MENTORSHIP MATTERS: THE ROLE OF MENTORSHIP IN SOCIAL CAPITAL BUILDING AND STUDENT ACHIEVEMENT OUTCOMES

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ABSTRACT

MENTORSHIP MATTERS: THE ROLE OF MENTORSHIP IN SOCIAL CAPITAL BUILDING AND STUDENT ACHIEVEMENT OUTCOMES

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A number of qualitative studies examining student achievement outcomes in higher education show that access to social capital is an important predictor of student success. Critical Race Theory (CRT), and other qualitative studies, examining student outcomes have operationalized social capital in terms of access to information. Most of these qualitative studies found that a student's social class and race mediated their access to quality mentors who could provide access to critical social capital. In this study, data from the longitudinal ADD Health Study was used in order to test the generalizability of findings in the CRT and qualitative literature. Logistic regressions using odds ratios were used to examine the relationship between individual characteristics found to be at risk of early attrition in higher education and types of mentors identified by the respondents. Logistic regressions using odds ratios were also used to determine if there were any relationship between individual characteristics found to be protective against early attrition and types of mentors identified by respondents. Finally, a variety of regressions were run in order to determine if there were any relationships between individual risk factors, protective factors, mentors, and educational outcomes including access to higher education in Waves 3 and 4, attrition, completion, and educational aspirations. Final results show that mentorship does matter, but not always in ways expected. The results both support and fail to support the qualitative literature. The findings encourage further exploration into individual and institutional contextual variations that impact mentoring, as well as other potential sources of mentorship.

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TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

Chapter 1: Introduction

Student Achievement Outcomes at Universities and Community Colleges

While both universities and community colleges struggle with student attrition, community college's retention rates are abysmal. Research by Snapshot (2018) found that only 39% of the 2010 community college cohort completed a degree or certification program within six years of initial enrollment. Other research by Martin, Galentino, & Townsend (2014), concluded that approximately 20% of community college students graduate within three years, 20% of students were still enrolled in courses without credential completion over six years later, and 46% of community college students dropout of college before earning any credential at all. In contrast, the National Department of Education found that 59% of first time full time university level students will complete their bachelor's degree within six years (NCES, 2018). Although more university students successfully graduate within six years of initial enrollment, this finding still shows that 41% of students do not. The financial and human capital consequences for low completion rates among college at both community college and university level students is staggering. Schieder and Yin (2011) concluded that in 2010 alone the United States lost $158 billion dollars in potential earned income, $32 billion in potential federal taxes, and $7 billion in potential state tax revenue. At $139 million in lost potential income, the state of Michigan is the 6th greatest loser in total revenue loss due to lack of college completion. For this reason, it is critical to develop a more nuanced understanding of what barriers students face in completing their degree or vocational programs. Yet, understanding barriers to completion alone will not fundamentally resolve low completion rates. It is also essential to examine what factors contribute the greatest to student retention in every sector of higher education institutions.

In order to uncover some of the intricacies contributing to low retention rates among both community college and university students, a more detailed review of risk and protective factors is

warranted. Specifically, what this completion data do not reveal is that there is a distinct difference in demographic compositions of students who are most likely to attend public universities and community colleges. Notably, the demographic composition between these sectors of higher education also reflects a distinct pattern of racialized and income stratification that is pervasive across all major social institutions in the US. For instance, Goldrik-Rab's (2010) meta-analysis comparing public university and community college student characteristics from 1985 to 2009 found that four year public university students are disproportionately white (67%), from higher SES backgrounds, and 75% of these students also have college educated parents. On the other hand, a larger proportion of students attending community colleges are non-white (40%), low income or working class (Goldrick-Rab, 2010; Snapshot, 2017), and 40% of community college students are first-generation college students, or individuals who are the first in their family to complete any higher education credential. Additionally, 41% of community college students attend college on a part time basis (Center, 2012) and over 68% of incoming community college students take at least one developmental education course (Bailey, Jeong, & Cho, 2010; Goldrick-Rab, 2010; Center, 2012). Where by contrast, only 40% in four year institutions take at least one developmental education course (Jaggars & Stacey, 2014).

Community college students are also more likely than their four year counterparts to have a number of non-academic commitments that have been found to decrease their likelihood of being retained. For instance, over half of community college students work off campus compared to 37% of four year university students (Goldrick-Rab, 2010). Center (2012) also found where only 19% of university students work more than 30 hours per week off campus, 42% of community college students work 30 or more hours a week off campus. In total, 59% of community college students go to school on a part time basis, with 37% of these part time students stating that they attend part time because they also have children at home. Many of these students then find that they need to attend

college in non-traditional schedules. Specifically, 40% of evening and weekend students are part time compared to only 13% of full time students on similar course schedules (Center, 2012).

The above findings related to the disparate demographic compositions of university and community college students are important to recognize since the many of the characteristics listed above have been found to be risk factors for dropping out of college at both the university and community college levels. Specifically, first-generation college students (Goldrik-Rab, 2007; Pruett & Absher, 2015; Martin, Galentino, & Townsend, 2014; Roderick, Coca, & Nagaoka, 2011; Rowan-Kenyon, 2007; Goldrick-Rab, 2010; Saenz, et. al., 2011), low income (Calcagno, et. al., 2008; Goldrick-Rab, 2010; Goldrik-Rab, 2007; Martin, Galentino, & Townsend, 2014; Goldrick-Rab & Han, 2011; Roderick, Coca, & Nagaoka, 2011; Rowan-Kenyon, 2007; Center, 2012; Goldrick & Pfeffer, 2009; Saenz, et. al., 2011), racial and ethnic minority (Calcagno, et. al., 2008; Goldrik-Rab, 2007; Goldrick-Rab, 2010; Martin, Galentino, & Townsend, 2014; Saenz, et. al., 2011), and womyn (Goldrik-Rab, 2007; Goldrick-Rab & Han, 2011) are found to be some of the most common demographic characteristics related to a student's risk of dropping out out of college. Additional risk factors for not completing college include working extended hour in off campus employment (Pruett & Absher, 2015; Goldrick-Rab, 2010; Calcagno, et.al., 2008; Chaves, 2006; Center, 2012; Saenz, et. al., 2011), attending college part time (Calcagno, et.al., 2008; Center, 2012; Martin, Galentino, & Townsend, 2014; Saenz, et. al., 2011), delayed college entry (Rowan-Kenyon, 2007; Goldrik-Rab, 2007; Goldrick-Rab & Han, 2011), poor quality of K-12 education (Goldrik-Rab, 2007; Goldrick-Rab & Han, 2011; Atwell, et. al., 2006; Howell, 2011; Roderick, Coca, & Nagaoka, 2011; Rowan-Kenyon, 2007; Goldrick-Rab, 2010) and having dependents (Center, 2012; Goldrick-Rab, 2010; Goldrik-Rab, 2007).

The literature above has shown that students who delay college entrance, take extended breaks during their college career, attend part time, work at least thirty hours per week, come from

primary schools that are substandard, and must take developmental writing or reading courses are the most at risk for dropping out of college at both the community college and university level. On the other hand, students who attend high quality primary schools, take only developmental math courses in college, work less than thirty hours a week, transition almost immediately into college from high school, attend college on a full time basis and come from families where at least one parent has a college education are the more likely to be successful in college in general.

The relative (dis)advantage of disparate concentrations of students with these risk and protective factors across both sectors of higher education are also compounded by a number of institutional characteristics that also impact student achievement outcomes. For instance, compared to community colleges, universities are more likely to hire full time faculty and staff. This is an important institutional characteristic considering that having a higher proportion of part time faculty and staff has been found to negatively impact student achievement outcomes (Provansik & Planty, 2008). Additionally, even though community colleges have a higher proportion of students most at risk of early attrition, these institutions are less likely than their university counterparts to engage in proactive high impact practices that have been shown to reduce attrition (Burkam, et. al., 2010). Some of these institutional differences could certainly reflect differences in access to financial resources. For instance, where universities attract higher SES students who are more academically prepared, they also are more costly in their tuition and more likely to have alumni support compared to community colleges. Consequently, students who attend universities are not only more likely to enjoy a number of protective factors that enhance the probability that they will complete their education, but they are also more likely to attend institutions with more financial resources, including a higher proportion of full time faculty, and institutional programming that also increases their overall probability of success. Universities are also much more selective than community colleges in terms of which students are admitted so many students with a number of risk factors are

likely to be selected out of rather than into more affluent resource rich institutions. In fact, institutional selectivity has been found to account for 80% of the variance in retention outcomes between community colleges and universities (Burkem, et. al., 2010).

Race, Socioeconomic Status, and Student Achievement Outcomes

The disparate trends in student demographics found across various sectors of higher education certainly suggest that there is some sorting mechanism(s) that filters students into and out of educational opportunities that either enhance or detract from each individual's probability of academic success. Some of the demographic and retention trends can be attributed to institutional selectively (Burkem, et. al., 2010). However, as previously mentioned, stratified educational opportunities, the distinct demographic distributions across sectors of higher education, as well as disparate rates of student achievement outcomes within these sectors also mirrors pervasive patterns of racial and socioeconomic inequality found in other social institution across the U.S. A number of race and sociological scholars studying the role of race, ethnicity, and socioeconomic status (SES) in predicting students' access to, and retention in, higher education argue that these patterns of stratification are not accidental. Many of these scholars suggest that the persistence of racial, ethnic, and SES stratification in higher education reflects a correspondence between a matrix of social institutions that interact in subversive ways to effectively reproduce social inequality within and outside of their respective institutions (Bowles & Gintis, 1975; Hill-Collins, 2004; Bonilla-Silva, 2017; Dixson & Rousseau, 2005; Hilrado, 2010; MacLeod, 2008).

While scholars of race and SES explain this correspondence from very different perspectives, there is at least one common underlying theme in the research that theoretical perspective together: social capital which is operationalized as access to information. A review of the qualitative literature from both a critical race and SES perspective revealed that access to information (social capital) is essential for predicting a student's likelihood of enrolling in some

higher education program, as well as being retained to completion once enrolled. For instance, sociologists studying social class observed that social class shapes a number of individual characteristics, such as parenting styles, acculturation, and interpersonal communication patterns. Or in other words, individual expressions of cultural capital. These class specific cultural capital characteristics were found to (dis)advantage high school students' ability to gain access to mentors within educational institutions, as well as access to information important to successfully applying for college at graduation (Lareau, 2011/2000, Holland, 2015, Stanton-Salazar & Dornbush, 1995; Cillipone & Stitch, 2017). Specifically, these authors observed that students from lower SES backgrounds were less likely to be culturally similar to institutional agents, such as teachers and school counselors, as well as the culture of the institution itself. As a result, lower SES students were less likely to know how to navigate institutional gatekeepers and successfully gain access to the resources that would make them more competitive with their higher income peers when applying for prestigious educational opportunities.

Karp (2011) also found that students who are low income, first-generation colleges students, and most at risk of early attrition from higher education benefited disproportionately from academic engagement with staff and faculty that built their college-going knowledge and skills. Many of the students in Karp's research were students who had non-college educated parents (first-generation college students) and were low income. Consistent with the sociological literature regarding the impact of SES cultural characteristics on student access to higher education, the students in Karp's study entered college with fewer skills and less knowledge regarding institutional resources and how to access them. As such, these students disproportionately benefited from supportive mentoring and academic engagement practices that taught them how to navigate the procedural and cultural demands of higher education in order to bolster their probability of achieving their educational goals. For instance, many of the first-generation and low income students were more likely to be

successful in college if they learned how to navigate the physical space of the college, how to develop effective study and time management skills, how to interpret the hidden curriculum embedded in college classrooms, and how to navigate the supportive services offered to them on campus (Karp, 2011). In many cases, these skills are something that is implicitly expected of college students, and so not explicitly taught to students. However, as sociologists have illustrated, expectations regarding what students should and should not know by the time they reach college is very much reflective of SES specific preferences, knowledges, and advantages that are not equally distributed across all socioeconomic strata (Bourdieu, 1973; Karp, 2011; Lareau, 2011/2000; Holland, 2015; Cillipone & Stitch, 2017).

Instead, these scholars argue, the cultural of social institutions, including higher education, reflect the cultural, SES specific, knowledges and preferences of the higher SES individuals. As a result of cultural (dis)similarity to higher education institutions, students of various social classes are selected into or out of certain opportunities for social mobility. Within this context seemingly liberal, SES neutral, policies, procedures, knowledges, and practices advantage members of the upper classes over those of the lower and working classes. This advantage accumulates over an individual's lifetime. For example, higher SES students, with college educated parents, are most culturally like the culture of higher education (Laureau, 2011; Bourdieu, 1973). As such higher SES students are also more likely to enter college with the skills and knowledges most rewarded in that institution. Therefore, they are more likely to achieve their educational goals and position themselves to attain leadership positions in other dominant social institutions. In capacities of leadership and responsibility, higher SES graduates typically reproduce the policies, practices, and institutional structures according to the knowledges, skills, and cultural preferences of their SES background and so reproduce existing patterns of stratification both within and outside of the social institutions they dominate (Bourdieu, 1973).

The cumulative reproductive effect of cultural (dis)similarity on patterns of stratification can be observed at both the interpersonal, as well as the institutional level. Regarding reproduction at the interpersonal level, several sociological scholars have observed that cultural (dis)similarity to actors within educational institutions affects individual student's abilities to broker effective social capital building relationships with peers and institutional figures who have access to valuable information. In particular, students who had non-college educated parents, and who were often from lower social strata, were often excluded from social networks that could enhance their college going skills and knowledge[1] that help them learn how to navigate educational institutions and their cultures. On the other hand, students who were more similar to majority peers and institutional actors, were more likely to have the cultural knowledge and skills that afforded them greatest access to institutional actors with access to valuable information that promoted their academic achievement and social mobility (Karp, 2011; Lareau, 2011/2000; Holland, 2015, Stanton-Salazar & Dornbush, 1995; Turner, 2015, Menchaca, Mills, & Leo, 2016; Seo & Hinton, 2009; Li & Beckett, 2006).

While none of these scholars specifically defined these valuable institutional actors as mentors, the consistency in how the roles of these actors were defined and described across the social capital, social reproduction, and critical race theory literature reflects several conceptual characteristics of mentors (Haggard, Dougherty, Turban, & Willbanks, 2011; Anderson & Shannon, 1988; Kram & Isabell, 1985; Allen & Eby, 2007). Actors in each of these studies, whether they were identified as peers, school personnel, or family members, functioned both as sources of social and cultural capital, as well as gatekeepers to social capital networks. From this perspective, access to quality mentorship is arguably one mechanism of social reproduction that can be intentionally

[1] College going knowledge refers to the awareness of how to access higher education, including what courses to take in high school in order to be competitive for admissions, how to apply for student aid, how to select a major, organize a course schedule, and how to apply for college. College going skills refers to the skills important for academic success, such as time management skills, study skills, and the ability to navigate institutional resources.

modified in order to promote more equitable access to quality support and information, student achievement, and cultural change within higher education.

For this reason, the focus of this study is to explore the role of mentorship in student achievement outcomes in higher education using a nationally representative longitudinal data from the ADD Health Study (Adolescent to Adult Health Study).[2] The second objective of this study is to empirically test the findings in the qualitative literature in order to determine if there are any significant relationships between respondent demographics and the type of mentors they have cited as their primary sources of support. In addition to utilizing a representative longitudinal dataset to test the findings in the qualitative literature what makes this study unique is the combination of social reproductionist theories with theories of social capital, cultural capital, correspondence principle, and Critical Race Theory. These theories are worked together in order to expand the sociological literature pertaining to (the disruption of) social reproduction in higher education. Each one of these theories (i.e. social and cultural capital, the correspondence principle, social reproduction, and Critical Race Theory) alone make important contributions to the theory of social reproduction.[3] However, all these theories combined bring a fresh perspective on complexity of mechanisms of reproduction. The weaving together of these theories provide a foundation for challenging these mechanisms at their most basic interpersonal level. Understanding how mechanisms of reproduction can be disrupted at the interpersonal level can also have broader institutional effects. This is important since there are several institutions that have engaged in high impact practices, that have centered on relationship and social capital building, have effectively promoted the access, retention, and completion of some of the most at risk students in higher education (Cox, 2017; Fox, Sullivan, & Pearson, 2018; Promising, 2016). The success of these

[2] Details regarding the ADD Health Study will be reviewed in detail in the methods section of this study located in Chapter 3 (pg.78)
[3] Each of these theories will be defined and explored in detail in the following literature review.

programs demonstrates that genuine efforts to promote holistic inclusion and relationship building in higher education can be successful.

Chapter 2: Literature Review

Institutional Selectivity and Student Achievement Outcomes

As previously mentioned, institutional selectivity has been identified as a key factor contributing to wide variations in retention and graduation rates among universities and community colleges. Recall that Burkum et. al., (2010) found that institutional selectivity accounted for 80% of the variance in retention rates between community colleges and universities. Similar conclusions were reported by the National Center for Education Statistics (NCES) which also found that institutional selectivity was a key predictor in higher educational completion outcomes. Specifically, NCES (2018) data shows that six year graduation rates were highest among institutions who were more selective and admitted numerically fewer students. Specifically, those institutions who enrolled less than 25% of their applicants per semester had a six year graduation rate of 88% percent. On the other hand, four year institutions who had open admissions policies graduated 32% of their students within six years. Then graduation rates among four year institutions with some admissions restrictions averaged a 59% completion rate. However, the NCES study only tracked first time full time students, so it is very likely that those students who attended four year universities part time, or were not first time full time students, displayed more variability in their rates of completion compared to the subjects in this report. This is an important limitation to note considering that attending college part time is a critical risk factor in predicting early attrition and delayed graduation at every level of higher education (Calcagno, et.al., 2006; Center, 2012; Martin, Galentino, & Townsend, 2014; Saenz, et. al., 2011)

Recognizing that institutional selectivity has a highly predictive association to student achievement outcomes it is not surprising that universities tend to have graduations statistics which are typically double that of community colleges. Universities have traditionally been, and continue to be, more selective in terms of their admissions criteria (Burkem, et. al., 2010; NCES, 2018).

Competitive admissions requirements are one important reason that four year universities are more likely to attract and admit students who are higher income, more college ready, and have the financial, social, and cultural resources important to completing a degree program without disruption. On the other hand, unlike their university counterparts, community colleges were founded upon the ideological imperative to democratize education (Karp, O'Gara, & Hughes, 2008; Provasnik & Planty, 2008). The idea of advancing the democratization higher education was born during the 1960's when womyn and minorities were regularly blocked from accessing higher education. In reaction to historic exclusionary practices, community colleges were created with the intention of opening educational opportunities to underserved populations. So, community colleges opened their doors and intentionally offered affordable tuition rates, both academic and skills training curriculums, close local access, and non-selective open door admission policies. Yet, maintaining open door, non-selective admissions policies attracted, and continues to attract, a higher proportion of students who are children of non-college educated parents (first-generation college students), low income, part time attending non-traditional students, and students of color (Karp, O'Gara, & Hughes, 2008; Provasnik & Planty, 2008). The high proportion of low income, first generation, and minority students attending community colleges is important to acknowledge since each of these characteristics have been found to be common risk factors predicting early attrition at every level of higher education (Martin, Galentino, & Townsend, 2014; Goldrick-Rab & Han, 2011; Roderick, Coca, & Nagaoka, 2011; Goldrick-Rab, 2010; Martin, Galentino, & Townsend, 2014; Saenz, et. al., 2011; Pruett & Absher, 2015).

Consequently, selective admission policies are one set of institutional practices that function as gatekeepers which disproportionately filter students into or out of certain sectors of higher education. Given the observable patterns in the demographics of students sorted into or out of specific sectors of higher education, several sociological scholars have argued that there is at least an

implicit racial and socioeconomic bias embedded in the seemingly neutral selective admission policies among many higher education institutions. Specifically, these scholars argue that universities both intentionally and unintentionally bias their administrative policies toward recruiting higher SES white individuals with college educated parents (Karp, O'Gara, & Hughes, 2010; Goldrick-Rab, 2006; Laureau, 2011; Holland, 2015; Bourdieu, 1973). Therefore, the distinct racial/ethnic and socioeconomic distributions between educational institutions are examples of a bias in admissions standards. As previously mentioned, some of the biased selectivity is ideological, democratization of education vs. exclusive access, and some of it is more subversive.

Social Capital, College Access, and the Social Reproduction of Socioeconomic Status

Yet, access to higher education at any level does not just begin with the admissions process. Instead, college admissions requirements reflect a very SES specific, and also racialized, matrix of knowledges and skills that are not equitably distributed across socioeconomic strata. For instance, prospective students must know how to prepare for college while they are in primary and secondary school, how to navigate the financial aid and admissions processes when they graduate, as well as develop an understanding of the hidden curriculum (the cultural aspects) of higher education so that they can enhance their chances of retention and success in their educational pursuits. However, access to critical college-going information (admissions requirements, financial aid opportunities, study skills etc.), pre-college preparation opportunities (extracurriculars, SAT preparation, tutoring etc.), and specific institutional cultural skills (institutional norms, values, communication styles etc.) is not equally distributed to all students in all social classes. This is especially true in terms of quality of information related to these resources and skills, as well as access to that information.

Some of the variations in access and quality of information may be a symptom of residential segregation and the related quality of the primary and secondary schools available to families. On the other hand, some of the variation in access to quality college-going information reflects differences

in SES specific cultures, consciousnesses, and knowledges. For this reason, this section of the literature review will focus on how the cultures of various social classes become one mechanism of social reproduction which helps to perpetuate social inequality in higher education.

First, recall that an overview of the literature, such as the meta-analysis by Goldrick-Rab (2010) revealed that there are certain constellations of risk and protective factors that are most predictive of retention and graduation rates among both community college and university students. Being low income, of color, and first-generation (or the first person in the family to attend higher education) were considered risk factors for early attrition from higher education both at the university and the community college level. Additional risk factors included working extended hours off campus and attending part time, often due to work or family obligations. These risk factors are associated with socioeconomic status in that individuals who work extended hours, and so are more likely to attend college part time, are disproportionately low income. In contrast, protective factors included being a student from a higher SES background, having college educated parents, and being white. Again, reflecting socioeconomic status, students who are higher income are arguably more likely to have the resources to attend colleges or universities full time and work less hours in off campus employment to support themselves. These privileges were found to increase the likelihood of student retention and subsequent achievement of academic goals (Pruett & Absher, 2015; Goldrick-Rab, 2010; Calcagno, et.al., 2006; Chaves, 2006; Center, 2012; Saenz, et. al., 2011).

Furthermore, recognizing the role of residential segregation in terms of access to quality education, it is predictable that individuals who are higher income are also more likely to have access to quality primary and secondary schools that better prepare them for the rigors of college coursework (Roderick, Coca, & Nagaoka, 2011; Kozol, 2012; Surgue, 2014; Wilson, 2009; Logan, Minca, & Adar, 2012). Quality primary and secondary education also reduces the likelihood that students will have to take more than one developmental education course, which was also found to

have a negative impact on retention and completion rates (Goldrik-Rab, 2007; Goldrick-Rab & Han, 2011; Atwell, et. al., 2006; Howell, 2011; Roderick, Coca, & Nagaoka, 2011; Rowan-Kenyon, 2007; Goldrick-Rab, 2010). The quantitative literature is especially useful for identifying broad empirical trends and cause/effect relationships. However, a strength of qualitative literature is its capability to reveal the how and why of broad social trends. For this reason, the rest of this section will focus on reviewing the qualitative literature that provides a more nuanced understanding of why specific risk and protective factors have such powerful capabilities for predicting college access, retention, and student achievement outcomes among various demographics of individuals in higher education.

Cultural Capital and Social Reproduction in Higher Education

Bourdieu was one of first to examine mechanisms of social reproduction from a cultural perspective where individuals actively cultivate what he calls "cultural capital." In his definition cultural capital is a social product accrued by individuals who intentionally participate in specific social activities that confer certain cultural knowledges important to establishing and maintaining membership in preferred social groups. Through deliberate participation in specific cultural group activities, members develop what Bourdieu calls a habitus, or an internalized structure of cultural preferences that enable individuals to recognize and utilize cultural signifiers of the dominant group (Bourdieu, 1973).

Since most social institutions, including educational institutions, are controlled by members of the dominant group, these social institutions norms, values, and internal practices are constructed according to the cultural habitus of the dominant group. As a result, students who have a habitus most like the cultural framework of the dominant group, and thus the educational system, will benefit the most from participation in that social institution. On the other hand, students who habitus is dissimilar to the cultural preferences embedded in the social institution will be alienated, marginalized, and so benefit the least from participation in the institution.

From Bourdieu's perspective, this is one important way that education reproduces social inequality. Students from the dominant classes will have the cultural capital most rewarded by formal education and so they will glean the most benefit from their education. Whereas, their lower SES peers will typically lack the cultural capital required to access the full range of benefits and resources available to them as students. As a result of feeling marginalized by the cultural habitus of formal education, lower SES students are more likely to disengage and drop out of school. Whereas higher SES students will be more likely to persist and go on to achieve advanced degrees that will position them to control dominant social institutions in the succeeding generations. Consequently, the seemingly impartial cultural structure of education encourages the success of specific individuals who strive to maintain the permanency of the existing social order through promoting stratified social mobility.

Several authors who have explored the ways in which class cultural differences impact individual's participation in formal education have found results that support Bourdieu's central thesis of social reproduction through cultural reproduction. Lareau's (2011) and (2000) in depth qualitative analysis of the education participation of lower, working, and middle class families found that children's educational attainment, as well as their access to higher education, varied according to their social class positions. Part of this variation in educational achievement and access to opportunities was attributed to how (dis)similar parent's cultural capital was from the educational institution and the individuals who operate within it. For instance, parents from higher SES backgrounds were most culturally similar to teachers and administrators who were also likely to be from higher SES backgrounds. Class specific cultural similarities lent higher SES parents special advantages when using their cultural capital to broker relationships with institutional figures. Where effective relationships with institutional figures were brokered, children gained access to critical resources and information that made them competitive in terms of college entrance and persistence.

Higher SES parents were also more likely to have acquired some advanced degree themselves, so they also had some personal knowledge regarding what resources and information their children required in order to make themselves academically competitive.

On the other hand, parents from lower SES backgrounds often did not have advanced degrees. Consequently, they had less direct knowledge regarding institutional resources, college entrance requirements, and other useful information that would prepare their children to be competitive when pursuing their educational goals. For this reason, the majority of lower SES parents relied heavily on school officials, such as teachers and counselors, to provide their children with information about school resources, college entrance requirements, and opportunities to develop the college-going skills important to making them academically competitive after graduating high school. Unfortunately, since lower SES parents' cultural capital was often dissimilar to the majority of the school's officials, they were often unable to effectively broker relationships with institutional figures. As a result, children in lower SES households were less likely to gain access to the social networks rich with information that was critical to furthering their education and social mobility prospects.

