exist in other "home" worlds: the multidimensionality of existing in many worlds is simultaneously recognized in Anzaldúan and Lugonesian frameworks.

When directly considering the question of how these Latin@ high school students who are undocumented negotiate the worlds of school, science, family, immigration status, and other sociopolitical educational realities such as access to college and careers in STEM given their undocumented status, we've established that they do so simultaneously, walking in these many worlds all at once. It's also important to recognize, however, that the worlds of school and science are worlds where these students feel compelled to "stake their claim" especially to spite the dominant narratives they perceive that assume that they can't, or shouldn't. Lugones's (2003) theory of loving playfulness and world traveling helps clarify how these students are able to thrive in these dominant worlds of school and science by feeling comfortable in these worlds through

four conditions. Students are most able to enter into dominant spaces and lovingly play with identities and feel confident enough to carve niches within those spaces by

1. being a fluent speaker in the world, meaning they know all the norms and rules of the world;
2. being normatively happy in this world, meaning that they agree with the norms of the world;
3. being humanly bonded, in feelings of love with those in this world; and
4. having a shared history with those in that world.

This study's analysis earlier in the chapter showed how these students navigated worlds in complex and multidimensional ways based on their *testimonios* and teacher interviews and field notes. The students in this study illustrated their ability to be fluent speakers in the worlds of schooling and science by sharing how they learned how to study, ask questions, get good grades, and “stay on top of” their studies in formal school settings. They became knowledgeable enough in the norms and rules of the world of school science that several of them took it upon themselves to help family members and friends to achieve in school as well by sharing those skills with others. Their justification and motivation for their STEM club and school garden in informal settings rested on their conviction that they can also convince others to like science and want to succeed in school and towards science careers—they even used the garden as an example to validate the “worthiness” of their school within the language that the dominant culture of schools understand—that of achievement and doing of science translating into higher test scores. It is also important to note how many of the students equate learning English and

teaching it to others as part of the norms and rules of schooling that they identify strongly with being able to master and prove that they are competent in school and legitimate as “Americans.”

Beyond the mastering of English, however, the students all voice their understandings and love of science, each with their own area of interest, to “prove” their “legitimacy” as a fluent speaker in the world of science. Sergio’s fluency in the language of mechatronics, Crystal’s in biology, Silvia’s in chemistry, forensic science, and the garden, Juan’s in environmental science, and David’s in his critical thinking skills and historical science perspective, all exemplify their fluency in science as they negotiate the norms of science and schooling competently. As Lugones’s four conditions show, it’s not just the fluency in these worlds, it’s the ability to be normatively happy within them. These students each show that their fluency is not based solely on feeling as if they “have” to be fluent in these ways. They speak of their interests in science with passion and aspiration, in ways that show they are happy within these worlds of science. They speak of how they help family members and friends to achieve in school like they do, in ways that show complete buy-in to the definitions of “success” in school as a factor of studying, getting good grades, and being involved in class and in afterschool science activities. They take pride in their status as “high-achieving” in school and as aspirational scientists in ways that show that they are happy with these ways of defining “achievement” and find pride for themselves and in how this attainment makes their families proud as well. This is a major aspect of Latin@ cultural values of familism that factor directly into their world traveling, through the narrative of *ganas*—“the will or

determination to achieve” (Contreras, 2011) closely coupled with the opportunity narrative (Michael et al., 2007) which they often hear in their family’s *consejos*. They feel as if their success in school and attainment of a science career will justify their family’s sacrifice to come to the United States by taking advantage of the opportunities that they feel are made available in the U.S. if they put in the hard work necessary to travel into those opportunistic worlds and ultimately “be somebody.”

Finally, Lugones also speaks of the need to feel humanly bonded with others and feel as though one has a shared history with others as the third and fourth conditions necessary to effectively travel into dominant spaces and feel “at ease” enough there to enact loving playfulness and carve a niche there. I wish to emphasize the act of “traveling” when considering how these students are able to thrive in the dominant worlds of school and science. Students draw on what they know and where they’re comfortable, to engage with new concepts and challenges in the dominant worlds into which they are traveling. In this case, these students draw on their social networks (Stanton-Salazar, 2001) with each other and with their siblings, who also cross these borders as a necessity in order to “achieve” in the ways they desire. The students mention in their *testimonios* how they understand each other because they’re all similarly multicultural, and how they help each other understand concepts in school and science as a network of knowledges and shared aspirations. The students draw on their shared history of being immigrants, having to cross literal and figurative borders, and in many cases going through school together and growing up together to find ways to excel in

school based on their years together as students with similar stories, family lives, and dreams.

Because the students also have sociopolitical traumas in common, such as sharing the fact that they cannot go to college without having to pay inaccessible out of state tuition, wrestling with whether they will be able to get a driver's license or work permit (some only recently received their DACA permits), and as Crystal mentions, being able to "understand the whole undocumented thing" makes it easier for them to forge a path into dominant spaces together, traveling together as a source of strength and encouragement. The students also draw on the history of African American achievement, despite similar deficit narratives to become humanly bonded not only with each other and other immigrants in the school, but also with the African American population in the school and their African American science teachers. This feeling of being humanly bonded to their peers and teachers and having a shared history of struggle helps them travel into the dominant worlds of schooling and science without feeling intimidated by its dominant narratives of being intended only for others who don't look like them (Scantlebury et al., 2007).

In these ways, the students in this study are able to successfully navigate the borders of school and science, while still being keenly aware of their families' Latin@ values, and the immigration and sociopolitical realities that are profoundly part of and often inform the reasons behind their negotiations through desires to resist negative sociopolitical narratives, make their families proud through strong adherence to Latin@ cultural values, and draw on their immigrant histories and struggles as a source of

strength to persevere despite them, and “prove” that their family’s immigration was worth the sacrifice.

Research Question #2

The analysis and discussion so far has already shown several ways that the students’ negotiations answer Research Subquestion #2: *How do these students engage and counter master narratives about their abilities and futures in science?* Through their *testimonios*, and also through direct focus group collaboration with the students in this study, the students have presented the following master narratives that they have perceived coming from the public discourse, and that they voice their opposition to beliefs that

- Latin@ students who are undocumented are “lower than” whites, not as intelligent or capable
- Latin@ students who are undocumented cannot succeed in science
- Latin@ students who are undocumented and their parents/families don’t care about school
- Latin@ students who are undocumented do not belong in the U.S., they are criminals and should “go back home”
- Latin@ students who are undocumented immigrants have motivations that are different than, and less than, other immigrants to the U.S. that preceded them (such as white immigrants from Europe)
- Latin@ immigrants who are undocumented do not contribute to U.S. society and its economy in useful ways (they are a “drain”)

The students in this study counter the above master narratives through their *testimonios*, which are counter-narratives in the LatCrit tradition, as well as through their everyday actions as noted by their teachers and through my participant observations. Through these venues, the students in this study have shown direct and indirect resistance to these deficit narratives by showing that they do excellently in measures of school achievement through their high grades (almost all have cumulative GPAs between 4.0 and 6.0) and EOC biology scores of 3's or 4's. Their teachers characterize them as “brilliant” and “high-flyers.” The students started an afterschool STEM club and community garden which they were quick to point out does not exist at any of the other predominantly white-serving high schools in the district. Their passions in science are shown over and over again throughout their *testimonios*, and through the experiences they detail in mechanics, environmental conservation, biology, chemistry, etc. These students are persistent in pursuing trajectories in science in their futures, and show this not only in the ways they engage in science in the present, but also in how their awareness of naysayers spurs them on in spite of these deficit perspectives.

The students also take on dominant narratives regarding their own and their family's “not caring” about school by sharing how they take pride in the school success skills they have learned and enacted, teaching these skills to younger family members and friends. They share how their families push them and encourage them to do well in school, and how they make their family proud when they do well in school-related measures of “achievement.” Familism is a major motivator that ties directly to their caring about school and their future, as Sergio explains:

I think I do well in school mainly in the hope to someday help my dad, or my sisters, in a way. Be it financially or support them because I don't want to be like one of those people who doesn't do anything. Because how are you giving back to your family that way? So that's really what drives me: my family.

In fact, these students care about school to such a degree that their future aspirations in science rest on their doing well in school now, with a strong awareness of their grades and capacity for getting scholarships. Further, the students care so deeply about their current and future educational condition that they speak out in powerful and collective ways about their desire for greater and more challenging science educational opportunities at their school, and more equitable access to college so that they can pursue rigorous scientific majors and careers.

The students also counter sociopolitical master narratives that consider them “criminals” who should “go back home” by pointing out many times that they were brought to the U.S. as children. As will be explained in more detail later in this chapter, because of the supreme court case *Fong Yue Ting v. United States* (1893) and later re-emphasized in the case *Plyler v. Doe* (1982), children who immigrated to the United States as minors cannot be held legally responsible for violating immigration policies, and thus are not “criminals” in any sense of the word. The students also push back against the sentiment that they should “go home” by pointing out that they have been in the U.S. so long that this is their home. They are more acculturated and linguistically attuned to the culture and language of the U.S. than they are to Mexico or El Salvador, and several of the students point out that were they to return to their birth countries, they would not have the ability to thrive there, because they know so little about that world.

Several of the students do not speak Spanish fluently, only choppily, and some of the students have no memory of these countries; all they know is through family stories and pictures.

The students push back on narratives that “otherize” them, which L. Chavez (2008) has written extensively on and calls “Latino threat narratives,” in which Latin@ immigrants are considered a threat to U.S. citizens and their motivations are to “take over” the U.S. The students in this study show a historic understanding and point out in several places throughout their *testimonios* that those who usually profess this “threat” narrative come from similar immigrant backgrounds, with the same motivations to “make a better life” and achieve the “American Dream,” just the same as they and their families. The students point out the historic amnesia and hypocrisy behind the dominant narrative, and voice their awareness that they are part of a long line of immigration history in the U.S., and should not be looked down upon for being an immigrant in a country of immigrants. For example, Crystal says,

I feel like it’s very unfair, basically, just because if we go way back in time, like, the United States was formed on immigration. So, it’s just like—it’s interesting how almost everybody is an immigrant originally, but they’re like, “Oh, no, you’re an immigrant because you just came here.” Like, “You’re an immigrant as well.” Everybody is an immigrant and it’s just—my basic point is, “How can you say that we’re something if you’re that thing as well?” That’s my thing. Like it’s completely idiotic.

The students still, however, absorb the narrative that they are immigrants, and do not deeply examine it when they say, as Crystal does, that “no one is originally from here except the Native Americans,” that these students have some Native American ancestry,

and so their status as truly “immigrants” depends on which narrative one chooses to accept. These students do, however, accept the “immigrant” identity, but trouble those notions repeatedly when pointing out that in many ways they are “American,” even if they don’t have “papers.”

Finally, the students counter the notion that Latin@ Immigrants who are undocumented do not contribute to U.S. society and its economy in useful ways (they are a “drain”) by pointing out how much their families and fellow Latin@ immigrants contribute to the economy, stating the U.S. would probably not function well without the labor that Latin@ immigrants provide. They point out that Latin@s, like their own parents, do menial labor in multiple low-wage jobs that many U.S. citizens would not want to do, and attribute these ideas that they are a “drain” on the economy to ignorance. The students made several arguments that make the case to stakeholders that the contributions of Latin@ immigrants, in general, and students like them, in particular, would benefit society to a greater degree if these contributions were acknowledged and allowed to continue in a legally sanctioned way. These arguments that call on the interests of the U.S. converging with the interests of Immigrants who are undocumented, will be discussed in more detail in the following discussion on Research Subquestion #3.

These students take on these master narratives, that either directly or indirectly threaten their feelings of legitimacy in pursuing futures in science, through their counter-narratives/*testimonios* and through their actions. Aware of these narratives, much of what they do and say is a deliberate act of resistance against them. Their everyday persistence to continue to do well in school, continue to pursue science in formal and informal

science settings, and their voices as they push back on the kinds of narratives that would thwart them, is a kind of activism. In addition, their very act of coming out of the shadows and coming forward as undocumented, while representing these strong engagements and aspirations in science, are testaments to their strength and persistence to continue to resist dominant, deficit-minded narratives that they have perceived in the public discourse, and use their very life stories and voices as a vehicle for social change.

Research Question #3

Research Subquestion #3: *What can the voices and knowledges of these students contribute to the increasingly global economic and scientific future?* This research question will be addressed through the arguments put forth by the students in their *testimonios* and focus group meetings. The students reveal a deep understanding of the structures that limit their equitable access to the futures in science to which they aspire. Anzaldúa calls this capacity to be critically aware of social structures a sense of *facultad* (Anzaldúa, 2007):

La facultad is the capacity to see in surface phenomena the meaning of deeper realities, to see the deep structure below the surface. [...] Those who are pushed out of the tribe for being different are likely to become more sensitized (when not brutalized into insensitivity). Those who do not feel psychologically or physically safe in the world are more apt to develop this sense. Those who are pounced on the most have it the strongest—the females, the homosexuals of all races, the darkskinned, the outcast, the persecuted, the marginalized, the foreign. [...] It's a kind of survival tactic that people, caught between worlds, unknowingly cultivate. (pp. 60–61)

The students in this study utilize their *facultad* when voicing their aspirations in science and naming the structural issues that limit them. They examine the structures of

the current state of the U.S. economy and scientific landscape, and make informed arguments as to why their potential as future scientists are worth making legal changes to immigration policies in order to realize. The students' arguments towards how their knowledge, talents, drive, and potential can contribute to the U.S. economically and scientifically fall into two main categories: first, that U.S. resources are going to waste by continuing to legally prohibit these students from achieving their dreams in science. The students make an argument that calls forth similar factors to what Derrick Bell (1979) would call "interest convergence," where they argue that the interests of the systems of power would benefit by acknowledging the civil rights that a marginalized group are demanding. Second, the students argue that it is morally unjust to continue to deny these students access to their scientific aspirations, given that they were all brought here as children and are culturally "American" in many ways, and more importantly they are humans with the same dreams and passions that have always embodied the "American Dream."

These two arguments, as voiced by the students in this study, will be discussed respectively in the two sections below. It is important to acknowledge that as we consider this third subquestion about what these students can contribute to the U.S.'s economic and scientific future, the research and participants are well aware that the moral and humanitarian argument alone should suffice in understanding why these students should not continue to struggle with anti-immigrant laws that severely limit their futures. However, we also take the realistic position that "nobody in the world, nobody in history, has ever gotten their freedom by appealing to the moral sense of the people who were

oppressing them” (Shakur, 1987, p. 139). Derrick Bell (1979) recognized this also, in understanding why the legal changes called for by the civil rights movement became embraced by those in power when they recognized that it would be of benefit to their agenda as well. The following section addresses Research Question #3 through arguments made for the sake of interest convergence, while keeping in mind the study’s understandings that these justifications are not necessarily a capitulation to the definitions of “legitimacy” held by the systems of power, but rather, a realistic appeal to those systems of power, while retaining the understanding that these students ideally should not have to justify to anyone why they deserve to have their dreams “granted” by the powers that be. And yet the issue is complex because just as often as the students push against the world of the dominant, they also seek admission and recognition by it. As Anzaldúa (2007) observes, so it is with these students:

Yes, all you people wound us when you reject us. Rejection strips us of our self-worth; our vulnerability exposes us to shame. It is our innate identity you find wanting. We are ashamed that we need your good opinion, that we need your acceptance. We can no longer camouflage our needs, can no longer let defenses and fences sprout around us. We can no longer withdraw. To rage and look upon you with contempt is to rage and be contemptuous of ourselves. We can no longer blame you, nor disown the white parts, the male parts, the pathological parts, the queer parts, the vulnerable parts. Here we are weaponless with open arms, with only our magic. Let’s try it our way, the *mestiza* way, the Chicana way, the woman way. (p. 110)

It is within the spirit of this “*mestiza* way” that endeavors to meet the systems of power in the middle, that the students present reasons why legal and social changes would benefit and contribute to the increasingly global economic and scientific future, as an appeal to

interest convergence that would benefit all parties involved. They offer up their “open arms” and their “magic” (Anzaldúa, 2007, p. 110) and ask that they be acknowledged.