In addition to culture as a source of social mobility or exclusion from mobility resources, Coleman (1988) developed the concept of social capital. Coleman argued that social capital is produced through exchanges in closed networks embedded in social structures that facilitate these exchanges. From this perspective social capital is functional and its value depends on the social structure that enables the exchange between actors. There are three key elements to social capital: obligations based on trustworthiness, information and norms. Networks that are closed, in that the actors participating in exchanges are constant, allow individuals to reinforce the creation and maintenance of group norms that facilitate trustworthiness and reliability of exchanges in information and other forms of social capital.

Although Coleman did not directly apply his model of social capital to theories of social reproduction, a number of authors have applied his theory of social capital in ways that are complementary to the theory of social reproduction through cultural reproduction. Stanton-Salazar and Dornbusch's research was most interested in the information aspect of Coleman's social capital theory. In their qualitative analysis of status attainment among Mexican American students in one public school, these researchers operationalized social capital in terms of developing supportive mentoring relationships with institutional actors that provided students access to social capital. Similar to Lareau, the substance of social capital in this study included bureaucratic influence, access to learning enhancement supports, knowledge of college-going resources, career information, student services, and mentoring opportunities. Paralleling Lareau again, Stanton-Salazar and Dornbusch also found that students who were the most acculturated, and linguistically similar, to the educational staff were most likely to be selected for mentorship opportunities and therefore gain special access to institutional resources. They concluded that cultural (dis)similarity was the primary mechanism for sorting students into or out of social networks that conferred access to information and resources important for social mobility. From this perspective, cultural habitus, expressed by an individual's degree of acculturation, had the greatest impact on student's ability to broker mentoring relationships with school officials, who were the gatekeepers to information and membership to social networks with valuable information.

SES also had an impact on access to social capital even among peers. Stanton-Salazar and Dornbusch observed that when students struggled to broker mentorship relationships with school officials, they would attempt to gain access to information networks through peer relationships. However, consistent with Bourdieu, lower income students also struggled to gain access to higher income peer networks partly as a result of SES specific cultural differences. Although Stanton Salazar and Dornbusch did not directly discuss cultural capital in their analysis, their observation that

SES and acculturative (dis)similarities between peers functioned like a sorting mechanism that filtered certain students into and out of social capital rich peer networks, certainly reflects some of the core elements in Bourdieu's theory of social reproduction through cultural reproduction.

To illustrate, in their field observations Stanton Salazar and Dornbusch observed that students who were most similar in terms of SES and acculturation were more likely to gain access to their desired social networks which were rich with social capital. Access to educational information through peers then enhanced the student's prospects for higher educational attainment. On the other hand, lower income students who were more dissimilar from the dominant higher SES students in terms of cultural capital and SES, were excluded from the social capital networks. As a consequence of being excluded from social capital resources by both school officials and peers, lower income minority students were at a disadvantage when formulating their educational aspirations, planning their paths to goal attainment, and competing with their advantaged peers when pursuing access to higher education.

Complimenting the discussion of social and cultural capital, research by Holland (2015) evaluated the role of trust in building in relationships with key institutional figures. Similar to Lareau and Stanton Salazar and Dornbusch, Holland observes how SES (dis)similarities between students and school counselors differentially impact students' abilities to broker effective mentoring relationships with school figures who have access to critical social capital. Holland specifically focuses on ways in which SES differences impact relational exchanges in interpersonal communications and the role that trust plays in access to social capital. Specifically, in her study, Holland observed that compared, to their higher income peers, students from lower and working classes backgrounds required more direct mentorship that concretely guided them step by step through the processes of utilizing college-going resources, such as college catalogs or brochures, financial aid applications, and college entrance requirements. Although the school counselors were

aware of SES differences between students, all but one was disinterested in adjusting their approach to student engagement in order to support the varied needs of the students.

Instead, the majority of counselor's used a blanket higher SES approach to social capital building. Students were provided requested documents and told to read them over then return with additional questions as needed. Consistent with Lareau's observations, higher income students were more likely to receive additional support at home from their parents, they were more aggressively persistent in their follow up with the counselors, as well as in prodding the counselors to explain the material enough that that the information was retained. When lower SES students were provided the same materials and told to look up information and return with questions, they felt dismissed by the counselors. When they asked questions in order to understand the materials, the majority of the counselors seemed impatient and unwilling to take them step by step through the processes. As a result, trust was eroded and the lower SES students often gave up pursuing additional information from the school counselors.

Holland's analysis of trust in social capital building parallel's Bourdieu, Stanton Salazar and Dornbusch, and Lareau, in that Holland observes that students from cultural and SES backgrounds most like those of the school officials were most successful in brokering positive trusting relationships with school counselors who provided them social capital advantages over other students. As Bourdieu explained, students from higher SES backgrounds have acquired the preferences, skills, and knowledges that allowed them to acquire membership in dominant social networks, which were also rich with social capital. As a result, higher SES students have a social capital advantage that enhances their competitive advantage when pursuing their higher educational goals. In effect, consistent with Colemen's concept of trust in building social capital networks, each student's and counselor's cultural capital (dis)similarities either enhanced or eroded communication exchanges. The breakdown or affirmation of reciprocal communication between actors then either

increased or decreased the quality of trust between the students and school counselors. Trust then functioned as another sorting mechanism that filtered students into or out of social capital rich networks. Finally, access to or exclusion from social capital networks, based on students cultural (dis)similarity to key institutional figures, ultimately the reproduced SES differences within the observed educational institution, as well as beyond it. This would be predictable since these relationships also directly impacted student's access to higher education resources and thus later social mobility opportunities.

Although social capital and cultural capital are different constructs, they are both useful in explaining mechanisms of social reproduction. For instance, Portes (1998) compares social capital to cultural capital and teases out the distinctions between them. Specifically, Portes suggests that Bourdieu distinguishes between resources and the varied ability of actors to access those resources based on their cultural knowledge and similarity to dominant institutions. On the other hand, Coleman emphasizes closed networks as a means of creating valued resources such as obligations, norms, and information. Where Bourdieu was more interested in how cultural knowledges reproduce inequality, Coleman was less interested in reproduction, even though his concept of social capital can be utilized effectively to explain some mechanisms of reproduction. Therefore, when blended together, these two theoretical constructs provide a more nuanced understanding of how stratified social structures have acquired such permanency in dominant social institutions, including education.

To elaborate, consider Coleman's closed networks and their relationship to cultural capital. The criteria for selecting individuals into or out of a closed network was not explained by Coleman. He instead emphasized similarity in goals, norms, and values as being essential to tying network intersections together. Here Bourdieu's concept of habitus is useful in explaining how selections into or out of social network membership is determined. From a cultural capital perspective, the criteria

for membership in social networks are based on cultural (dis)similarity. Those individuals who are most culturally similar to the norms and values of the dominant group members will be selected into the network. Whereas, those individuals are least culturally similar to dominant members will be more likely to be excluded.

To explore this theoretical proposition in more detail recall Holland's study concerning the role of SES in trust building and student's disparate access to mentors who could provide college-going information. In Holland's study lower income students were systematically excluded from mentorship opportunities and social capital networks as a result of dissimilarities between the habituses of the school counselors and students. If this presumption is correct then Lareau's study of class differences, parenting styles, and the habitus of educational institutions then sheds light on some of the micro level mechanisms in which parents, teachers, and students enact the cultural values of their social position in order to gain access to, or fail to gain access to, closed networks in educational institutions. Hence the (dis)similarity of cultural capital between the social groups creates both symbolic and tangible signifiers that serve to identify the boundaries of network membership. Habitus signifers also work to reinforce the norms and expectations of exchanges among members within the network, as well as those who seek to enter it. Since closed networks require consistency to reinforce norms of obligations (Coleman, 1988), then those most culturally similar to the existing members are more likely to know how to gain access to the network, how to fulfill the obligations of their role in the network, and so benefit from the social capital of the network. As Coleman suggested, strong network ties between parents, teachers, and school personnel then reinforce norms of achievement that promote student success and empowerment.

However, one of the negative aspects of closed networks is their exclusivity that results in the alienation of outside groups (Portes, 1998). This exclusivity is where social reproduction of inequality manifests itself on the micro level. As seen in the study by Holland and Stanton Salazar

and Dornbucsh, as well as Kao (2004)'s study of social capital networks among marginalized Asian immigrant families, exclusion from dominant social networks becomes another barrier in accessing information important to social mobility. All these scholars researched lower income students, first generations students, and/or students of color and observed how their exclusion from social capital networks impeded, or at least significantly reduced, their access to college-going information in particular.

This is important to consider when examining disparate student achievement outcomes since the literature demonstrates that exclusion from quality mentorship opportunities, as well as exclusion from social capital networks, can have a cumulative effect that follows students into their young adult years. From this perspective it is not just institutional selectively alone that reproduces educational inequality by filtering certain students into or out of various sectors of higher education. Instead, social reproduction reflects a complex matrix of interacting social institutions, individuals, SES and class specific cultures, and historical patterns of stratified social relations that interact and reproduce systems of stratification in social institutions such education.

Correspondence Principle and Social Reproduction in Education

Complimenting the theoretical role of social and cultural capital in the context of social reproduction, Bowles and Gintis (1975) offer the concept of the correspondence principle. The theoretical construct of the correspondence principle argues that class consciousness is shaped by multiple interacting institutions of social reproductions, such as formal education, the labor market, and the family unit. Parallel to Bourdieu's concept of habitus, Bowles and Gintis argue that the ideological structures of social institutions are fundamentally shaped by differentiated class consciousnesses that are shaped by an individual's position in the labor market. Similar to Bourdieu's concept of habitus, the correspondence principle suggests that dominant social institutions are structured in ways that systematically reward the capacities and preferences of the upper classes.

These institutional biases then reinforce the primacy of specific class consciousnesses in key social institutions, which reward and advantage the class consciousness of the upper classes and perpetuate class and SES inequality. However, what is key in Bowles and Gintis's analysis is the correspondence, or the seemingly implicit collaboration, of multiple social institutions in reproducing social classes according to labor market demands.

To explain, Bowles and Gintis explore the differences in parenting practices between the social classes and their correspondence to various roles in the labor market. For instance, the labor market requires individuals who will fulfill lower level labor positions. These lower level labor stations do not require much critical thinking, but they do require certain obedience to rules and authority. Someone must provide those rules and authority to laborers, so the labor market also requires a pool of individuals who are reliable, critical thinkers, that can organize and discipline the laborers. Finally, for business to expand and generate more capital, some individuals must be prepared with the right business and social skills to engage in higher order business operations and management. From this perspective the requirements of the labor market both create and maintain tiers of individuals who will have the specific set of skills necessary to fulfill these varied specific labor market requirements.

Furthermore, Bowles and Gintis argue that stratified class consciousnesses are first reproduced within the context of household families. For instance, parents in each social class engage in parenting practices specific to their experiences in the labor market and their expectations regarding where their children will be in the labor market. Hence, as Lareau observed in her research, working class families parent their children qualitatively differently than higher SES families. From a correspondence perspective, differences in parenting styles are conditioned by the parents place in the labor market and their expectations regarding where they believe their children will also be in the labor market. Lower SES parents condition their children to listen to authority,

whereas middle class parents condition their children to be structured and organized, while higher SES families condition their children to develop independent thinking and entrepreneurial skills.

As with the social and cultural capital scholars, Bowles and Gintis's correspondence principle also reveals ways in which class consciousness is reproduced within the structure of education systems that filter students into, or out of, certain opportunities for growth according to their class position. For instance, Bowles and Gintis note that school districts with a larger number of working class children tend to have limited educational resources and be very underfunded. Teachers in many of these schools often feel forced into more factory style teaching practices that fail to foster the creativity and independent thinking skills that are important to climbing up to higher tiers in the labor market, as well as gaining access to quality higher education opportunities. Furthermore, even when there is a mix of both upper and lower SES students in any one school district, higher SES students are tracked into the advanced placement courses, where lower income students are tracked into vocational or remedial courses. Again, each class of student are placed in educational tracks that correspond to what their place in the labor market is expected to be.

Although Bowles and Gintis did not mention social or cultural capital in their correspondence analysis, these theoretical constructs can certainly be included as additional variables that correspond to reproduce social inequality. For instance, it could certainly be argued that teachers and administrators select students into or out of advanced placement courses based on their perceptions of the student's abilities. However, the basis for these assumptions will often reflect the cultural habitus of the dominant classes for which faculty and staff are likely to be members of (Bourdieu, 1973). Again, as previously discussed, the ability to broker effective relationships with institutional figures is also important in predicting access to social capital, which is acquired in advance placement courses for example. From this perspective, it is more than a correspondence between the labor market, family, and educational institutions that reproduces social inequality, it is

also a reflection of cultural and social capital. Still, what is key to Bowles and Gintis' theory of correspondence is that multiple institutions of reproduction, including families, schools, and the labor market, all correspond to reproduce the stability of the stratified economic system. So, in the case of this review, the correspondence principle calls for an integrated understanding of ways in which class consciousness shapes institutional habituses that reproduce social inequality through seemingly neutral policies, practices, preferences, and administrative programming.

Each of these theoretical concepts, social capital, cultural capital, and correspondence principle, are effective for dissecting mechanisms of social reproduction related to social class. However, none of them addressed the persistence of racial inequality across all social institutions. This is important considering that in addition to being low SES or a first-generation college student, being a student of color was also identified as a barrier to higher education access, retention, and completion (Healey & Stepnick, 2017; Calcagno, et. al., 2008; Goldrik-Rab, 2007; Goldrick-Rab, 2010; Martin, Galentino, & Townsend, 2014; Saenz, et. al., 2011). Although race was not accounted for in the theories of social or cultural capital, nor the theory of correspondence, the persistence of racial inequality across time and all US social institutions suggests that integrating theories of racial stratification with theories of social reproduction could be useful in developing a more holistic understanding of the mechanisms that reproduce both racial and economic inequality in higher education. For this reason, the correspondence between multiple institutions that have reinforced racial inequality will be examined next. Then the concept of cultural capital will be explored from the perspective of racialized boundary maintenance strategies that function to exclude individuals of color from accessing social capital networks.

The Correspondence of Race and Residential Segregation in Social Reproduction

For instance, correspondence between class consciousness, cultural habituses of education institutions, and access to social capital could be re-appropriated in order to explain how racial and

ethnic stratification is reproduced through the correspondence between social institutions that were *not* considered by the social or cultural capital scholars, nor Bowles and Gintis. For example, the correspondence principle could be used to dissect ways in which racialized residential segregation, created through decades of racist correspondence between federal policies, financial institutions, educational institutions, and the labor market, have created and maintained stratified access to social and cultural capital building resources among many marginalized minority communities in the US. Specifically, research by Orfield and Lee (2007) found that contemporary residential patterns in the US are as segregated by race and income as they were prior to the 1960's. Consequently, people of color are increasingly being re-isolated in neighborhoods that are low income, have poor primary school districts, few employment opportunities, and disproportionately high numbers of undereducated adults (Wilson, 2009, Kozol, 2012, Orfield and Lee, 2007; Surgue, 2014, Soss, Fording, and Schram, 2011; Foner and Fredrickson, 2004; McLeod, 2008). The experience of hypersegregation among a number of minority communities not accidental. Research by Surgue (2014) provides a detailed historical case study of the shifting dynamics of race relations among citizens of Detroit, Michigan during the boom and bust cycles of car manufacturers, such as General Motors and Ford Motor Company. Similar conceptually to Bowles and Gintis's correspondence principle, Surgue's study revealed ways in which multiple social institutions from insurance companies, banks, labor unions, industrial manufacturers, the US department of Transportation, white homeowner associations, and real estate companies organized their institutional practices to the advantage of higher income whites. As a result of corresponding racist institutional practices in financial, residential, economic, political, and labor institutions, African Americans, and other people of color, were systematically isolated into the poorest neighborhoods, resource deprived school districts, and the lowest paying tier of the labor market. As a result, they were systematically excluded from the mainstream opportunities for social mobility.

Wilson (2009) also provided a similar comprehensive analysis of ways in which deindustrialization, national trade and economic policies, criminal law, residential segregation, and labor market discrimination have all corresponded over decades to reproduce racialized systems of stratification by isolating people of color in resource deprived neighborhoods and the bottom tiers of the labor market. Soss, Fording, and Schram (2011) have also conducted exhaustive quantitative case studies of work based social welfare programs across the US in order to demonstrate ways in which the US government's social welfare policies intentionally limit the social mobility of low income womyn of color in order to maintain an excess pool of low skilled labor. Inspired by Piven and Cloward (1977), Soss, Fording and Schram's case studies show that US welfare policies are riddled with racist and gendered political social agendas that are constantly evolving within a matrix of labor, trade, economic, criminal, and (de)industrialization policies unfolding since the New Deal in the 1930's.

Additional research by Hoxie (2001) and Wilson (2000) also revealed ways in which multiple mechanisms of domination have resulted in the isolation and abject impoverishment of First Nations, who have been forced into the most environmentally deprived reservations across the US. Each scholar details how the correspondence between racist practices among powerful social institutions including federal and state governments, military, educational institutions, the scientific community, white colonists, and industrial corporations have brought an entire population to near extinction. Their research also shows how all of these institutions continue to work together in order to curtail First Nations resistance to assimilation, as well as their social political advancement and empowerment.

Finally, Kozol (2012) engaged in an extensive series of qualitative case studies of over a dozen school districts around the US. What is key to his research is the proximity of the school districts and the abject differences in the quality of education despite their geographic proximity to

each other. Consistent with Bowles and Gintis, Kozol's research revealed that where school districts were highly populated with low income students of color the curriculums were watered down, there were limited or no technical resources, the infrastructure of the buildings was dilapidated, the teaching staff had explicitly low academic and labor market expectations for the students, and there was little or no access to advanced academic courses or college preparatory skill building opportunities. Kozol also found that the students of color who were able to break into the adjoining higher income school districts with better infrastructure, faculty, technical resources, and expanded curriculums, were often tracked into developmental education programs where they remained segregated from the affluent students, as well as opportunities for educational advancement.

Furthermore, Kozol's studies also included brief overviews of both historical and contemporary state and local policies which created and maintained the observed segregation between school districts. In particular, consistent with Surgue, Kozol notes how US Department of Transportation policies built major highways between high income and low income neighborhoods, which functionally isolated each area through permanent behemoth infrastructure projects. There is also notably limited or no public transit systems to allow students in either district to easily attend their school of choice. Therefore, as a result of the correspondence between state, federal, and local infrastructure projects, local residential policies, public transit operations, and institutional practices among and between school districts, low income students of color are disproportionately segregated into the poorest performing and capital deprived schools, or educational tracks within schools. As such, the students and families in these highly segregated school districts had little or no opportunities to enhance their access to social or cultural capital in order to improve their competitiveness for higher education admission, retention, and social mobility.

The correspondence between a matrix of social institutions that interact in ways that functionally reproduce racialized patterns of residential segregation is important to discuss

considering that a number of higher education scholars have identified poor quality primary schools as a significant barrier to retention and credential completion (Logan, Minca, & Adar, 2012; Goldrik-Rab, 2007; Goldrick-Rab & Han, 2011; Atwell, et. al., 2006; Howell, 2011; Roderick, Coca, & Nagaoka, 2011; Rowan-Kenyon, 2007; Goldrick-Rab, 2010; Simi & Matusitz, 2016; Keene, 2016). Part of the challenge in attending poor quality primary schools is that students in these districts begin their higher education experience less academically prepared. They are less knowledgeable of college-going skills, the culture of higher education institutions, the hidden curriculum embedded in academia (Karp, 2011; Karp, Hughes, & O'Gara, 2010; Progress, 2017; Zeidenberg, Jenkins, & Calcagno, 2007), and they are more likely to have to take multiple developmental education classes to become college ready, which itself is a risk factor for early attrition (Bailey & Cho, 2010, Goldrik-Rab, 2010; Goldrik-Rab, 2007; Barbatis, 2010; Fowler & Boylan, 2010). Additionally, from the qualitative literature it is observable that lower income individuals, who are most likely to have non-college educated parents, are also less likely to have the social and cultural capital important to gaining access to, and being retained in college (Goldrik-Rab, 2010; Karp, 2011; Karp, O'Gara, & Hughes, 2010; Cipollone & Stitch, 2017). These same individuals are also less likely to effectively broker relationships with institutional figures or higher income peers who could serve as mentors and enhance their access to social and cultural capital (Lareau, 2011/2000; Holland, 2015, Stanton Salazar and Dornbusch, 1995; Kao, 2004).

What is central to this section of the review is recognition that a matrix of social institutions work together at the micro, meso, and macro levels in order to reproduce very racialized patterns of social stratification which functionally sort individuals into, or out of opportunities, for social mobility. In this way the existing social order is maintained by privileging the cultural, economic, political and socioeconomic preferences of higher SES individuals, especially whites and males. However, what is most subversive about these co-operating systems of domination is their

seemingly race and SES neutral meritocratic structures which all institutions, and the individuals who control them, persistently deny are biased toward any particular social group. Essentially, each of these institutions structure their policies and procedures in a manner that upholds the appearance of being SES neutral and color blind while simultaneously reproducing social inequality under the guise of liberalism.

Color Blind Racism, Critical Race Theory, and the Correspondence of Race

The theory of color blind racism posits that in dominant US discourse racial hierarchies are believed to no longer exist in contemporary society. Therefore, all individuals are equal in regard to race, ethnicity, and access to opportunity for advancement, including educational opportunities (Bonilla Silva, 2017; Gallagher, 2003; Kincloe et. al., 2000). Within the context of this discourse, whites deploy a range of discursive strategies that ahistoricize race relations (Fronner & Fredrickson, 2004; Kincloe et. al., 2000), replace pre-Civil Rights ideologies of biological inferiority with cultural explanations for inequality (Hill Collins, 2004; Bonilla Silva, 2017), while also denying the persistence of white privilege in social institutions and every day society (Dixson & Rousseau, 2005; Hiraldo, 2010; Kincloe et. al., 2000). As Bonilla-Silva concludes, each discursive maneuver allows whites to justify their social position as earned, deny their participation in boundary maintenance strategies that exclude people of color from advancement opportunities, and rationalize their rejection of equity initiatives as unjust in the apparent post racial context. Collectively, these sets of rationalizations legitimize the ideology of the color blindness in postmodern society, while allowing whites to hold conflicting personal views about meritocracy and equality within the context of their privileged social positions.

One of the most challenging features of color blind racism is its seeming race neutrality. For instance, going back to the correspondence between multiple institutions which interact to reinforce segregation, on the surface none of the policies or practices of any of these social institutions appear

to be overtly racist. For instance, the US Department of Transportation's repeated decisions to disproportionately demolish communities with a high density of low income people of color in order to install major US highways were not explicitly racist. Nor are the banks' practices of redlining predominantly low income majority of color neighborhoods and hiking up the interest rates on mortgage loans and insurance policies explicitly racist. Neither were the recruiting practices of manufacturing companies and their related labor unions, which systematically excluded people of color from the higher paying and advanced positions, explicitly racially motivated. Furthermore, white people's mass flight from their neighborhoods when people of color begin moving is never framed as explicitly racist. Instead, these behaviors have been, and still are, rationalized as a matter of "personal preference." Similarly, higher income school district's tracking of students of color into non-college track developmental education courses is rarely explained in explicitly racist terms. Instead, these practices simply reflect(ed) the students' academic skill level, rather than the teacher's biased perception of it.

Nevertheless, as Fronner and Fredrickson (2004), Bonilla Silva (2017), Gallagher (2003) and many other race scholars would argue, these decisions are routinely explained away as economically motivated, the result of trends in the labor market, skills based, coincidental, or simply convenient. Or in other words, completely color blind. As feminist theorist, Marilyn Frye said about womyn's oppression, looking at only one bar of a bird cage close up, or one isolated act of discrimination, we fail to see how a bird is trapped inside of the cage. Instead, an individual must stand back and view the cage in its entirely in order to see how many bars all link together and enclose the bird. From this perspective, it is not one simple seemingly color blind act of discrimination, such as tracking or redlining, that reproduces racial and ethnic inequality. Rather social stratification is the result of a multitude of interacting policies and practices that must be viewed holistically and historically in order to really appreciate their complex roles in systems of social reproduction.

Similar arguments can be made in regard to interpersonal dynamics between faculty, staff, and higher income peers who were potential mentors in the qualitative studies conducted by Lareau, Stanton-Salazar and Dornbusch, as well as Holland. In these studies students who were low income, of color, and/or first-generation college students struggled to broker effective mentoring relationships with individuals who had access to the critical social capital that they needed to advance their educational prospects. Yet, in each study students (dis)similarity to the cultural habitus of the educational institution, as well as the actors within it, conferred certain advantages, or disadvantages, when they attempted to access critical social capital. However, none of the actors observed ever explicitly discussed race or ethnicity as a factor that affected their willingness to mentor students or not. Instead, consistent with color blind racism theory, the counselors in Holland's study, who were dismissive of lower income students, simply deployed cultural inferiority scripts, such as calling the students "lazy" or "unmotivated," in order to resolve their cognitive dissonance related to their conflicting values of meritocracy and their concurrent unwillingness to provide equitable access to information. Again, none of the school officials, nor the higher SES students, in any of these studies claimed to be explicitly racist as they engaged in color blind boundary maintenance strategies. Nor did any of the majority actors admit that the educational culture was inherently biased in their favor. Instead, all acts of discrimination were explained away by personal preferences, cultural inferiority scripts, and other tropes of color-blind, SES neutral, rationalizations if they were explained at all.

While each of these studies focused on high school student's access to higher education resources, the cumulative (dis)advantage observed in each of these studies will likely follow each of the students well into adulthood, as predicted by the correspondence principle, as well as Bourdieu. From this combined theoretical perspective, it is predictable that the more affluent white students in each of these studies will be comparatively more likely to go on to attend higher education, be

selected into the most resource rich universities and colleges, complete their educational goals, and secure a position of influence in various social institutions. In these advanced capacities they will likely reproduce the cultural habituses and social networks that functionally have, and continue to, benefit individuals in their particular social reference group in dominant social institutions including higher education.

For this reason, Critical Race Theory (CRT) argues that, like other social institutions, higher education is no less colorblind than the labor unions, the government, labor market, or financial institutions. Instead, from a CRT perspective, color blind racism is pervasive, and it routinely obscures the reality that white privilege continues to permeate higher education (Hilrado, 2010; Dixson & Rousseau, 2004). In fact, exposing color blind racism is one reason that Critical Race Theory (CRT) and its related methodology was formed. Specifically, CRT is a critical social theory that interrogates social institutions and traditional forms of knowledge production in order to problematize and expose racial and ethnic inequality (Ladson-Billings, 2003; Dixson, A. D., & Rousseau, Hilrado, 2010; Dixson & Rousseau, 2004). As such it is particularly useful for deconstructing seemingly race neutral education policies, procedures, and interpersonal dynamics that reproduce social inequality in the one social institution which is popularly believed to provide the greatest opportunity for "leveling the playing field."