Arguments to Converge Interest

As one of the founding voices of Critical Race Theory, Derrick Bell (1979) introduced the concept of *interest convergence* as a form of material determinism which ensured that the desegregation decision of *Brown vs. Board of Education* passed and was supported in the social sphere because those in power saw that there was something in it for them, rather than being morally motivated towards acknowledging the civil rights of people of color. Bell argued that those in power saw an opportunity at the right time and the right place to economically and politically benefit from granting the demands that marginalized groups had been pushing for decades prior. In the same fashion, the students in this study present arguments to advocate for a similar convergence of their interests and dreams, with the economic and political interests of the system of power, as Sergio aptly explains:

I feel that the DREAM Act not only would help us, but it would also help the government, because a lot of us just want a chance, a chance to get the education that we really deserve, and with that education we'd put it towards careers, and jobs. After a while, we would be contributing, so the government would be making money. So that's why I mean there's really no reason why they shouldn't approve it, and there are a lot of Hispanics, a huge population.

Sergio's point also highlights the fact that with more education, these students would contribute economically to a greater degree, being able to access more lucrative careers in science that would contribute to the economy in a greater way than the fate most immigrants who are undocumented now traverse of working low-wage jobs that pay

under the table. When Sergio also points out that there is a large population of “Hispanics” in the U.S., he is likely actually referring to immigrants that are undocumented, a majority of whom are Latin@. The large number of Latin@ immigrants who are undocumented, if immigration reform gave them rights to citizenship, would compound the contribution to U.S. economy, given that there are an estimated 11.2 million immigrants who are undocumented currently living in the U.S. (Pew Hispanic Research Center, 2011). The economic force of this group, 11.2 million strong, has been calculated recently by Lynch and Oakford (2013) to show that if immigrants who are undocumented, nationwide, were granted legal status, the 10-year cumulative U.S. gross domestic product (GDP) would increase by \$832 billion, and the boost would also create 121,000 new jobs every year. This would result in an increased contribution by this demographic of \$109 billion in taxes. This is because, as Lynch and Oakford (2013) explain,

Both the acquisition of legal status and citizenship enable undocumented immigrants to produce and earn significantly more. These resulting productivity and wage gains ripple through the economy because immigrants are not just workers—they are also taxpayers and consumers. They pay taxes on their higher wages and they spend their increased earnings on the purchase of goods and services including food, clothing, and homes. This increased consumption boosts business sales, expands the economy, generates new jobs, and increases the earnings of all Americans.

Lynch and Oakford (2013) also calculated the economic boost to the state where this study took place, should those immigrants who are undocumented and inhabit the state be granted legal status. They estimate that there are currently 325,000 immigrants who are undocumented living in this state, and with legal status, they would be able to contribute

\$34.7 billion to the gross state product (GSP), with a corresponding increase of over \$1.5 billion contributed by these immigrants in state taxes and 5,000 additional jobs created annually.

Sergio makes the case that passing immigration reform behooves the U.S. because many immigrants who are undocumented are anxious to contribute to the economy if only “people could see that ‘oh they are here to work, and why are we not helping them so they could help us?’” This again demonstrates the students’ appeal to interest convergence: if immigrants get the help they seek, it will in turn help those in power economically. Crystal also highlights the work that Latin@ immigrants do that already contributes to the economy, and pushes back against the “lazy” narrative against Latin@s that sometimes is heard in the public discourse. Crystal points out how many Latin@ immigrants want to contribute to the working economy even though they are prevented from doing so legally, but still do so anyway:

It’s frustrating, ‘cause most of the people that actually want to make a change, and wanna help out and serve in the military and army can also be undocumented. And most of the workers that are like, the hard, hard workers, also happen to be Hispanics. And I mean, like, it’s true. Like, all those buildings, if you even go outside and you see like a, like on Koffer Road, there’s a bank that they’re building and like 75% of those are Hispanics. ‘Cause they can’t get anyone else.

In fact, it’s not only the case that U.S. employers can’t get anyone else, but that these workers are the backbone of the economy in many ways. Without their hard work and cheap labor, the U.S. would falter. As Juan observes:

From my point of view, the United States would not function well if the Hispanics or other foreigners were not here. Because we do most of the work that is needed.

And without them, I mean without the foreigners—because basically, they give the jobs to the foreigners, the more harder jobs. So I mean without us, the United States would not function.

Sergio also comments on how Latin@ immigrants already contribute greatly to the U.S. economy, even if it is troublesome how they are being exploited. Sergio points out that they “do a lot of jobs that no other person wants. People say that we’re stealing jobs, but who else wants to be in the field for hours and hours without a break, and for dirt pay? Nobody else.” This comment about U.S. employers being unable to get anyone else but immigrants who are undocumented to work many of their hard labor jobs is supported by Gans (2012), who established that workers who are undocumented do not compete with citizens for the lowest-paid, least-desirable jobs in the U.S., which was also illustrated by the amount of produce that went to waste in Alabama in 2011 when the Alabama immigration law, HB56, was passed in that state, leading to a mass exodus of Latin@ immigrants from the state. Farmers were left without many workers, and even after increasing wages and not turning anyone down, they could not find enough native workers to pick the crops, and the produce rotted in the fields, leading to a big economic loss for the state (Dayden, 2011). This illustrates what many students in the study also pointed out: the U.S. economy does not suffer due to immigrants who are undocumented; in fact, it benefits greatly. The economy benefits so much, in fact, that they exploit these immigrants. Crystal points out that this exploitation may lead those in power to not want to pass immigration reform, and lose this short-term benefit, even though the long term benefits, as shown above, would outweigh the short term benefits of exploitation. Crystal explains, when it comes to passing immigration reform,

They don't want to give it to us because they feel like if they can avoid giving us these things that we need to be successful here—if they can avoid it, they prefer for us to work and get paid less. If they can get us to work for three dollars an hour they are going to keep doing it, because that's cheap labor.

But as Lynch and Oakford (2013) have found, granting immigrants who are undocumented legal status would allow many immigrants to move past the low-wage jobs they are slated into, and into higher-wage positions that would ultimately contribute much, much more to the economy. As Juan observes, “if they just gave us the rights to do so, this place would become better—more professionals and stuff.” For these students, those higher-wage careers that they aspire to are in the realm of science, which has an additional benefit to the U.S., when considering issues of interest convergence. Not only would granting legal status to immigrants who are undocumented like the students in this study improve the economy generally, it would improve it in the specific spaces that the U.S. needs most—filling positions in science fields. Given the shortage of highly skilled workers in science and technology in the U.S. (Kettlewell & Henry, 2009; Partnership for a New American Economy, 2012; Taningco, Mathew, & Pachon, 2008) and the increasingly scientific nature of many jobs in the U.S. as it competes globally in an increasingly science and technology-driven landscape, the students in this study point out what they could contribute if granted the legal opportunity to pursue their dreams in science, rather than being pushed into low-wage positions for which they are destined. Silvia puts this in an interest converging perspective:

All we really need is a chance to prove how we work and how hard we try to achieve something that we really want. And then probably give them an opportunity for them to actually see how a Latino or Hispanic can be able to find

a cure for a type of disease or a cure for a medical issue or for when people have disorders, any type of disability. It's not gotta always be like a Caucasian or African American. It can also be a Mexican or a Hispanic or a Latino. It can be anybody. So if they just give us one chance then it'll probably help the community, help the country and help everybody else find a cure or anything else that we need around the community and the country. What we need is support so they can see that we can actually achieve. So if they at least give one chance to the undocumented people then they'll see that there are ways that we can actually help them as well.

For those invested in the future of the U.S. economy and the future of science in the U.S., Crystal points out how it doesn't make any sense to have students with talent and drive, whom the U.S. is investing in their K-12 education, and then after they graduate high school, to not allow them to continue. To take students with the potential these students have and become, as another student who is undocumented described, "the most overqualified dishwashers you'll ever know" (Batten, 2013) is a serious loss to the contributions that could be made to the U.S. Crystal and many of the other students, however, have no intention of becoming dishwashers. Crystal points out that others like her have left the U.S. because of the anti-immigrant laws and took their talents and drive to other countries. Crystal is considering this as well. Her leaving will create a loss to the U.S. in terms of her drive, talent, and ambition in science. Crystal puts this in the perspective of the loss to interests converging for the U.S.:

They're giving us education and then they're pushing us out. That doesn't make any sense. How is that in any way helping them? By the time that I either graduate or by the time I go to college and I finish, if I can't go to college here then I'm just going to go out of the United States. Hopefully maybe Mexico or if I can't do it in Mexico then I'll just go to Spain maybe. Mexico because I've never been there and Spain because there's this one girl she was able to get into college—no she had applied to some colleges and they wouldn't accept her because she was Latina and she was undocumented. So they actually accepted

her in one of the universities in Spain. So I feel like, if she can do it then maybe I can too.

Crystal makes the loss evident by pointing out that “if it wasn’t for these laws I wouldn’t ever consider having to leave to study in Spain or Mexico. I would stay here, major in biology.” Sergio also thinks about his future in science in light of the current anti-immigration laws. Like Crystal, Sergio plans to pursue science no matter what, and if he can’t do it in the U.S., he will go to Mexico. He points out, however, that he’s only considering Mexico because “those are the options because of the situation that wasn’t even my fault. If I had citizenship, my plans would change. With citizenship, I don’t think I would return to Mexico. I definitely would try to pursue my career more.” Juan is of the same mindset in terms of pursuing science wherever he is able to, so if the U.S. will not pass laws enabling him to go to college and do science here, then one path he is considering is to pursue it in Mexico.

Juan puts this loss to the U.S. and to science in perspective with how easy it would be to prevent this loss by taking action to repeal anti-immigrant laws:

And it’s the simplest thing in the world, just knocking down them barriers. I mean sometimes I think about: why do you have barriers anyway, when we’re not causing any harm? So I guess just letting other people, or immigrants in general, just to get a full education. I mean we can, like for example, if the United States blocks a student from going to college, he could probably be the next Einstein, and we could just completely have denied him and he won’t be able to do what he was supposed to do. The country will lose a very important person that could have become an important person if you just gave him that opportunity.

Juan specifically refers in his quote above to the loss the U.S. will face by denying immigrants with talent—especially in science—equitable access to college. In

the state where this study took place, Students who are undocumented must pay out-of-state tuition, which is often far higher than students students who are undocumented like these in Title I schools could ever hope to afford. They are also prohibited from receiving federal financial aid, which makes their ability to afford college even more difficult, even at private college, unless they are lucky enough to receive a full scholarship, which are few and far between.

In addition to the direct economic benefits that legal change for these students would produce for the systems of power, and the loss to the economy and to science that occurs when anti-immigrant laws remain in place, it is important to consider the economic consequences and educational consequences at play from existing anti-immigrant laws. These educational consequences manifest in the number of students who are undocumented who drop out of school due to feeling that they have no viable future that makes completing high school worthwhile. Many of the students in this study have directly witnessed friends and family members losing hope for their future due to their undocumented status, and dropping out of school or not bothering to pursue college. As an argument for educational interest convergence, the participants who are undocumented point out that students do better in school when they know they have a future they can look forward to. The realization that they may not be able to achieve their dreams causes many students to lose hope and lower their efforts in school, as Silvia notes of her sister:

And it's hard now because my sister was doing good in school, and they were going to help her pay for college, but then they found out she was undocumented and they took away her scholarship. So it brought her down as well. So like since then, her grades have been lowering. Like we motivate her, like "do it, we can help you get into community college or anything, there's other opportunities."

She was like, “no there’s no point, we’re not gonna afford it.” So it’s like, it brings her hopes down and everything.

Juan has friends who have not only lost their drive in school because of the anti-immigrant legal situation, but have completely dropped out: “I have plenty of friends, or family friends, that stopped going to school because of their illegal status. Many of them decide to drop out, and they think it’s just a waste of time.” Crystal touches on how this limitation of many students’ futures launches them into depression. They start doing things that hurt themselves and society, which also does not converge with the interests of the systems of power:

And a lot of people have given up hope. [...] I have a feeling that they’re depressed. Because they are doing so many things that’s not even, like, that’s hurting them. And they don’t even care. A lot of them have dropped out. And by them hurting themselves, it’s also not only hurting them, it’s also hurting their parents and their friends. But it’s not just because they don’t want to, they stopped caring. I guess it’s because they feel they are limited. I know a lot my friends have ended up doing things that have gotten them into jail and things that have gotten them to drop out. My friend recently dropped out because she was like “Oh well, I don’t care. I’m not going to get anywhere. I’ll just go do landscaping and things like that and just try to find the easy way out of it.” She says because she’s undocumented she said there is no point in even trying.

As of the writing of this dissertation, 15 U.S. states have passed laws allowing for DREAMers to have in-state tuition. Unfortunately, the state in which these students reside is not one of these states. Examining the statistical changes that occurred after in-state tuition for students who are undocumented was passed in these states can foreshadow the interest convergences that could benefit society economically and educationally, if in-state tuition was granted for DREAMers in the state in which this

study takes place. Based on the results of passing in-state tuition laws in states that had these laws as of 2008, Kaushal (2008) found that after the passing of such measures, there was a 31% increase in college enrollment and a 14% increase in graduating high school. Also, for states that adopted the policy as of 2010, Potochnick (2010) found that the average dropout rate decreased dramatically from 42% to 35%. A decreased high school dropout rate and increased college enrollment is highly beneficial to our economy, and for students like these, intent on following a science trajectory, it may potentially mean an increase in students entering into the science workforce with high levels of education. Juan makes the case, when it comes to students who are undocumented who want to follow trajectories in science:

And the opportunity, they're actually dying to have, so it won't go to waste. So I think just knocking down them barriers of education, I mean for immigrants. Just become united basically, as a whole. Open up many doors for many people and also make this country progress. If their laws change and stuff, you probably will see more Latinos in science because they all come for something, and they're denied. So they all have dreams, and sometimes their dreams are denied. But if you're able to let them accomplish their dreams, you'll see more Latinos in society. The barriers that they put on, not only us, but on others, they just stop us. But if they were able, if they want to see what we can fully do, just take off the barriers. They should just like open up the education system for everyone, and you'll see.

Juan continues his argument by appealing to the narrative of the American Dream:

I mean because we all come for the American Dream. And if you come for the American Dream, you must have a dream to become something. I mean I think if you can cross one country to another and sacrifice, leaving your family or your loved ones behind, then you must really, really want to have that dream.

These students make the case in many ways for why changing the anti-immigrant legal situation would benefit the systems of power in many economically, educationally, and scientifically beneficial ways. Although there are some who may point out some problems with or objections to passing the kinds of national and state immigration law reforms these students are advocating, these students make the case that the interests of society, with regards to the economic and scientific future, would benefit greatly if they converged with the interests of students who are undocumented. Sergio sums up this section fittingly:

I want to ask all those that are going to read this or listen to it: Make a list of the pros and cons, and the pros will definitely devour the page. There's more benefit to come from it. There are more benefits than liabilities. There will be an increased workforce, even by being able to drive. Anything is better than nothing, and we're here anyway, why not take advantage of potential resource. Why let it go to waste?

Arguments for Social Justice

In addition to arguments that align with the concepts of interest convergence, the students in this study argue that it is morally unjust to continue to deny them, and students like them, access to their scientific aspirations, given that they were all brought here as children and culturally “American” in many ways. The students emphasize that above all else, they are humans with the same dreams and passions that have always embodied the “American Dream,” and all they want to do is follow this American Dream like so many immigrants before them throughout U.S. history. This section will share some of these appeals for social and legal change based on what the students feel is humane and just. The section above, and this section especially, applies Pizarro’s (1999)

fifth phase of Chican@ social justice research to its intended ends. This fifth and final phase titled *The “Product” and Empowerment Efforts* presents the results of the research that work to strengthen the participants’ community. As Pizarro states, “in this final and ongoing phase of research, researcher and participants together are pushing toward knowledge, understanding, and interventions that are directed at improving the conditions of Chicanas/os and their communities” (p. 71). Empowerment efforts manifest in ensuring the participants are the central authorities of the arguments presented in this study and the efforts towards social change for their communities. In the section above and in this section, efforts are made to ensure that the arguments for social change are originated by the students themselves, and spokespeople for their communities, deeply invested in seeing positive legal and social change for their own and their undocumented community’s benefit. The researcher of this study helps to shape and discuss some of the ideas the students mention, but the ultimate direction in which this study needs to go and what it needs to recommend in order to enact social change emerges from the students. Their voices stand strong and informed as experts on what it is to be a Latin@ high school student who is undocumented with aspirations in science. As such, I stand behind Crystal’s sense of agency when she says “But we can act upon it. Martin Luther King and Rosa Parks had a voice, and so do we.”

Crystal’s agentic appeal for social justice is voiced in her resolve as she refuses to beg the systems of power for what she feels should be her human right. Those who deny her basic human rights, she holds, do so out of ignorance:

I mean if they want to be ignorant then that's on them. I'm not going to sit there and be like "Oh well, just pay attention, listen to them, do whatever they say." I'm not going to sit there and cry out to them. It's up to them if they want to be ignorant, if they want to give us an opportunity. But even if they want to be ignorant, that doesn't mean we're going to stop trying. And if they want to stop being ignorant, they just need to come to Jones. They would see how different people are, and be able to see the people that are really trying. They'd realize that just because we come from a different background doesn't mean that we don't care.

Silvia, too, appeals to those who need to be convinced of these students' humanity and need for humanitarian action by suggesting, in response to those who say that their struggles are inconsequential:

I'd like to offer them at least to have a day for us to show you around our lifestyle, the way we live, the way we are, and the way we act towards each other because without that, they really wouldn't have no experience. They wouldn't be like "oh, we go through the same thing." They would think of us like way different in the difficult situations in our lives.

Juan helps elucidate some of these difficult situations in their lives that those in positions in power might not be aware are part of these students' realities. He does so by comparing what it means to be "American" to his reality as undocumented:

American means that you can work and just go anywhere without being afraid of being caught by the police and being deported. It means not having to have grown up with fear and always having in mind that you probably won't go to college. It means that you have full rights and you can go to school or get a job or basically be free in the United States. It means that you get to be closer to your family, because right now all my family is over there and I'm over here for most of my life. It means that you have, you definitely have a future ahead of you.

Juan points out these difficult realities in hopes that those in positions of power will better understand why social change is necessary. What these students are trying to

convey to those in positions of power is that as human beings trying to live a life, their human rights are being ignored. Crystal's call for social justice extends this plea for understanding from those in power:

What they need to understand is that we're just trying to make it through. We're just trying to be something that our parents couldn't be, and have a better future than what we're being raised up through. Give our children better opportunities than the ones that we are having and given. Basically, just the American Dream, I guess. Basically, Mexicans, Hispanics, and immigrants all in general, aren't that very different from everybody else. We just come from different cultures and that's the main thing that's separating us, you know? But at the end of the day, we all have the same dream. We all are aiming for the same goal, which is just to get a better life for us and our children. I don't think anybody should really be denied much of that, but I mean, it is what it is. For right now.

Juan makes this appeal for social and legal change more palpable by explaining how they are undergoing these difficulties despite being brought here as children and being brought up for all intents and purposes as "Americans." He also touches on the injustice of the charge to "go back to Mexico" given his status as basically "American" in all but legal status:

I was not born here, but I was raised here. I consider myself more American than what I actually am because I was raised in this environment for my whole life, and I talk English better than Spanish sometimes. I can write it more. I can read it more. I understand it more. So I'm used to the [U.S.] customs and traditions. I mean I basically know more about their history than where I'm from. Because I've been exposed more to the history here. So I believe if I go to Mexico right now, it'll be a disadvantage for me because I'll have to start from scratch and I'll have to learn all this new stuff. [...] and sometimes it feels like you're one of them, but you're actually not because you need papers. [...] why can't I have the same rights as they have, if I've been here the same, I mean almost the same amount of time they've been here? And I basically learned everything they learned.

Juan extends this thought into the claim that what he and other immigrants who are undocumented are asking for are their natural rights, while invoking the concept of the “American Dream.” Juan makes the call for social justice one that juxtaposes being “American” as having one’s rights, and being undocumented as being deprived of one’s rights:

I think no matter where you come from, I mean, we come here to America just for a better life. So, to come here and to go through all the struggles you have to go through and then, to be deprived from rights, or to education, or stuff, is messed up. [...] I believe that’s why it’s the American Dream: They probably don’t want to leave their roots, but they also want to gain their rights, I mean the rights that they should have, their natural rights. So being American means you have your rights.

The students in this study call for social justice when it comes to the rights they feel they are entitled as human beings. They feel that they have grown up in fear and without hope for the future to pay for crimes for which they are not legally responsible. This is accurate according to the court cases *Fong Yue Ting v. United States* (1893) and *Plyler v. Doe* (1982), which hold that children cannot be held legally responsible for immigration transgressions that occurred while they are minors. Juan makes one final appeal to those in power to recognize that what they are being denied are the very rights that immigrants before them, many of whom are the ancestors of those in power, came to the U.S. and enjoyed, immigrating for similar reasons as those his family and other modern Latin@ immigrant families held for immigrating:

The people that have power to change should put it to use for good. It has happened for generations, that a lot of immigrants from worldwide have come to the United States for an American dream, and an American dream that they

struggle so hard to get, I mean to come here, then at the end it's denied. And on that process, many of them die just trying. So at least for those who die, you could at least give them the hope of there actually being an American dream. Because many of them just cross deserts and they have died because they had no water or food, and others have drowned. So they just come for one hope, just to make their life better.

Again the students reference the “American Dream” as a concept they feel their families hold to and use to justify their sacrifice in coming to the U.S. As Juan points out, many don't make it here. Even for those who do make it here, like the students in this study, their road is still difficult due to the limitations placed on them to achieve their dreams. “For most of them, their American Dream ends after 12th grade” (Batten, 2013). The current state of national and state immigration law may see the same occur for these students unless changes to current immigration policy occur soon. National comprehensive immigration reform and state level tuition equity bills are currently being considered by their respective legislative bodies. These students have raised their voices and told their stories in hopes that they may affect the kinds of social change they need to realize their dreams for college and careers in science. It is their hope that others will hear their stories and arguments and work together with them as allies.

It is with the arguments of these students for social justice—as well as their previous arguments to join together with those in power to affect changes that converge with their interests as well—that the students in this study call for a shift in the narratives and laws that have limited them legally and psychologically for nearly their entire lives. Anzaldúa (2002) calls for changes that join all together for a transformational shift that

will lift all tides, and in this spirit this study calls for the same when it comes to social justice for the students represented here:

We are ready for change.
 Let us link hands and hearts.
 Together find a path through the dark woods
 Step through the doorways between worlds
 Leaving *huellas* [footprints] for others to follow,
 Build bridges, cross them with grace, and claim these *puentes* [bridges] our
 “home”

Si se puede, que asi sea, so be it, estamos listas, vámonos.
 [Yes we can, so be it, we are ready, let’s go]
 Now let us shift. (Anzaldúa, 2002, p. 576)

Political, Social, and Educational Implications

Drawing on the issues raised by the students in this study and examined and analyzed throughout this dissertation, this study reveals the complex lived realities of five high-achieving Latin@ ninth- and 10th-grade high school students who are undocumented and who excel in formal and informal science settings, and aspire to science in their futures. By coming out as undocumented and sharing their stories and realities through their *testimonios*, they present powerful counter-narratives to dominant deficit-based perspectives about their capacities and worth. Their dreams of a future in science are beset with legal, social, and educational barriers that limit their access to college, but these students hold onto hope that these barriers will change as they raise their voices as an agentic act to affect the kinds of changes they feel they need to realize their science dreams. While struggling with the obstacles that limit them, which they feel are unjust, they also find ways to negotiate the borders of the many worlds they traverse

by lovingly playing with the norms of those worlds and carving niches within them where they can thrive, such as becoming competent and recognized in the worlds of school and science. As such, they become skillful world travelers, drawing from their “home” worlds by retaining strong allegiance to their Latin@ cultural roots and their *Latinidad* while also achieving in science and in the ways the culture of school power recognizes.

Based on the findings set forth in this dissertation, there emerge several political, social, and educational implications in order to move towards social justice and equity for the students in this study. In terms of the political implications of this study, it becomes clear that in order for these students to more assuredly realize their dreams, several changes must occur. First, national laws that block these students from a path to citizenship need to change. As of the writing of this dissertation, there is a Comprehensive Immigration Reform bill, S. 744, proposed by a group of bipartisan senators called the “Gang of Eight” that is up for debate on the national senate floor (Border Security, Economic Opportunity, and Immigration Modernization Act, 2013). The bill offers several provisions that would help the students in this study should it pass, though it is not ideal. If passed, there will actually be a path to citizenship for immigrants who are undocumented that arrived before December 31st, 2011, but they would only be eligible for citizenship after passing through many hurdles that will require a 13-year-long wait and \$2,000 in fines. DREAMers who entered the U.S. before the age of 16 and have been in the U.S. for at least five years (all the students in this study meet these requirements) would be able to apply for citizenship after five years if they have completed two years of college or military service. Additionally, the bill will increase the

number of H1-B visas from 65,000 to 180,000 to allow for more immigration of “highly-skilled immigrants” with special attention to those with doctoral degrees in STEM fields. It is the hope of this study that this bill passes the Senate; then it must also be passed by the House of Representatives and signed by President Obama. However, it is important to note that this bill is not ideal for the students in this study, because it would require them to attain two years of college education while still non-citizens, which as of the date of this writing would still require them to pay out-of-state tuition. Further, there are no provisions in this bill to allow them to apply for federal financial aid, so they are still left with the situation there are in presently—figuring out how to attend college and pay out-of-state tuition out of their own pockets. They would qualify for the DREAMer citizenship provision of the bill before they would get to the point of qualifying for the H1-B visa for those with doctorates. Nevertheless, this bill is a step towards citizenship for these students that did not exist before, and for this reason, this study advocates for its passage. One of the implications of this study is to motivate stakeholders to call their congresspersons and urge them to support this bill, and also voice their concerns about where this bill falls short, to open the path for additional needed legislation, such as access to federal financial aid for DREAMers. This study advocates sharing with those in power the stories of these students and their arguments of interest convergence and social justice that may compel politicians and others in positions of power to write or support legislation that would benefit students such as those in this study. The other issues that need advocacy are a push for in-state tuition, which occurs at the state level, which will be discussed next.

Even if the national comprehensive immigration reform bill passes, the students in this study would still be required to pay out-of-state tuition without the ability to seek federal financial aid, as the current laws of this state are written. Another implication of this study is to also urge stakeholders to contact the state representatives of the state in which this study was conducted and urge for the passage of House Bill 904 (In-State Tuition/Some N.C. Immigrant Youth, 2013) that is currently being considered by the state's House Committee on Education. The students in this study support this bill's passing as it would mean that because they qualify as DREAMers who came to the U.S. before the age of 16 and have been in the state's public schools for more than a year (in some cases, their entire schooling lives), they would qualify for the same residency requirements as other college students, and be able to pay in-state tuition at state public universities and community colleges. This law, however, neither accounts for the current state provisions that prohibit them from being granted any professional licenses (The Code/Policy Manual, 2007), nor does it state that it will retract the state public university system's School of Science and Mathematics addendum in which it will only admit legal residents (The Code/Policy Manual, 2007). In addition to speaking to state representatives to urge them to pass H.B. 904, this study recommends speaking to them about these additional policies in The Code/Policy Manual, and suggesting that amendments that deal with these prohibitive policies be added to the bill, or also calling the leadership at the state's public college system and asking them to revise their policy if H.B. 904 is passed to allow DREAMers to attend their colleges and universities for professional licenses and/or to enter into the School of Science and Mathematics.

Considering that all the students in this study want to go into science or become teachers, these policies could still be prohibitive even if the state bill for tuition equity passes.

It's important to discuss that although several of the students in this study have applied or already received their Deferred Action for Childhood Arrivals (DACA) worker's permit, it is important to emphasize that it is only that: a permit to work. This does alleviate some of the issues the students in this study were previously concerned about as voiced in their *testimonios*, such as the ability to work legally in the U.S. and, just recently, the state granted DACA permit holders the ability to obtain driver's licenses. However, the DACA permit never leads to citizenship; it is no substitute for Comprehensive Immigration Reform. The DACA permit does not change the students' out-of-state tuition concerns, financial aid concerns, or any of the other state or national policies that limit their access to college. Because the DACA permit is *only* a permit to work, it has had the unintended consequence of tempting some students, such as Uriel (who was a participant in this study, though not one of the five *testimonistas* chosen for this dissertation) to consider going straight to work *instead* of going to college, and possibly dropping out of high school to be able to work more hours, now that they can, legally. Though Uriel has not yet dropped out of high school, he continues to voice his consideration of getting a minimum wage job after high school, instead of college, because he would at least be making money, whereas paying for college would be insurmountable given the current out-of-state tuition he would have to pay. For this reason, this study urges to push for additional laws such as S. 744 and H.B. 904, as well as even more progressive measures beyond these bills as described above. As one student

who is undocumented in another study voiced, “When I got my DACA card, I licked it, and it tasted like plastic, not like freedom” (Muñoz, 2013). This study holds that DACA is not enough, and much greater political change must occur for these students to be able to realize their dreams in science.

In addition to the above political implications, the findings of this study lead to several social implications as well. The first is that social discourse surrounding immigrants who are undocumented should change. As has been shown in this study, many of the master narratives often heard in the public discourse are incorrect, such as immigrants who are undocumented being a drain on society, less capable in school or science, unable or unwilling to acclimate to the systems of power (such as learning to speak English, etc.), that their families do not care about their schooling, and that they are criminals. It is important that stakeholders, especially educators and teacher educators, become aware of the fallacy of these narratives and work to dispel them among their students. For teacher educators, the chances are likely that the teachers they educate will have at least one immigrant who is undocumented as their student at some point in their teaching career. Often, these preservice or inservice teachers are subjected to these incorrect master narratives about students who are undocumented, and are not aware of the counter-narratives. Sharing the facts about undocumented immigration and sharing counter-narratives such as those in this dissertation would help teachers approach students who are undocumented with understanding and compassion.

Special attention should be paid by all stakeholders to the specious dominant narrative that infers immigrants who are undocumented are criminals. This narrative

often manifests with the assumption that immigrants who are undocumented have broken a federal law and translates into the damaging and inappropriate terms “illegal alien,” “illegal immigrant,” or “illegals” to describe immigrants who are undocumented.

However, immigrants who are undocumented have broken no laws and therefore cannot be considered criminals. This is due to the Supreme Court decision *Fong Yue Ting v.*

United States (1893), still upheld today, which states that immigration policies are civil issues, not federal or state laws. Therefore, people who violate immigration policies such as entering the U.S. without authorization or staying past their Visa expiration have committed a civil offence, but have not broken a law. The penalty for committing a civil offense is usually a fine, or in the case of immigration offenses, deportation. It is important to note that as far as the legal system is concerned, that the *Fong Yue Ting v.*

United States (1893) court decision reads

The order of deportation is not a punishment for crime. It is not a banishment, in the sense in which that word is often applied to the expulsion of a citizen from his country by way of punishment. [...] He has not, therefore, been deprived of life, liberty, or property without due process of law, and the provisions of the Constitution securing the right of trial by jury and prohibiting unreasonable searches and seizures and cruel and unusual punishments have no application.

Deportees are not legally considered to be criminals, have no criminal record, and face no punishment after having been deported. It is especially important to note that those with DACA permits, such as many of the students in this study, have additionally been granted “legal presence” where they are not subject to deportation, and so calling these students “illegals,” especially when they have DACA permits, is even more incorrect: they are quite literally “legal,” even if their rights are still limited. It is also important to note,

based on the Supreme Court ruling *Plyler v. Doe* (1982), that students who are undocumented are guaranteed a free and public K-12 education, though are not guaranteed higher education beyond grade 12. *Plyler v. Doe* (1982) also established in its decision that children who are undocumented are innocent and not accountable for violating immigration policies, as they stated when they repealed the Texas law that prohibited students who are undocumented from attending public school, that the law is struck down because it “imposes a lifetime hardship on a discrete class of children not accountable for their disabling status” and that the law has to “take into account its costs to the Nation and to the innocent children who are its victims.” The decision continues, “We are reluctant to impute to Congress the intention to withhold from these children, for so long as they are present in this country through no fault of their own, access to a basic education.” For these reasons, because the students in this study, and all immigrants who are undocumented brought to this country as minors, are not considered at fault in violating immigration policies, the term “illegal” is especially inappropriate in this case. It is important for all stakeholders, but especially educators and teacher educators, to be aware of the terms they use and to inform others of the realities that counter the master narratives that exist in the public discourse regarding the legality of immigrants who are undocumented.