Before moving into the review of student and faculty of color's experiences in higher education a more thorough explanation of CRT is warranted. Hiraldo (2010) and Dixson and Rousseau (2005) both provide a useful overview of CRT and its five central ideological tenets. First, in contrast to colorblind ideologies, CRT firmly argues that race, specifically white supremacy, permeates every social institution in the United States. All social institutions were created by higher SES white males and so all of the knowledge, procedures, and structures have been created to support the permanency of higher SES white power. Within this context, whiteness is considered to

be property in that holders of whiteness can use their whiteness as a tool to gain or maintain their power and privilege. CRT also critiques liberalism, such as beliefs in the neutrality of law or education systems, as a reflection of color blind racism, rather than being actually race neutral. From this perspective, liberalism is simply another method of silencing voices at the margins by denying that racism and classism is a permanent fixture in all social institutions. CRT also argues that the Civil Rights legislation has been manipulated in order to ensure that whites are the primary beneficiaries. As a consequence of this, liberal diversity policies have failed to fundamentally challenge the racism inherent in all social institutions. Finally, CRT highlights ways in which knowledge production has been controlled by whites, where only knowledge created by whites is granted full legitimacy in educational, political, and social discourse.

Deploying Critical Race Theory

So far most of this discussion has focused on *access* to higher education and the matrix of micro, meso, and macro level processes that impact students' abilities to secure opportunities for social mobility. Notably, despite the many challenges facing some students in their efforts to achieve their educational goals, at least until recently, the last few decades have seen some increase in the number of first generation, low income, and students of color that are successfully challenging these barriers and gaining access to higher education opportunities (NCES, 2018; US Department of Education, 2014; Goldrik-Rab, 2010). However, as the literature shows, gaining access does not guarantee the realization of educational goals. Nor is educational success equally distributed across racial/ethnic or income strata. Therefore, in order to shed light on how mechanisms of interpersonal racialized boundary maintenance strategies at the micro level affect global retention among underrepresented students the following section includes a comprehensive review of the CRT literature pertaining to minority student's social experiences in higher education and their impact on access to information.

CRT focused literature is particularly useful in this context because one of its central theoretical objectives is to expose the everyday struggles and resilience of people of color in order to expose and openly challenge colorblind ideologies. CRT scholars prefer qualitative studies that emphasize the use of personalized counter narratives and storytelling as a method of consciousness raising and shifting marginalized voices to the center of inquiry (Delgado, 1998/2002; Ladson-Billings, 1998; Hiraldo, 2010; Dixson & Rousseau, 2005; Turner, 2015; Waterman & Lindley, 2013). For this reason, CRT literature is especially useful for expanding upon the theoretical framework of social and cultural capital. Much like the research by Laureau, Holland, Kao, Stanton-Salazar and Dornbusch, CRT scholarship offers a grounded, person centered view of how individuals who are often excluded from dominant social networks experience this exclusion, as well as how they work together to create alternative access points to critical college-going information. Part of shifting marginalized voices to the center of inquiry is also celebrating ways in which individuals resist inequities and create their own paths to success in the face of adversity.

Analyzing student's resistance strategies also offers opportunities to disrupt reproductive institutional practices by building on the existing strengths of various communities. Therefore, in this section of the review special attention is paid to how institutional politics and interpersonal dynamics both, overtly and covertly, select students and faculty of color into or out of closed social networks, as well as mentorship opportunities with higher SES white students, institutional personnel, and majority faculty in predominantly white institutions (PWIs). Faculty experiences also provide a unique perspective regarding knowledge production, as well as socially constructed standards of legitimacy inherent to the production of knowledge, are another mechanisms of social reproduction which also impacts student retention. While each group of individuals may identify with very different racial and ethnic backgrounds, the ways in which boundary maintenance strategies are enacted in order to maintain the consolidation of cultural and social capital within

predominantly white high SES social networks is glaringly similar. By also focusing on similarities in patterns of exclusion, as well as resistance, these narratives provide crucial information for tailoring holistic inclusion and retention efforts that acknowledge and build on the social and cultural capital resources that already exist within marginalized communities.

African Americans

A review of the literature that included a range of student interviews, revealed that for many African American students navigating the social and institutional spaces of predominantly white institutions (PWI)'s can be exceptionally challenging. Color blind cultural inferiority scripts had a significant impact on the social experiences of all the African American students interviewed. In particular, the majority of students interviewed discussed pressure to prove themselves as capable and competent (Horvat, McNamara, & Lewis, 2003; Wilkins, 2014; Hannon, et. al., 2016; Fries-Britt & Griffin, 2007). A number of students explained that in the classroom or in social circles they experienced stereotype threats from professors (Harper, 2009; Barber, 2012; Fries-Britt & Griffin, 2007) and white students who doubted their abilities because they were African American (Barber, 2012; Wilkins, 2014; Horvat, McNamara, & Lewis, 2003; Harper, 2009). Some students noted being passed over as partners for group work (Harper, 2009) and many others found it difficult to break into white dominated social circles (Horvat, McNamara, & Lewis, 2003; Harper, 2009: Wilkins, 2014). Students also described how they felt that they had to be careful to not behave in ways that are stereotypical, but at the same time they felt that they had to constantly rebuke stereotypes and microaggressions as they were faced with them (Fries-Britt & Griffin, 2007; Harper, 2009; Horvat, McNamara, & Lewis, 2003; Barber, 2012).

The narrative of isolation and rejection described by African American students provides concrete examples of CRT scholars' discussions of boundary maintenance strategies employed by whites in order to exclude students of color from social capital networks, and so maintain white

dominance through access to resources, information, and other forms of capital. Color blind narratives of inferiority reinforce stereotypical perceptions of difference in intellectual capability and culture between African American students, faculty, and white students. As seen in the study by Stanton Salazar and Dornbusch, real or perceived cultural differences between racial and ethnic groups often results in the exclusion of students of color from social capital networks. This was the case with high school students, faculty mentors, and white higher SES peers, in their research. In these CRT studies, African American college students shared similar experiences when trying to connect with prospective faculty mentors or white peers in PWI's. Following the logic of the CRT and social capital literature, exclusion from social capital networks in PWI's is one significant factor contributing to higher rates of early attrition among African American college students. In addition to the destabilizing experience of chronic micro-aggressions, and the stress of facing constant stereotype threats, students excluded from access to social capital are also at a disadvantage in terms of acquiring college-going information, as well as the skills to navigate the academic environment.

Despite the challenge, African American students' interviews also revealed powerful counter narratives that highlight their unique strategies of resilience, adaptation, and persistence in the face of microaggressions and stereotype threats. Central to all the readings was the role of positive supportive peers, engagement in culture specific associations, and opportunities for leadership in crafting positive self-identities with the PWI context. Supportive peer networks were a source of affective support social capital building and acted as a buffer against daily microaggressions (Horvat, McNamara, & Lewis, 2003; Harper, 2007; Harper, 2008; Bukoski & Hatch, 2016; Harper, 2009; Barber, 2012; Hannon, et. al., 2016; Fries-Britt & Griffin, 2007). Participation in black student associations also provided sources of peer support and social capital building. At the same time these spaces were a critical source of leadership opportunities where students could create their own conception of student achievement, engage in leadership opportunities, and create safe spaces to

name and take control over their racialized experiences (Horvat, McNamara, & Lewis, 2003; Harper, 2008; Harper, 2009; Hannon, et. al., 2016; Bukoski & Hatch, 2016).

Hispanic Americans

As with the experiences of many African Americans in the educational system, Hispanic Americans also struggle with persistent discrimination and racism. Students at all levels of education (Farley, 2002; Hanselman, et. al., 2014; Hurtado, Carter, & Spuler, 1996; Hernandez, 2010) and even faculty (Manchaca, Mills, & Leo, 2016; Turner, 2015) have shared stories about how they have felt like intruders in PWI's. Student stories revealed experiencing overt prejudices in the classroom from teachers and faculty (Turner, 2015; Hurtado, Carter, & Spuler, 1996; Hernandez, 2010; Cammarota, 2009) and from other students (Hanselman, et. al., 20140; Turner, 2015). Also like the experience of African Americans, Hispanic students felt pressure to present their entire race when they spoke in class or in social circles (Hanselman, et. al., 2014; Hurtado, Carter, & Spuler, 1996; Farley, 2002) and there is added pressure to "go it alone" and "endure" in the face of alienation in the classroom (Farley, 2002; Bukoski & Hatch, 2016). Stemming from color blind racism's cultural inferiority themes, Hispanic students also reported that teachers/faculty and their peers assume that they are less intelligent or culturally inferior and so they often fail to include them fully in the academic process (Hanselman, et. al., 20140; Farley, 2002; Hernandez, 2010; Cammarota, 2009; Turner, 2015). For instance, some students shared that white students will not sit beside them in class, or they cite the pervasiveness of alienating racialized jokes in interpersonal exchanges. Each micro aggression reminded students that they are the "Other" on the campus as if they do not belong there or in the dominant social circles. As with African Americans, the lack of cultural information, representation, and acknowledgement in curriculums both alienates Hispanic students in educational institutions (Hanselman, et. al., 20140; Bernal, Aleman, & Garavito, 2009; Delgado, 2002) at the same time it

works to affirm the primacy of whiteness as the standard by which all other groups are measured (Dixson & Rousseau, 2005).

Although there are a number of parallels between African American and Hispanic students experience with racism in education, there are several important differences as well. Compared to their peers Hispanic students are more likely to be first-generation college students (Bernal, Aleman, & Garavito, 2009; Turner, 2015; Hernandez, 2010) and face a greater number of external barriers (Farley, 2002; Bernal, Aleman, & Garavito, 2009; Hernandez, 2010; Turner, 2015). LaCrit Theory (Latin Critical Race Theory) also highlights ways in which many Hispanic Americans live in both an ideological and legal borderland visa vie the dominant white western culture. For instance, for many Hispanics their cultural identities have forged in contested cultural, borderland, spaces as a result of hundreds of years occupancy, marginalization, and resistance to assimilation. While resistance to colonization and assimilation is a reflection of cultural strength on one hand, it was also contorted by whites and re-appropriated into cultural inferiority tropes that further alienate and exclude Hispanics from social networks and opportunities for mobility. For instance, several LaCrit scholars have noted that Hispanic students are often stereotyped as uniquely "forever foreign" in the eyes of the majority culture. Consequently, racial microaggressions and overt prejudice aimed at Hispanic students and faculty often include statements related to language, culture, immigration status, and nativity (Bernal, Aleman, & Garavito, 2009; Hanselman, et. al., 20140; Hernandez, 2010; Turner, 2015; Menchaca, Mills, & Leo, 2016).

Consistent with Stanton-Salazar and Dornbusch (1995), faculty and staff in this review of the literature were also found to be less likely to explain to Hispanic students and junior faculty their full range of options for accessing career and campus information (Cammarota, 2009; Hanselman, et. al., 2014; Menchaca, Mills, & Leo, 2016). Turner (2015) describes ways in which Latino students are often "defined out of rather than defined in" to opportunities on campus and in career fields. Many

of these students and faculty are told that they are not "good fits" for certain positions and opportunities that they are seeking.

In the context of color blind racism, being defined in or out according standards of "fitness" is one way of engaging in boundary maintenance strategies without ever mentioning race, acculturation, or other prejudices as tools used affirm boundaries between members of the dominant and minority group. Who defines fitness is often identifiable by the actions of gatekeepers (Turner, 2015), typically members of the majority. As with the narratives of African Americans, Hispanic students and faculty in these counter narratives revealed ways in which whites define fitness, Americanness, and the cultural standards of education in order to affirm their cultural primacy and social dominance. Consequently, as Bourdieu would suggest, who is "fit" and what is "fitness" is defined according to the dominant white higher SES cultural habitus. The features of the dominant habitus shaped the rules and expectations of social engagement, and so create a boundary between whites and Others. Individuals with habituses similar to the dominant standard have an advantage when attempting to enter the social network while the Other is filtered out. Yet, as these CRT narratives reveal that the boundaries of social networks and the culture of institutions are not just SES based. Color blind ideologies also shape how members of the dominant group perceive the qualities of out members and their presumed habituses. Stereotypical beliefs about the Other, reinforce the rigidity of racialized boundaries as the same time colorblind ideologies disguise these mechanisms of exclusion and resolve the conflict between meritocratic values and pervasive interpersonal discrimination.

Yet, as with African Americans, Hispanics also find sources of resilience that help them navigate institutional barriers and discrimination within educational institutions. Like African Americans, Hispanic students and faculty provide counter narratives that reveal ways in which they develop bicultural identities which serve as sources of strength (Turner, 2015; Menchaca, Mills, and

Leo, 2016; Hanselman, et. al., 20140; Bernal, Aleman, & Garavito, 2009). For many Hispanics in higher education the ability to draw on cultural knowledge, resources, and familial support in order to craft a positive social identity is important to individual's career and academic success. Several students and faculty members mentioned that their connection to their home communities, and a sense of collective responsibility, has been a strong motivator to press forward in their educational goals despite the challenges (Turner, 2015; Menchaca, Mills, & Leo, 2016; Bernal, Aleman, & Garavito, 2009; Hanselman, et. al., 2014). For this reason, the ability to create positive social networks on campus, which affirm cultural and community connections, as well the availability of counter spaces[4] where cultural resources and social capital resources can be exchanged is crucial in supporting Hispanic students' academic achievements (Hanselman, et. al., 20140; Bernal, Aleman, & Garavito, 2009; Hurtado, Carter, & Spuler, 1996).

Asian and Pacific Islander Americans

While Asian and Pacific Islander Americans (API's) face similar barriers to their career and academic success as other marginalized groups, these experiences are often overlooked in the literature. The relative invisibility of racial discrimination experienced by API's is attributed to the the unique combination of discrimination and stereotyping deployed against members of the API community. To explain, API's are commonly thought of in terms of the The Model Minority stereotype which applauds their integration into US society and assumes that all API's are economically, academically, and intellectually successful. Consequently, API's do not experience prejudice or discrimination, or at the very least, they have overcome these barriers to their success (Pak, Maramba, & Hernandez, 2014; Li & Beckett, 2006; Cho, 2012; Pyke & Dang, 2003; Seo & Hinton, 2009). However, the model minority stereotype is in constant tension with the "yellow

[4] Counter-spaces are settings dominated by individuals from marginalized communities which offer relief from daily microaggressions and opportunities to enhance well being by challenging deficit focused narratives regarding the community (Case & Hunter, 2012).

peril" stereotype which suggests that API's are so successful that they are threatening to whites monopoly on positions of power and privilege (Pak, Maramba, & Hernandez, 2014; Pyke & Dang, 2003).

As a result, of this tense dialogue between the model minority and yellow peril stereotypes, API's are often assumed to be over represented in advanced education institutions and professional careers so there is less recruitment or retention efforts targeted at this community. API's also find themselves limited in advancement opportunities because they are assumed to be over represented over achievers who are also threatening to the established hierarchy (Pak, Maramba, & Hernandez, 2014; Li & Beckett, 2006; Seo & Hinton, 2009).

The model minority construct also has serious implications for other minority groups. For example, the model minority stereotype is often deployed to support color blind ideological theories of cultural inferiority by comparing other, less "successful" minority groups to the apparently successful, dedicated, and docile model minority. Rather than make any legitimate comparison this discursive strategy serves to deflect a deeper conversation about the racialized social order and mechanisms of discrimination that limit all minorities including API's (Pak, Maramba, & Hernandez, 2014; Li & Beckett, 2006; Sue, et. al., 2007).

Additionally, the model minority stereotype also creates an image that all API's are equally successful academically and economically. However, there is significant heterogeneity among this community which is obscured by the stereotypical model assumptions (Pak, Maramba, & Hernandez, 2014; Sue, et. al., 2007: Cho, 2012; Healey & Stepnick, 2017). For instance, many southeast API's experience significant barriers to academic and economic mobility. Many of them are refugees from Laos, Cambodia, and Vietnam who also have darker skin tones, are lower income, and are more likely to attend poor quality K-12 schools that do not prepare them for collegiate competition. Southeast API's are more likely than other API's to be first-generation college students

and face all the personal and academic barriers related to this status. They are also much more likely than other API's to attend community colleges, start college at non-traditional ages and have disruptions in their attendance, or drop out (Pak, Maramba, & Hernandez, 2014; Cho, 2012). This is why serious discussions about recruitment and retention strategies that reflect the heterogeneity of the API community are important conversations to have in educational institutions.

Similar to African Americans and Hispanic students and faculty, API's counter narratives reveal discrimination from peers and professors alike (Turner, 2015; Pyke & Dang, 2003; Pak, Maramba, & Hernandez, 2014; Li & Beckett, 2006; Seo & Hinton, 2009), the pressure to prove oneself to the white community (Li & Beckett, 2006; Seo & Hinton, 2009), and that they must straddle two worlds (Li & Beckett, 2006; Pyke & Dang, 2003). Similar to Hispanic students in particular, API students and faculty also reported feelings of being invisible on campuses (Li & Beckett, 2006; Sue, et. al., 2007) and that they are constantly perceived as "forever foreign" so many of the microaggressions aimed at them included derogation of their nativity, acculturation, linguistic patterns and surnames (Pak, Maramba, & Hernandez, 2014; Li & Beckett, 2006; Pyke & Dang, 2003; Sue, et. al., 2007).

Also paralleling the experiences of Hispanic faculty in Menchaca, Mills, & Leo (2016) and Turner (2015), API faculty found that they were excluded from participation in teaching mainstream courses and because of their "foreignness" they were excluded from valued social networks among colleagues. Furthermore, their research was often dismissed as "soft ethnographic" work that lacked scholarly legitimacy. Collectively these boundary maintenance strategies limited in their advancements and kept many API faculty isolated and at junior level positions (Seo & Hinton, 2009; Li & Beckett, 2006).

Again, as Bonilla-Silva describes, racialized, but seemingly color blind, boundary maintenance strategies work to limit the social capital available to minorities while upholding the

appearance of meritocracy and other liberal ideals. However, it is these interpersonal and institutional boundary maintenance practices that also contribute to the paucity of minorities in tenured positions, mainstream courses, leadership positions in higher education, and also deny legitimacy to alternative forms of knowledge. In effect, these boundary maintenance strategies affirm the centrality of white privilege in the production of knowledge while denying legitimacy to alternative forms of knowledge. Marginalizing knowledge created with minority communities also curtails the advancement of minority faculty, which impacts students of color who would otherwise benefit from the presence of minority role models, mentors, and a diversity of cultural knowledges in course curriculums, as well as within the institution of higher education itself (Tuner, 2015; Menchaca, Mills, & Leo, 2016; Ladson-Billings, 1998; Dixson & Rousseau, 2005; Waterman & Lindley, 2014).

Still, despite the challenges API students and faculty find a way to resist marginalization and create their own pathways that grant them access to valuable social capital resources. In particular, API's resilience strategies reflect those most common across both the African American and Hispanic American literature. API's who are most successful in their educational and professional pursuits draw heavily on cultural community resources and support from their families to create positive racial identities (Pak, Maramba, & Hernandez, 2014; Li & Beckett, 2006; Cho, 2012) and process their experiences with discrimination (Alvarez, Juang, & Liang, 2006). Also parallel with African American and Hispanic students, API's benefit from participating in collaborative communities with same race peers where they can exchange cultural information, support, and buffer each other against microaggressions (Li & Beckett, 2006; Sue, et. al., 2007; Cho, 2012).

However, API's are distinct from other racial and ethnic groups in that they are more likely than other minority groups to create informal networks rather than defined cultural clubs or associations when they are excluded from dominant sources of social capital at PWI's (Pak,

Maramba, & Hernandez, 2014; Farley, 2002). Finally, Li & Beckett, 2006 and Seo & Hinton, 2009 encourage API faculty to continue to engage in critical cross-cultural dialogues that produce alternative forms of knowledge production and disrupt the current hierarchical social order in academia and scholarly research. Consistent with Turner (2015) and several social capital scholars, these scholars also argued that mentorship, at every level of education and professionalism, is crucial for API's and other minorities to break into social networks so that their voices are shifted to the center of critical discussions. Both authors call API's and other marginalized groups to work together to create mutually beneficial shared spaces and capital networks.

First Nations

First Nation students are most like Hispanic students in terms of their barriers and their unique ideological and citizenship relationships to the United States. Both communities struggle to resist assimilation and further colonization of their identities. Both communities also inhabit borderland spaces within US society. However, where LaCrit places many Hispanic students in both an ideological and legal borderlands visa vies the dominant white western culture (Tuner, 2015; Delgado, Aleman, & Garavito, 2009), many First Nation students are literally members of legally sovereign borderland communities. After hundreds of years of attempts at genocide, forced assimilation, treaties, and negotiations with the US government, First Nations have acquired their own sovereign governments within their limited reservation spaces. As such Tribal Crit theory (First Nation Critical Race Theory) focuses on how First Nation students resist further colonization and assimilation while developing a bi-cultural identity that preserves and advances the interests of their nations. For this reason, Tribal Crit seeks to shift academic discourse from a focus on a history of oppression toward a focus on the strength the resilience of a community that has rebounded from near extinction to sovereignty (Waterman & Lindly, 2013). From the Tribal Crit perspective it is critical to deconstruct ways in which colonization continues to affect the lived experiences and

identities of First Nations by demonstrating value for the communities' traditions and practices, as well as how these cultural pillars influence students' decisions to attend higher education (Waterman & Lindly, 2013; Guilroy & Wolverton, 2008).

First Nation students approach higher education with a very unique perspective. For many students they attend higher education with the expressed intention to give back to their communities (Waterman & Lindly, 2013; Guilroy & Wolverton, 2008; Oosahwe, 2008). Yet for many of these students, community is family and family is their nation (Waterman & Lindly, 2013; Guilroy & Wolverton, 2008; Keene, 2016; Simi & Matusitz, 2016). So, infused in their motivation to give back is a strong sense of national identity that is constructed in relation to their unique sovereignty as a community. In numerous interviews First Nation students described their career and academic paths in terms of professions that will enhance the economic, social, legal, and infrastructure of their nations in order to bolster the community's independence from the United States government. Many students interviewed explained that they see themselves as roles models for their communities and they understand that educational achievement is intergenerational. From this perspective, when they secure academic success it is an intangible asset that is passed on to the community intergenerationally (Wilkins, 2014). Again, here the central feature of their motivation to attend college is related to an intrinsic sense of community and nation building that is unique to this demographic of students.

First Nation students who are most successful in college are also able to maintain "cultural integrity" or their cultural identity (Keene, 2016; Oosahwe, 2008; Waterman & Lindly, 2013; Simi & Matusitz, 2016; Urquidez, 2010) in relation to developing a bicultural identity that allows them to navigate the Western education system while preserving their community identity, traditions and values (Simi & Matusitz, 2016; Keene, 2016; Oosahwe, 2008). For most students in their interviews a bicultural identity that preserved a sense of cultural integrity was realized by ongoing participation in

community events, ceremonies, traditions, as well as on-campus activities that celebrated their cultures. From this perspective, multi-cultural centers that provided students safe cultural spaces to discuss the challenges and tensions of their identity development, engage in informal mentoring, and build social capital was especially critical to supporting First Nation student's success in higher education (Guilroy & Wolverton, 2008; Mosholder et. al., 2016; Urquidez, 2010). Participating in cultural activities on campus and through maintaining connections to their home communities students were able to contextualize their motivation to enter the "colonized space" of academia (Waterman & Lindly, 2013) in terms of national pride and nation building, which empowered students to press forward in their coursework despite the real challenges that they were facing as minority students in PWI's and the tensions between cultural identities.

Although some articles did discuss racism and prejudice on campuses a barrier for many first Nation students (Waterman & Lindly, 2013; Guilroy & Wolverton, 2008; Simi & Matusitz, 2016; Oosahwe, 2008) most of the research on this population was focused on how students overcome significant challenges and maintained their cultural integrity. Still, it is important to acknowledge that First Nations are the most underrepresented demographic in higher education (Waterman & Lindly, 2013; Guilroy & Wolverton, 2008; Simi & Matusitz, 2016; Mosholder et. al., 2016; Oosahwe, 2008). The majority of First Nation Students attend community colleges or tribal colleges (Waterman & Lindly, 2013; Guilroy & Wolverton, 2008). Like many community college students, First Nation students often come from communities with poor quality K-12 educations (Guilroy & Wolverton, 2008; Simi & Matusitz, 2016; Keene, 2016; Oosahwe, 2008), high concentrations of poverty (Waterman & Lindly, 2013; Guilroy & Wolverton, 2008; Oosahwe, 2008), high rates of mental health and physical health disabilities (Waterman & Lindly, 2013; Oosahwe, 2008), and many are first-generation college students (Waterman & Lindly, 2013; Oosahwe, 2008) so they have a great need to build their social capital in order to navigate institutional barriers and opportunities (Guilroy

& Wolverton, 2008; Keene, 2016; Oosahwe, 2008). This is true as a result of cultural tensions between formal education and the tribal community, as well as historical processes that have segregated the communities into resource deprived reservations.

The tension experienced by many First Nation students who enter the colonized spaces of higher education best illustrates the arguments made by Bourdieu that highlight ways in which traditional educational institutions reflect the habitus of higher SES whites and so undermine the success of many minority groups by alienating them culturally from the institution. For instance, popular western theories of academic success call for students to separate from their families and communities of origin in order to immerse themselves in the culture of the educational institution they are attending (Tinto, 1987). However, considering the history of the US nation and the colonizing role of formal education in efforts to eradicate the First Nation community (Hoxie, 1984), family support is crucial to student success and many tribal scholars instead call for family participation in their children's education (Guilroy & Wolverton, 2008; Mosholder et. al., 2016; Oosahwe, 2008; Urquidez, 2010). Unfortunately, since most academic programming is typically ad hoc to the dominant standard and not fundamentally challenged and made inclusive, culturally relevant family engagement practices are not a common practice in most higher education institutions. Consequently, the implicit, and historically overt, requirement to assimilate to Western educational standards, continues to create significant barriers in the retention and completion rates among many First Nation communities.

Muslim Americans

As minority group Muslims are one of the most diverse in terms of race, ethnicity, and ancestry. Islam is one of the most widely practiced religions across the world, including a large population in South Asia, Central Asia, the Middle East, Europe, Africa and the United States (Aquire & Turner, 2009). In the US Islam is one of the fastest growing religions (Koller, 2015).

Despite the large population of Muslims within the US and across the globe, Muslims are not recognized as a distinct demographic group on the US census. This forces practitioners, such as Arab Muslims, to self categorize according to whichever racial category they most closely resemble. For instance, Arab Muslims often check "white" on the census and so they remain an invisible minority (Koller, 2015; Aguirre & Turner, 2009). Additionally, considering that most Muslim and Arab Muslim immigrants only began migrating to the US in the 20th century, little is known about them (Koller, 2015; Aquire & Turner, 2009).