Regarding educational implications of this study, it is important for educators and teacher educators to note the large demographic shift that is ongoing in our nation’s schools, where one in five students is Latin@, and one in four Elementary school students is Latin@ (Fry & Gonzales, 2008). The 2010 U.S. census has projected that by

2050, Latin@s will comprise more than 30% of the U.S. population. Presently, there are 11.2 million immigrants who are undocumented in the U.S., with 65,000 students who are undocumented graduating from high school every year. Giving these numbers, it is highly likely that educators will have at least one Latin@ immigrant who is undocumented in their classrooms, and teacher educators will likely work with teachers who will have these students in their classrooms. As such, it is imperative that educators and teacher educators be aware and sensitive to the issues that students who are undocumented and Latin@ students confront. Further, these demographics also have an impact on stakeholders concerned about the future of science and science education in the U.S. With an increasing number of Latin@s making up the U.S. population, those in the field of science and science education cannot afford to ignore the cultural and sociopolitical issues of this group. As was shown in this study, these students draw on their *Latinidad* to negotiate the dominant worlds of science. Given that much of science and science education considers itself to be “neutral” while some scholars argue that in reality this “neutrality” is really a veiled defaulting to Eurocentric, White values (Carter, 2006, 2010; Coburn & Loving, 2001; Harding, 1991, 1998, 2006, 2008; Rodriguez, 1997, 1998; Sammel, 2009; Scantlebury et al., 2007; Stanley & Brickhouse, 1994, 2001), science educators must consider ways to be more culturally inclusive of Latin@ scientists and science students, and the hybrid, “mestiza” negotiations they may enact in science.

It is also important for science educators and science teacher educators to be aware of the sociopolitical realities their students may face, and take them into account when encouraging students to enter into scientific fields. As was shown when Ms. Grey

took an active interest in becoming aware and helping students through their legally-imposed struggles, students became much more assured of their futures and much more engaged in pursuing their futures in science. One may wonder, too, how much influence Ms. Grey had in turning students onto science, merely because she cared for her students enough to openly be concerned about their sociopolitical realities. Her attitude and caring may have had some effect. Valenzuela (1999) also showed how effective a teacher of Latin@ students can be in encouraging those students to achieve in school when a teacher openly cares about social justice issues that affect her/his students. Silvia also showed how her sixth-grade science teacher's caring with sensitivity to her undocumented status helped change her attitude about school and science:

And at first I was just like, 'okay, why are you helping me? I'm not gonna be able to do anything, I'm not gonna be able to succeed.' I guess just that type of expression towards you helps. She helped me change my attitude towards myself. Since then, like she actually helped me motivate myself.

This study encourages science educators to look beyond the assumed "neutrality" of science and become aware of the sociopolitical issues that science students face as a means to better reach their possible aspirations in science. It is also important for science educators and science teacher educators to consider the Lugonesian conditions of being "at ease" enough to travel into dominant worlds and lovingly play with one's identities within them. This requires being aware of the norms and community one fosters in one's classroom or informal science setting such that non-dominant students, especially Latin@ and immigrant students, can find ways to be fluent in those norms, normatively happy with them, and feel humanly bonded and sense a shared history with others in the science

classroom and in informal science settings. Keeping these Lugonesian tenets in mind will help science educators to not only apply the ideas of their students' funds of knowledge and hybrid identities in their science classrooms, as has been discussed previously in science education literature, but also add an additional dimension to the negotiating process of crossing cultural borders into the culture of science, and helping facilitate that world traveling with concepts on how to make the dominant worlds of schooling and science safe spaces where non-dominant students feel "at ease" enough to lovingly play within them.

A final implication of this study is to compel all stakeholders, but especially science educators, science teacher educators, and science education researchers, to act as allies and change agents in solidarity with the students in this study and other students like them. The need for understanding and encouragement at the student level is necessary and can make a difference as to whether a Latin@ student who is undocumented persists or becomes discouraged from following a science trajectory. Knowledge of the legal and cultural issues they negotiate could be taken a step further to openly advocate for students in these situations, informing administrators, teachers, and the community about the issues these students face, and pushing back on uninformed master narratives about students like these in one's scholarship, curriculum, and conversations with others. Acting as an ally and change agent may mean advocating for changes in laws that affect students, especially laws that limit or discourage students from entering into a field like science, which is currently very low in Latin@ representation. Being a change agent in solidarity with students like those in this study means continually

asking what one can do to support and encourage these students to follow their dreams, and taking an active role in pushing against the legal, social, and educational barriers that are in the way of these students aspiring to achieve in science. Crystal describes what being a change agent and ally means to her: “What bothers me is how people are like ‘Oh, okay. We’re gonna do one good thing for one person or a group of people.’ But like, in reality, there’s so much more they could be doing. There really is.”

The implications of this study can be applied to many political, social, and educational situations that affect high school students who are undocumented and have aspirations in science such as the ones who shared their voices here. These implications are meant to invoke Pizarro’s (1999) Chican@ epistemology when it comes to attaining social justice for Chican@ communities through research. The ultimate focus is on how this research can advocate for social change that will benefit the participants. The above section related many implications that may help in attaining social justice for students like those in this study so they may achieve their dreams within a science trajectory. The following section concludes this study with thoughts about the overall shared human experience, which is at the heart of these students’ and this dissertation’s appeal for social justice.

In Lak’ech: Concluding Remarks

To conclude this dissertation, I wish to express that this study is an act of solidarity with the students who courageously came forward and shared their lived realities and voices so that others may know their struggles, experiences, and dreams. It is our collective hope that substantive sociopolitical change occurs in the near future that

would help them realize their dreams in science in more certain terms. It is also our collective mission to continue to speak and work towards the social changes we desire, and not just wait for them to happen. The Mayan prayer entitled *In Lak'ech* at the beginning of this chapter was historically recited at the beginning of every class session at the since-banned Mexican American Studies program at high school in Tucson, Arizona. It is, as *Rethinking Schools* (2012) also observes of the poem, an honoring of students' lives, a demand for academic excellence, an ethos of love, a showing of mutual respect, and vow of solidarity, and a hope for a better world as it shares: *You are my other me, If I do harm to you, I do harm to myself, If I love and respect you, I love and respect myself*. It is in this spirit of solidarity that this dissertation was written, with the students of this study, and also with the larger undocumented community.

It is for this reason that this study wants to make clear that this is a work meant to call for social justice for the entire undocumented community, not just for high-achieving students, not just for those who wish to enter into the field of science. Calling on the spirit of *In Lak'ech*, an injury to one is an injury to all. And so while this study uncovers one wavelength out of the full spectrum of the struggle of the undocumented community, we acknowledge still that within this study, these students' dreams to pursue science are real, and should be realized. The laws in place are unjust. However, this appeal for social justice is not limited only to students who fit the model of what is "acceptable" within the system of power by invoking trajectories in science and high achievement in school that placate dominant structures. While these students stories are a legitimate part of the spectrum, their stories alone should not be the only ones to justify why anti-immigrant

laws should be changed. All immigrants who are undocumented are human beings who deserve acknowledgement of their human rights. This should not have to be justified by those who fit the standards of legitimacy by the dominant structure, which holds high-“achieving” students who want to excel in a highly regarded and needed area like science to a more desirable standard. Nevertheless, we recognize that it is students like these, and the struggles they reveal in this dissertation, that make a compelling and realistic argument that may “win over” those within the systems of power that can make a change in the laws and policies that currently limit these students’ futures. And for this reason, the stories and arguments made in this study are valuable, even if they are only a slice of a much larger undocumented community, all of which deserve justice and the ability to live without fear, and with hopes that their dreams will come true, in science or otherwise, and that nothing will stand in their way.

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APPENDIX A

PARTICIPANT OBSERVATION PROTOCOL

<i>Observations made</i>	Student participants interacting with each other	Student Participants interacting with the teacher or after-school facilitator	Student Participants interacting with the researcher
What are the participants saying? (words spoken or written)	Saying to each other	Saying to teacher or facilitator	Saying to the researcher
What are the participants doing? (actions)	Doing with each other or for others to see	Doing with teacher or facilitator	Doing with the researcher
What are the participants producing? (practices through patterns or artifacts)	Social and cultural practices and artifacts produced by the students in context	Social and cultural practices and artifacts produced with or for teacher or facilitator	Social and cultural practices and artifacts produced for or with the researcher

APPENDIX B

SAMPLE FIELD NOTES

(Note all names have been changed to their pseudonyms)

10/4/11

Ms. Grey 4th Block

Fieldnotes by JRAV

Students come in quickly, take their seats before the bell rings.

I am looking at fossils that I brought in for Ms. Grey to use for her fossil lab tomorrow, and Sergio and Uriel and Oscar come by and are fascinated by the fossils I was sharing with Ms. Grey during her planning block, before they came in. I put them away quickly because [according to Ms. Grey] they are not supposed to see them yet.

Grey: Alright guys, there's a quiz on your desk, no talking, quickly take your seat.

Students start working on their quiz quietly while Grey takes roll. Everyone is present.

On the board:

Daily Assignments:

- 1.) Copy homework
(15 min)
- 2.) Bell Ringer—Bell quiz/guided notes pg 107-110
(15 min)
- 3.) Vocabulary graphic organizer—Define key terms only!! ☺
(10 min)
- 4.) Guided reading pg. 121-125
(20 min)
- 5.) Sedimentary Rock observation lab—explore sedimentary rocks using a stereomicroscope
(20 min)
- 6.) Flow chart—track the formation of sedimentary rocks using a flow chart graphic organizer.

Homework:

- Vocabulary sheet—due oct. 7
- Bring small objects for fossils—due oct. 4
- Scientist reports—due oct 7

Essential Standards:

- **Sequence** the formation of sedimentary rocks.

Luster:

- Pitchy—dark or like tar
- Earthy—like dirt (soil)
- Metallic—looks like metal

Dull—non-reflective
 Slick/slimy—[nothing written here]
 Waxy [nothing written here]

Then on the far right edge of the board, there is listed the “Chapter 3-4 test results” and it has 3 blue sheets of paper that say:

Highest class average—block 2—80%
 Class average block 4—75%
 Class average block 1—64%

Next to the blue paper with block 2’s score is written “We’ve earned cookies!”

The students were quiet while working on their bellringer at first, and then slowly they start to murmur and it gets a little louder incrementally.

Grey: Ok, sounds like you’re finished, exchange papers. [Students do so quickly, as if they’ve done this before many times]

Grey: Who can tell me the difference between magma and lava? Sergio?

Sergio: Magma is under the surface

Grey: Who can tell me what’s the difference between intrusive and extrusive rock?

Javier: has small crystals, cools faster is intrusive.

Grey: Cooling rates determine what?

Yasmin and other students: Grade

[They go through them very quick, I can’t catch all the rapid-fire questions and answers.]

Grey: They are 20 points each, put the grade at the top.

Uriel: I got 100 Ms. Grey.

Grey: Very good.

Grey: Ok, hang on to your papers, on Friday I’ll choose the bell quiz for the week. Today we’ve got quite a few things to get through. So I’m going to need your cooperation, raise your hand if you wrote down your homework [less than half raise their hands]. Ok, I’ll give you a moment to do that.

Grey goes over the fact that they need to bring a small item to fossilize tomorrow.

Students start all going “Can I bring a flower? Can I bring a key?”

Grey: Just anything that’s small to press into a small section...

Grey: On pg 121. Repeat after me: Sediment. Lithification, bedding, graded bedding, cross bedding....

All students loudly repeat every word after her. [The loudness from some students is such that it’s almost feels like some are being comical on purpose, but in a way that completely complies with the norms]

Grey: Those are your key words for today.

Grey: What I want you to do is write the names of the key terms that you’re going to have to define today, and write the definition only in class, the rest of the sheet is yours to finish for homework, because you can do it once you have the definitions. Once you get your paper, get started (very business like, quick, and matter-of-fact)

Grey passes out papers.

Grey: Guys, keep in mind that graded bedding is one word. You start it in class, and finish for homework. Let’s settle down and get to work. While you’re working, I want to share with you that on Friday I’ve invited the assistant principal to come in, so he can see you guys, I’ve been bragging on you guys, just so he can see how you guys handle labs, if you’re too big to handle labs. This is one of the best classes to observe because you’re probably one of the most orderly classes I’ve seen in a long time, but there are still safety issues. So I want you to be on your best behavior, but you always are, so just be yourselves.

Yasmin: What lab are we going to do on Friday?

Grey: A lab on porosity.

Yasmin: What about the lab on fossils?

Grey: That’s tomorrow.

Uriel: What about the salt lab?

Grey: We’ll have to fit that in somewhere.

Students start working on their vocabulary graphic organizer relatively quietly.

Yasmin: 1, 2, 3, 4, 5,.....there’s 9.....

Grey: Graded bedding goes together. You have bedding and then graded bedding.

Students continue to work quietly, all I hear are the rustling of papers and student look up definitions to their key terms in the textbook.

Uriel: Ms. Grey, I have a question. What's the definition of Fastic. Is it broken?

Grey: Use your glossary

Oscar sneezes.

Nearly whole class in unison: Bless you.

Oscar (loudly): Thank you, everybody.

Nearly whole class together: You're welcome.

Class goes back to working quietly. [This scene is just crazy amazing, like out of a movie!]

Grey circulates the room.

Yasmin and Javier are whispering to each other.

Oscar turns around and whispers to Yasmin and Javier.

Everyone else seems to be keeping to themselves.

Grey comes up to me and tells me that the extra credit on that test saved them [referring to the chapter 3-4 test given last Friday and the performance extra credit] That they really did very well on the performance part, so much better than the multiple choice part.

Ms. Grey goes over to talk to Yasmin and Javier and Oscar, and then she comes over to me and says in Spanish "tengo una pregunta" I look at her and say yes? And she says "I don't really have a question, they just told me to say that." She points over to Yasmin. I smile at them.

I say to her, while looking over at Yasmin who is smiling, "Si tienes una pregunta, me tienes que preguntar algo."

Yasmin (smiling): If you have a question, you have to ask her something.

Oscar: Ask her how you say highlighter in Spanish.

Grey smiles and stays quiet.

Uriel: You don't even remember.

Me: Isn't it respador?

Uriel: Awww, you don't remember either.

Yasmin: It's resaltador!

Me: Ohhh! I just always say highlighter!

Yasmin smiles and keeps talking with Javier, but I couldn't hear.

Grey [a little later] : We have two activities today, we want to spend about 20 minutes on each of them, one of them you're going to do an observation of sedimentary rocks on the stereomicroscope, and then you're going to do a flowchart to sequence the formation of sedimentary rocks. But first we're going to read about it so if you please will join me in the book. I need a couple readers, a couple volunteers.

Uriel: I won't volunteer no more.

Grey: Then you'll just be drafted.

Uriel: No, so other people can volunteer.

Grey: That's very kind of you.

Grey: An African American girl volunteers to read, she reads fluidly and quickly the first paragraph, which is about sediments and sedimentary rocks.

Grey: Ok, new reader.

The Asian boy with the scar on his forehead reads. He has a strong voice that can be heard well across the classroom. He reads a little slower but solidly. He reads about weathering.

Grey: Has anybody ever driven through the mountains? [Students, including Yasmin loudest: Yeah!] Have you ever seen the sides that say look out for falling rocks? [students: Oh, yeah!] Well they fall because of weathering, because the water breaks them off and they fall. If you look at the picture at the very top of the page, you can see the granite is coming apart because of chemical weathering. Continue reading. Donny?

Donny [pseudonym, an African American girl] reads more about weathering, and reads quickly and well, if a little emotionlessly.

Grey: I need a reader for erosion.

Yasmin raises her hand

Grey: Yasmin?

Oscar: Nooooooooo! [Oscar also had his hand up, as he often does when Grey calls for a reader]

Yasmin reads flowingly. Midway through the paragraph, she reads: “Where do you think the dust comes from?”