Consequently, as a minority group, this population has gone largely unacknowledged in public policy and academic discourse, at least until the events on September 11, 2001 (911) popularized stereotypical images of Muslims as terrorists, as well as occasionally as victims of hate crimes (Koller, 2015; Khalil, 2015). However, considering that Islam is such a rapidly growing religion, there is also an increase of students who are practicing Muslims entering higher education. Recognizing that Islam is a minority religion in the US, and that social conditions for Muslims have changed since 911, it is important to include this population in discussions regarding campus diversity and inclusion.

Given the paucity of research on Muslims and the lack of intragroup distinctions made in the existing research, this section focuses on Muslims as a homogenized faith group. However, it is acknowledged that given the diversity of the group, intragroup variations on student achievement will certainly exist. For instance, there are several African American Muslim groups and an even larger proportion of Muslims from the South East Asia. As previously outlined, members of these racial minority groups are disproportionately lower income and more likely to attend community colleges where retention rates are lower. Still, what is common across this heterogeneous demographic is their faith and their experiences of marginalization based on their faith, which is the focus here.

Parallel to Hispanics and First Nations, faith is a primary source of personal identity, sense of belonging (Koller, 2015; Khalil, 2015; Mir, 2009) and a primary source of coping (Herzig et. al., 2013) for practicing Muslims. Also consistent with First Nations and Hispanics, Muslim students intentionally learn ways to navigate the Western education system while carefully preserving their sense of religious identity, which is critical to their personal identity (Khalil, 2015; Mir, 2009). Integrity of faith parallels First Nation's priority of cultural integrity in that, Muslim practices of faith are communally centered and individual identity formation is centered around the collective identity formulated by shared faith (Koller, 2015; Khalil, 2015; Mir, 2009). Consequently, the individual is not separate from the community or the practices of faith that bind that communal identity together. Arab Muslims in particular also share a number of familial practices similar to many API cultures including filial piety, family piety, modesty, high regard for the elderly, and group orientation (Kahlil, 2015). Also parallel to First Nations spiritual and communal values, Islam emphasizes duty to family and giving back to family (Khalil, 2015). These cultural values were commonly expressed in CRT interviews with Muslim students who cited their family and faith community as primary motivators to persist in their education despite the challenges they faced in Western educational institutions (Khalil, 2015; Koller, 2015).

The challenges that many Muslim students face as religious minorities in higher education are numerous. Like other minority groups, Muslim students feel alienated in dominant curriculums (Khalil, 2015), they face harassment and prejudice from faculty and peers (Koller, 2015; Khalil, 2015), and lack of respect for their faith in terms of a paucity of places to pray, access to halal foods, and respect for religious observations in predominantly Christian institutions which claim to be secular (Khalil, 2015). Many of the stereotype threats that Muslim students face stem from media portrayal of them as terrorists or enemies of the state. In fact, in the review of the literature, Muslim

students were the only demographic to cite feeling unsafe on campuses, or in general society, as a result of these stereotypes and government surveillance of their communities (Mir, 2009).

Harassment and discrimination related to expressions of faith are especially gendered within the Muslim community. Specifically, womyn who chose to practice hijab (modesty) and/or wear a veil express the greatest amount of tension related to their expressions of faith on predominantly Christian campuses. Similar to API's they must contend with orientalist stereotypes that see them as passive. At the same time Western feminists see them as oppressed, while the media portrays them as allies with terrorists (Koller, 2015). It is within this contested space that Muslim womyn make decisions about whether or not to veil. Many see themselves as representatives of their communities and the veil is a source of strength, communal identity, personal meaning, as well as a talking point that allows them to dispel ignorance in regard to their faith when interacting with peers and faculty (Koller, 2015; Khalil, 2015).

As with First Nations, the CRT narratives provided by Muslim students reflects ways in which the general culture of educational institutions reflects the cultural and religious preferences of the dominant group and alienates the Other on campuses. The students discussed the incredible challenges in finding safe places to pray on their prescribed schedules and not feel watched or experience harassment. Where no prayer spaces were available students had to decide if they would engage in prayer at all when they were campus. Some students shared that they prayed in their cars and other hiding places on campus rather than pause their faith practice while on campus (Koller, 2015). Lack of prayer spaces placed many Muslim students in place of personal conflict as they had to determine how to negotiate preservation of their religious practices in Wester educational spaces that felt inhospitable to this aspect of their cultural identity. Several Muslim students also highlighted the paucity of hallal food on campus, and lack of recognition for religious holidays, such as Ramadan, as additional challenges (Kahlil, 2015).

In lieu of the challenges Muslim students face in balancing bicultural identities in PWI's Muslim students readily discussed the importance of having a safe place on camps where they can lend each other support, develop a sense of positive adult identities and practice their faith privately and safely (Koller, 2015; Khalil, 2015; Mir, 2009). Given the centrality of their faith as a primary coping mechanisms again overt discrimination and microaggressions (Herzig et. al., 2013) it is critical for campuses to provide Muslim students with safe prayer spaces, access to halal foods, and their own cultural religious counter-spaces where they can share social capital resources, celebrate their identities, and affirm their strategies of resilience in the face of stereotype threats and marginalization.

Lower Socioeconomic Status White Americans

As mentioned previously in the theoretical literature, whiteness is as much a property as it is a racial classification (Hiraldo, 2010). It is true that whites hold the greatest power in US society and glean the greatest benefit from their racial identity. However, the privileges and power held by whites is not evenly distributed across all social strata. While all whites will benefit from white privilege, some will benefit more than others. Research by Bowles and Gintis (1975), Lareau (2011), McLeod (2008) and the general education literature has demonstrated that lower income individuals, including whites, will derive less social benefit from their racial privilege as a consequence of their SES status. Consider the review of the literature pertaining to education. Students who are lower income, first generation, and attended poorer quality K-12 schools are more likely to be selected out of universities and more likely to attend community colleges with fewer instructional resources and lower retention rates (Goldrick-Rab, 2010; Cooper, 2009; Provasnick & Planty, 2008). This certainly is as true for lower SES whites as it is for racial or ethnic minorities. In fact, even as low income students begin to make gains in the arena of higher education, so do higher income students

(Bastedo & Jaquette, 2011). As a result, the stratification system appears to be maintaining itself even as opportunities for accessing higher education are increasing for individuals in all social classes.

One of the greatest challenges facing working class whites is their financially precarious social positions. Consistent with the education literature cited previously, lower income whites work more hours than their higher income counterparts, they are less likely to receive financial support from their parents, and as a consequence of their necessity to work, they often less available to engage in campus activities (Martin, 2015a; Martin, 2015b). Furthermore, since working class whites are less likely to participate in extracurricular activities such as clubs, study abroads, unpaid internships, and research opportunities, they derive fewer social and cultural capital building opportunities while in college (Reay, Crozier, & Clayton, 2009; Martin, 2015a; Duffy, 2007; Wilkins, 2014) compared to their higher income peers. This has a negative impact on their ability to access graduate level educational opportunities and their overall competitiveness in the job market (Martin, 2015b).

Interestingly, in CRT interviews working class white students denied the salience of class or SES in their everyday interactions on campus. At the same time, they reported a heightened awareness of indicators of class and SES differences between themselves and the majority of their peers (Martin, 2015b). In other interviews students reported feeling isolated, alienated or "in a bubble" compared to their peers (Reay, Crozier, & Clayton, 2009; Duffy, 2007). Still, they did not feel like their social class had significant bearing on their overall college experience. This may result from several factors. First, differences in SES are not often openly discussed in academic or general societal discourse. For instance, a number of students mentioned that their parents avoided discussions of their household income status while they were children (Martin, 2015a). Multicultural centers or special segregated clubs do not typically exist for low income white students either. So, SES differences among whites may not appear as salient on the surface. Additionally, considering

the stigma related to being lower income, and the fact that students are white, means that they are more likely to intentionally disguise their SES status and "pass" (Wilkins, 2014).

Still, a property of whiteness is privilege and even working class white students are likely to glean some unearned privileges in PWI's as a consequence of their majority racial status. For instance, high achieving working class whites in one study mentioned that they were used to feeling confident in their academic abilities relative to their peers in K12 schools. When arriving at an elite university, they felt anxious about their abilities. Yet by the end of the first year, they felt confident that they were as academically fit as their higher income peers and faculty treated them as such (Reay, Crozier, & Clayton, 2009). In contrast, recall how African American, Hispanic, and First Nation students reported having to contend with lower expectations regarding academic fitness from faculty. On the other hand, white students benefit from their propertied whiteness and the expectation that they will be successful in college which increases their affective connection to their education in the face of academic challenges. Furthermore, no white students mentioned feeling alienated by educational curriculums that failed to represent their community's contributions to society.

Still, like other minority students, working class white students did report developing a bi-cultural identity similar to many racial and ethnic minorities. For these white students, the habitus of academia is notably different from the habitus of their home communities. Students noted the difference in both arenas. Some discussed how they observed their personal perspectives becoming more open than their peers and family at home (Duffy, 2007). Others noted that the culture of the college campus was less like the "real world" than their origin communities (Reay, Crozier, & Clayton, 2009). As with some African American students who developed strategies to "manage their academic success" (Horvat, McNamara, & Lewis, 2003), in each of these studies white students discussed ways of developing dual identities that allowed them to stay connected to the class habitus

of their home communities, while concurrently learning to navigate the habitus of higher education. So while many of the students may declare that their SES is not a salient part of their identities, it is something that requires them to adapt and develop bicultural identities similar to other minorities entering higher SES higher education environments.

Overall, researchers conducting interviews, and the students themselves, noted a number of positive attributes that stem from their social class habitus. In each CRT interview students were appraised as being especially self-reliant, financially responsible and extremely hard working relative to their higher income peers (Reay, Crozier, & Clayton, 2009; Martin, 2015a; Martin, 2015b). The students in these studies were aware that they had to make "leaps" to catch up with their higher income and more academically prepared counterparts, so they relied on specific industrious characteristics of their origin habitus to make these gains. The only downside was that working class students spent so much time making these leaps that they derived less cultural and social capital at the end their academic tenure (Reay, Crozier, & Clayton, 2009; Martin, 2015a; Martin, 2015b; Wilkins, 2014)

In contrast to the racial, ethnic, and religious minority students in the literature cited here, lower income whites did not request a safe space where they could mingle and build their social capital among likeminded peers. However, researchers did find that access to comprehensive personal and academic support programs were critical to bolstering student success among this group. The programs in these studies provided advising, financial supports, mentoring, and other social capital building opportunities for low income whites (Duffy, 2007; Lightweis, 2014). As with racial and ethnic minorities, these programs provided a positive reference group for low income white students to identify with and provide support that their families were often unable to considering the discontinuity between their habitus and that of the institutions.

While low income white students may benefit from the privileges indicative of being white, educational institutions still disproportionately reward and advance white higher SES students. Again, as with the examples of institutional cultural barriers described in the interviews with First Nations and Muslims, SES differences in the structure of higher education reproduce themselves through policies and programming that favors higher SES individuals. Here the interviews with lower SES white students reveal ways in which educational institutions typically reflect and reward the habitus and lifestyle expectations of higher SES individuals. As discussed in the higher education literature, traditional universities often have limited or no alternative course scheduling, which is a barrier for working students. In regard to institutional selectivity, in both general and graduate admissions students who can cite experiences with internships, research experience, study abroads, or extracurricular involvement often have advantages. Whereas non-traditional accomplishments, such as work experience, for example, may be less valued. Additionally, parallel to observations made by Stanton-Salazar and Dornbush, working class white students also found it challenging to break into the social networks of higher SES white peers. This was often the case because they were unable to participate in many activities that their higher SES peers participated in such as sports that required equipment or trips and social events that required a surplus of disposable income (Martin, 2015a). In this way, income was a critical indicator of SES and served to select certain students into or out of social networks with higher SES peers even if, by racial standards, they could essentially "pass."

Marginalization, Resistance, and Social Reproduction in Scholarship

Critical Race scholarship is especially useful for deploying student voices in ways that expose the racialized and classist structure of traditional educational curriculums, scholarly research, interpersonal exchanges, and institutional policies that color blind racism seeks to obscure. Each of the counter narratives provided here expose ways in which the experiences, contributions, and

scholarship of minority students and faculty are often marginalized in dominant educational institutions. The counter narratives also reveal the ways in which these experiences of marginalization, as well as the illegitimacy of alternative forms of knowledge reproduce systems of social reproduction within higher education.

For instance, recall that both students and faculty expressed their observations that in dominant educational institutions people of color, as well as their scholarship, is often invisible in mainstream curriculums. At the same time the accomplishments and contributions of whites are routinely highlighted (Delgado, 1998/2002; Yosso, et. al.; 2009; Ladson-Billings, 1998; Waterman & Lindley, 2013; Bernal, Aleman, & Garavito, 2009). Parallel with Bourdieu (1973), CRT scholars argue that is disparity in representation is not accidental. Instead, since academia is dominated by higher SES whites who control the means of knowledge production, the standards of scholarly legitimacy, and the requirements for tenure will reflect the cultural habituses and interests of the dominant group (Bonilla Silva, 2017; Turner, 2015; Hill Collins 2002/2004; Delgado, 1998/2002; Ladson-Billings, 1998). As many feminist scholars have also observed (Haraway, 2001; Harding 1993; Lal, 2008), CRT scholars expose ways in which the Western dominant discourse regarding objectivity has been used to undermine the legitimacy of research produced by scholars of color (Hill Collins, 1986/2002; Ladson-Billings, 1998; Delgado, 1998/2002). In particular, a number of CRT scholars and academics of color have observed that their use of qualitative analysis, storytelling, and counter narratives have been devalued in the academy (Delgado, 2002; Ladson-Billings, 1998; Turner, 2015). Since their non-traditional methods are devalued in mainstream academia, many CRT scholars have struggled to secure tenure (Li & Beckett, 2006), gain legitimacy in mainstream scholarly publications (Delgado, 2002; Ladson-Billings, 1998; Hill Collins, 1986), obtain leadership positions in their departments (Li & Beckett, 2006; Menchaca, Mills, & Leo, 2016), and garner

mentoring and other support from their colleagues (Menchaca, Mills, & Leo, 2016; Cho, 2012; Hill Collins, 1986).

For this reason, a number of CRT scholars argue that the devaluing of alternative methodologies, under the guise of liberal objectivity, is one of many mechanisms by which educational institutions perpetuate white supremacy. From this perspective, silencing certain voices in mainstream curriculums and scholarship, while over representing the dominant voice, reflects the majority's attempts to prevent minority voices from challenging the existing social order through exposing mechanisms of intellectual marginalization and oppression. Within the context of color blind racism, the invisibility of people of color and other minorities in academic literature and general education curriculums serves to normalize discursive strategies of cultural inferiority that perpetuate structures of white supremacy (Bonilla-Silva, 2017; Delgado, 1998/2002; Ladson-Billings, 1998; Waterman & Lindley, 2013; Hiraldo, 2003). For instance, the continued failure to include the accomplishments and contributions that people of color have, and continue to make, to society serves to sustain the appearance that the current racial order is legitimate in its organization. Since whites appear to have, and continue to, disproportionately contributed to the social, political, scientific, and economic success of the country, then it is rational to assume that they dominant these institutions and confer the greatest privileges from these accomplishments (Kincheloe, et. al, 2000; Bonilla Silva, 2017; Gallagher, 2003). Furthermore, when people of color are underrepresented in leadership positions, tenured faculty/teaching positions, and in general education curriculums, minority youth often find it challenging to see themselves as having a place of belonging in educational institutions (Tuner, 2015; Menchaca, Mills, & Leo, 2016; Ladson-Billings, 1998; Dixson & Rousseau, 2005; Waterman & Lindley, 2014). Cultural mismatch between institutional agents and students also impacts student's ability to access critical educational information that could facilitate

their educational advancement (Stanton-Salazar & Dornbush, 1995; Holland, 2015; Lareau, 2011/2000; Cipollone & Stitch, 2017, Karp, 2011).

Consequently, the marginalization of people of color in all levels of educational institutions reinforces colorblind ideologies of cultural inferiority in a two-pronged approach. First, by restricting alternative forms of knowledge production that could otherwise reveal mechanisms of white supremacy. Second, by constraining the advancement of people of color who could model, mentor, and promote the advancement of other underrepresented students in educational institutions. For this reason, it is critical to participate in genuinely inclusive scholarly research from a CRT perspective that does more than ad hoc the voices from the margins to existing systems of knowledge. Instead, critically inclusive scholarship brings the voices of the marginalized to the center of scholarship where the minority voice is the subject, and not the object, of inquiry. Additionally, in order to fundamentally disrupt mechanisms of social reproduction in higher education it is also important to interrogate the specific ways in which race, class, and cultural habituses reproduce themselves through socially constructed standards of legitimacy in higher education. These efforts should include, but are not limited to, a thorough interrogation of the cultural sources that are used to determine standards of legitimacy in mainstream scholarship, research journal rankings, intellectual projects, tenure requirements, and advancement criteria. A transparent interrogation of how social constructions of legitimacy are reproduced in these, as well as other administrative procedures, is one of many productive ways that institutional actors can support the disruption of the dominant system of social reproduction in higher education.

Shifting standards of legitimacy to be more genuinely inclusive would, ideally, diversify sources of knowledge in dominant curriculums. A fundamental shift in knowledge production could have a number of benefits for both majority and minority students and faculty. Specifically, inclusive curriculums would at least implicitly require that other forms of knowledge are granted legitimacy in

scholarly journals, and as a byproduct, potentially alleviate some of the barriers to securing tenure and/or meeting criteria for advancement in other areas of higher education. Increased advancement of faculty of color then potentially increases the availability of culturally relevant mentors within higher education and the academy. Critically inclusive curriculums could also go a long way in reducing minority students' feelings of invisibility in mainstream education, as well as increase their sense of belonging in higher education more generally. Finally, several researchers have found that exposure to diversity effectively reduces prejudice (Allport, 1954; Mills, 2009; Pettigrew & Tropp, 2008). Therefore, inclusive curriculums and the full inclusion of diverse faculty and staff on campuses can also be useful in reducing prejudicial boundary maintenance practices that reproduce systems of stratification at the interpersonal level.

These CRT counter narratives discussed here also demonstrate that there are numerous sites of resistance already present in higher education. For instance, in each of these counter narratives students and faculty discussed how family and friendship connections affirmed a positive cultural, racial, and ethnic identity in the face of stereotype threats that otherwise challenged their feelings of belongingness in higher education. This is significant considering that feelings of belongingness have been consistently found to have a strong impact on student retention in higher education (Tinto, 1987; Hanselman, et. al., 2014; Tuner, 2015; Waterman & Lindley, 2014; Martin, 2015b). Repeatedly the student and faculty interviews highlighted ways in which the creation of counter spaces provided them sources of support and alternative access points to social capital. Within these counter-spaces students shared information about resources, study skills, mentorship opportunities and more. These spaces also allowed them to enhance their access to dominant cultural capital while benefiting and affirming the value of their own community's cultural capital. In effect where students and faculty felt alienated from dominant social networks, they created their own alternative social networks among their peers where they could share the social capital that they had acquired and

promote the collective empowerment of their communities. Recognizing the powerful positive role that counter-spaces play in strategies of resistance efforts can also affirm and expand the availability of counter spaces for students of color as well.

Characteristics of Successful Student Retention Programs

In addition to the inclusion focused solutions proposed by the Critical Race Theory literature, there are a number of higher educational institutions that have engaged in more universal high impact practices that have effectively improved retention rates among students facing some of the greatest barriers to retention and completion. Although some researchers have found that individual characteristics of students to be more predictive of student success than institutional characteristics (Jaggers, Edgecombe, & Stacey, 2014; Bailey, Jeong, & Cho, 2010; Ishitani, 2003), a greater number of scholars have found the opposite to be true. Consistent with the sociological literature, there is a wide variety of qualitative and quantitative retention research that suggests that institutional policies can be implemented in order to maximize student success over and above some of the most challenging barriers many students face (Karp, 2011; Visher, Butcher, & Cerna, 2010; Scrivener & Weiss, 2009; Cox, 2014; Promising Practices, 2016). Specifically, comprehensive service delivery programs that enhance student's access to social capital and to supportive services have been found to increase student retention among some of the most at risk community college students, as well as students at the university level (Karp, 2011; Visher, Butcher, & Cerna, 2010; Karp, Hughes, & O'Gara, 2010; Schak, et. al., 2017; Karp, O'Gara, & Hughes, 2008; Promising Practices, 2016; Beyond, 2015).

Across the retention literature scholars challenge universities and colleges to begin creating more engaged educational communities. What is called for is a fundamental shift in service delivery and models of student engagement at every level of higher education. Comprehensive engagement that includes the full participation of faculty, staff, students, and administrators would be required to

drastically change the educational experience of all at risk students. While this may seem like it is a lofty goal, several colleges have successfully altered institutional practices in ways that effectively close open network ties and promote effective inclusion and capital acquisition among their students. As a result, they have seen tangible improvements in student retention commensurate with the level of integrated institutional change implemented (Promising Practices, 2016; Progress, 2017; Cox, 2014). In an exhaustive review of the literature two overarching themes were found: (1) at risk students benefit from engagement in meaningful capital building relationships with both peers and institutional agents. And (2) at risk students also benefit from connections to a comprehensive service delivery system that provides students with the resources they need to resolve their non-academic barriers to their retention. However, since the focus of this dissertation concerns social and cultural barriers and their impact on student retention, the final section of this literature review will emphasize the theme of engagement.

At the heart of student retention is student engagement. Creating networks of relationships where students can foster a sense of belonging in their educational community has been found to have a significant positive effect on retention (Karp, 2011; Visher, Butcher, & Cerna, 2010; Karp, Hughes, & O'Gara, 2010; Schak, et. al., 2017). Consistent with the CRT literature, as well as the social and cultural capital literature, students who develop meaningful relationships with faculty (Karp, 2011; Karp, Hughes, & O'Gara, 2010; Progress, 2017; Schak, et. al., 2017), staff (Visher, Butcher, & Cerna, 2010; Scrivener & Weiss, 2009; Progress, 2017; Schak, et. al., 2017), and their peers (Karp, 2011; Karp, Hughes, & O'Gara, 2010) report a greater sense of belonging and increased commitment to their education. What is critical however is the quality and duration of these relationships. The relationships between actors must provide important sources of information and social capital (Karp, 2011; Visher, Butcher, & Cerna, 20105; Karp, Hughes, & O'Gara, 2010) and they must be prolonged beyond just one or two semesters (Visher, Butcher, & Cerna, 2010; Karp,

2011; Scrivener & Weiss, 2009; Promising Practices, 2016; Progress, 2017; Schak, et. al., 2017; Karp, O'Gara, & Hughes, 2008).

These relationships can be built in a number of ways. Cohorts and learning communities, where groups of students enroll in specific degree pathways and take courses together, have been found to be very effective in reinforcing the development of positive peer support relationships (Karp, 2011; Visher, Butcher, & Cerna, 2010; Promising Practices, 2016). Interactive pedagogies that reinforce capital building have also been found to be significant in empowering students to feel both engaged and confident in their ability to navigate their education (Karp, 2011; Visher, Butcher, & Cerna, 2010; Karp, Hughes, & O'Gara, 2010; Promising, 2016; Progress, 2017; Schak, et. al., 2017). Capital building is especially critical for low income and first-generation students who often lack the college-going knowledge and skills required to be successful in higher education. Consistent with Lareau, research by Karp (2011) suggests specifically that at risk students need academic engagement that helps them learn procedural and cultural demands of higher education. At risk students also benefit from learning how to navigate the physical space of the college, how to develop effective study and time management skills, how to interpret the hidden curriculum embedded in college classrooms, and how to navigate the supportive services offered to them on campus.

Mandatory college 101 introductory course have been found to be effective in providing students with foundational college-going knowledges and skills (Karp, Hughes, & O'Gara, 2010; Progress, 2017; Karp, O'Gara, & Hughes, 2008; Zeidenberg, Jenkins, & Calcagno, 2007). However, considering these same authors argue that long term relationship building and engaged pedagogy is also paramount to retention, then it would likely benefit students the most if such courses were integrated within learning communities taught by instructors who are trained in engaged social capital building pedagogies as well.

Aware that most at risk students disproportionately benefit from positive mentoring relationships that offer them opportunities to build their social and cultural capital, numerous studies have also called for a total redesign of advising and counseling services at community colleges. The most common theme across the literature highlights services such as enhanced advising, mentoring and coaching as a key method of providing prolonged, intensive, one to one interaction as a key method for increasing student engagement, belonging, and capital building through some form of enhanced academic advising (Karp, 2011; Visher, Butcher, & Cerna, 2010; Scrivener & Weiss, 2009; Promising Practices, 2016; Center, 2012; Karp, O'Gara, & Hughes, 2008; Schak, et. al., 2017; Progress, 2017). How intensive advising is administered varies by program models, but there are some consistent themes in the literature.

Most studies found that proactive advising is the most beneficial at eliciting consistent, positive results in terms of student success. Students desire human contact rather than bulk automated emails (Karp, 2011). In such engagement models colleges require students to participate in regular face to face meetings with advisors (Karp, 2011; Progress, 2017; Karp, O'Gara, & Hughes, 2008; Fowler & Boylan, 2010). Enhanced advisors were also required to reach out to students via multiple media methods, such as phone calls, emails, and texting, in between appointments to check in with their students. This allows for both ongoing engagement and increased sense of belonging, as well as proactive problem solving when students encountered non-academic challenges that threatened their ability to remain in the classroom. In essence, enhanced advisors in most models are designed to function like mentors who provide students with more personalized one to one coaching that builds their social capital and empowers them to navigate the institutional systems. As previously mentioned, promoting a sense of belonging and college-going skills is critical to increasing student's commitment to their educational goals and subsequently their retention. Enhanced advising was found to be especially useful in colleges with a greater proportion of at risk

students (Visher, Butcher, & Cerna, 2010; Karp, O'Gara, & Hughes, 2008). Additionally, quality advising/mentoring was found to be especially beneficial to first-generation students even after controlling for other risk factors (Karp, 2011).

This may be true considering the previous discussion of the correspondence principle as it applies to race and SES. Since a matrix of social institutions co-operate to maintain patterns of racial and economic segregation in order to reproduce existing systems of stratification, students who come from marginalized communities are much less likely to have parents with college educations. As seen in Lareau, non-college educated parents are less likely to have cultural habitus similar to those of the educational institutions, as well as the actors that work within them. As a result, their children are less likely to have the knowledge and cultural capital important to breaking into dominant social capital rich networks, as seen in research by other social and cultural capital scholars, as well as a variety of CRT scholars. Consequently, many at risk students come to college less academically prepared and with fewer college-going skills than their more affluent whiter peers. Therefore, providing at risk students with a consistent, accessible, and proactive support person increases their ability to empower themselves in acquiring critical college-going knowledges and skills that are essential to their retention.

Following this logic then makes the imperative to promote the legitimacy of alternative forms of knowledge production in academia in order to promote the inclusion and advancement of lower SES faculty and faculty of color so much more critical. Promotion of faculty who are not members of the dominant classes would increase the availability of mentors who are more likely to understand the diverse cultural preferences and knowledges of non-traditional and underrepresented students. Ideally, faculty who have been successful in higher education and also have personal insight into the dynamics of non-dominant cultural habituses, as well as experience in developing positive bi-cultural identities within the context of the dominant habitus of higher education, serve

as mentors. Therefore, underrepresented staff and faculty are likely to be uniquely positioned to guide underrepresented students though the complexities of negotiating their bi-cultural identities, as well as the culture of higher education in positive self-empowering ways.

Promoting the recruitment, advancement, and engagement of culturally aware faculty and staff is also particularly important considering that the CRT narratives, as well as the social and cultural capital literature, showed that cultural dissimilarity to the dominant group often results in exclusion from mainstream social capital networks with faculty and higher SES peers (Turner, 2015; Stanton-Salazar & Dornbusch, 1995; Bourdieu, 1973; Lareau, 2011/2000; Cammarota, 2009; Hanselman, et. al., 2014; Menchaca, Mills, & Leo, 2016; Martin, 2015ab). Furthermore, when lower income students and student of color felt alienated by faculty, peers, and in mainstream curriculums, their feelings of belonging in higher education was negatively impacted, and so was the likelihood that they would be retained (Tuner, 2015; Menchaca, Mills, & Leo, 2016; Ladson-Billings, 1998; Dixson & Rousseau, 2005; Waterman & Lindley, 2014).

Finally, an increased presence of underrepresented faculty and staff in positions of leadership, respect, and legitimacy can also create new opportunities to shift the culture of higher education more towards holistic inclusion initiatives, rather than just continue more common ad hoc efforts that tinker at the edges of institutional policies, but do not fundamentally change the culture (Hiraldo, 2010; Dixson & Rousseau, 2005). Failure to disrupt mechanisms of alienation and exclusion at both the institutional and interpersonal level then also fails to disrupt mechanisms of social reproduction in higher education. Consistent with findings made by Lareau, Holland, and Stanton-Salazar and Dornbush, traditional modes of information dissemination that are effectively color blind, in that they are not tailored to the diverse skills, knowledges, and habituses of at risk students, are ineffective. Instead, the dissemination of social and cultural knowledge that is critical to retention must come from personalized reliable mentors who are willing to adapt to the habituses of

diverse students (Karp, 2011; Holland, 2015; Cox, 2017). For this reason, again, academia is encouraged to interrogate their color blind institutional practices in regards to diversity and inclusion efforts, recruitment and support of underrepresented staff and faculty, as well as dominant standards for determining legitimacy in scholarship and advancement criteria.

Conclusion

This review of the literature uses multiple sociological theories to illustrate how social inequality is reproduced and potentially disrupted. While each of these theories are qualitatively different from each other, they are all integral to developing a more holistic understanding of how to best support student success among the most vulnerable students in both sectors of higher education. Bowles and Ginits (1975) highlight ways in which multiple social institutions correspond to reinforce the permanency of social stratification. Coleman (1988) reveals how correspondence between actors in closed social networks build social capital, whereas actors in open social networks often fail to create the exchanges critical to reinforcing norms of achievement and the exchange of social capital. What Coleman did not explain is how actors are included or excluded from these information rich networks. This is where Bourdieu's analysis of cultural capital is valuable in understanding how networks are created and maintained. From a cultural capital perspective, it is clear that individuals who share a similar habitus are more likely to gain membership in closed social networks. Based on research by Holland (2015), Stanton-Salazar and Dornbusch (1995) and Kao (2004) it is evident that closed networks occur in a range of communities. Yet not all closed networks provide access to mainstream social capital. Bourdieu would argue that since dominant social institutions are controlled by members of the higher social classes, the procedures, policies, and cultural habits of these institutions are crafted to reflect the habitus of the higher social classes. Consequently, individuals who are from lower social classes, as well as communities that are anthropologically less similar to the dominant group, will struggle to gain access to the social

networks in the dominant institutions. As a result of their marginalization many such students are not retained in higher education. On the other hand, their higher SES white peers, who are most culturally similar to the institutional habitus, are more likely to go on to achieve their educational goals and reproduce the dominant culture in major social institutions.

Lareau's (2011/2000) ethnographic study of class differences in educational engagement practices among various social classes specifically reveals how social class consciousness shapes interactions between parents, teachers, and students. Her work supports Bowles and Ginitis's theory of social reproduction through class consciousness, which is shaped by an individual's position in the labor market and is then transmitted to their children. Her analysis also reveals how dissimilar SES habituses contribute to whether social networks between parents, teachers, and students become closed or open. Research by Holland (2015), Stanton-Salazar and Dornbusch (1995), as well as Kao (2004) then expanded on Lareau's analysis by highlighting the role that SES and cultural characteristics among actors in educational institutions reinforce certain boundary maintenance practices that stratify access to mentorship and social capital networks based on racial, ethnic, and SES similarities and differences.

Still a number of sociological and Critical Race Theory scholars have also shown that mechanisms of social reproduction can be disrupted. Students who are most likely to be excluded from mainstream social networks, as a result of cultural (dis)similarity or SES, do benefit greatly from opportunities to build their social capital (Karp, 2011; Visher, Butcher, & Cerna, 2010; Karp, Hughes, & O'Gara, 2010; Promising, 2016; Progress, 2017; Schak, et. al., 2017; Roderick, Coca, & Nagaoka, 2011). As Coleman suggested, structures that facilitate and support the maintenance of closed social networks are most effective at promoting exchange of social capital among network members. Research by Cox (2017), Progress (2017), Promises (2016), and Center (2012) certainly demonstrates that educational institutions can engage in student success initiatives that effectively

close open ties in social networks. In the most effective institutions initiatives are created through comprehensive infrastructure changes that promote quality engagement between students, faculty, and staff, while also providing comprehensive supportive services. Yet, as research by Holland, Lareau, Stanton-Salazar and Dornbush, as well as a wide variety of CRT scholars reveal, the best student success initiatives must be tailored to meet the diverse knowledges and skills of underrepresented students in order to be holistically effective.

Furthermore, CRT scholar's counter narratives, which highlight student and faculty resilience through the creation of counter-spaces and counter social capital networks, also demonstrate that many marginalized communities already have cultural skills and knowledges that can be built upon and promoted in order to facilitate full inclusion on academic campuses. Essentially, by redesigning institutional resources, procedures, and service delivery in ways that are genuinely inclusive and culturally sensitive, committed institutional infrastructure changes can effectively close gaps in social capital networks. Ideally, the benefits of these student success efforts will advance at risk students' social capital acquisition, while simultaneously increasing the probability that they will be retained and achieve their educational goals. As the sociological and educational literature show, systems of social reproduction can be disrupted. Therefore, broad implementation of effective student success strategies, which include a genuine efforts to promote the inclusion and full participation of individuals from diverse racial, ethnic, cultural, and SES backgrounds in higher education, could be considered as much a sociological issue as a social justice issue.

Research Focus

Based on the social capital, cultural capital, and critical race literature it is recognized that access to mentorship and information is essential for accessing higher educational opportunities, as well as achieving educational goals. What is also known is that access to mentorship and information

is not equally distributed across all demographic groups. Stratified access to mentorship, support, and information is theorized here to be a significant factor in reproducing the distinct subpopulations of individuals most likely to drop out of college. Namely low income, first generation, and students of color. As previously mentioned, the literature also shows that underrepresented students resist their marginalization and create alternative social networks where they share information that they have acquired from dominant institutional and social network sources, as well as friends and family members. However, again, the quality of the information achieved from various alternative networks sources is unknown. It is also unknown how different sources of information impact access, retention, and completion rates among various student demographics. Therefore, this study uses a nationally representative longitudinal dataset from the ADD Study to explore (a) which types of mentors are more or less predictive of full completion of educational goals, partial completion of these goals, or non-attendance in higher education, (b) which types of mentors are most commonly cited by underrepresented students and majority students, (c) and which risk and protective factors are more or less predictive of certain higher education outcomes, regardless of mentorship factors. Within this context mentors will be examined as both potentially predictive of student achievement outcomes, as well as a potential mediator in the relationship between risk factors, protective factors, and student achievement outcomes. In order to meet these objectives a total of seven research questions and eight hypotheses based on the literature are explored:

Research Questions

1. Which types of mentors are individuals considered at risk of early attrition (i.e. underrepresented minorities, low income, and first generation) most likely to cite as their primary mentor?

2. Which types of mentors are individuals considered least at risk of early attrition (i.e. individuals of middle and upper income backgrounds, college educated parents, and white) most likely to cite as their primary mentor?

3. Are certain mentors more predictive of access to and attendance in a college or vocational training program than others? Does the predictive capability of mentors' impact on higher education access vary by individual risk or protective factors?

4: Are respondents who cited friends as their primary mentors more likely than those who cited other mentor or non-parental family members as primary mentors to complete their education? Are there any differences in terms of completion rates among these students who are attending either vocational colleges or universities?

5. Are respondents who cited school personnel as their primary mentors more likely than those who cited friends as primary mentors to complete their education? Are there any differences in terms of completion rates among these students who are attending either vocational colleges or universities?

6. Do respondents who cited friends or school personnel as their primary mentors complete higher levels of education compared to students who cite other or non-parental family members as their primary mentors?

7. Are respondents who cited non-parental family members or other mentor more likely attend college or vocational training, but not complete it compared to respondents who cited friends or school personnel as primary mentors?

Hypotheses

H1. Respondents who are low income, of color, and first-generation (students most at risk of dropping out) are more likely to cite friends or non-parental family members as their primary mentors.

H2: Respondents who are white, middle or upper income, and have college educated parents (students least at risk of dropping out) are more likely to cite school personnel as their primary mentors.

H3: Respondents who cite school personnel or friends as their primary mentors are more likely to gain access to higher education than students who cite non-parental family members or Other Mentors as their primary sources of mentorship.

H4: Respondents who cite school personnel as their primary mentors are more likely to complete their desired level of education compared to respondents who cite friends as their primary mentors.

H5: Respondents who cite friends as their primary mentors are more likely to complete their desired level of education compared to respondents who cite non-parental family members or Other Mentor as their primary source of support.

H6: Respondents who cite school personnel or friends as their primary mentors complete higher levels of education compared to respondents who cite non-parental family members or Other Mentor as their primary source of mentorship.

H7: Respondents who are middle or upper income, have college educated parents, and are white are more likely to complete their desired level of education compared to respondents who are low income, of color, and have non-college educated parents.

H8: Respondents who cited non-parental family members or Other Mentor as their primary mentors are more likely to drop out of college or vocational training prior to degree completion compared to respondents who cite school personnel or friend as their primary mentors.

Outline of Chapters

Each chapter will explore the role of access to mentors, as well as the type of mentors, in students access, retention, and completion of a higher education credential. Chapter 2 includes an exhaustive review of the higher education literature with a specific focus on concepts such as social capital, cultural capital, and the correspondence principle from both a social reproductionist and a critical race perspective. Cultural capital will be defined and used to broaden the theoretical basis for exploring how and why marginalized students and faculty are selected into or out of opportunities for mentorship. The function of mentors in gaining access to social networks is important considering that the literature review will show how mentors act as gatekeepers to social networks rich with social capital. The critical role that social capital plays in promoting the retention and advancement of marginalized students will also be explored in detail. What the literature review will argue is that access to social capital varies by race, ethnicity, and social class. These variations are one way that social inequality is reproduced in higher education. This review will also highlight ways in which access to mentorship and social capital can also be used to frame an empirical investigation of disruption mechanisms of social reproduction. It will end with a discussion of some of the most effective high impact practices, as well as what made these practices especially practical for promoting the retention and completion of underrepresented students.

Chapter 3 outlines the methodology, data, and limitations of this study. Chapters 4 to 11 collectively present this study's results. Chapter 4 provides a complete demographic break down including frequencies related to race/ethnicity, income, parental education, and variables created to represent risk factors, protective factors, and mentors. Chapter 5 begins with frequency tables for each mentor type. Then Chi2 tabulations with measures of association are included in order to uncover potentially significant relationships between risk factors and mentors, as well as protective factors and mentors. Finally, the chapter ends with logistic regressions using odds ratios that determine if there are any significant relationships between types of mentors and identified risk and protective factors.

Chapter 6 pertains to access and attendance in higher education during Wave 3. Frequencies regarding attendance are detailed. Then logistic regressions using odds ratios are presented in order to determine if there are any significant relationships between mentors, risk, or protective factors, and higher education participation in this wave. Chapter 7 follows a similar format as Chapter 6 except the focus of this chapter is higher education participation in Wave 4. Again, frequencies related to college attendance in Wave 4 are presented, then logistic regressions using odds ratios are used to determine if there are any significant relationships between mentors, risk or protective factors, and attendance in higher education during this Wave. Chapter 8 focuses on respondents who said in their survey responses that they have achieved their desired level of education. The chapter begins with a frequency table detailing the proportion of respondents who have achieved their educational goal. Then a frequency table that outlines what level of education these respondents achieved is provide. Finally, the chapter ends with logistic regressions using odds ratios to evaluate if there were any significant relationships between mentors, risk or protective factors, and achievement of educational goals.

Chapter 9 shifts the focus to respondents who attended higher education but did not achieve their educational goals. In other words, they attended some college, but dropped out before completing their credential. As with Chapter 8, this chapter begins with frequencies outlining the distribution of respondents who attended some college, but did not complete it, and what level of education they last participated in. Then again logistic regressions using odds ratios are utilized in order to determine if there are any significant relationships between mentors, risk or protective factor, and attending, but not completing a higher education credential. Chapter 10 examines the educational aspirations of those respondents who have not completed their educational goals, but still expect to. The format of this chapter follows the same format as Chapters 7-9 in that frequency tables are initially presented and then logistic regressions using odds ratios are utilized in order to determine if there are any significant relationships between the independent variables and the dependent variables. The dependent variables in this chapter are broken down by the level of education that individuals expect to achieve, such as vocational training, professional training, a bachelor's degree, or graduate school. The final results chapter, Chapter 11, focuses on unrealized academic goals. This chapter includes respondents who have not achieved their academic goals and *do not* expect to. Again, this chapter follows the same format as Chapters 7-10 with frequency tables first presented, then all regressions pertaining to mentors, risk or protective factors, and unrealized educational goals are discussed.

It is also important to note that each of these results chapters pertaining to higher education participation and achievement include distinctions between types of credentials. Specifically, all frequencies and regressions include distinct categories pertaining to vocational and associate degree programs common at community colleges, as well as bachelors and graduate school programs most common among universities and four year institutions. Presenting associations and outcomes at every level of higher education was an important distinction to make considering that various sectors

of higher education have very different student achievement outcomes (Burkum et. al., 2010; Thurman et. al., 2016; NCES, 2017) and demographic distributions among their students (Goldrik-Rab, 2010; Center, 2012; Burkum, et. al., 2010, NCES, 2017; Snapshot, 2018), which also affect student achievement outcomes. Each results chapter also begins with an introduction that reiterates the objective of the chapter, the survey data utilized to achieve the objective, and the research question(s) driving the objective of the chapter in order to reinforce the reader's comprehension of the results.

Finally, Chapter 12 provides a brief review of the literature that leads into a thorough discussion of the results. The chapter reviews and synthesizes the findings in all previous chapters. Each subsection of the discussion chapter includes a special emphasis on the final results that tested each hypothesis. Then Chapter 13 is the conclusion chapter that details how the results of this study contributes to the sociological literature. The conclusion chapter ends with suggestions for future research.

Chapter 3: Methods and Methodology

Recognizing the important role that mentorship plays in building students' social capital, the objective of this study is to use secondary data from a nationally representative longitudinal panel study, the ADD Health Study, in order to determine which types of mentors have the most positive association with retention and degree completion among students at greatest risk of early attrition from higher education. In order to meet this objective demographic data collected in Wave 1 and source of mentorship data collected in Wave 3 are used to predict student achievement outcomes in Wave 4. The data collected across three of the four waves of the longitudinal ADD Health Study are used together in order to answer thirteen research questions pertaining to the role of mentorship in student achievement outcomes for students who are both at risk of early attrition and students who are most likely to complete their educational goals. The inclusion of students who are most likely to reach their educational goals is intended to provide a comparison to students who are least likely to achieve their goals in order to increase the validity of the outcomes discovered. Risk and protective factors were determined based on the factors identified in an exhaustive review of the quantitative and qualitative literature. Additionally, as previously mentioned, this study seeks to explore which types of risk and protective factors are independently more or less predictive of full completion of educational goals, partial completion of these goals, or non-attendance in higher education. Examining the direct relationship between risk factors, protective factors, and educational outcomes is intended to reinforce the validity of findings by testing the potential mediating relationship that mentors may also have in the associations between risk/protective factors and educational outcomes.

Data and Statistical Analysis

In order to expand the generalizability of the qualitative literature concerning mentorship and access to social capital, STATA, a statistical software program, is used to perform logistic

regressions using odds ratios in order to examine the relationship between demographic variables identified as high risk of early attrition (low income, racial/ethnic minority, and first-generation student), protective factors (higher income, college educated parents, and over represented racial groups), the types of mentors identified by respondents, and educational outcomes in Wave 4. Logistic regressions using odds ratios were also used in order to determine the relationship between type of mentors and educational outcomes.

As previously mentioned, data from the Add Health study will be used in this analysis. The ADD Health Study is a nationally representative sample of adolescents who were enrolled in grades ranging from 7 to 12 in Wave 1 (Bearman, Jones, & Udry, 1997). The first wave of data was collected in 1994-1995 and follow up interviews were completed in 1994-1995, 1996, 2001-2002, and 2008-2009. The study includes a series of questions regarding adolescent health, sexual behaviors, relationships, substance use, income, and other topics. In Wave 1 (1994-1995) the survey's data collection process included an initial school based questionnaire of more than 90,000 randomly selected public school students. This core sample is nationally representative. However, surveyors also oversampled African American students whose parents have a college degree. Additional supplemental ethnic populations who were oversampled include Chinese, Cuban, and Puerto Rican students. The main sample also includes more than 1,500 Mexican American students and a significant number of Central American students.

The next step in the sampling process included at-home interviews with a proportion of students who were randomly selected from the initial core sample. In Wave 2 almost 15,000 of the original Wave 1 respondents were re-interviewed. Then in Wave 3, when the original respondents were between 18 and 26 years old, a total of 15,170 of the original Wave 1 sample were re-interviewed. The objective of this wave of data collection was to analyze respondents' transition between adolescence and young adulthood. Wave 3 included additional in home interviews and

educational data related to respondents high school exit status and whether or not they were enrolled in higher education programs, as well as what year they were enrolled in. Specifically, respondents who said that they were enrolled in some higher education program were then asked to identify which year of higher education they were in such as year one, two, three, four, or five of their undergraduate studies or in year one to four of a graduate program. Finally, Wave 4 interviews were conducted with approximately 15,000 of the original respondents in order to study the development and health trajectories during the transition between adolescence and young adulthood. This data set included in home interviews and biological data in order to assess the life course trajectories of young adults, their health risk behaviors, higher education participation, student achievement outcomes, as well as access to mentorship. More information about the sample selection process, terms of agreement for access, and the ADD Health data set itself is available from a variety of other sources (see Bearman et al., 1997 or Add Health Homepage: http://www.cpc.unc.edu/projects/addhealth/data).

For purposes of this study data from the public use dataset are used to complete all analyses. The public use data set includes a random half sample of the entire dataset. In Wave 1 the public use data set included a total of 6,504 respondents. In Wave 2 a total of 2,834 respondent's data were made available. In Wave 3 a total of 4,882 respondent's data were made publicly available. Finally, in Wave 4 a total of 5,411 respondent's data were made publicly accessible. Wave 5 is currently in progress and is not available for analysis.

Methods and Measures

In order to construct reliable independent variables demographic information related to race and ethnicity, household income, and parental educational achievement outcomes were gathered from the Wave 1 survey. Types of mentors identified by respondents were taken from the Wave 3 survey. The Wave 3 survey also included a set of survey questions related to higher education access

and participation. Wave 4 included sets of follow up questions regarding educational participation, completion, as well as educational aspirations for those respondents who had not yet achieved their academic goals. Data from Wave 3 and Wave 4 education participation questions were then used to evaluate any potential relationships between types of mentorship identified in Wave 3 and educational participation in Wave 3, as well as completion outcomes Wave 4.

Mentorship Variables: In Wave 3 in home interview respondents were asked a series of questions regarding the role of mentorship in their lives, as well as, the source of that mentorship. The first question asked was "other than your parents or step-parents, has an adult made an important positive difference in your life at any time since you were 14 years old?" If the answer to this question was 'yes' then the response will be coded as a '1'. If the respondent answered 'no' to this question, then this will be coded as a '0'. In the questionnaire those respondents who answered 'yes' that they have a mentor, were then asked to identify their relationship to this person: "How is this person related to you? If there has been more than one person, describe the most influential." Types of mentors ranged from non-parental family members, relatives of peers, coworkers, ministers/religious leaders, to teacher/guidance counselors. However, one major limitation of the mentorship question in the survey is that it specifically asks respondents about non-parental sources of mentorship. The qualitative research specifically focuses on parents as primary sources of social capital, and the ADD Health survey excludes parents as mentors. However, the survey does include a range of other family members as alternative options so dummy variables for the familial categories were created.

The survey does make gender distinction, for example paternal grandmother or paternal grandfather. In order to increase the sample size included in each dummy variable, as well as reinforce the generalizability of familial categories, paternal and maternal relatives were combined into single groups based on familial relationship to the respondent. In other words, paternal

grandmother and grandfather, as well as maternal grandfather and grandmother were combined into one variable "grandparents." The same was done for siblings, as well as maternal and paternal aunts and uncles. Other family included a combination of the familial categories, such as spouse and younger siblings, which had frequencies so marginal that they would not likely yield reliable results. Friend's parent was an option on the survey, so this variable was included since it was as close to a parent as the survey allowed. Other mentor is a dummy variable that collapsed all other survey options that were not identified in the literature as important predictors of higher education participation outcomes, including co-workers, employers, therapists, doctors, religious leaders etc. Since friend was a survey response itself, this variable required no alterations. Finally, the dummy variable for school personnel was created by combining two survey responses that included a total of four different types of potentially influential institutional figures, guidance counselor/teacher and coach/athletic director. A sum total of nine dummy mentor categories were created: (1) school personnel, (2) friend, (3) older siblings, (4) aunt/uncles, (5) grandparents, (6) other family, (7) friend's parent, and (8) other mentor (9) no mentor.

For purposes of clarity below is a copy of the ADD Health Study's frequency table for mentor types. This table is unaltered and was taken directly from the codebook. The N in this table reflects the total number of respondents who answered this question in the restricted use dataset.

Table 1: Mentor Type Frequency Table – Restricted Use Data

Mentor Type	***Frequency***
Older Brother	737
Younger Brother	76
Older Sister	674
Younger Sister	80
Mother's Mother	552
Mother's Father	266
Father's Mother	192
Father's Father	112
Aunt	745
Uncle	550
Teacher/Guidance Counselor	2,223
Coach/Athletic Director	447
Religious leader	410
Employer	406
Co-Worker	422
Neighbor	126
Friend	1,970
Spouse/partner	366
Friend's parent	442
Doctor/Therapist/Social Worker	568
Other	568
Total	11,932

The table presented below shows the frequencies for each dummy variable created to represent mentors for purposes of this study. The frequencies here reflect the total N for the public use dataset, which is a smaller sample than the restricted use dataset. A total of 4,867 respondents said that they had a mentor. However, only 3,716 answered the next survey question which requested respondents to specify how their mentors are affiliated with them.

Table 2: Dummy Mentor Type Frequency Table – Public Use Data

Mentor Type	***Frequency***
School Personnel	897
Friend	632
Older Sibling	458
Aunt/Uncle	386
Grandparents	395
Other Family	162
Friend's parent	143
Other Mentor	643
No Mentor	1,145
Total	4,867

Income and Socioeconomic Status: The parent section of the Wave 1 ADD Health Survey included questions regarding household income. Determining the most valid ranges for household income in order to determine the independent variables for risk and protective factors was somewhat challenging. In most of the literature cited here, scholars use broad non-specific references to household SES status, such as lower, middle, and upper income to draw theoretical conclusions about access to social capital. There were no uniform definitions regarding what range of individual or household income characteristics determined SES boundaries. The majority of scholars noted a relationship between income and access to social capital and/or higher education (Bowles & Gintis, 1973; Lareau, 2011/2000; Roderick, Coca, & Nagaoka, 2011; MacLeod, 2008; Martin, 2015ab...). In these studies, the results generally revealed that low income individuals were at a disadvantage in acquiring social capital and successfully attending institutions of higher education compared to their higher income peers. Another common theme in the literature found parental education to be critical in predicting a student's access to social capital and/or higher education participation. In these studies scholars found that students who had parents who were college educated were more likely to have access to valued social capital and complete their education

compared to their peers whose parents did not have similar higher educational experiences (Roderick, Coca, & Nagaoka, 2011; Bourdieu, 1973; Lareau, 2011/2000; Karp, O'Gara, Hughes, 2008; Karp, 2011; Conely, 2007). Therefore, given the centrality of socioeconomic status (SES) in predicting an individual's access to social capital, and their likely success in accessing and completing higher educational programs, this study uses two of the three most common proxy measures for inferring household and individual SES, parental education and household income (Cowan, et. a., 2012).

Parental Educational Status: In the Wave 1 in home parent interviews, respondent's parents were asked to identify their highest level of education achieved to date. The answers ranged from less than an eighth grade education, to some college, to completion of graduate school. Since the qualitative literature suggests that the cultural capital of parents, and so their children, is largely based on whether or not the parents had attended *and* completed some type of higher education, the variables for parental education were collapsed into two categories with respective dummy variables assigned. Respondents with parents to attended and completed college were coded '1, whereas respondents whose parents had less than a college education were coded as '0'. In order to be consistent with the literature, non-college educated parents included parents who said that they had attended but did *not* complete any higher education credential. The non-college educated parents variable was then labeled "First Generation" in order to represent students who had parents who were not college educated. Being first-generation also infers, based on the literature, that their parents were less likely to have the social and cultural capital important to promoting their children's academic achievement.