Grey: Good question, stop for a second, where do you think it comes from?

Many students posit guesses.

Maria [Pseudonym, a Latina]: Dead skin?

Grey: Dead skin cells. It sloughs off.

Yasmin: If it’s dead skin then why are people allergic?

Grey: There are other things within the dust like pet dander and pollen and things people are allergic to.

Yasmin: Oh.

Grey: Continue reading.

Yasmin keeps reading about erosion.

Grey asks about the properties of erosion, sequence, and the agent of erosion.

Students volunteer the idea of weathering, transport and movement, deposit, etc.

Grey: Let’s read about deposit. Oscar?

Oscar: “Yeah!” Oscar reads about deposit.

All other students, as they have been for other readers, are reading along in the “Earth Science” textbook quietly.

[I am noticing the same Latino students reading each time. Other Asian students, especially in the back, or the one white boy in the class, they don't seem to read, volunteer to read, or call out answers as frequently.]

Grey: Let's look at the burial. Diane? [Pseudonym, an African American girl]

Uriel: You skipped one.

Grey: I'm sorry, the paragraph before.

Diane reads the paragraph quickly.

Grey: Next one.

Grey calls on an African American girl in the front row, right side. Didn't catch her name.

Oscar: I have a question, you see the picture? If a big wave came, and I was standing there, would it kill me?

Uriel: Hope so.

Grey: If you are there the pressure could kill you, the weight of it, pressing you against the rock.

Uriel: But it didn't kill the Scorpion King in the movie!

Students bust out laughing.

Grey: Because its.....a....movie!

Grey: Ok next reader. Maria?

Maria reads about grains and spaces between the sedimentary rocks.

Grey: So you see the mud in the first section of the picture, and as the water is squeezed out, it becomes flatter and more condensed. [Grey often does this in between student readings of paragraphs. She make a comment to summarize the ideas or, more often, makes comments to connect what they're read to the pictures accompanying the reading in the textbook.]

Oscar: So, is that like us...

Uriel: Don't say something stupid man.

Oscar: Is that like if we were squished, how would we look if we didn't have any water?

Grey: Dry and flaky.

Oscar: Is that like those commercials of Capri Sun where he's all flat?

Several students: Dude, just....

Grey: You'd probably look like a raisin compared to a grape.

Uriel: Wait, could there be green raisins? [Uriel can't help but join into Oscar's seemingly random questions, after all!]

Grey: Yes..... [Grey talked about this somewhat in her 2nd interview, about the fact that if the students have random questions, even if she herself doesn't find it interesting, she humors them, because then they give back to her. I see many examples of this.]

Uriel: Who's laughing now?

Students laugh.

APPENDIX C

INITIAL STUDENT INTERVIEW PROTOCOL

First Student Testimonio Interview Protocol

Person being interviewed:

Date, Time:

Pseudonym chosen:

-
- 1.) Tell me about how you see yourself in your science class/STEM club, as a student, science learner, Latin@, honors student, teenager, how other students see you, teachers see you, family sees you.
 - 2.) Tell me about what you want to do in the near future, distant future, in college, as a career, etc.
 - 3.) What do you think are your chances? What do you think it will take to get there?
 - 4.) How do you see your chances in term of being a girl/boy? Latin@? A student from [Jones High]? A teenager whose parents are in the economic position yours are in? A Latin@ living in [Greyberg]?
 - 5.) How would things be different if you were a different race, at a different school, lived in a different place, or parents had more money? What else would you change that would make things easier?
 - 6.) Tell me about your culture, your background, your friends, and your family.
 - 7.) How does being Latin@ affect what goes on for you at school, if at all? How do you interact, how are you treated by other students, by teachers?
 - 8.) Why do you think Latin@s at [Jones] have a much higher graduation rate than state & national averages?
 - 9.) Latin@s are the most underrepresented in science, What do you think of that? Why do you think it is?
 - 10.) Are you treated differently because you are in honors/AP/IB? (By who?) How about as an honors student who's Latin@? Would it be different in a different school? If you were different race?
 - 11.) What would you say it takes to do good in school? Science class? As a Scientist? As an honors student?
 - 12.) If someone were to say to you: "Latin@s are no good at science." What would you say to them? Who would you picture saying something like that? Why? Would they say that about other races?

APPENDIX D

MEMBER CHECKING NOTES

Sergio's Story

- Born in San Luis, Mexico.
- Came over when two years old.
- Is interested in being a chef or going into mechatronics—which is mechanical and electrical engineering and robotics.
- Loves writing poetry
- Does poker tournaments and championships.
- Father used to be a federal agent in Mexico. (Los Federales)
- Sergio likes mechatronics because he used to go with his friend to do Robot wars, and he has built robots and is really good at it and finds it easy. He thinks it's fun to work with circuitry and boards.
- “Robots in a way are superior to humans. They just need operators.”
- Sergio's dad used to be a chef.
Sergio's dad saw that in Mexico, his life was on the line, because in the federal district there were a lot of wackos and his dad made some enemies, so they decided to move here.
- Two years after the family moved here, when Sergio was 4, his mother died in a car accident.
- Sergio feels that the DREAM act should be passed because “not only does it help us, but it also helps the Government, because a lot of us just want a chance, a chance to get the education that we really deserve, and with that education we'd put it towards careers, and jobs. After a while, we would be paying taxes, so the Government would be making money.
- Sergio has two older sisters, he is the youngest. One of his sisters was really good at science and wanted to be a nurse, but because of the barriers to getting into college because of her legal status, she had to give up on that dream. It makes her really down.
- Sergio's other sister was studying to be a biochemical engineer, and had to stop because of their mother's death, and also because she had an accident at work that she didn't immediately report, so now she has back problems with no compensation, and she can't continue treatment because she has no health insurance.
- Sergio is looking for scholarships to go to school here, and if not, he's considering going to Mexico.
- Many in Sergio's family say that high school doesn't matter, but Sergio says that their actions are just feeding into the stereotype of what undocumented Latinos are.
- Sergio's family put in for citizenship when his mom was pregnant with him, and his mom's paperwork just came through now, 14 years later.

- Sergio tried hard in school because there is some possibility he might succeed and go to college but if he doesn't try, then nothing will come of it. But he says that hope is like a candle, and it may eventually burn out.
- Sergio read GizMag magazine and reads about inventions in his spare time. He's aspiring to make inventions like to Noah's Ark Project in New Orleans to expand the city.
- Sergio is also concerned with creating devices that will alleviate the use of natural resources and pollution in transportation and inventions to help agriculture.
- Sergio is inspired by the fact that in Mexico, they made a car that runs on water.
- Sergio says that people are really misinformed and brainwashed against immigrants.
- Sergio says that Latino culture is very intertwined, and he is proud of his culture. "I mean, no matter where I am, I'll still have Aztec blood. I'm not afraid to admit it."
- It's very unfair that people here look at your skin tone and ask if you're legal, Sergio calls it a "vicious cycle" that started with the African Americans, and now goes from race to race.
- Sergio says he does lots of labs in his spare time, so the labs he does in Ms. Grey's class don't really impress him, but he can see how they might get others interested in science.
- Sergio is knowledgeable with auto mechanics, and has to warn his dad against auto mechanics that are taking advantage of him.
- Sergio says he's not very trusting and is cynical of people at first.
- Sergio thinks that the reason why there aren't that many Latinos in science is because "I think it is mostly because in our culture, science really wasn't really needed. The industrialization hit Mexico slowly, whereas here it boomed. "
- Sergio thinks it takes a lot of discipline and respect to do well in science.
- Sergio says that as an honors student, he chooses his friends carefully so they are a good influence.
- Why Sergio tries so hard in school: "Really I think it's the possibility that somebody will notice your hard work, whether it's a teacher, a counselor, or even maybe another student, there's always the possibility of somebody noticing your hard work and speaks fondly of you, because it speaks fondly of your parents, and really your culture too because if they're like without, you know, a Mexican guy, wow. If they had thoughts about oh Mexicans are just like out dogs and stuff, but see you working hard, getting straight As and will be like, wow, I was wrong. It changes things. "
- Sergio says that the reason for changing the laws for students like him is that "we're here anyway, why not take advantage of a potential resource. Why let it go to waste?"
- Sergio is currently working with a professor from the local collaborating HBCU who is a Latino professor in Biochemical Engineering, working with a group that is focused on finding Hispanic engineers. They are "grooming" him into the field. Sergio met this professor when he came to give a lecture at Jones High.
- Sergio is working with this Latino professor from the HBCU in part by starting an organic garden in his backyard using the professor's methods and then reporting the data back to him.

Followup questions:

- What's accurate to your story?
 - What is inaccurate?
 - What would you add that was not covered here?
 - What else would you say to a powerful person who could be reading your story?
 - What patterns or themes do you see in your story or what you have to say?
 - What are the key points that you really want others to know?
- (Hello, my name is _____, and this is my story. Please hear what I have to say. This is what I need you to know about me.)

Crystal's Story

- From Mexico. Town: Irapuato, Guanajuato
- Free/Reduced Lunch: Free
- Came over when 9 months old
- In AP/IB program. Going to AP Biology.
- Wanted to be a Biology Teacher, but changed her mind because she says she doesn't have the patience, now maybe a Biologist or Genetic Consultant, maybe in Spain or Mexico, or maybe a cosmetologist
- Crystal likes science better than math or language arts, etc.
- Doesn't like school because some teachers don't teach, or are rude and disrespectful toward students, but knows you have to go through it to "get somewhere and graduate"
- Crystal doesn't like how teachers demand respect but don't give it.
- Crystal likes Ms. Grey because she actually teaches, in a hands-on way, and is there for you.
- Crystal is concerned about a friend who has an 1800 SAT score but is thinking of giving up school because he is undocumented.
- Crystal thinks that the garden, though SLI and the STEM club, is being dominated too selfishly by Mr. Aaron.
- Crystal thinks that in order to be a genetic consultant, you have to pay attention in school—"even though some people don't take advantage of it and many Hispanics they're like "Oh well, I don't think I'm going to get very far so I'm just going to go into roofing or things like that."
- Crystal says she doesn't like chemistry because it has a lot of math in it, and she doesn't like math because the teachers are like "Okay, this is how you do it. These are the formulas. You need to memorize them. We have a test Friday." That's just like—there's no passion in the career you are going into so I kind of lost it and now I don't like it. It seems very boring and it's a lot of memorizing. "
- Crystal also didn't like Aaron's class because she says he didn't teach, and mostly what the class did was copy things from the book, not much hands-on, and even when there were labs, they were boring. She says Aaron didn't have much passion.

- When Aaron first brought up the STEM club, he asked students to stand up who were interested, and Crystal stood up, and Aaron told her to sit down.
- Crystal doesn't like that those that are in the STEM club get to skip class all the time.
- Crystal thinks that Aaron showed favoritism to the students in the STEM club.
- Crystal has 2 younger brothers and one on the way, lives with mom and stepdad.
- Crystal thinks her mom just doesn't understand about being involved in school, playing sports, and her mom wants her to be home cleaning the house.
- Crystal quite the soccer team recently? Now works afterschool?
- Crystal's mom only went to school up to the 6th grade, in Mexico.
- Crystal's mom and birth dad would fight a lot, physically, so her mom left her dad and moved from L.A. to [Greyberg].
- Crystal says that if she didn't have papers by the time she graduated, she was going to leave, go to Mexico or Spain maybe.
- Mr. Niler, a Jones teacher, tried to pull Crystal out of the IB program because she "wasn't intelligent or mature enough" and Crystal fought to stay in IB.
- "Because I, as a minority, know that many of my race and many of the Latinos just in general don't have as much of an opportunity or think that they can't so they limit themselves and then they stop trying and they drop out and do all this nonsense. Just because somebody tells them they can't do it doesn't mean they can't. It's just somebody else that knows that they couldn't succeed in life and they try to pull somebody else down and tell them, "Oh, you can't do this because of some reason." You can do whatever you want and if it's beneficial if you set your mind to it. I mean you just—like this poem thing once said, "I'm the captain of my fate. I'm the captain of my soul—the master of my soul."
- Crystal knows that because of her undocumented status, she will have to pay a lot more for college, but she says "an education is an education"
- "my mom says I'm basically American, because I have been here my whole life. "
- "But I kind of do feel like that they can't really say anything about, "Oh, go to your home," because America was founded on immigration and nobody is originally from here except the Cherokees."
- Crystal says just because people are legal "That doesn't make them any better than me. I know what I can do and I know what limits me. Like that is a big limit but it's not going to stop me completely. Because I know I can get far with hard work."
- When Crystal was around 12, 13, 14, she would go around asking people and her contacts on her phone to call (where?) to support the DREAM act being passed.
- She did this because "I just know that what is really limiting me. I'm very aware of what's pulling me back and what's trying to put me at a stop sign. It's like I don't want that to limit me. I want to get somewhere in life."
- Crystal thinks that few Latinos go into science because they feel limited and don't see the point to continuing school because they aren't going to get anywhere.
- Crystal says that the schools and government tries to push you to get an education but then limits you: "The government is like "Yeah, go for education. Everybody try to

- get a good future.” Then they turn around and saying, “Except the illegal immigrants that are here.”
- Crystal used to be in a science and technology program in middle school. She signed up for it because she likes science.
 - A typical day in science class for Crystal is “Paying attention to the teacher and then arguing about it or trying to find out more information. “
 - “I see me getting somewhere further in life than anybody thought it was possible for me getting as a Latina. They probably think all Hispanics are dumb or all Hispanics are gangster. I’m not any of that. I know what I am. I’m at least proud of myself, because I’m getting somewhere and I’m getting my education. I at least know that I’m trying to get my personal best.”
 - Crystal speaks mostly Spanish to her family but talks to her stepdad in English because he asked for her to teach him English. She speaks to her brothers in English and speaks English to her mom only when she’s mad, and her mom gets mad.
 - Crystal says it’s just normal to her to be bilingual.
 - Crystal says her friends are mostly Latino because they understand the culture, have the same background, and will even “understand the whole undocumented thing.”
 - Crystal also attends Friday youth group and sings at her Christian church.
 - “when I was smaller I went through a lot of stuff, really personal stuff and I kind of ended up going into depression. My way of getting out of it was to keep busy and just not think about it. I got really into that and now I’ve gotten to the point where if I’m at home I get a headache.”
 - Crystal says that if colleges and laws continue to limit undocumented students, that’s their loss.
 - Crystal said that if she was white, people would immediately assume that she is smart, pretty, and from a stable home, but because she’s a minority, they don’t.
 - Crystal says she prefers not being rich because she has to work for what she has. If she was rich she would be spoiled, everything handed to her.
 - Crystal says the typical Jones student is ghetto, rude, and drop outs, but Crystal is different.
 - Crystal, in class: “I do talk back. Because I feel like I have a voice I might as well use it.”
 - Crystal thinks that the graduation rate of Latinos is high because they get pushed by their parents to give them a good name and do what the parents were unable to do.
 - Crystal says she does well in science and other classes because she has motivation and she tries, not because she’s smarter than anyone else.
 - If someone said to Crystal that Latinos were no good at science, Crystal would say “Watch me.”

Followup questions:

- What’s accurate to your story?
- What is inaccurate?

- What would you add that was not covered here?
 - What else would you say to a powerful person who could be reading your story?
 - What patterns or themes do you see in your story or what you have to say?
 - What are the key points that you really want others to know?
- (Hello, my name is _____, and this is my story. Please hear what I have to say. This is what I need you to know about me.)