Household Income: As previously mentioned, the methods for determining income varied across the literature. For this reason, all income variables were calculated based on the self-reported survey data related to gross household income, the median income of survey respondents, as well as

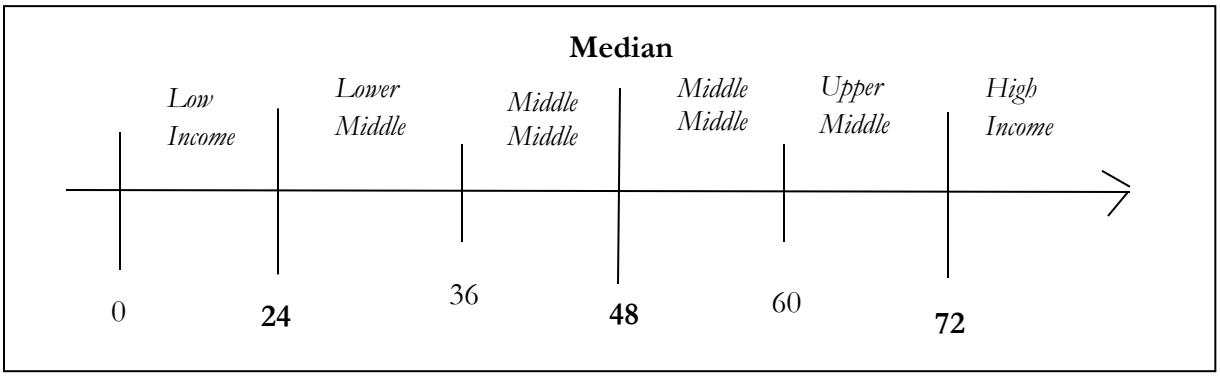
the standard calculations for poverty according to the US Census at Wave 1[5]. To explain, in the ADD Health Survey the continuous variable for household income ranged from $0 - $9,999,999. This continuous variable was collapsed into five categories: low income, lower middle income, middle middle income, upper middle income, and high income based on dividing the median household income identified in Wave 1 into quartiles, and then dividing these quartiles in half. For instance, the median household income identified in the Wave 1 at home interviews, which was the household income of respondents in 1994 when they were dependents, was $47.67977. This figure was rounded to $48,000 in order to make income calculations more understandable. Initially, the middle income variable was created by determining the median income and including the range of incomes between the boundaries of the lower and upper quartiles relative to the median. However, this calculation was very broad with respect to what incomes were included in this range. For instance, the upper quartile based, on the median income, was $72,0000 and the threshold for the lower quartile was $24,000. This range was so broad that it obscured the diversity of household experiences by lumping households at approximately 150% of the poverty line together with households far above the median income into one monolithic "middle income" category.

For instance, a household earning $24,000 in 1994 was just above 150% of the poverty threshold for a family of four, $22,500 (US Census, 2019). Households hovering just above 150% of poverty are likely to have a much more precarious hold on financial stability compared to a household earning twice that amount and sitting securely at the median income threshold ($48,000). The difference in financial stability will also affect each household's ability to purchase homes in quality neighborhoods and school districts, which was found in the literature to have a significant impact on higher education participation in young adulthood (Logan, Minca, & Adar, 2012; Goldrik-Rab, 2007; Goldrick-Rab & Han, 2011; Atwell, et. al., 2006; Howell, 2011; Roderick, Coca, &

[5] The median household income for a family of four in 1994 was used rather than current median income since the 1994 poverty threshold reflects that actual lived experience of respondents when they were children.

Nagaoka, 2011; Rowan-Kenyon, 2007; Goldrick-Rab, 2010; Simi & Matusitz, 2016; Keene, 2016). Household income was also found to be very important in terms of defining access to social and cultural capital resources (Karp, 2011; Karp, Hughes, & O'Gara, 2010; Progress, 2017; Zeidenberg, Jenkins, & Calcagno, 2007), as well as identifying risk and protective factors that predicted educational outcomes (Calcagno, et. al., 2008; Goldrick-Rab, 2010; Goldrik-Rab, 2007; Martin, Galentino, & Townsend, 2014; Goldrick-Rab & Han, 2011; Roderick, Coca, & Nagaoka, 2011; Rowan-Kenyon, 2007; Center, 2012; Goldrick & Pfeffer, 2009; Saenz, et. al., 2011). For this reason, it was much more useful to divide the quartiles into smaller more detailed distributions that could provide more valid measures to infer differences in SES and their impact on the dependent variables.

Figure: 1: Thresholds Used for Income Dummy Variables



Therefore, in order to create the final income distributions for the income categories the quartiles surrounding the median income were first calculated by dividing the median income in half (48/2=24). This initial division placed the boundaries of the upper and lower quartiles at 50% above and below the mediation income. Now the upper quartile ranged from $49,000-$73,000 (49+24=73) and the lower quartile ranged from $24,000-48,000 (48-24=24). Then the quartiles 50% above and below the median income were divided in half again (24/2 = 12). The outcome of this division, 12,

was used to determine the lower threshold of the middle middle income quartile (24-12=12). Then 12 was added to the median in order to determine the boundary of the upper middle middle income distribution (48+12=60). These calculations put the middle middle income variable at 25% above and below the national median income ($36,000-$60,000), rather than 50% above and below the median income ($24,000-$72,000). The upper middle income distribution ($61,000-$72,000) was determined by including the range of incomes between the upper threshold of the middle middle income and the threshold of the original upper quartile that was 50% above the median income. Finally, low income was determined by using Census findings from 1994 which provides a standardized measure for poverty through federal calculations of the poverty guidelines.

For instance, in 1994 the federal poverty guideline for a family of four was $15,029. This makes a household income at 150% of poverty $22,500. Considering this income guideline, the low income variable was created based on quartile divisions that factored in the threshold for 150% of poverty in 1994. As a result, the lower middle income distribution was created by including incomes between the lower threshold of the middle middle income variable and the threshold of the original lower quartile that was 50% less than the median income ($24,000-$35,000). This left the lower income variable to include the incomes ranging at and below $23,000. This measure more accurately places the lower middle income threshold just above 150% of poverty at Wave 1 ($22,500), and the low income approximately below 150% of poverty for a family of four. The dummy variables for the income categories were coded as follows: low income 0-23,000 = 1 and 24,000+ = 0, lower middle 0-23,000=0, 24-35=1, 36-9,999,999=0, middle middle 0-35=0, 36-60=1, 61-9,999,000=0, upper middle 0-60=0, 61-72=1, 73-9,999,999=0, High income 0-72=0, 73-9,999,999=1.

Race and Ethnicity: dummy variables for racial categories were created using the self-reported racial and ethnic identities provided by respondents in Wave 1. The dummy variable for minority was created by collapsing African Americans, First Nations, Asian Pacific Islanders, and

Hispanics into one variable that was coded 1. Whites were then coded as 0. The creation of the white variable was completed by using the inverse coding procedure that created the dummy variable for minority. As previously mentioned in the literature review, although Muslims are a distinct minority group in terms of their experience of marginalization, they are not typically isolated as a minority group in surveys such as the Census, as well as ADD Health. As a result, Muslims were not able to be included in the minority variable.

Education Participation Waves 3: In Wave 3 the ADD Health survey asks respondents if they were in any college or vocational training program. If respondents answer yes, then the survey asks them to specify what year they have progressed to at the time of survey. The survey instrument provided a total of ten categories that captured respondent's higher education participation at Wave 3. These survey categories were borrowed, unaltered, from the survey and used in order to complete all the Wave 3 educational participation regressions. The ten categories for respondents who said they were enrolled in some higher education program were listed as followed: (1) first year of undergraduate studies (2) second year of undergraduate studies (3) third year of undergraduate studies (4) fourth year of undergraduate studies (5) fifth year of undergraduate studies (6) first year of graduate studies (7) second year of graduate studies (8) third year of graduate studies (9) fourth year of graduate studies (10) fifth year of graduate studies. The survey did not make any other distinctions related to program types, such as vocational training vs bachelor's degree, or graduate school vs professional school. Therefore, in this section of the study it could not be determined how education participation varied by institutional sector.

Education Participation Waves 4: In Wave 4 the ADD Health survey again asked respondents if they were attending any higher education program. The survey question in this round of sampling was less detailed in that it did not asked respondents to specify what year they had progressed to at the time of the sampling. Instead, since most respondents where then in their late

twenties or early thirties, most of the education section of the survey focused on respondent's educational achievement outcomes, or lack of. For instance, rather than asking what year respondents were enrolled in college, they were simply asked if they were attending any level of higher education "yes" or "no."

Respondents were also asked to identify "...the highest level of education that you have received to date." The survey instrument included a range of thirteen options from eighth grade or less, some high school, high school completion, some vocational training after high school, completed vocational training, some college, completion of college, some graduate school, completed a master's degree, some post master's education, completed doctorate, some professional training, and completed professional training (DDS, law school etc).

In order to construct the independent variables for higher education outcomes, these thirteen survey answers were collapsed into eight categories indicating whether or not respondents completed a higher education program or did not complete it. The final variables were created as follows: (1) some vocational, which indicates participation in, but not completion of some post-secondary vocational program, (2) vocational complete, which represents completion of a vocational program, (3) some college, which reflects attendance in, but not completion of, some college program, (4) college completed, which indicates completion of bachelor's degree, (5) some graduate school, which indicates participation in, but not completion of, either a master's or doctoral degree, (6) complete graduate school, indicates achievement of either a master's degree or Ph.D., (7) some professional, which indicates participation in, but not completion of a post baccalaureate professional degree program, and (8) professional complete, which represents completion of a post bachelorette professional degree program.

Toward the bottom of the education section of the survey respondents were asked "which of the following best describes your desired level of education?" Three potential answers were

provided: (1) I have achieved my desired level of education, (2) I have not achieved my desired level of education, but believe that I will, and (3) I have not achieved my desired level of education and do **not** believe that I will. Since the question and the answers to the survey question were concrete and provided exactly the information needed for the regressions, these three survey options were simply coded into three unaltered variables: (1) achieved desired education, (2) expect to achieve, and (3) do not expect to achieve.

Further, for respondents who said that they had not achieved their desired level of education, but expected to, follow up question asked them to identity what level of education they expected to achieve. A series of nine potential credential outcomes were listed. These survey responses were indicated as follows: finish high school or earn GED or certificate, vocational/technical school after high school--less than 2 years, vocational/technical school after high school--2 or more years, college program--less than 2 years, associate's degree, bachelor's degree, master's degree or equivalent, PhD or equivalent (EDD, DrPH, etc.), or professional doctorate--MD, JD, LLB, DDS, or equivalent. These nine response categories were collapsed into six categories: (1) vocational training, (2) associate's (3) bachelor's, (4) master's degree, (5) Ph.D., (6) professional school. The organization of these six categories was intended to ease analytical comparisons by making these variables more similar to the first set of survey response answering the question "what is your highest level of education achieved to date?"

The variables created from this set of survey questions, the set responses, and related follow up questions provided the basis for the each of the following results chapters analyzing the potential relationships between mentors, risk factors, protective factors, and educational aspirations, as well as completion outcomes. Specifically, the results chapters concerning *educational aspirations* pertains to the survey response "I have not achieved my desired level of education, but I expect to." This chapter also includes regressions pertaining to risk, protective factors, mentors, and which type of

educational outcome respondents expect to achieve. The chapter concerning *unrealized educational goals* pertains to the survey response "I have not achieved my desired level of education and I do not expect to achieve it." Finally, the chapter concerning *educational goals achieved* includes the data from the survey response "I have achieved my desired level of education" as well as the results to the question "what is your highest level of education completed to date" that indicated that respondents completed an entire educational program. On the other hand, completion of some vocational school, some college, some professional school, were placed in a separate chapter titled *partial achievement*. This division was intended to sort out how various independent variables either predicted completion, or attrition from higher education, which is indicated by respondents identifying whether or not they completed an entire educational program at the time of Wave 4 sampling.

Limitations

There are several important limitations of the ADD Health Study which should be acknowledged. First, this data set does not provide a way of measuring whether or not mentors provided access to either cultural or social capital specifically. Second, the survey also fails to provide demographic details regarding the SES, race, ethnicity, or other related characteristics of the mentors for purposes of inferring cultural capital. Third, the survey does not provide any means of assessing the quality of the mentorship experience. Quality mentorship certainly matters (Karp, 2011; Cipollone & Stich, 2017) and there may be a number of other factors that impact the quality of mentorship (Holland, 2015; Stanton Salazar & Dornbusch, 1995; Lareau, 2011/2000; Bowles and Gintis, 1973) which may not be feasible to include in this study due to the nature of the dataset. For instance, this study uses secondary data analysis as the primary source of data. Therefore, alterations to the survey cannot be made in order to test for the quality of social or cultural capital in mentoring relationships. Still, the survey does provide concrete data regarding higher education participation and completion rates across two waves of the study. It also provides specific

demographic information that has been identified in the literature as predictive of completion or attrition from higher educational programs. Additionally, as previously detailed, Wave 3 asks direct questions about mentorship which include categories of individuals, such as school personnel and friends, who have been identified in the literature as sources of mentorship. This is important since the qualitative literature also identified mentors as sources of social capital, which is operationalized as access to information (Stanton-Salazar and Dornbusch, 1995; Holland, 2015, Kao, 2004; Conely, 2007). Furthermore, cultural capital was also identified in the literature as a factor in accessing information (Bourdieu, 1973; Lareau, 2011/2000; Karp, O'Gara, & Hughes, 2008; Karp, 2011; Goldrick-Rab, 2010). Finally, the social capital, cultural capital, and CRT scholars cited here also demonstrated that access to information is highly predictive of higher education participation, retention, and completion. Therefore, despite the limitations of these survey data, it can be inferred that mentors provide one source of social capital that is important for higher education outcomes and that access to mentors likely reflects some type of cultural similarity between respondents and their selected mentors.

Chapter 4: Demographic Information

The objective of this chapter is to provide an overview of demographic frequencies. The chapter will begin with a summary of general demographic information related to race, ethnicity, sex, parental education, and household income. The chapter ends with a summary of frequencies and variables created to represent both risk and protective factors that were most commonly cited in the literature as predictive of higher education access and retention.

Race, Ethnicity, and Sex

Table 3: Frequency of Male Sex

Male	***Frequency***	***Percent***
Yes	2,950	48.38
No	3,147	51.62
Total	6,097	100

Table 4: Frequency of White Non-Hispanic Race/Ethnicity

Whites	***Frequency***	***Percent***
Yes	3,720	57.2
No	2,784	42.8
Total	6,504	100

Table 5: Frequency of Black Non-Hispanic Race/Ethnicity

African Americans	***Frequency***	***Percent***
Yes	1,584	24.35
No	4,920	75.65
Total	6,504	100

Table 6: Frequency of First Nation Non-Hispanic Race/Ethnicity

First Nations	***Frequency***	***Percent***
Yes	131	2.01
No	6,373	97.99
Total	6,504	100

Table 7: Frequency of Asian Pacific Islanders

Asian/Pacific Islanders	*Frequency*	*Percent*
Yes	246	3.78
No	6,258	96.22
Total	6,504	100

Table 8: Frequency of Hispanic Race/Ethnicity

Hispanic	*Frequency*	*Percent*
Yes	760	11.69
No	5,744	88.31
Total	6,504	100

Parental Education

Table 9: Frequencies for Parental Education Dummy Variables – Restricted Use Data Set

Parental Education Wave 1	*Frequency*	*Percent*
Never attended	19	0.09
8th grade or less	1,127	5.43
Did not graduate high school	1,894	9.13
Trade, business or vocational vs. high school	143	0.69
High school graduate	4,472	21.56
Completed GED	655	3.16
Vocational school after high school	1,730	8.34
Some college	3,460	16.68
College completed	2,463	11.87
Post bachelor's professional school	1,564	7.54

The ADD Health Study codebook provided one table detailing the frequencies of parental education distributions obtained during Wave 1. These frequencies were completed using the

restricted dataset whose numbers are greater than those available for public use. For this reason, the frequencies presented here are greater than the frequencies presented in this study, which uses the public use dataset. The objective of presenting this table here is to provide the reader with a general overview of parental education distributions. The frequency table from the actual codebook is used here because replication of these frequencies using the public use dataset is problematic. The table shows that the majority of households do not have a college educated parent. Specifically, 1,916 of the 6,140, or 31.2% of parental respondents had completed a college degree. On the other hand, 1,173, or 18% of respondents completed some college. Almost equal to the number of respondents who completed a higher education degree, 34.7%, or 2,132 of respondents completed high school and did not pursue higher education. Finally, 919, or 15% of the sample did not complete high school at all.

Table 10: Frequencies for Parental Education Dummy Variables – Public Use Data Set

Parental Education Wave 1	***Frequency***	***Percent***
College Educated Parents	1,829	34.69
Non-College Educated Parents	3,440	65.29

Table 10 shows the dummy variables for parental education created according to operationalization of parental education in the social reproduction literature that made only two distinctions for this variable: individuals who completed a higher education credential and those who have not. For those who have not completed a credential (non-college educated parents) this dummy variable includes all individuals who never attended college, as well as those who attended some college, but did not complete a credential. The frequencies show that the majority of parental respondents are not college educated with 3,440, or 65.29% of the sample being non-college educated. On the other hand, just over a third of the sample is college educated with 1,829, or 35.69% percent of the sample reporting a college credential. Individuals who are college educated

include those who reported that they had finished a credential, including vocational certification, bachelor's degree, graduate level degrees, or professional certifications.

Household Income

Table 11: High Income Frequencies

High Income	***Frequency***	***Percent***
Yes	708	15.29
No	3,923	84.71
Total	5,247	100

Table 12: Upper Middle Income Frequencies

Upper Middle	***Frequency***	***Percent***
Yes	303	6.54
No	4,328	93.46
Total	4,631	100

Table 13: Middle Middle Income Frequencies

Middle Middle	***Frequency***	***Percent***
Yes	1,543	31.38
No	3,178	68.62
Total	4,631	100

Table 14: Lower Middle Income Frequencies

Lower Middle	***Frequency***	***Percent***
Yes	902	19.48
No	3,729	80.52
Total	4,631	100

Table 15: Lower Income Frequencies

Low Income	*Frequency*	*Percent*
Yes	810	14.58
No	4,784	85.52
Total	5,594	100

After calculating the frequencies for each income bracket, the final income distributions of respondents are as follows: Families considered to be high income comprised 15.29% of the sample, with 708 total respondents citing that their families made above $73,000 annually. Upper middle income families were a smaller percentage at 6.59%, or 303 families in the sample. Middle Middle income families were the most represented in the middle income sample at 31.38%, or 1,543 of households in the survey. Lower middle income families made up 19.48% of the sample with 902 families. Finally, 4.58%, or 810 of 5,594 of respondents were considered low income in Wave 1.

Summary of At Risk Characteristics

As previously discussed in the literature review, both the qualitative and quantitative literature most consistently identify three key characteristics as predictive of greater challenges in accessing and completing higher education: first-generation college students, low income student, and students of color. First-generation students are clearly defined by one specific distinction, whether or not their parents have completed some higher education degree or training. Specifically, first-generation students are the respondents whose parent(s) did not attend, or attended and did not complete, any post-secondary education or training. On the contrary, if a student has parent(s) who completed post-secondary education or training, they are not first-generation college students. Instead, they are simply identified as students with college educated parents.

Table 16: First Generation Frequencies

First Generation	*Frequency*	*Percent*
Yes	3,440	65.29
No	1,829	34.71
Total	5,269	100

In Table 16 first-generation college students (child of a non-college educated parent(s) make up the majority of respondents at 3,440, or 65.29% of the sample. The data for this variable come from the public use dataset, rather than the restricted use dataset. Since the public use data set has a smaller sample accessible, the total sample (N) in this table will be somewhat lower than the total sample size in the previous table detailing parental education frequencies, which was copied directly from the codebook which used the restricted use dataset.

Table 17: Low Income Frequencies

Low Income	*Frequency*	*Percent*
Yes	810	14.58
No	4,784	85.52
Total	5,594	100

In Table 17 the details for the variable low income are the same as described in the demographics section. Households whose income is less than the lower quartile based on the median income reported in Wave 1 are considered low income ($0-23,000), which is approximately 150% of poverty for a family of four. A small number of individuals qualified as low income. Specifically, 810 out of 5,594 respondents, or 14.58 of the sample were low income in Wave 1.

Table 18: Racial and Ethnic Minority Frequencies

Minority	*Frequency*	*Percent*
Yes	2,776	42.7
No	3,720	57.2
Total	6,504	100

Finally, Table 18 includes the frequency distribution of underrepresented minorities in higher education. Consistent with national demographic trends, non-white and Hispanic individuals constitute a numerical minority in the US in Wave 1 at 38.9% or 2,530 respondents out of a total sample of 6,504.

Summary of Protective Characteristics

Again, as outlined in the review of the literature, white, middle and upper income individuals with college educated parents often have the most advantage accessing and attending post-secondary education or training programs to completion. These variables (whiteness, middle and upper income, and college educated parents) constitute those characteristics considered to be protective factors.

Table 19: White Non-Hispanic Frequencies

White	***Frequency***	***Percent***
Yes	3,720	57.2
No	2,784	42.8
Total	6,504	100

In Table 19, consistent with the racial and ethnic demographics in Wave 1, non-Hispanic white individuals make up the majority of the survey sample at 57.2% or 3,720 of 6,504 respondents.

Table 20: High Income Frequencies

High Income	***Frequency***	***Percent***
Yes	708	15.29
No	3,923	84.71
Total	4,631	100

Table 21: Upper Middle Income Frequencies

Upper Middle	*Frequency*	*Percent*
Yes	303	6.54
No	4,328	93.46
Total	4,631	100

Table 22: Middle Middle Income Frequencies

Middle Middle	*Frequency*	*Percent*
Yes	1,543	31.38
No	3,178	68.62
Total	4,631	100

Table 23: Lower Middle Income Frequencies

Lower Middle	*Frequency*	*Percent*
Yes	902	19.48
No	3,729	80.52
Total	4,631	100

In Tables 20-23 middle and upper income dummy variables from the previous the household income sections included the demographic frequencies are repeated here for purposes of clarity. In sum, families considered to be high income comprised 15.29% of the sample, with 708 total respondents citing that their families made above $73,000 annually. Upper middle income families were a smaller percentage at 6.59%, or 303 families in the sample. Middle Middle income families were the most represented in the middle income sample at 31.38%, or 1,543 of households in the survey. Lower middle income families made up 19.48% of the sample with 902 families.

Table 24: College Educated Parent(s) Frequencies

College Educated Parent(s)	***Frequency***	***Percent***
Yes	1,829	34.69
No	3,444	65.31
Total	5,273	100

Finally, in Table 24 34.69%, or 1,829 of parental respondents reported some type of post-secondary education/training compared to 3,444, or 65.31%, respondents who never participated, or did not complete, any similar education or training after high school. Again, the data used to create this variable were derived from the public use data set so the total N value here will be somewhat lower than the total N presented in the parental education distribution table taken directly from the codebook, which used the larger restricted use dataset.

Chapter 5: Sources of Mentorship

The objective of this chapter is to answer the research questions (*1.) Which types of mentors are individuals considered at risk of early attrition (i.e. individuals of color, low income, and first generation) most likely to cite as their primary mentor? And (2.) Which types of mentors are individuals considered least at risk of early attrition (i.e. individuals of middle and upper income backgrounds, college educated parents, and white) most likely to cite as their primary mentor?*

The analytical approach of the chapter is as follows: first a set of frequencies detailing the proportion of respondents who stated that they had, or did not have, a mentor is outlined. Then frequency distributions for each mentor type are individually discussed. Chi2 tables with measures of association are presented in order to highlight whether there were any significant relationships between risk and protective factors identified in the literature and mentor types. Finally, each section for risk and protective factors also includes a set of regressions testing for the stability of any significance between risk or protective factors and mentor selection. In the final section, regressions are presented that include all independent variables for risk and protective factors combined to measure their significance to the dependent variables associated with each mentor type. Also, noteworthy, nearly significant results, or results with p values between 0.06 and 0.08, are sometimes discussed throughout the results chapters because their near significance may indicate potential intervening effects from variables that are not accounted for in this study. Further exploration of additional independent variables in these associations could be useful to examine in future research projects.

Mentorship Frequencies

Table 25: Mentorship Frequencies

Had Mentor	*Frequency*	*Percent*
Yes	3,722	76.5
No	1,145	23.5
Total	4,867	100

The frequencies tabulated above reveal that the majority of respondents stated yes, that some adult has made a positive impact on their lives as mentor. Specifically, of the 4,867 respondents who answered this survey question 3,722, or 76.5%, of individuals stated that they had a mentor.

Non-Familial Mentors

Table 26: School Personnel Mentor Frequencies

School Personnel	*Frequency*	*Percent*
Yes	897	18.4
No	3,970	81.6
Total	4,867	100

Table 26: School personnel is a category that includes two separate survey categories which include four different types of potentially influential school personnel: "teachers/counselors" and "coaches/athletic director." Consistent with the qualitative literature, school mentors were cited as primary mentors by the greatest number of respondents, 18.4%, or 897 of 4,867 of the sample.

Table 27: Friend Mentor Frequencies

Friend	*Frequency*	*Percent*
Yes	632	13.0
No	4,235	87.0
Total	4,867	100

Table 28: Friend's Parent Mentor Frequencies

Friend Parent	***Frequency***	***Percent***
Yes	143	2.9
No	4724	97.1
Total	4,867	100

Table 29: Other Mentor Frequencies

Other	***Frequency***	***Percent***
Yes	643	13.21
No	4,224	86.79
Total	4,867	100

Consistent with some of the CRT literature, friends were the next most common source of mentorship at 13%, or 632 of 4,867 respondents. Friend's parent captured the smallest number of respondents at 2.9%, or 143 respondents. Finally, other mentor was cited by 13.2%, or 643 of respondents. Since this category included such a broad range of options, from doctors to neighbors, to coworkers, it includes a more diverse aggregate of marginal frequencies, compared to most of other the dummy categories.

Familial Mentors

Table 30: Older Sibling Mentor Frequencies

Older Sibling	***Frequency***	***Percent***
Yes	458	9.4
No	4,409	90.6
Total	4,867	100

Table 31: Aunt and Uncle Mentor Frequencies

Aunt/Uncle	*Frequency*	*Percent*
Yes	386	7.9
No	4,481	92.1
Total	4,867	100

Table 32: Grandparent Mentor Frequencies

Grandparent	*Frequency*	*Percent*
Yes	395	8.1
No	4,472	91.9
Total	4,867	100

Table 33: Other Family Mentor Frequencies

Other Family	*Frequency*	*Percent*
Yes	162	3.3
No	4,705	96.7
Total	4,867	100

Among non-parental family members older siblings were most commonly cited as sources of mentorship with 9.4%, or 458, of respondents citing older sisters or brothers as mentors. At 8.1%, or 395 respondents, grandparents were the second most commonly cited source of familial mentorship, followed by aunts and uncles at 7.9%, 386 respondents. Other family members, which include younger siblings and spouses, represented the smallest proportion of familial mentorship at a combined total of 3.3%, or 162 respondents.