Silvia's Story

- Born in Luvianos, Mexico.
- Came over when two years old.
- Is interested in going into forensic science or being a pediatrician.
- Silvia wants to be the person that actually cuts the body or finds out how the crime happened. She's inspired by watching CSI and Criminal Minds.
- Silvia is going to a summer program in Washington DC from George Madison University to work with the Supreme Court and with CSI. She's very excited about it, it gives her college credit, and her parents are proud of her because she gets to represent the Latino people, and motivate other Latinos to study hard.
- Silvia has two sisters, one older, one younger.
- Silvia's parents are divorced and remarried, and she goes back and forth between her mom's and dad's house.
- Silvia's mom works in cleaning, her dad works in maintenance for apartments and houses, and her stepdad works in maintenance and painting.
- Silvia is hoping to get enough credits to graduate early.
- Silvia is hoping after high school to save up money and then go to a community college like GTCC, because that's what she can afford given she's undocumented.
- Silvia is motivated by the fact that she is undocumented. She feels that people who were born here don't take advantage of their privilege to make the world a better place, so she is motivated to go above and beyond.
- Silvia considered herself big into science and good at science.
- Silvia used to do bad in school and didn't care, because she was undocumented so she thought "what's the point" but then in 6th grade her science teacher motivated her and talked with her parents and had her stay afterschool and believed in her, and gave her rides home, and since then Silvia has been achieving and doing well in school and especially in science. Afterschool, she would do hands-on science projects that her teacher gave her.
- Silvia does what she does in school also for her family, since none of them have papers either, this is very powerful for her and she feels this deeply.
- Silvia's older sister was trying to pay for college but they took away her scholarship because they found out she was undocumented, and since then her grades have been lowering and she has no hopes for the future.

- Silvia was president of the STEM club for a while but now she's vice president, she does more of the writing for the club and the new president does more technology.
- Silvia has heard about the bad reputation Jones has and at first didn't want to go to Jones. When she talks to other about Jones they react badly. But since she's been here, she think the school being so multicultural helps, because she gets to interact with many races, and also there are Hispanics she can converse with who can help her with her classes.
- Silvia's mom recently had a seizure, and the whole family has had to start taking care of her, since she can't work now. It's especially hard on them because they don't have insurance.
- Silvia's older sister sometimes blames Silvia for their mom's seizure. And since then Silvia and her older sister no longer has as strong a bond. Her older sister has blamed everything on her since then, and it's very hurtful to Silvia.
- Silvia's mom had 4 jobs before her seizure. Her stepdad has had to take over her jobs in addition to keeping up his own, so he does 5 jobs now. He works from 5 am to 11 at night.
- Silvia's sister is further disheartened about going to college because she feels she's gotta stay home to take care of their mom, but others in the family try to encourage her to go to college.
- Silvia feels motivated even more by the problems her family is having, to do well in school to help her family.
- Silvia is currently looking for a job to help support her family, pay her mom's doctor, and maybe her dad doesn't have to work 5 jobs, but it is hard to find one because she is undocumented and also many employers are hiring only those over 18.
- Silvia's mom's drivers license expired and she can't get a new one because she's undocumented. No one else in the family has a driver's license. The family only has one car, which makes transportation difficult. They are looking to get another car through a documented family member.
- Silvia's mom is afraid to drive at night because she's now driving with an expired license she can't renew, and she might get stopped at night.
- Silvia's little sister was born in the U.S. and the family has high hopes and dreams for her and her future. Right now she wants to be a teacher.
- Silvia's family tells her little sister that she's not Mexican, she's an American citizen, but her sister gets mad at that and insists that she's Mexican, she sees no difference between documented and undocumented people.
- Silvia feels that by her good work in school, she is proving people wrong who think that undocumented Latinos are "gonna get nowhere"
- Silvia is especially motivated in science also "Because usually you don't see that much doctors, a pediatrician, usually you see like Caucasians or African American people and in forensic science it's weird to see a Latina or a Hispanic be able to work and get that far as being in criminal justice or anything. So it's like something I want to accomplish in life and be able to get to that point. So I've been wanting to do that to represent the Latino people and the Hispanics as well." "Because it's like they like

see somebody actually achieving it, they'll be like okay, if she can do it, then we all can. So I guess it helps them motivate themselves as well. “

- Silvia thinks there aren't that many Latinos in science because they don't see many role models in that field and they don't get enough support to go into those fields.
- Silvia got very excited about the STEM club because Mr. Aaron said it was about science and culture mixing, and getting to learn about different cultures and different ways of doing science.
- Silvia considers “Hispanic” to be non-Mexican, like Salvadoran, Honduran, Dominican. She considers herself “Mexican,” and she considers “Latinos” to be anyone who can speak two or more languages.
- Silvia left Mexico at age 2, and all she remembers from there is her grandfather, peeling grapes for her. Even now, she has to peel grapes before she eats them. She also remembers his smashing yogurt in her face, and since then she loves yogurt.
- Silvia says that to do good in science, you need to “study the night before or study the whole week so you can understand it.” Also asking the teacher questions so you can have them answered during class.
- Silvia thinks that what it takes to do good in science in college is “a lot of notes and studying”
- Silvia's parents came to the U.S. first, and then Silvia and her sister came by plane using documents from their documented cousins who looked the same as them.
- Silvia's family came over because it was terrifying in their hometown in Mexico, there were shootings and her uncle was killed after being shot 22 times. Her family was worried they would do something to them because they were the youngest, so they left.
- Silvia and her family communicates with her family in Mexico several times a week through Skype.
- Right now Silvia can't go back to Mexico to visit her family not only because of the legal issues but also because it's extremely dangerous with gangs and she could be raped.
- Silvia's mom also said it would be difficult for her in Mexico because she's too used to American culture and can't speak Spanish all that well.
- Silvia is taking Spanish classes right now to help her with her Spanish.
- Silvia's first words when she was a baby, were in English: dog and cat.
- Silvia mostly speaks English to her parents now, and they speak back in Spanish. Sometimes she forgets her Spanish. Sometimes she “flip flops” English and Spanish.
- Silvia made her niece and nephews try labs that she sees in school. She had them do the drops on the face of a penny, and the expanding gummy bears lab. Sometimes she Googles science labs and then tries them in her spare time.
- Silvia speaks Spanglish with her friends sometimes.
- Silvia doesn't want to sit with other Hispanics in her class because she gets distracted talking to them, and wants to focus on learning.
- Silvia says she is more of a hands-on science person.

- Silvia's older sister taught her about an experiment with baking soda and vinegar, and she's tried it before, so when tried it in class with food coloring. "I just grabbed things and started mixing."
- Silvia also goes to smart girls wise guys during lunch sometimes on Tuesdays, and enjoys the program, which talks about health and sex ed and is only for Latinos, it's given in English and Spanish.
- Silvia puts more effort into her work because she's undocumented, if she had papers, she would probably not work as hard, she feels that this is unfair.

Followup questions:

- What's accurate to your story?
 - What is inaccurate?
 - What would you add that was not covered here?
 - What else would you say to a powerful person who could be reading your story?
 - What patterns or themes do you see in your story or what you have to say?
 - What are the key points that you really want others to know?
- (Hello, my name is _____, and this is my story. Please hear what I have to say. This is what I need you to know about me.)

Juan's Story

- From Mexico. Town: Coahuila
- Free/Reduced Lunch: Free
- Came over when five years old
- In AP/IB program. Going to AP Chemistry while chemistry is still fresh, and will take AP Biology in his senior year.
- Is interested in being a biologist, naturalist, or going into wildlife conservation
- Inspired by Jane Goodall after doing a report on her in 5th or 6th grade.
- Is interested in studying elephants or large mammals.
- Watches animal planet and big cat diary all the time.
- Family supports his career goals
- Has 1 younger brother.
- Is undocumented but are now working on their legal process, after he father was shot by two male figures in Florida, he almost died for a day and then he came back. They lived in a bad neighborhood and Hispanics were targeted because they get paid in cash on a certain day.
- Dad works in construction, mom is a housewife.
- Was held back a year in 1st grade because of his language.
- Juan has been constant in his education to make his parents proud and repay them for all they've done for him. He's always on his little brother to do the same.
- Juan feels honored to be here and doesn't want to waste his education.

- Juan is interested in science because he's the type of person who wants to know as much as he can.
- Juan is definitely going to college, and is looking at scholarships right now.
- Juan has friends that give up in school because of their legal status and drop out and go into construction or cleaning. Juan says he's not going to end up like them.
- Neither of Juan's parents finished high school because in Mexico you have to pay.
- Juan has the 7th highest GPA of the students in 10th grade.
- Juan's friends are also high achievers like him, he prefers this so that they have the right influence on him.
- Juan's parents can't help Juan with his homework, so Juan sometimes stays afterschool for help.
- Juan is the translator for the family, talking to apartments manager for his parents, teachers, etc. He also translates for others in the neighborhood.
- Juan was in ESL from 1st to fourth grade, and then exited the program. In middle school, he was in the AVID program.
- Juan saved his notes from 8th grade and lends them to his brother to study from, for the math that his brother is currently taking.
- Juan does well in school to be a good example for his family, his brother, and to other Latino students who want to drop out.
- Juan dances at quinceaneras and likes to dance to all kinds of Hispanic music.
- Juan likes Mr. Aaron because he can joke with him and he's like a friend.
- Juan says he doesn't hang out with many of the other Hispanics at Jones because he doesn't share much in common with them and wants to stay focused, plus many of them assume he's white.
- Juan draws animals in art and for fun and draws them beautifully.
- Juan says that the U.S. has a history of immigration who just come here for a better life, and many die just trying to get here, and they offer a lot, so those in power should take note and use their powers for good.
- Juan wants to major in science and says that Latinos can prove people wrong who say that Latinos are not good at science.
- Juan says that if they want to see what Latinos can fully do, remove the barriers and then they will see.
- Juan was very inspired by a 3-day nature camp called Nature's Classroom where he saw wildlife. He's very moved to conserve and be aware of the environment.
- Juan strongly identifies with his Hispanic and Latino culture and considers himself 100% Mexican. He says the Mexican culture is different than American culture, and to be American means to have rights.
- Juan says that he notices a difference in funding between schools that serve whites and schools that serve others, the textbooks and facilities are older. But he thinks it's because of differing test scores.
- Juan doesn't like being placed with some of the CP [College Prep] students in his classes because they are disruptive and take up Juan's learning time.

- Juan says that many of the CP Hispanics “become what they’re stereotyped as”

Followup questions:

- What’s accurate to your story?
- What is inaccurate?
- What would you add that was not covered here?
- What else would you say to a powerful person who could be reading your story?
- What patterns or themes do you see in your story or what you have to say?
- What are the key points that you really want others to know?

(Hello, my name is _____, and this is my story. Please hear what I have to say. This is what I need you to know about me.)

David’s Story

- From El Salvador. Town: San Salvador
- Free/Reduced Lunch? Free
- Came over when nine years old
- David was born 2-3 years after the Civil War broke out in El Salvador. His family was rich in El Salvador but then his family was “Completely destroyed.”
- David really enjoys science and has been very very big on it, one of his favorite subjects, because it is interesting and reveals “how everything works in life.” He truly likes biology.
- David also loves history, is interested in a career that combines biology and history.
- David wants to go to college and he loves to cook, but also considers joining the military if he could get a greencard, because he feels the U.S. has given him and his family so much and he wants to give back. David says “Every night I go home and I search for a little loophole” so David can be in the military.
- David also considers architecture and has been interested in it since age 7. He likes churches and gothic architecture. He’s now taking drafting classes at Weaver. But he drifted away into culinary arts because architecture has a lot of math and he says he’s “a very bad math student”
- David says that he has had instances of people being racist against him and that it seems as though “if you’re not Caucasian in the United States you’re lower than everybody else.”
- David got upset once when a guy at a gas station assumed he was Mexican and said racist things against Mexicans. But he let it pass.
- David likes Ms. Grey because she pushes him and is there for him to give advice.
- David may be the first one to graduate (high school or college) from his family.
- David’s aunt has been here 40 years and is a citizen like any other American. “She’s not even Hispanic anymore.”
- Most of David’s family are citizens or residents, it’s only a few, like David, who still don’t have papers “but we plan to get there, we are very American.”

- “We’re not Salvadoran as much as we used to be for a very American culture, we embrace it and we love it. “
- When David came to the U.S. he had to learn a whole new language and used to cry because he couldn’t understand anything in 3rd grade, and others would make fun of him, but he is out of ESL now, but he has friends that are still in ESL and David thinks this is ignorant, they should be happy to be here in the U.S.
- Ms. Doyle would push David in 3rd grade and David appreciates that. Ms. Doyle signed him up for the talent show and had him recite the pledge of allegiance even though he didn’t know English. He won second place in this talent show that was “just for Americans.”
- “I’m a big, big history guy”
- David says he doesn’t blame Ms. Grey for not continuing him onto biology with her. He understands that she “can’t reward him for doing bad” and unlike other students, he doesn’t blame the teacher, he feels it was his fault.
- David feels that Ms. Grey’ decision changed him greatly and he appreciates it because now he doesn’t take his studies for granted.
- David’s mom comes home very tired and hands cut up by chemicals because she cleans houses, and she tells David she doesn’t want that for him, even if he works in a bank just to not have to work the way she does.
- David’ dad left his mom when he was three weeks old, and he never saw him again until he was 13 years old. His dad called one night and it was David’s “biggest decision I had to take so far in life” whether to take his call—he did and has gotten to meet his half brothers.
- When David’s parents talk about the difficulties with going to college given David’s situation, David doesn’t want to hear it. He quotes Roosevelt: “never, ever, ever give up.”
- “I just don’t like to think that I’m never gonna go to college or that I’m—you know just because I don’t have papers and I don’t have the opportunities as everyone else. “
- David is inspired by his mom’s ex-boyfriend who used to be in gangs and is now a doctor, as an example of never letting anything stop you.
- “They’re our parents, they don’t want to hurt us, they want the best for us. And I look up to all that and my parents have gone through a lot and I wanna be something in life.”
- David’ is interested in the military not for the stereotype that they go around killing people, but there are scientists, engineers, medics in the military, and he knows a friend in the national guard that’s a military scientist, and David thinks that’s interesting.
- “I think that one of the things that I love so much about science is that science itself has history in it. It’s theory, you know, it has a lot of history. “
- David says he’s never been around lots of science or people pushed by science, or had someone to show him, and if someone showed him what everything was about, he might know how to pursue science and history.

- David wants evidence and proof with science, and questions creationist theories, which he feels that regions have “punished” science because of their views. He would love to be someone that asks these questions towards creationism using science, in the future.
- “There might be kids out there that they’re like, oh, you know I want to be a scientist. But people don’t think that they can be a scientist or they don’t support them and that’s when they lose interest in it. So I think that if there was more help or more information about it for Hispanics itself, I think a lot of people would be interested in it.”
- David says that sometimes Latino parents underestimate their kids and this, along with not having many Latino role models is why many Latino kids might not go into science.
- David says another reason Latinos don’t often go into science is because schools have this “ignorant” policy where if you’re not good at reading, you can’t get into the advanced science classes, and that is not right.
- “Everyone has their own thing that they’re good at. And you can’t hold someone back on everything just because they’re not good on one thing.”
- David got a 4 on his ESL test and he gets 4’s on his EOC writing test because it’s similar to the ESL test, even though “Normal kids born in the USA get a 3”
- David says that ESL takes a block and there are kids with 3’s and 4’s on their ESL tests in there when they’re just as good as the EOC 3’s, so they shouldn’t have an entire block taken, “holding them in there” “Taking up their school time” when they could be exploring other things.
- David said he wanted to get out of ESL quickly because he saw his friend saying they have physical science while he could not. And “back in the day” he would get pulled out for ESL and so he couldn’t do any of the hands-on labs because he kept getting pulled out during them. “I’m just like, you know I’m like this is taking my time from my class and then I was just like no, I’m tired of—because I am a very hands-on person and I’m like I can’t do much hands-on if I’m in this class.”
- “there’s many things that I don’t agree with in this school system of nowadays. But you can’t really do much about it.”
- One of David’ biggest pet peeves is when he pushed a friend to come to school more after she had previously missed 92 days, she started coming back to school and after she had been back to school for a full week, the school suspended her for missing too many days: “that is the most stupid thing ever.”
- “Do you see? Do you see—that’s like if you’re late three times to class, you go to ISS for the whole day. How does that make sense?” and it’s harder to catch up now, and high school moves very fast.
- David says that schools used to have full labs and now it’s just sit down and write about what a cell is. But now the U.S. doesn’t care about that, and they don’t give schools funds for labs anymore, so now if they get it at all teachers have to go spend their own money on lab supplies. David says he needs hands-on experiences, to explore what things are about, and the U.S. just isn’t valuing that anymore.