Family and Gender

Table 34: Disaggregated Mentor Type Frequencies

Mentor Type	***Frequency***	***Percent***
Older Brother	228	6.1
Younger Brother	24	0.6
Older Sister	230	6.2
Younger Sister	21	0.6
Mother's Mother	208	5.6
Mother's Father	84	2.3
Father's Mother	60	1.6
Father's Father	43	1.2
Aunt	224	6
Uncle	162	4.4
Teacher/Guidance Counselor	742	20
Coach/Athletic Director	155	4.2
Religious leader	149	4
Employer	122	3.3
Co-Worker	135	3.6
Neighbor	40	1.1
Friend	632	17
Spouse/partner	117	3.1
Friend's parent	143	3.8
Doctor/Therapist/Social Worker	17	0.5
Other	180	4.8
Total	3,716	100

When the mentor categories were disaggregated to reflect the original survey categories and frequencies were run an unexpected bias appeared among familial mentors. The most common family members who functioned as mentors were predominantly female, maternal relatives, and

older than the respondent. For instance, maternal grandmothers makeup 5.2% of familial mentors compared to only 2.3% of maternal grandfathers. In comparison, on the paternal side only 1.6% of respondents cited paternal grandmothers as source of mentorship and 1.2% cited paternal grandfathers. A bias toward female relatives appears again when reviewing the percentages related to respondents' aunts and uncles as well. Aunts are cited as mentors by 6% of respondents, whereas 4.4% of uncles are cited as mentors. As previously mentioned, older siblings were the most common source of familial mentorship. Interestingly, the familial gender bias does not exist when comparing proportions of older siblings who function as mentors. Specifically, older sisters are cited by 6.2% of respondents as a source of mentorship, while older brothers are cited by 6.1% of respondents. So, although females are still slightly more likely to be a sources of mentorship, the difference between males and females mentors is negligible, at least in terms of older siblings. The N here reflects the sample total for the public use data set, which is smaller than the restricted use dataset whose N was over 11,000.

It is also important to note that while a total of 4,867 respondents said that they had a mentor, only 3,716 answered the next survey question that requested respondents to specify how their mentor was affiliated with them. For this reason, the total N's for the two survey questions 'do you have a mentor' and 'what is the relationship of that person to you' are quite different.

Mentor Selection

Chi-squares with measures of associations were run for each individual risk and protective factor and each mentor type in order to determine whether or not there were any significant relationships between certain individual characteristics found in the literature to be either a risk or protective factor in regard to access to mentorship. Overall, there were few results that were significant. Some findings supported the observations made in qualitative studies, while other findings did not.

Mentors and Risk Factors

The first Chi2 tabulations evaluated the relationship between the risk factor low income, and all mentor types. No significant relationships were found. The second tabulations evaluated the relationship between being a first-generation college student and mentor type. There were no significant results. Non-significant bivariate tables are not presented here.

Table 35: Minorities and School Personnel Mentors Chi2

Minority	***School Personnel***		***Total***
	No	*Yes*	
No	2,082	520	2,602
	80.02	19.98	100
Yes	1,626	329	1,955
	83.17	16.83	100
Total	3,708	849	4,557
	81.37	18.63	100
Chi 2 (1) = 9.3507	**P = 0.01****		

The Chi2 results for minority and mentors were found to have a very significant relationship with a p value of 0.01. The results suggest that most respondents reporting that school personnel were their primary mentors were white students. Conversely, the results of this analysis also suggest that there is a negative association between being a respondent of color and having school personnel as a mentor. No other associations between being a minority and mentor types were found to be significant, including friends as mentors (non-significant tables not shown).

Table 36: First Generation and Friend Mentors Chi2

First Generation	***Friends***		***Total***
	No	*Yes*	
No	1,177	196	1,373
	85.72	14.28	100
Yes	2,224	305	2,549
	88.03	11.97	100
Total	3,421	501	3,922
	87.23	12.77	100
Chi 2 (1) = 0.8090	**P = 0.04***		

However, friend mentors were found to have a significant relationship to first-generation students with a p value of 0.04. At total of 305 respondents who were where first-generation college students also cited friends as their mentors.

Table 37: Logistic Regressions for Risk Factors and Mentor Types

Risk Factors	***School Personnel***	***Friend***	***Friend's parent***	***Other Mentor***
Male Sex	0.94	1.17	0.88	0.88
First Generation	0.94	**0.82***	*1.50*	1.11
Minority	**0.72*****	1.13	0.88	*1.19*
Low Income	1.09	0.94	0.67	1.01
Constant	0.27	0.15	0.03	0.14
Observations	3,876	3,876	3,876	3,876

Next logistic regression using odds ratio were run in order to determine if any other significant relationships between risk factors and mentor types emerge when all dependent variables were tested. Since it was inconclusive in the literature whether gender is a risk or protective factor, it was controlled for. Several significant associations appeared in the regressions. The negative

relationship between being a minority and having school personnel as a mentor increased in significance with a coefficient of 0.71 and a p value of 0.00. As predicted in the CRT literature, this finding suggests that racial and ethnic minorities are less likely than their white counterparts to access school personnel as sources of mentorship. With a coefficient of 0.83 and a p value of 0.04, first-generation students were found to have a significant negative relationship to friends as mentors.

However, deserving notable mention, both risk characteristics were almost significant in their relationship to other mentors not found in the literature. Specifically, minority and other mentor had an almost significantly positive association with a coefficient of 1.19 and a p value of 0.08. First-generation had an almost significant positive association with friend's parent mentor with a coefficient of 1.50 and a p value of 0.06. Contrary to the qualitative literature, being low income had no significant or nearly significant relationship to any of the mentor types in the regressions. There were no significant relationships between any of the individual risk factors and having no mentor.

Note: the total N in these four regressions is lower than the sample size of 4,837. This is likely because there are some data missing which were observable only when mentors and risk factors were combined.

Mentors and Protective Factors

Table 38: Whites and School Personnel Mentors Chi2

White	***School Personnel***		***Total***
	No	*Yes*	
No	1,631	329	1,960
	83.21	16.79	100
Yes	2,082	520	2,602
	80.02	19.98	100
Total	3,713	849	4,562
	81.39	18.61	100
Chi 2 (1) = 7.5525	**P = 0.01****		

As done with the risk factors and mentor types, Chi2 tabulations with measures of association were run for all of the protective factors and each mentor type. Paralleling the findings in the minority/school personnel analysis, most respondents citing school personnel as mentors in the white/school personnel tabulation, were white. With a p value of 0.01 the association between being a white student and having a school personnel mentor was found to be very significant.

Table 39: White and Other Family Mentors Chi2

White	***Other Family***		***Total***
	No	*Yes*	
No	1,883	77	1,960
	96.07	3.93	100
Yes	2,526	76	2,602
	97.08	2.92	100
Total	4,409	153	4,562
	96.65	3.35	100
Chi 2 (1) = 3.5026	*P = 0.06*		

No other associations between whiteness and mentor type were found to be significant (non-significant tables not shown). However, with a p value of 0.06 other family was close to having a significant negative relationship to being white.

Table 40: College Educated Parents and Friend Mentors Chi2

College Educated Parent(s)	***Friend***		***Total***
	No	*Yes*	
No	2,246	305	22,551
	88.04	11.96	100
Yes	1,177	196	1,373
	85.72	14.28	100
Total	3,423	501	3,924
	87.23	12.77	100
Chi 2 (1) = 4.3107	**P = 0.04***		

For the protective factor, college educated parents, only one association appeared to be significant. In the tabulation analyzing friend mentor with respondents with college educated parents, the finding show that 196 respondents cited yes, that a friend was a mentor to them compared to 1,177 respondents who cited no, a friend was not a mentor to them. With a p value of 0.04 these findings suggest that is some association between individuals with college educated parents and having a friend as a mentor.

Table 41: High Income and Other Family Mentors Chi2

High Income	***Other Family***		***Total***
	No	*Yes*	
No	2,803	105	2,908
	96.39	3.61	100
Yes	521	11	532
	97.93	2.07	100
Total	3,324	116	3,440
	96.63	3.37	100
Chi 2 (1) = 3.2863	*P = 0.07*		

Table 42: Middle Middle Income and Friend's Parent Mentors Chi2

Middle Middle	***Friend's parent***		***Total***
	No	*Yes*	
No	2,296	58	2,354
	97.54	2.46	100
Yes	1,041	45	1,086
	95.86	4.14	100
Total	3,357	103	3,440
	97.01	2.99	100
Chi 2 (1) = 7.2193	**P = 0.01****		

In terms of middle and high income protective factors there were few significant results in the Chi2 tabulations. Among the results of the high income and mentors, no associations were significant (non-significant tables omitted). However, high income and other family (Table 40) were almost significant with a p value of 0.07. There were no significant, or closely significant, associations between upper middle income and mentor types. Middle middle income and mentors did yield one significant result between friend's parent and middle middle income (Table 41), which had a p value of 0.01. In total 58 individuals who were not middle middle income cited friend's

parent as a mentor, whereas 45 individuals cited friend's parent as a mentor. These findings suggest that those who are middle middle income are less likely to cite a friend's parent as a mentor compared to individuals who are not middle middle income. Finally, lower middle income yielded no significant or nearly significant associations with any mentor type. There were no significant relationships between individual protective factors and having no mentor (again non-significant tables have been omitted).

Table 43: Logistic Regressions Protective Factors and Mentor Types

Protective Factors	***School Personnel***	***Friend***	***Friend's parent***
Male Sex	0.93	1.15	0.86
White	**1.42*** **	0.94	1.12
College Educated Parent(s)	1.05	**1.34** **	0.73
High Income	0.98	0.87	1.04
Upper Middle	1.10	1.08	0.52
Middle Middle	0.91	0.98	**1.67***
Lower Middle	0.93	1.22	1.05
Constant	0.19	0.12	0.03
Observations	3,421	3,421	3,421

Finally, as done with risk factors and mentor types, logistic regressions using odds ratios were run in order to further evaluate the relationship between mentors selected and all protective factors. Again, gender is controlled for since it is inconclusive whether it is a risk or protective factor. Three separate regressions in this series yield several significant results. First, consistent with the Chi2's and the CRT literature, there is a significant positive relationship between being white and having a school personnel mentor. With a coefficient of 1.42 and a p value of 0.00, the results indicate that white individuals are much more likely to cite school personnel as their mentor than

students of color. As with the results of the Chi2, friend mentors remained significantly associated with college educated parents. With a coefficient of 1.34 and a p value of 0.01, individuals with college educated parents were more likely than those with non-college educated parents to cite friend as a mentor. Finally, among individuals in the middle middle income bracket, only friend's parents emerged as having a significantly positive relationship to this protective factor with a coefficient of 1.67 with a p value of 0.05.

Mentors and All Independent Variables

Table 44: Logistic Regression Risk Factors, Protective Factors, and Mentor Types

Risk/Protective Factors/Mentors	***School Personnel***
Male Sex	1.15
First Generation	**0.74****
Minority	1.48
Low Income	1.02
White	1.36
College Educated Parent(s)	---
High Income	0.89
Upper Middle	1.10
Middle Middle	0.98
Lower Middle	1.24
Constant	0.11
Observations	3,394

In order to evaluate the significance of the results already found and determine if there may be any potential mediation taking place between variables, a final set of regressions using odds ratios were run which included all independent and dependent variables. In this final regression none of the previous findings were significant any longer. Instead, a significant negative relationship between

being a first-generation college student and having a friend as a mentor emerged. With a coefficient of 0.74 and a p value of 0.01, the results indicate that individuals with non-college educated parents are less likely than those with college educated parents to rely on friends as mentors. The lack of significance between other previously significant findings, such as college educated parents and friend mentors, or individuals of color and school personnel, suggests that there may be some other variables, such as structural factors, interacting in the relationships between these variables. However, these potential variables are not captured in this regression. There were no significant relationships between risk or individual factors and having no mentor.

Chapter 6: Higher Education Access Wave 3

In order to answer research question 3: *Are certain mentors more predictive of access to and attendance in a college or vocational training program than others? Does the predictive capability of mentor's impact on higher education access vary by individual risk or protective factors?* Survey data from both educational sections of Wave 3 and Wave 4 will be used to answer these research questions. The objective of this chapter is to highlight who was attending a college or vocational training during the Wave 3 sampling periods and if certain risk, protective, or mentor types had any predictive value to college access or attendance. To begin this analysis frequencies detailing college access/attendance are discussed. Then detailed discussions regarding several series of logistic regressions using odds ratios to determine if there were any significant relationships between access, attendance, and the independent variables for risk factors, protective factors, and mentor types will be presented. This set of analyses will focus on higher education participation in undergraduate years one through five and the first year of graduate school. Although ADD Health included some information related to graduate school participation beyond the first year (years two through five), there were too few cases to engage in a valid analysis beyond the first year.

Frequency Distribution for Access and Attendance in Higher Education Wave 3

Table 45: Status of College Attendance in Wave 3

Status of College Attendance W3	***Frequency***	***Percent***
First Year of College	229	12.8
Second Year of College	582	32.6
Third Year of College	440	24.6
Fourth Year of College	277	15.5
Fifth Year of College	135	7.6
First Year of Graduate School	62	3.5
Second Year of Graduate School	37	2.1
Third Year of Graduate School	10	0.6
Fourth Year of Graduate School	5	0.3
Fifth Year of Graduate School	9	0.5
Total	1,786	100

Frequencies and related percentages were taken directly from the ADD Health codebook. At the time of Wave 3 data collection 27.5% or 1,786 of survey respondents were attending college. At the time of the survey most respondents were in their second and their third years of college attendance. Specifically, 12.8% of respondents were in their first year of college, 32.6% were in their second year of college, 24.6% were in their third year, 15.5% were in their fourth year. Whereas, 7.6% were in their fifth or more year of college attendance and less than five percent of respondents were in graduate school during Wave 3. Among graduate level respondents, 3.5% were in their first year of graduate school, 2.1% were in their second year and less than one percent in were their third or greater year of graduate school.

Table 46: Logistic Regressions for Mentors and Higher Education Participation Wave 3

Mentor Type	*Under Grad Year 1*	*Under Grad Year 2*	*Under Grad Year 3*	*Under Grad Year 4*	*Under Grad Year 5*
School Personnel	**0.55****	0.81	1.23	0.144	0.80
Friend	0.97	0.96	**0.95**	**1.64***	0.68
Older Siblings	0.79	1.11	1.02	0.95	1.17
Aunt/Uncle	0.91	0.58	1.44	0.92	0.57
Grandparents	1.13	0.62*	1.47	1.34	0.80
Other Family	0.98	0.92	1.06	1.57	1.74
Friend's parent	0.76	0.81	1.64	0.86	1.13
Other Mentor	0.75	0.69	1.04	**2.42*****	**0.34****
Cons	0.18	0.56	0.29	0.13	0.100
Observations	1,252	1,252	1,252	1,252	1,252

Table 46 (above) shows the results of a set of five logistic regressions testing for potential relationships between mentor types and college attendance in Wave 3. Among mentors there were several types of individuals who were predictive of access to and attendance in higher education in Wave 3. First, school personnel were negatively associated with higher education participation in Wave 3. With a negative coefficient of 0.55 and a p value of 0.01, having school personnel as a mentor reduces the probability that an individual would be enrolled in their first year of undergraduate education at the time of this sampling. With a negative coefficient of 0.62 and a p value of 0.02, grandparents as mentors were also negatively associated with enrollment in the second year of undergraduate education in Wave 3. However, year four of undergraduate studies yielded two positive associations. Friend mentors had a positive association to enrollment in the four year of undergraduate studies with a coefficient of 1.64 and a p value of 0.05. Other mentor also had a positive coefficient of 2.42 and a p value of 0.00. This finding suggests that individuals who cited other mentor as their mentor were twice as likely as other respondents to be enrolled in their fourth year of undergraduate education at the time of the Wave 3 sampling. On the other hand, other

mentor had a negative association to enrollment in year five of undergraduate education with a negative coefficient of 0.34 and a p value of 0.01. No other associations were found to be significant (non-significant tables not shown). The dummy variable for no mentor was used as a comparison variable so it does not appear in this regression for purposes of assessing variance between the independent and dependent variables.

Risk Factors, Mentors, and Higher Education Participation Wave 3

Table 47: Logistic Regressions for Risk Factors, Mentors, and (Under)graduate Participation Wave 3

Risk Factors/ Mentor Type	***Under Grad Year 1***	***Under Grad Year 2***	***Under Grad Year 3***	***Under Grad Year 4***	***Under Grad Year 5***	***Graduate Year 1***
Male	0.98	0.93	1.16	0.89	0.82	1.39
First Generation	1.00	1.03	0.97	1.15	0.97	0.64
Minority	1.19	0.86	1.20	1.10	0.77	0.67
Low Income	1.10	1.06	0.82	1.06	0.95	0.54
School Personnel	**0.47***	0.84	1.39	1.34	0.80	1.27
Friend	0.96	0.92	1.11	**1.89***	**0.43***	**0.23***
Older Sibling	0.74	1.02	1.15	1.00	1.20	0.31
Aunt/Uncle	0.78	1.06	1.58	0.78	0.56	0.76
Grandparent	1.27	**0.57**	1.37	1.56	0.82	0.18
Other Family	0.99	0.54	0.99	1.80	1.92	---
Friend's parent	0.87	0.66	**2.04***	0.80	1.32	0.48
Other Mentor	0.66	0.79	1.17	**2.61*****	**0.29***	0.36
Cons	0.17	0.62	0.24	0.12	0.12	0.06
Observations	1,421	1,421	1,421	1,421	1,421	1,383

Regressions were run evaluating potential relationships between just risk factors and education participation in Wave 3. No results were significant (tables are not shown here). Then logistic regressions were run evaluating the relationship between risk factors, mentors, and higher

education participation in Wave 3. Table 46 (above) displays the results of six of these logistic regressions. In these regressions several significant associations emerged.

With a coefficient of 0.47 and a p value of p value 0.03 school personnel had a significant negative relationship on attending the first year of undergraduate studies. Similarly, with a coefficient of 0.57 and a p value of 0.03, grandparents also had a significant negative association with a respondent being in the second year of undergraduate studies. On the other hand, friend's parent mentor had a positive association to college attendance in year three with a coefficient of 2.04 and a p value of .05. Then both friend and other mentor had significant positive associations with being in the fourth year of undergraduate studies at the time of the survey. Specifically, friend mentor had a coefficient of 1.89 and a p value of 0.02. Other mentor had a positive coefficient of 2.61 and a p value of 0.00. However, both friend mentor and other mentor were negatively associated with being in the fifth year of undergraduate studies. Friend mentor had a coefficient of 0.43 and a p value of 0.05. Other mentor had a negative coefficient of 0.29 and a p value of 0.02. Finally, friend mentor also had a negative association with first year graduate school attendance with a coefficient of 0.23 and a p value of 0.05. No other associations related to access and retention in Wave 3 were found to be significant (non-significant tables not shown). Additionally, tests for potential mediation between risk factors, mentors, and the dependent variables were run with correlation matrices and no mediation was found. The dummy variable for no mentor was used as a comparison variable so it does not appear in this regression for purposes of assessing variance between the independent and dependent variables.

Protective Factors and Higher Education Participation Wave 3

Table 48: Logistic Regression for Protective Factors, and (Under)graduate Participation Wave 3

Protective Factors	***Under Grad Year 2***
Male	1.12
White	0.82
College Educated Parent(s)	0.89
High Income	**1.55***
Upper Middle	0.97
Middle Middle	0.92
Lower Middle	1.17
Observations	1,168

In terms of protective factors, three variables were significant predictors of higher education participation in Wave 3. First, with a positive coefficient of 1.55 and a p value of 0.05, individuals who were high income were significantly more likely than their peers to be in their second year of undergraduate education at the time of the survey.

Table 49: Logistic Regressions for Protective Factors, Mentors, and (Under)graduate Participation Wave 3

Protective Factors/Mentors	***Under Grad Year 1***	***Under Grad Year 2***	***Under Grad Year 3***	***Under Grad Year 4***	***Under Grad Year 5***
Male	0.97	0.92	1.12	0.87	0.91
White	0.97	1.17	0.79	0.96	1.30
College Educated Parent(s)	0.85	1.02	0.91	0.88	1.16
High Income	1.06	1.01	1.50	0.57	1.04
Upper Middle	1.19	1.00	0.96	0.80	0.80
Middle Middle	0.86	1.02	0.90	1.00	1.39
Lower Middle	1.13	1.04	1.15	0.96	0.53
School Personnel	**0.45*** **	0.85	1.33	1.55	0.75
Friend	0.90	0.93	1.21	**1.97***	0.40
Older Sibling	0.60	1.08	1.08	1.15	1.32
Aunt/Uncle	0.65	1.15	1.42	0.82	0.65
Grandparents	1.17	0.66	1.90	1.61	0.75
Other Family	0.63	0.72	0.88	2.21	1.76
Friend's parent	0.58	0.63	**2.20***	1.06	1.29
Other Mentor	0.68	0.91	1.00	**2.67*****	**0.20****
Cons	0.23	0.51	0.30	0.14	0.77
Observations	1,252	1,252	1,252	1,252	1,252

Table 49 (above) includes four separate regressions analyzing potential relationships between protective factors, mentors and higher education participation in Wave 3. When mentors were introduced to the regressions that previously only included protective factors, there were some changes in predictors. School personnel had a very negative association with attending the first year of undergraduate school with a coefficient of 0.45 and a p value of 0.00. However, friend's parent mentors had a highly positive association with attending the third year of undergraduate school with

a coefficient of 2.20 and a p value of 0.04. This coefficient suggests that individuals who relied on their friends' parents for mentorship were twice as likely to be in their third year of undergraduate studies at the time of the survey sampling compared to their peers who relied on other mentors. Both friend mentor and other mentor had a positive association with being in the fourth year of undergraduate studies. Friend mentor had a coefficient of 1.97 and a p value of 0.03. Other mentor had a coefficient of 2.67 and a p value of 0.00. Again, this high coefficient, paired with a highly significant p value suggests that other mentor was very predictive of this type of higher education participation. However, with a coefficient of 0.20 and a p value of 0.01, other mentor was significantly negatively associated with attendance in the fifth year of undergraduate school. This finding could suggest that citing other mentor types as primary sources of support reduces the likelihood of college attendance in the fifth year. It could suggest that individuals who cited other mentor as their primary mentor simply complete their education in year four of undergrad. This could also explain the positive association with other mentor in year four. No other variables were found to be significant. The dummy variable for no mentor was used as a comparison variable so it does not appear in this regression for purposes of assessing variance between the independent and dependent variables.

Table 50: Logistic Regressions for Risk Factors, Protective Factors, Mentors, and (Under)graduate Participation Wave 3

Risk/Protective Factors/Mentors	***Under Grad Year 1***	***Under Grad Year 2***	***Under Grad Year 3***	***Under Grad Year 4***	***Under Grad Year 5***
Male	0.98	0.92	1.11	0.88	0.88
First Generation	0.94	0.98	1.12	1.16	0.88
Minority	1.14	*0.86*	*1.28*	1.04	0.72
Low Income	1.21	0.91	0.93	0.99	1.21
White	**---**	---	---	---	---
College Educated Parent(s)	---	---	---	---	---
High Income	0.86	*0.97*	*1.51*	*0.53*	1.04
Upper Middle	1.28	0.98	0.94	0.80	0.84
Middle Middle	0.92	0.99	0.90	0.90	1.48
Lower Middle	1.18	1.02	1.13	0.93	0.57
School Personnel	**0.45*** **	0.85	1.38	1.52	0.76
Friend	0.89	0.93	1.15	**1.96**	*0.39*
Older Sibling	0.60	1.10	1.08	1.13	1.22
Aunt/Uncle	0.64	1.15	1.15	0.81	0.64
Grandparents	1.15	0.66	1.22	1.60	0.74
Other Family	0.64	0.65	0.93	2.29	1.80
Friend's parent	0.60	0.66	**2.35***	0.80	1.31
Other Mentor	0.68	0.88	1.05	**2.70*** **	**0.20** **
Cons	0.19	0.63	0.21	0.14	0.11
Observations	1,242	1,242	1,242	1,242	1,242

Table 50 (above) displays the results of five separate regressions evaluating potential relationships between all independent variables and higher education participation in Wave 3. This

final set of regressions include all independent variables that were controlled for in this study. The results show a variety of significant findings that both support and contradict the literature. First, with a coefficient of 0.45 and a p value 0.00, having a school personnel as a mentor continued to have a significant negative relationship to college attendance during the first year of undergraduate school. That school personnel have been consistently negatively associated to higher education participation whether protective factors or risk factors were included in the regression suggests that this variable is negatively associated with this form of higher education participation regardless of other potentially interacting variables.

For the third year of undergraduate participation only minority was nearly positively significant. This variable had a coefficient of 1.28 and p value of 0.07. Being high income was also nearly positively associated with undergraduate attendance with a coefficient of 1.28 and a p value of 0.08. Again, the near significance of these variables suggests that there is likely some other interaction occurring with a variable that is not accounted for in these regressions. All variables presented here are all that were tested and controlled for. However, friend's parent was very significant with a positive coefficient of 2.35 and a p value of 0.02; respondents with friend's parents as mentors were twice as likely to be attending their third year of college in Wave 3 compared to their peers.

Being high income was again nearly significant in relation to college attendance during year four of undergraduate studies with negative coefficient of 0.53 and a p value of 0.06. However, both Friend had a positive coefficient of 1.96 and a p value of 0.03 and other mentor had a very significant relationship to fourth year college attendance with a coefficient of 2.70 and a p value of 0.00. This suggests that having a friend or other mentor is predictive of participation in the fourth year of undergraduate studies regardless of other potentially interacting variables.

For year five of undergraduate studies several associations appeared to be significant or nearly significant. Both school personnel and friend mentors had a nearly significant negative association to this dependent variable. School personnel had a coefficient of 0.76 and a p value of 0.07. Friend mentor had a coefficient of 0.39 p value of 0.07. However, other mentor was significantly negatively associated with the dependent variable with a coefficient of 0.20 and a p value of 0.01. The dummy variable for no mentor was used as a comparison variable so it does not appear in this regression for purposes of assessing variance between the independent and dependent variables.

Chapter 7: Higher Education Attendance Wave 4

As done in the previous chapter using Wave 3 data to predict higher education access and participation, this chapter will use survey data from Wave 4 to answer research question 3: *Are certain mentors more predictive of access to and attendance in a college or vocational training program than others? Does the predictive capability of mentor's impact on higher education access vary by individual risk or protective factors?* The analytical format of this chapter will be identical to the previous chapter highlighting the results of the Wave 3 dataset. This chapter will begin by detailing frequencies related to college attendance in Wave 4. Then detailed discussions regarding several series of logistic regressions using odds ratios to determine if there were any significant relationships between access, attendance, and the independent variables for risk factors, protective factors, and mentor types will be presented.

Frequencies for Higher Education Attendance in Wave 4

Table 51: College/Vocational Attendance in Wave 4 Frequencies

Currently Attending W4	***Frequency***	***Percent***
Yes	769	16.04
No	4,024	83.96
Total	4,793	100

Frequency distributions were run in order to determine the number of respondents, if any, who were currently attending some higher education program at the time of the survey sample. A marginal number of individuals, 769, or 16.04% of the 4,024 sample were actively attending some post-secondary education.