- David says that there are certain white, rich schools where they get funds for science and other supplies, but schools like Jones, just because they have lower scores or a bad reputation, they say “No, they’re not worth the money” and take hands-on science and other things like certain sports away.
- “We’re supposed to be the bad ones. We’re supposed to be the ones that—we’re the animals that people doesn’t like. The place where people try to keep their kids out of. Like that’s not right. Go to those schools, look at what they’re doing and then come and look at us and you will see that we’re not as bad as you think we are.
- David feels the reason those other schools have more money and science and sports is because they are on the rich side of town, while Jones is on the poor side of town. “And you have to look at that and you just—it doesn’t make sense, you know. It’s like why wouldn’t you help people who don’t have as much money?” Instead, “They’re giving it to the rich who already have it, and they’re just getting more.”
- “I think people who come from very rough places appreciate things more than people who come from—If you lived in a house and you got everything you ever wanted, you’re not gonna appreciate simply a pair of shoes as much as a kid that was out in the streets all his life will.”
- “you appreciate things more when people just—when you don’t have them, when you get to hold them you appreciate them more.”
- “And I think kids, especially here, if they had a large influence, if they were united, if they tried to work together I think that a lot of kids, African-Americans, Hispanics, Asians—I think they could do so much with their life if they had the support. But they don’t get it. They don’t because the government sees it as we give it to the rich kids because they’re the ones who apparently are gonna make our country better. It’s not like that. They had everything. They don’t know what living a rough life is.”
- David feels that people who have nothing are more grateful when they’re given something.
- David feels that in many schools, they just don’t care about poor students, and if they would only take the time to care and support them and show them science or math, they would get interested in it, but unfortunately they don’t.
- David thinks the higher graduation rate for Latin@s at Jones is because “They come from other countries and I think we get to appreciate things more. The things we need to graduate, we want to show our parents that we want to do something in life.”

Followup questions:

- What’s accurate to your story?
- What is inaccurate?
- What would you add that was not covered here?
- What else would you say to a powerful person who could be reading your story?
- What patterns or themes do you see in your story or what you have to say?
- What are the key points that you really want others to know?

(Hello, my name is _____, and this is my story. Please hear what I have to say. This is what I need you to know about me.)

APPENDIX E

STUDENT FOCUS GROUP PROTOCOLS

Focus Group Protocol—Ninth grade group

First we'll get comfortable, catch up with each other. Then when everyone is ready, I'll begin with this question:

- 1.) Talk about Ms. Grey's science class all schoolyear, and the science you did—what did you like, what didn't you like, how has what you've learned in her class affected you, inspired you, made you think about your future?
- 2.) Tell me about how you see yourselves in your science class, as a student, science learner, Latin@, honors student, teenager, how other students see you, teachers see you, family sees you.
- 3.) Let's talk about future plans—college, etc. What are your aspirations, what are the challenges? What are your fears? What are your hopes?
- 4.) What are the specific challenges or advantages to being a student while Latin@? Being an HONORS Latin@ student? Being a student at a school like Jones vs. another school? Are there other challenges that Latin@s in this school face that people need to know about?
- 5.) Tell me about your culture, your background, your friends, and your family.
- 6.) Tell me about what school means to you, and what it takes to do good in school, do good in science, and do good in life. What challenges do you face in this? What inspirations do you have?
- 7.) Tell me about being a Latina@ in science, as a science student, science major in college, and a scientist. What does it take? What does a Lati@ need in order to get there?
- 8.) What are the specific issues that teachers, non-immigrant students, and the public really need to understand about teaching immigrant students, especially Latino immigrant students?
- 9.) What stereotypes have you heard about Latin@s, immigrants, or honors students, that you think are false, and how do you counter them?

- 10.) What stories or proof can you give that you are good at school science? Stories or proof about your friends?
- 11.) What themes do you think really sum up your story? What themes do you see in common with the others in the group?
- 12.) As a final message to those out there who don't know, but want to understand, the issues that you face and the ways that those with power could help make things better, what is it you want to say to them to get them to understand?
- 13.) What do you hope this research will be able to accomplish, when people read your story?

Focus Group Protocol—10th grade group

First we'll get comfortable, catch up with each other. Then when everyone is ready, I'll begin with this question:

- 1.) Talk about science either through chemistry class or through STEM club, and the science you did—what did you like, what didn't you like, how has what you've learned in class or STEM club affected you, inspired you, made you think about your future?
- 2.) Tell me about how you see yourselves in your science class/STEM club, as a student, science learner, Latin@, honors student, teenager, how other students see you, teachers see you, family sees you.
- 3.) Let's talk about future plans—college, etc. What are your aspirations, what are the challenges? What are your fears? What are your hopes?
- 4.) What are the specific challenges or advantages to being a student while Latin@? Being an HONORS Latin@ student? Being a student at a school like Jones vs. another school? Are there other challenges that Latin@s in this school face that people need to know about?
- 5.) Let's talk about SLI, for those that were in it. What were your impressions? Did it serve you as a Latin@ student, did it serve you in your aspirations? How or how not? What could be improved upon or what worked for you? If you were to give some advice to those not in SLI but who are thinking about joining, what would it be?
- 6.) Let's talk about SGE STEM club, for those that were in it. What did you learn/take away from? What worked for you, what didn't? Did it serve you as a Latin@ student, did it serve you in your aspirations? How or how not? Tell me about the

garden, what you took away from that, how will you continue, if you will continue. If you were to give some advice to those not in SGE STEM club but who are thinking about joining, what would it be?

- 7.) Tell me about your culture, your background, your friends, and your family.
- 8.) Tell me about what school means to you, and what it takes to do good in school, do good in science, and do good in life. What challenges do you face in this? What inspirations do you have?
- 9.) Tell me about being a Latin@ in science, as a science student, science major in college, and a scientist. What does it take? What does a Latin/o need in order to get there?
- 10.) What stereotypes have you heard about Latin@s, immigrants, or honors students, that you think are false, and how do you counter them?
- 11.) What stories or proof can you give that you are good at school science? Stories or proof about your friends?
- 12.) What are the specific issues that teachers, non-immigrant students, and the public really need to understand about teaching immigrant students, especially Latino immigrant students?
- 13.) What themes do you think really sum up your story? What themes do you see in common with the others in the group?
- 14.) As a final message to those out there who don't know, but want to understand, the issues that you face and the ways that those with power could help make things better, what is it you want to say to them to get them to understand?
- 15.) What do you hope this research will be able to accomplish, when people read your story?

APPENDIX F**TEACHER INTERVIEW PROTOCOLS****Ms. Grey 1st Interview questions**

- 1.) Please tell me about what you know of the Latin@ students in the classes I've observed.
 - What are their strengths?
 - What do they bring to the classroom?
 - How do they take on the learning material?
 - What do you know of their culture, language, etc?
 - What other classes are they taking? Are any in ESL/Dual Language/Spanish for Native Spanish speakers?
- 2.) How do you use what you know about these Latin@ students in your lesson planning and lesson delivery?
- 3.) Tell me about some successes you have had this year or in previous years, with teaching Latin@ students. What worked? What didn't?
- 4.) Tell me about your own cultural background. How does that inform your work with teaching Latin@ students?
- 5.) Tell me about the culture of the science department. Tell me about the culture of the school. How does this help Latin@ students succeed?
- 6.) I notice that Jones had an unusually (but wonderfully) high graduation rate for Latin@s the 2009-2010 schoolyear (the last year I currently can obtain data for). To what do you attribute this success?
- 7.) Do you feel you need more professional development in teaching ELL's or Latino students? Why or why not? What do you feel you need to learn more about?
- 8.) How have Latin@s done in the last few years on the Biology or Physical science EOC's compared to other races? Do you have somewhere that I can get access to this info broken down by race?
- 9.) Do you teach any courses besides Biology or Physical science? Any AP courses? How are the Latin@ representations in those classes compared to the EOC-required courses?

- 10.) What are the Latin@ representations across tracks (if there is tracking) in your classes?
- 11.) Can you tell me about the science curriculum and pacing guides that you use in your classes, and the science preparation and policies that you get from the school, the district or the state? What science teaching models do you use and which are encouraged by the department, the district? (5E, Inquiry, etc?)
- 12.) Where can I find more information about these pacing guides, curriculum guides, teaching models, etc? Are there books, websites, etc. I could look at?
- 13.) Do you have district meetings/professional development for science? If so, how often are they held and who are the contact people? What is discussed at those meetings? How does it help you to teach you classes? Does it help you teach your Latin@ population, specifically?
- 14.) Do you have a website or other way that you communicate with the students online and give out documents?
- 15.) Do you know where I can get the EOC results for biology and physical science broken down by race, for Jones and/or for the district (I already have for the state).

Ms. Grey 2nd Interview questions

- 1.) How do Latin@ high school students leverage their multidimensionality and ability to cross cultural borders [These are Gloria Anzaldúa topics having to do with what she calls being a “Frontera” and a “Neplantera”, as well as Maria Lugones’ ideas of world-traveling] into their high school science class experience and their self-described feelings of affiliation or disaffiliation with science?
- 2.) How do Latina/o high school students’ lived realities, as told through *testimonios*, counter the dominant narratives about them as capable scientists, science students, and their worth at the table of science and science education?
- 3.) How do Latina/o students leverage cultural capital, and what kinds of capital are leveraged, within the science classroom and amongst each other, to learn science and help each other learn science?
- 4.) Please tell me about what you know specifically about these Latino Students:
 - Yasmin
 - Oscar
 - Sergio
 - Javier
 - Uriel

Crystal
 Silvia
 Juan
 David

- What are their strengths?
 - What do they bring to the classroom?
 - How do they take on the learning material?
 - What do you know of their culture, language, etc.?
 - What do you know of their families, outside-school lives, stories?
 - How do these students interact together to learn science, do science, help each other?
 - i. In groups for hands-on stuff
 - ii. During reading time (comments, etc)
 - iii. Other class times?
- 5.) I mentioned that I'm particularly interested in Yasmin, and you said you understood, but I'm curious to know more about what you see in her that you find interesting.
- 1.) When Uriel and Oscar are vocal and playful in the classroom, what are your thoughts on that? How do you play into it? How do you think it works with the dynamic of the class?
- 2.) How do you use what you know about these Latino students in your lesson planning and lesson delivery? What guides your interactions with them?
- 3.) Tell me the stories of some of the Latino students you have had in the past, Like Oscar's older brother? What interactions have you had with these students' families?
- 4.) Tell me about your own cultural background. How does that inform your work with teaching Latino students?
 - tell me about how you grew up, about struggling, on welfare, etc., with your kids,
 - Tell me about being an African American woman, being at Jones
 - Tell me about the golden closet, about helping students who struggle
- 5.) Tell me about what your husband does for these students. How does it inform what you do for them? What is special about this kind of relationship with students (wrestling coach)?

—Tell me about helping them apply for college. Tell me about why you specifically took it upon yourself to offer this help. What help do they get (or not get) elsewhere?
- 6.) Tell me about your health issues, how has it impacted things this year. How have students responded when you share this with them?

- 7.) Tell me about what you do when students speak Spanish in the classroom. How do you feel about them speaking other languages? How do you feel about “English only” policies?
- 8.) How do you feel about students bringing their culture and their language into the learning of science? How do you facilitate that?
- 9.) Tell me about why you want your students to love science. What do you hope it accomplishes? Why?
- 10.) Tell me about what social justice means to you. How do you think you bring it about in your teaching?
- 11.) Do you feel that your students cross cultural borders as they learn science? How?
 - How have you crossed cultural borders in your life from where you started as a struggling mother and African American woman, to where you are now as a science teacher at Jones? What borders do you cross? What ways are cultures the same?
- 12.) In teaching your students, how can you relate to them?
- 13.) Why do you do so many labs, hands-on activities?
- 14.) Why do you have students do taking-turn read-alouds?
- 15.) Why did you decide to do a test with authentic assessments?
- 16.) How can you tell when students have “got it” in terms of the science material? What does success in your classroom look like? What does failure look like?

Ms. Grey 3rd Interview questions

- 1.) Tell me about your classroom management style. And why you do it this way.
 - routine, giving specific directions, but then later conversational, personal, and joking with them, even about poop! Why is this kind of talk important?
- 2.) Would you consider yourself to be playful with the students? If so how? If not, in what ways not?
- 3.) What do you think about students competing with each other in the classroom? In what ways do they compete? In what ways do they help each other?
- 4.) Would you consider your classroom a kind of “World” and students’ home lives, outside classroom lives, a different “world”? If so, what are the differences between these

worlds? And how do you bring students into a level of comfort and ease to want to learn and participate within the world of your classroom?

5.) You speak of the culture and rhythm of these students, that sometimes one student doesn't quite fit into. Tell me about this rhythm and culture of these students.

- How does this rhythm and culture of these students differ from other classes?

6.) What do you think people in the bigger world would think of students like the ones you have in 4th block? How are they wrong about these kids? What do you think they're up against in the larger world? (master narratives) How do you think you prepare them to meet those challenges, giving special consideration to their race and SES.

7.) I've seen classrooms where kids just memorize the scientific facts and then learn test taking skills. What would you say to such an education? How would you get teachers to see it differently?

- what's an example or experience that shows that education should be something else?

8.) I heard a recent speaker talk about how social-justice-minded teachers help students "play the game, while finding ways to change the game" How do you relate to that? How do you do that in your teaching?

9.) You mentioned about an art teacher that you feel sorry for the students having (don't have to give her name) Tell me as candidly as you feel you can, about other teaching styles that you think don't work for kids, especially these kids, and the ones you think that do.

10.) At the end of the day, why do you teach? And why specifically at Jones?

11.) Do you have any plans already for the last days of class that you will be here before you go for your operation?

12.) Do you have copies of your lesson plans for this year?

13.) Tell me about why you want your students to love science. What do you hope it accomplishes? Why?

14.) Tell me about what social justice means to you. How do you think you bring it about in your teaching?

15.) Do you feel that your students cross cultural borders as they learn science? How?
- How have you crossed cultural borders in your life from where you started as a struggling mother and African American woman, to where you are now as a science teacher at Jones? What borders do you cross? What ways are cultures the same?

- 16.) Why do you do so many labs, hands-on activities?
- 17.) Why do you have students do taking-turn read-alouds?
- 18.) Why did you decide to do a test with authentic assessments? Have you done any more since? Why or why not?
- 19.) How can you tell when students have “got it” in terms of the science material? What does success in your classroom look like? What does failure look like
- 20.) You have the students read out their test scores in class. Why do you do this? What benefit do you think there is from it? Has any student, parent, admin ever said anything against it?

Ms. Grey 4th Interview questions

- 1.) How do Latina/o high school students leverage their multidimensionality and ability to cross cultural borders [These are Gloria Anzaldúa topics having to do with what she calls being a “Frontera” and a “Neplantera”, as well as Maria Lugones’ ideas of world-traveling] into their high school science class experience and their self-described feelings of affiliation or disaffiliation with science?
- 2.) How do Latina/o high school students’ lived realities, as told through *testimonios*, counter the dominant narratives about them as capable scientists, science students, and their worth at the table of science and science education?
- 3.) How do Latina/o students leverage cultural capital, and what kinds of capital are leveraged, within the science classroom and amongst each other, to learn science and help each other learn science?
- 4.) Often you tell the students about what they need to do to get a good grade in other classes, or how to embellish, or other “tricks of the trade” that they might now know about to get ahead academically not just in your class, but in other classes.
- Tell me more about why you do this.
 - Give me some more examples of things you’ve told these students that gives them those unspoken tricks of the trade.
 - Do you have any stories on how students react to it?
- 2.) Tell me about the golden closet, about helping students who struggle
- 3.) Tell me about helping them apply for college. Tell me about why you specifically took it upon yourself to offer this help. What help do they get (or not get) elsewhere?

- 4.) How do you feel about “English only” policies in the classroom. Would you tell your students to stop speaking Spanish? Do you think it’s a good thing that they speak Spanish in your class? Why? What does it help? Does it help in the learning of science?
- 5.) Dr. Pommer spoke yesterday about the racism inherent at some schools and how people don’t understand how students learning together, of different cultures, can be beneficial, what do you think of that?
- Other thoughts about what Dr. Pommer talked about yesterday?
- 6.) I’m going to share with you some concepts in educational theory that have emerged to describe Latino culture. For each, tell me if you’ve seen it play out, give me examples of where you’ve seen it, and tell me if you use it/leverage it in your teaching strategies:
- Familismo: upholds the family as a unit to be valued over individual interests
 - Latino social and cultural capital within Latino networks that values kinship as a primary support network.
 - Hermanable: Brotherly, in how one gets along with peers in an air of solidarity and group unity, in order to help others instead of only helping themselves
 - Humildad: one is expected to take focus away from themselves and respect others, especially those considered to be of higher status, such as adults or teachers.
 - Educacion: broader than Anglo understandings of what it means to be “educated.” *Educación* is what Latino parents wish for their children to attain, which consists of respect, social and moral values, and loyalty to group and family which adapts to both tradition and ongoing change, and values improvisation and contestation as an act of resilience to an ongoing, but cohesively faced challenges
 - Consejos: a kind of familial advice that is often cautionary in nature and often candidly dealing with the struggles and realities that Latina/os must endure and find ways to overcome, and within which ethnic identity is often reconstructed.
 - I am my Language: language as being a primary marker of their membership and value within their cultural and social network, as well as a marker of their identity as Latino.
 - The Opportunity Narrative: “accepting difficult work and living conditions while demonstrating great faith that their schooling will create better opportunities for them” “Students use the opportunity discourse to convince themselves that academic achievement would make their sacrifices, and those of their families, worthwhile.”
- 7.) Let’s talk about some of the theories I’m drawing from for this paper. (Member checking!) I’ll tell you a little about this theory, and you tell me if you recognize this happening in your classroom. Can you give me some examples?
- Countering the master narrative—the master narrative is what society always thinks about kids like these, about a school like this. What do you say, and what do the kids in this class show, to counter such ideas about them and about the kinds of kids at a school like this?

- Banking Model: Teacher has all the knowledge and deposits it into the empty heads of the students.
 - Dialogic model: Teacher and students both hold knowledge, just different kinds, and exchange knowledge through dialogue. Leveling structures of power.
 - Cultural Capital: The tools needed to earn “cred” in a particular field. Like the capital to do well in the culture of school vs. the capital to do well in street culture.
 - Habitus: The Rules of the Game/how the game is played
 - Field: The game...like the game of school...the game of being Latino, etc.
 - Agonistic Playfulness: Playing the game in order to conquer and win, no matter who you step on along the way. Being better than others, etc.
 - Arrogant Perception: I am better than you, can play the game better than you, you suck.
 - Being at ease in a world: 1.) be a fluent speaker in that world—know the language and the rules of the game. 2.) normatively happy. 3.) humanly bonded with others 4.) having a shared history.
 - Loving Playfulness: To be at ease in the world such that it feels safe and appropriate to take risks, be foolish and uncertain, not worry about competition, and bring out other dimensions of ones multidimensional self into the current world, without fear. To “play” with one’s identities and with the norms, taking risks to construct new versions of self.
 - “Making it safe to play with one’s identity and take risks in Ms. Grey’s class, makes it safe for marginalized students to travel into new worlds of science and play with scientific identities”
 - World Traveling: Code switching, not just in language but in enacting different selves from different cultural worlds. The world of comfort, at-home, and the other worlds we must encounter, like the world of school, the world of science, the world of Ms. Grey’s classroom. Being able to shift into these different worlds with different rules. Being able to bring a world within a world.
 - Multi-dimensionality: People have many different dimensions and aspect to themselves through the many worlds they travel, and they can enact and live in many worlds at once, play with many rules of many games at once.
 - Nepantla: Threshold spaces between worlds, where lots of possibilities open up and could be possible. “Transformations occur in this in-between space, an unstable, unpredictable, precarious, always-in-transition space lacking clear boundaries.” (Anzaldúa)
 - Border Crossing: World have distinct rules and there are distinct games. Border crossers expand past one world and into others, extending different games and different worlds into each other. Cross back and forth between worlds frequently, necessarily.
- 8.) I heard a recent speaker talk about how social-justice-minded teachers help students “play the game, while finding ways to change the game” How do you relate to that? How do you do that in your teaching?

- 9.) You mentioned about an art teacher that you feel sorry for the students having (don't have to give her name) Tell me as candidly as you feel you can, about other teaching styles that you think don't work for kids, especially these kids, and the ones you think that do.
- 10.) At the end of the day, why do you teach? And why specifically at Jones?
- 11.) I hope to be able to communicate some of these important points to readers, and I want you to really have your say. After all I have observed here with you this semester, what do you really want teachers and schools and the world to know and open their eyes about:
- Teaching the kind of kids that go to Jones
 - The struggles that kids of the SES at Jones go through
 - Specifically, what it is to teach SCIENCE to kids at Jones
 - Specifically, what it is to teach the kinds of Latinos that go to this school
 - The kinds of struggles Latinos have that white privileged people wouldn't know about
 - The ways that Latinos interact with science
 - How to make it safe for traditionally marginalized students in science, to feel safe to do science, speak scientific lingo, and take on scientific identities.
 - What would a privileged white teacher need to know about reaching these kids, in the ways you've obviously reached them, since they keep coming to visit you long after (especially regarding the Latinos)
 - The struggles the teacher goes through in a setting like this
- 12.) Do you have any plans for the last days of class?

Mr. Aaron 1st Interview Questions

Thank you for agreeing to be in the study. I am very excited to learn more about your class and your teaching. I've seen such great things about the high rate of Latino graduation at this school, as well as the diversity of the school, and am looking forward to sitting in and learning more!

- 1.) Which classes do you teach?
- 2.) Which of these classes/periods have 3 or more Latino students in them? How many Latinos are in each of the classes you mentioned?
- 3.) How could you tell they were Latino?
- 4.) Which of these classes do you feel comfortable with me coming in to observe?

- 5.) What's the date/times of these classes?
- 6.) I would like to observe each of the classes that you recommend, at least once a week. Would this be alright?
- 7.) Can we schedule a regular day/time that I will come in to observe, or would you like to take it on a weekly basis?
- 8.) (If on a weekly basis) How would you like for me to give you a heads-up on when I'm coming in? In person at the beginning of each week, or by email?
- 9.) What's the best way, in general, to communicate with you? In person or by email?
- 10.) (If in person) When would be the best time to drop by if I need to communicate with you?
- 11.) When I come in to observe, where would you like for me to sit?
- 12.) Is it ok if I type my fieldnotes on my laptop? Or would you prefer that I write in a notebook? (I try to type very quietly)
- 13.) You are free to tell the students as much or as little as you wish about why I am in the classroom. What I am studying is not a secret and in fact, eventually I'd like to recruit and interview some of the Latino students, but I will tell them that and pass out forms sometime in November. You can tell them earlier if you wish.
- 14.) Tell me a little about your curriculum plans for the classes I will observe.
- 15.) Can we go ahead and make our first appointment for the first of our three 30-45 minute interviews? I would like to do the interview after I have had a chance to observe your classroom at least once. (If not, I can contact them again later, in their preferred contact method, after they figure out a good time?)
- 16.) Is there anything else you would like to know about me or the study, that I haven't answered yet?
- 17.) Is there anything else that you think I should know before I come to your classroom for the first time?

Thank you so much for your time! I'll see you soon on _____ (Time we agreed I will come to observe).

Mr. Aaron 2nd Interview Questions

- 1.) Please tell me about what you know of the Latino students in the classes I've observed.
 - What are their strengths?
 - What do they bring to the classroom?
 - How do they take on the learning material?
 - What do you know of their culture, language, etc?
 - What other classes are they taking? Are any in ESL/Dual Language/Spanish for Native Spanish speakers?
- 2.) How do you use what you know about these Latino students in your lesson planning and lesson delivery?
- 3.) Tell me about some successes you have had this year, with teaching Latino students. What worked? What didn't?
- 4.) Tell me about some of your frustrations. Have you found something that worked to get beyond them? If so what? Who do you talk to for advice?
- 5.) Tell me about specific Latino students. What are their stories, what are their learning styles? How do they take on learning science in their own unique ways?
- 6.) Tell me about your own cultural background. How does that inform your work with teaching Latino students?
- 7.) Tell me about your classroom management strategy.
- 8.) Tell me about your personal teaching philosophy.
- 9.) Tell me about the culture of the science department. Tell me about the culture of the school. How does this help Latino students succeed?
- 10.) I notice that Jones had an unusually (but wonderfully) high graduation rate for Latinos the 2009-2010 school year. To what do you attribute this success?
- 11.) How have Latinos done on Bio assessments in your class? How does it compare to other in-class assignments and informal assessments?
- 12.) What are the Latino representations across tracks (if there is tracking) in your classes?
- 13.) What science teaching models do you use and which are encouraged by the department, the district? (5E, Inquiry, etc?)

- 14.) How do your Sci dept meetings, PLC meetings, district meetings/professional development for science, etc., help you teach your Latino population, specifically? What strategies have they suggested, what have you found to be effective/ineffective?
- 15.) How is teaching at Jones different than your previous teaching experiences? How is it the same?
- 16.) How is teaching your sheltered class population different than your other two classes? How is it the same?
- 17.) What is your mentorship relationship like with Ms. Grey? Have you seen her teach? What have you learned from her?
- 18.) What is your mentorship relationship like with Ms. Donnel? What have you learned from her?
- 19.) What are your plans for the next few weeks?
- 20.) Do you have lesson plans/handouts from anytime in the past that I could have copies of?

Mr. Aaron 3rd Interview Questions

- 1.) Tell me about the school year with the Latin@ students, now that the school year is nearly ended.
- 2.) Tell me about each of these students, who you have had either as a chemistry student, in the STEM (SGE) club, or both: Crystal, Juan, Silvia, David
- 3.) Tell me about what the STEM (SGE) club has accomplished this year, and how each of the above students participated (if they were part of the SGE club)
- 4.) How did the SGE club begin, and what did it take to keep it going?
- 5.) Tell me about the SGE club's community garden.
- 6.) Tell me about your stance on immigrant's rights, and more about the inspiration for the SGE club given most the students in the SGE club are international/immigrants.
- 7.) Tell me about future plans for the SGE club and the community garden this summer and next year.
- 8.) What stories do you have, especially of the Latin@ students, that push back against stereotypes others may have of these students?

9.) At the end of the day, why do you teach? And why specifically at Jones?

10.) I hope to be able to communicate some of these important points to readers, and I want you to really have your say. After all I have observed here with you this semester, what do you really want teachers and schools and the world to know and open their eyes about:

- Teaching the kind of kids that go to Jones
- The struggles that kids of the SES at Jones go through
- Specifically, what it is to teach SCIENCE to kids at Jones
- Specifically, what it is to teach the kinds of Latinos that go to this school
- The kinds of struggles Latinos have that white privileged people wouldn't know about
- The ways that Latinos interact with science
- How to make it safe for traditionally marginalized students in science, to feel safe to do science, speak scientific lingo, and take on scientific identities.
- What would a privileged white teacher need to know about reaching these kids, in the ways you've obviously reached them, since they keep coming to visit you long after (especially regarding the Latinos)
- The struggles the teacher goes through in a setting like this

11.) Any plans for the final days of the school year?

APPENDIX G

SAMPLE *TESTIMONIO* THEME/COLOR CODING

Coded Themes:

Undocumented Science DREAMs

- Our Strengths/Talents in Science and School
- Our DREAMs for our future, especially college

Complex, Multidimensional Border Crossing and World Traveling

- *Latinidad*: Being Latin@ and holding on to it
- Complex Personhood
- What motivates us: proving our worth amidst underestimation

Activism and Social Change

- Struggles/Frustrations with School, Society, Laws
- Coming out as undocumented and unafraid
- Calling out things that are unfair, unjust

(Fuschia = Very important, key quotes)

The club really appealed to me personally because some people are undocumented and if they see this as interesting and it's about science—it could be also about math and any other subject, but mostly I guess science because things are involved with science, like most of the doctors, pediatricians and everything like that involve science. So if they learn more about science, then they could be like “okay, if this involves science, then okay, I'm good in science, then I should take this or do this or take more college classes dealing with science” or something like that. So I guess it helps us as well. It motivates Hispanics and any type of culture to be like okay, if we're doing this, then we can motivate other people to do it, other cultures to do it as well. Like it helps us combine ourselves. Like “okay, we like doing this, we're doing this, we have this type of personality, but at the end of the day, we're one person together.” So it brought us all together, but as well, it helps us to be like “okay, we have all these types of cultures, let's learn about them, let's communicate more.”

In the SGE club we've been starting a community garden, we're growing crops and we're going to help a senior at Jones, who is homeless. She's a homeless girl who recently the school helped her find an apartment. Right now what we've done, we've planted the seeds, we've built the beds and everything. We waited for them to actually sprout and are like helping them grow and everything. And we're gonna give her stuff from the garden if it's done already. We're going to—if our plants are ready, we're actually gonna go celebrate to an Indian restaurant next Thursday, and we're gonna take her with us, and we're gonna collect food—just canned food, and she doesn't have anything in her apartment. So, it'd be like if you find plates—if you buy plates that you could give her, anything. And we're going to give it to her on Thursday, and we're going

to go celebrate, and we're gonna go take her to the restaurant to eat with us. And we already have the Golden Closet where people can go get clothes and stuff who need them, so that, too—we help.

We've been trying to find more ways to get the STEM club out to the community and to get them involved in helping us or helping them grow gardens in their place or around their community as well. We've been like coming up with ideas and how to actually get them involved and everything.

So I've tried to go around my community, I've been telling people to come to Jones, to see our garden, but since it's Jones High School and it has a bad reputation, they looked at me like, "are you crazy? Why Jones?" and everything, since they heard Jones was a bad school. So it's just like disappointing at points because you're like, "no it's not." Since six years ago the school has been rising up, it's been getting better. They'd be like "no, it's Jones, it's a bad school. Why are you going there?" It's like weird. Back in the day, Jones used to be a gang school basically. There used to be a whole lot of fights, drug dealing, and everything. But since we got this new principal things have been rising up. And they don't really think of that, they just think from back in the days, it was a bad school. But now it's gotten better. Even now my friends go to other nicer schools and they ask me "like what school do you go to?"—"Jones." "Oh, you're in that ghetto school." It's not ghetto. Basically, okay, you say it's ghetto because of the reputation it had before, but it's not. It's basically a mixture of cultures as well. Because we're not only, like you can't say we only have Hispanics or Black people. We have a whole lot more. We have Asians, we have the Caucasian people and we have the mixture of them. So it's actually a good school.

And being multicultural like that helps us because we can communicate with each other's race. Like sometimes you communicate with like Hispanic people and it will be like "oh, what are you doing—what class do you have?" "Oh, I have this class, can you help me?" "Yeah, I've taken it already." It helps to motivate them to actually do better since we already took the class and they need help. Like okay, I'm gonna help you, but you gotta do good. It was like, it actually helps a lot as well. And like if you converse with many different types of cultures, it helps you a lot as well because you learn the way they're doing it and the different ways that there are to actually like solve a problem or find a way to solve it.

And people underestimate, they'd be like "oh, you're not gonna get nowhere, you're not gonna be able to do this, you're not gonna be able to do that because you're undocumented." They think of them like somebody that cannot succeed. And I just look at them: "just watch and see, I'll prove you wrong." And that, it hurts a lot because you'd be like, "I'm undocumented but you're documented and you're not doing it." So it's like, "if you're not doing it, then I'm gonna do it." And like they get mad and everything, but it's like the truth. If you're not gonna step up and be somebody to help the community or anything, it's like okay, you're not doing it, then I'm gonna do it.

I'm actually putting more effort into everything because I don't have papers. But as well like if, right now, if I still want to do what I want to do, I'm going to keep putting that much effort, even if I was documented or not because it's something that I want to achieve, and it's something that I really want to do. But having no papers means I have to

work a lot harder than someone with papers. At points, I think it's not fair because why do we have to work harder for something that we want but people that are documented don't have to work as hard as we do? So I think of it as unfairness.

Because it's like it's mostly bringing us down as well because why are we doing hard things if the documented people are not doing what we're doing? We try to work to actually change it or at least try our best to make it better. But we have to try harder. I think they consider us—now, they just think of us as immigrants. They think of us as a waste of time since right now they'd be like “why do we have more undocumented people here than what we used to?” So I guess they really don't see what we go through and how hard we try to actually succeed.