Table 52: Logistic Regression for Mentors, Risk Factors, and College/Vocational Attendance in Wave 4

Mentors/Risk Factors	***Currently Attending W4***
Male	1.12
Minority	1.07
First Generation	1.04
Low Income	**0.74***
School Personnel	**1.30***
Friend	1.07
Older Siblings	1.21
Aunt/Uncle	1.17
Grandparents	0.98
Other Family	1.13
Friend's parent	0.83
Other Mentor	1.11
Cons	0.16
Observations	3,874

Logistic regressions of odds ratios were then run in order to determine if there was any significant relationship between risk factors, protective factors, or mentors, and the dependent variable, currently attending Wave 4. The first regression isolated just risk factors (first generation, low income, and minority) and the dependent variable, attending Wave 4, and yielded no significant results. The next regression isolating just protective factors (white, upper or middle income, and college educated parents) and attending Wave 4, also yielded no significant results. Finally, the regressions isolating just mentors as independent variables and the dependent variable, attending Wave 4, also yielded no significant results.

However, when the independent variables for risk factors and mentors were combined, a couple of significant results emerged. With a coefficient of 1.30 and a p value of 0.05 school personnel as mentors were found to have a significant positive relationship to currently attending some post-secondary program in Wave 4. On the other hand, with a coefficient of 0.74 and a p value of 0.02, being low income had a significantly negative relationship to higher education participation in Wave 4. Neither of these variables were significant in the regressions that isolated just risk factors or mentors as independent variables, yet they each became significant once both risk factor and mentors were combined as independent variables. This suggests that there may be some covariance between school personnel and being low income. Finally, correlation matrices were used to test if there was any mediation between risk factors, mentors, and the dependent variable. No significant mediation was found. The dummy variable for no mentor was used as a comparison variable so it does not appear in this regression for purposes of assessing variance between the independent and dependent variables.

Table 53: Logistic Regression for Mentors, Protective Factors, and College/Vocational Attendance Wave 4

Mentors/ Protective Factors	***Currently Attending W4***
Male	1.11
White	1.00
College Educated Parent(s)	0.99
High Income	1.09
Upper Middle	0.92
Middle Middle	1.05
Lower Middle	1.11
School Personnel	**1.32***
Friend	1.07
Older Siblings	1.10
Aunt/Uncle	1.17
Grandparents	0.98
Other Family	1.00
Friend's parent	0.84
Other Mentor	1.11
Cons	0.16
Observations	3,419

Similar results were found when mentors were combined with protective factors in order to analyze their relationship to the dependent variable. Where protective factors and mentors alone were not significantly predictive of college or vocational attendance in Wave 4, when protective factors and mentors were combined in one regression, one significant relationship emerged. As with the risk factors and mentors, school personnel had a positive coefficient of 1.32 and a p value of 0.05. This finding suggests that having a school personnel as a mentor had a positive relationship to accessing and attending post-secondary education in Wave 4.

Risk Factors, Protective Factors, Mentors, and Higher Education Participation in Wave 4

Table 54: Logistic Regression for Risk Factors, Protective Factors, Mentors, and Currently Attending Wave 4

Risk/Protective/ Mentors	***Currently Attending W4***
School Personnel	**1.32***
Friend	1.03
Older Siblings	1.11
Aunt/Uncle	1.17
Grandparents	0.97
Other Family	0.96
Friend's parent	0.87
Other Mentor	1.10
Male	1.12
Minority	1.04
First Generation	1.03
Low Income	**0.70***
White	1.32
College Ed Parent(s)	---
High Income	0.98
Upper Middle	0.83
Middle Middle	0.93
Lower Middle	1.00
Cons	0.17
Observations	3,392

Finally, the last regression completed analyzing higher education access and attendance in Wave 4 including all independent variables. When all independent variables were introduced school personnel maintained its significance. With a positive coefficient of 1.32 and a p value of 0.05 the results show that having a school personnel as a mentor has a significantly positive relationship to

post-secondary access and attendance in Wave 4. This was true for students of more challenged demographics, as well as for students of more advantaged demographics. Being low income also maintained its negative association with access and attendance to higher education in Wave 4 with a negative coefficient of 0.70 and a p value of 0.03. The dummy variable for no mentor was used as a comparison variable so it does not appear in this regression for purposes of assessing variance between the independent and dependent variables.

Chapter 8: Achieved Desired Level of Education

In order to answer research questions 4: *Are respondents who cited friends as their primary mentors more likely than those who cited other mentor or non-parental family members as primary mentors to complete their education? Are there any differences in terms of completion rates among these students who are attending either vocational colleges or universities?* 5: *Are respondents who cited school personnel as their primary mentors more likely than those who cited friends as primary mentors to complete their education? Are there any differences in terms of completion rates among these students who are attending either vocational colleges or universities?* and 6: *Do respondents who cited friends or school personnel as their primary mentors complete higher levels of education compared to students who cite other or non-parental family members as their primary mentors?* The objective of this chapter is to use Wave 4 higher education completion data to evaluate the most current student achievement outcomes of respondents in the ADD Health study. Since the Wave 4 sampling took place seven and eight years after Wave 3, Wave 4 data are especially useful for assessing educational outcomes. In Wave 4 many respondents were in their thirties (the average age at the time of the sample was 29.1 years old) and their educational outcomes are likely to remain mostly stable at least in terms of their undergraduate education. However, Wave 5 (which is currently in process) may show some changes in achievement outcomes, particularly in regard to completion of graduate or post bachelor's professional training. For now, this is the most current data available and they are likely to be largely representative of final achievement outcomes for most respondents.

In Wave 4 of the survey respondents were asked a series of three questions with follow up prompts which depended upon their answers to the initial three questions. The subject of these next three chapters will focus on how respondents answered these three questions: "have you achieved your desired level of education?," "I have not achieved my desired level of education, but I believe that I will," and "I have not achieved my desired level of education and I do not expect to." The

focus of this chapter will be on the first question concerning respondents who have achieved their desired level of education.

Credential Completion Frequencies

Table 55: Achieved Desired Level of Education Wave 4 Frequencies

Achieved Desired Level of Education	***Frequency***	***Percent***
Yes	1,122	23.47
No	3,659	76.53
Total	4,781	100

First a frequency table was completed in order to determine the distribution of those individuals who have achieved their desired level of education and those who have not. The vast majority of individuals in the sample had not yet realized their educational goals. Rather, 1,122, or 23.47%, of the sample achieved their desired level of education. Whereas, 3,659, or 76.53% of the total sample are continuing to work towards their educational goals.

Credential Completion Frequencies - Highest Level of Education Achieved

Table 56: Frequencies for Highest Level of Education Achieved Wave 4 – Restricted Use Data

Highest Level of Education Achieved	***Frequency***	***Percent***
High School	2,565	16.3
Associate's/Vocational	990	6.3
Bachelors	3,044	19.4
Masters	778	5.0
Ph.D.	114	0.7
Professional	185	1.2

The frequency table presented above was taken from the ADD Health codebook where respondents were asked to cite their highest level of education achieved at the time of the sample. Those who attended a post-secondary program, but did not complete it, were removed from this table for purposes of clarity in identifying what educational achievement outcomes are the most common. Since some of the data were omitted in this table, the percentages will not add up to 100. However, they are accurate and do add up to 100% when completion of "some" credential is reinserted in the table. See Table 80 in the appendix for a view of the complete unaltered completion table taken directly from the ADD Heath Survey codebook.

From the frequencies provided the results show that achieving a bachelor's degree is the most common educational achievement among the sample with 19.4%, or 3,044 individuals, completing this level of higher education. Second most common at 16.3%, or 2,565 respondents, is high school completion. Completion of vocational programs, a master's degree, post bachelor's professional training, and achievement of a Ph.D. are all under 10%. At 6.3% and 5%, the vocational training and master's degree are the only other degrees achieved by 5% or more of respondents. Professional training and Ph.D. attainment are almost negligible at 1.2% and 0.7% respectively. Again, as with the other tables copied from the codebook, these frequencies reflect the broader restricted use dataset. This information is included for purposes of interest.

Table 57: Frequencies for Highest Level of Education Achieved Wave 4 Dummy Variables – Public Use Dataset

Highest Level of Education Achieved	***Frequency***	***Percent***
Associate's/Vocational	309	6.45
Bachelors	952	19.86
Masters	235	4.90
Ph.D.	28	0.58
Professional	71	1.48

Table 57 (above) shows the frequency distribution for highest level of education achieved dummy variables created with the public use data set. Completion of a bachelor's degree captured the largest percentage of the sample at 952, or 19.86%. Vocational/Associate's degree captured the next largest proportion at 309, or 6.45% of the sample. At the graduate level, the majority of respondents reported completing their master's degree with 235, or 4.90% of the sample reporting this outcome. Attainment of a professional credential was the next most common graduate level achievement with 71, or 1.48% of the sample. Finally, completion of a Ph.D. captured the smallest number of respondents with only 28, or 0.58%. High school graduates with no college education were excluded from these dummy variables since the focus of this study is higher education participation after high school.

Mentors and Completion Outcomes

Next logistic regressions using odds ratios were run in order to evaluate if there were any relationships between risk or protective factors, or mentor types relative to the educational achievement outcomes listed as options in the survey. Since this study, and the literature reviewed, is most interested in post-secondary outcomes, regressions concerning secondary or primary school outcomes are not included here.

Table 58: Logistic Regression for Mentors and Educational Outcomes in Wave 4

Mentors	***Complete College***
School Personnel	1.01
Friend	0.96
Older Sibling	0.93
Aunt/Uncle	1.17
Grandparent	0.94
Other Family	0.69
Friend's parent	1.37
Other Mentor	**0.77***
Cons	0.26
Observations	4,561

First regressions were run for each post-secondary achievement dependent variable and all the independent mentor type variables. Only one relationship was significant. With a coefficient of 0.77 and a p value of 0.05, other mentor had a significant negative relationship to completion of a bachelor's degree. No other mentor types had a significant relationship to completion outcomes (non-significant tables not shown). All the variables included in this table are the only variables controlled for. In other words, gender, income, and other similar variables were not controlled for in this set of regressions. Only mentors were examined. The dummy variable for no mentor was used as a comparison variable so it does not appear in this regression for purposes of assessing variance between the independent and dependent variables.

Risk Factors and Educational Outcomes

Table 59: Logistic Regressions for Risk Factors and Educational Outcomes Wave 4

Risk Factors	***College Completed***	***Completed Ph.D.***
Male	0.95	**2.88***
First Generation	0.94	0.58
Minority	*0.86*	2.06
Low Income	**1.30***	1.31
Constant	0.27	0.00
Observations	4,079	4,079

Second, several separate regressions were run evaluating the relationship between each dependent completion variable and all independent variables identified in the literature as risk factors. Table 57 (above) displays the significant findings that appeared in two of the regressions completed. In these two regressions several significant and nearly significant relationships emerged. With a coefficient of 0.86 and a p value of 0.07 being a racial/ethnic minority was nearly significant in relation to completing a bachelor's degree. This negative outcome is consistent with the literature. However, diverging from the literature, being low income had a positive relationship to bachelor's completion with a coefficient of 1.30 and a p value of 0.02. Finally, being male had a highly significant positive association with completion of a Ph.D. with a coefficient of 2.88 and a p value of 0.03.

Table 60: Logistic Regressions for Risk Factors, Mentors, and Educational Outcomes Wave 4

Risk Factors/Mentors	***Complete College***	***Completed Ph.D.***	***Completed Professional School***
Male	0.96	**2.76***	1.05
First Generation	0.97	0.64	0.93
Minority	0.87	1.98	1.06
Low Income	**1.29***	1.41	1.08
School Personnel	1.01	1.39	0.80
Friend	0.96	0.59	1.30
Older Sibling	0.96	---	0.99
Aunt/Uncle	1.19	0.48	0.46
Grandparent	1.02	0.92	1.32
Other Family	0.80	---	**2.83***
Friend's parent	1.44	---	1.31
Other Mentor	0.79	1.25	1.26
Cons	0.27	0.00	0.01
Observations	3,876	3,277	3,876

Then additional regressions were run using all risk factors *and* mentor types. Table 58 shows the results of three of these regressions that produced significant results. With the introduction of mentors, being low income still maintained its significant positive association to bachelor's degree completion with a coefficient of 1.29 and a p value of 0.03. This finding may suggest that there may not be any covariance from mentorship that impacts bachelor's completion for low income students. Similarly, being male continued to have a highly significant association to completing a Ph.D. even after the introduction of mentors. Male had a positive coefficient of 2.76 and a p value of 0.04 that suggests that men are more than twice as likely as womyn to complete a Ph.D. Finally, other family was the last significant relationship. With a positive coefficient of 2.83 and a p value of 0.05, other

family mentors were predictive of professional degree completion. Again, correlation matrices testing for mediation between risk factors, mentors, and the dependent variable were complete. No mediation was found. The dummy variable for no mentor was used as a comparison variable so it does not appear in this regression for purposes of assessing variance between the independent and dependent variables.

Protective Factors and Completion Outcomes

Table 61: Logistic Regressions for Protective Factors and Educational Outcomes in Wave 4

Protective Factors	***Complete College***	***Completed Masters***	***Completed Ph.D.***
Male	0.97	1.00	**3.21****
White	1.15	0.86	**0.32****
College Educated Parent(s)	1.09	1.09	1.68
High Income	0.87	1.50	1.16
Upper Middle	*0.72*	1.35	1.82
Middle Middle	0.75	*1.50*	1.39
Lower Middle	0.85	1.25	0.86
Constant	0.27	0.04	0.00
Observations	3,596	3,596	3,596

Then the same set of separate regressions were run using just the protective factors as independent variables. Three of the regressions produced significant results (Table 59). Among all possible protective factors only two variables were significantly predictive of completion among respondents with Ph.D.'s Specifically, being male and non-white were most predictive of completing a Ph.D. Being male had a very positive association with completion with a coefficient of 3.21 and a p value of 0.03. This finding suggests that being male more than triples an individual's likelihood of completing a Ph.D. On the other hand, with a coefficient of 0.32 and a p value of 0.02, counter to

the literature, being white had a significantly negative association with completion of a Ph.D. Finally, with a coefficient of 0.72 and a p value of 0.07, being upper middle income showed some potentially negative association to bachelor's completion. Additionally, with a coefficient of 1.50 and a p value of 0.07, middle middle income also showed some potentially positive association to completion of a masters. Since neither of these were significant, but they were close in their association, these results could suggest that one of the other independent variables mediates the relationships between these variables and the dependent variable and decreased their significance.

Table 62: Logistic Regressions for Protective Factors, Mentors, and Educational Outcomes Wave 4

Protective Factors/Mentor	***Complete Vocational***	***Complete College***	***Completed Masters***	***Completed Ph.D.***	***Completed Professional***
Male	0.90	0.98	0.96	**3.07****	1.26
White	1.05	1.13	0.87	**0.33****	1.24
College Educated Parent(s)	1.11	1.06	1.13	1.53	1.05
High Income	1.04	0.86	1.56	1.19	0.94
Upper Middle	1.31	0.75	1.33	1.77	0.80
Middle Middle	1.09	**0.76****	*1.51*	1.24	0.91
Lower Middle	1.21	0.83	1.28	0.88	0.65
School Personnel	0.77	0.94	0.72	1.19	1.01
Friend	**1.63****	0.93	1.18	0.61	1.19
Older Sibling	1.27	0.98	1.25	--	1.29
Aunt/Uncle	1.20	1.18	1.29	0.45	0.57
Grandparent	0.87	1.00	0.93	0.96	1.43
Other Family	1.16	0.84	1.17	---	*2.94*
Friend's parent	1.32	1.44	1.52	---	1.58
Other Mentor	1.18	0.80	1.27	0.90	1.07
Constant	0.06	0.28	0.04	0.00	0.01
Observations	3,421	3,421	3,421	3,421	3,421

As done with risk factors and the dependent variable, additional separate regressions were run with the independent variables for protective factors and mentors (Table 62). Several significant relationships emerged in this set of regressions. In this set of regressions friend mentor now emerged as a significantly positive association to vocational completion with a coefficient of 1.63 and a p value of 0.03. This finding suggests that friends as mentors have a suppressor effect on protective factors' role in vocational completion. Where being middle middle income was nearly

negatively significant in predicting bachelor's completion when just protective factors were independent variables, now middle middle income was found to have significance in this regression. With the introduction of mentors to the protective factors regression, middle middle income yielded a significant negative relationship with a coefficient of 0.76 with a very significant p value of 0.01. On the other hand, middle middle income now emerges as nearly significant in relation to completing a master's degree with a positive coefficient of 1.51 and a p value of 0.07. Consequently, where middle middle income individuals may be less likely to complete a bachelor's degree, they may be more likely to complete a master's degree. Yet the lack of significance here suggests that there is some potential covariance with some other variable not captured in this regression which is decreasing the significance in this relationship.

Being male maintained its significance in relation to completing a Ph.D. with a coefficient of 3.07 and a p value of 0.03, being male substantially increases the likelihood of completing a Ph.D. Being white also maintained its negative association to completion of a Ph.D. with a coefficient of 0.33 and a p value of 0.02. Finally, other family appeared as nearly significant in predicting completion of a post bachelor professional degree with a coefficient of 2.94 and a p value of 0.07. Again, the near significance in these results suggests some potential covariance with another variable, which is not captured in this regression, which is affecting the relationship between the dependent and independent variables and so decreasing the significance. The dummy variable for no mentor was used as a comparison variable so it does not appear in this regression for purposes of assessing variance between the independent and dependent variables.

Educational Outcomes and All Independent Variables

Table 63: Logistic Regressions for Risk Factors, Protective Factors, Mentors, and Educational Completion Outcomes Wave 4

Risk/Protective Factors/Mentors	***Complete Vocational***	***Completed Ph.D.***
Male	0.90	**3.01***
First Generation	0.90	0.64
Minority	0.95	**2.99***
Low Income	1.04	1.25
White	---	---
College Educated Parent(s)	---	---
High Income	1.05	1.29
Upper Middle	1.33	1.93
Middle Middle	1.09	1.35
Lower Middle	1.22	0.94
School Personnel	0.77	1.18
Friend	**1.62***	0.60
Older Sibling	1.27	---
Aunt/Uncle	1.20	0.45
Grandparents	0.87	0.94
Other Family	1.17	---
Friend's parent	1.38	---
Other Mentor	1.19	0.90
Cons	0.07	0.00
Observations	3,394	2,882

Finally, a set of separate regressions were run using all independent variables, all risk, protective, and mentor variables, in order to determine if any of these variables had a significant

relationship to any of the dependent variables for educational outcomes. Table 61 (above) displays the results of the only two regressions that produced significant results. In these final regressions, friend mentor maintained its positive significant association to vocational completion with a coefficient of 1.62 and a p value of 0.03. Being male continued to have a substantially positive relationship to Ph.D. completion in the final regression with a coefficient of 3.01 and a p value of 0.03. This confirms that being male is positively associated with Ph.D. completion in and of itself. Finally, diverging greatly from the literature, being a minority was highly predictive of completion of a Ph.D. with a coefficient of 2.99 and a p value of 0.03. To speculate, this may be the result of including API's in the minority dummy variable. API's have the highest rate of completion in terms of both undergraduate school and graduate school. However, achievement rates between API subpopulations varies widely. Yet, the cases for most API's subgroups are too small to disaggregate in order to determine if inclusion of certain API subgroups are impact the association to Ph.D. completion in this regression. What is noteworthy is that when API were removed from the minority dummy variable, being a minority became negatively associated with Ph.D. completion. This change in the direction of the relationship between these variables does indicate that inclusion of API's in the minority variable did have an impact on the results of this regression.

Only the variables presented here were controlled for. No mediation was found. The dummy variable for no mentor was used as a comparison variable so it does not appear in this regression for purposes of assessing variance between the independent and dependent variables.

Chapter 9: Partial Completion of Higher Education

In order to answer research question 7*: Are respondents who cited no non-parental family members other mentor more likely attend college or vocational training, but not complete it compared to respondents who cited friends or school personnel as primary mentors?* This chapter focuses on respondents who in Wave 4 have not completed a credential. The analytical format is the same as what was done with the chapter on higher education completion. Initially, there is a review of frequencies regarding who completed some part of post-secondary education, but have not achieved any credential. Then discussions regarding each set of logistic regressions using odds ratios will follow in order of mentor type and completion outcomes, then individual risk factors, then protective factors and completion outcomes, then a final analysis that combines all independent variables and the dependent variable for partial completion of some post-secondary credential.

Highest Level of Education Achieved - Partial Completion Frequencies

Table 64: Frequencies for Partial Completion of Educational Goals Frequencies Wave 4 – Restricted Use Data Set

Highest Level of Education Achieved	***Frequency***	***Percent***
8th grade or less	61	0.4
Some High School	1,191	7.6
Some Vocational/Tech	559	3.6
Some College	5,378	34.3
Some Graduate School	578	3.7
Some Graduate Training Post MA	144	0.9
Some Post BA Professional	110	0.7

As in the previous chapter on credential completion, the frequency table presented below was taken from the ADD Health codebook where respondents were asked to cite their highest level of education achieved at the time of the sample. Those who attended some post-secondary program and completed a credential were removed from this table for purposes of clarity in identifying what partial educational achievement outcomes are the most common. Similar to the completion results it appears from the frequencies provided that the majority of individuals do not complete a college credential. With 5,378, or 34.3% of the sample, most respondents attended some post-secondary education but did not complete it. The next highest majority is some high school with 1,191, or 7.6% of the sample not completing their high school education. At 578, or 3.7% of the sample, a slightly larger number of respondents were likely to not complete graduate school compared to the 3.6%, or 559 respondents who did not complete their vocational training. The smallest margin of non-completion is left to some post master's degree graduate training at 144, or 0.9% of respondents, followed by some professional training at 110, or 0.7% of respondents, and finally 61, or 0.4% percent of the sample completing only 8th grade or less at Wave 4. Again, as with the other tables copied from the codebook, these frequencies reflect the broader restricted use dataset. The purpose of this table is to provide a general overview of the sample, where similar tables cannot be reproduced with the public use data set.

Again, as with the frequency table presenting highest level of education achieved, this partial completion table is only half of the table included in the ADD Health Study codebook. Partial achievement frequencies were separated from the completed achievement frequencies in order to more easily examine the frequencies most relevant to the topic of the chapter. For a view of the complete unaltered table taken directly from the ADD Health Survey Codebook see table __ in the appendix.

Table 65: Frequencies for Highest Level of Education Achieved Wave 4 Dummy Variables – Public Use Dataset

Highest Level of Education Achieved	***Frequency***	***Percent***
Some Associate's/ Vocational	172	3.59
Some Bachelors	1,601	33.40
Some Graduate	188	3.92
Some Professional	37	0.77

The table above shows the frequencies for highest level of education achieved dummy variables created with the public use data set. Completion of some bachelor's captured the largest percentage of the sample with 1,601, or 33.40% of the sample. Some graduate school captured the second greatest proportion of respondents with 188, or 3.92% of the sample. Followed by some Vocational/Associate's at 172, or 3.59% of respondents. Finally, completion of some professional credential captured the smallest number of respondents with 37, or 0.77% of the sample. Respondents with less than high school education were excluded from these dummy variables since the focus of this study is higher education participation after high school.

Mentors and Partial Completion Outcomes

As previously explained, regressions using odds ratios were run for each post-secondary achievement dependent variable and all the independent mentor type variables. Since this study, and the literature reviewed, is most interested in post-secondary outcomes, regressions concerning secondary or primary school outcomes are not included here.

Table 66: Logistic Regression for Mentors and Partial Educational Completion Wave 4

Mentors Only	***Some Professional***
School Personnel	1.45
Friend	0.61
Older Sibling	0.43
Aunt/Uncle	2.02
Grandparent	0.97
Other Family	2.37
Friend's parent	---
Other Mentor	**3.94****
Cons	0.01
Observations	4,561

After all regressions were completed only one relationship was significant. With a coefficient of 3.94 and a p value of 0.01, other mentor had a highly significant positive relationship to completion of some post bachelor professional training. The results show that having one of the other mentors more than doubled the likelihood that a respondent would complete only part of their professional program. No other mentor types had a significant relationship to completion outcomes (non-significant tables not shown). All the variables included in this table are the only variables controlled for. In other words, gender, income, and other similar variables were not controlled for in this set of regressions. Only mentors were examined. The dummy variable for no mentor was used as a comparison variable so it does not appear in this regression for purposes of assessing variance between the independent and dependent variables.

Risk Factors and Partial Completion Outcomes

Table 67: Logistic Regression for Risk Factors and Partial Educational Completion Wave 4

Risk Factors	***Some Graduate School***
Male	0.92
First Generation	**1.67****
Minority	0.96
Low Income	1.02
Constant	0.03
Observations	4,079

As done in the previous chapter, regressions were run evaluating the relationship between each dependent completion variable and all independent variables identified in the literature as risk factors. Only one significant relationship emerged. With a coefficient of 1.67 and a p value of 0.01, consistent with the literature, being a first-generation college student increases the likelihood that an individual will attend graduate school, but not complete their degree. However, diverging from the literature, none of the other risk factors were found to be significant. Tables for all non-significant regressions were omitted.

Table 68: Logistic Regressions for Mentors, Risk Factors, and Partial Educational Completion Wave 4

Risk Factors/ Mentors	***Some Graduate***	***Some Professional***
Male	0.92	1.00
First Generation	**1.67****	0.85
Minority	1.00	0.58
Low Income	0.88	1.06
School Personnel	0.98	1.04
Friend	0.81	0.62
Older Sibling	0.83	0.43
Aunt/Uncle	0.98	1.99
Grandparent	0.64	0.96
Other Family	0.88	---
Friend's parent	1.22	---
Other Mentor	0.85	**3.44***
Cons	0.03	0.01
Observations	4,079	4,079

Then additional separate regressions were run using all risk factors *and* mentor types. Table 68 shows the results of the two regressions that yielded significant results. With the introduction of mentors, first-generation still maintained its significant positive association to partially completing graduate school with a coefficient of 1.67 and a p value of 0.01. This finding suggests that there may not be any mediation from mentorship negatively impacting graduate school completion for first-generation students. Rather, as found in the literature, being a first-generation college student is a risk factor in itself.

The only other significant relationship to emerge in this set of regressions was a significant positive relationship between other mentor and partial completion of some professional school which had a coefficient of 3.44 and a p value of 0.02. Since no mentor was predictive of partial professional training completion in the previous regressions isolating just mentors as independent variables, but other mentor appears significant in the regression including risk factors, then it is possible that there is some potential covariance between other mentor and one of the risk factors. No mediating relationships were significant in the correlation matrices with risk factors, mentors, and the dependent variables. Non-significant regressions were not included in the table. The dummy variable for no mentor was used as a comparison variable so it does not appear in this regression for purposes of assessing variance between the independent and dependent variables.

Protective Factors and Partial Completion Outcomes

Table 69: Logistic Regressions for Protective Factors and Partial Educational Completion Wave 4

Protective Factors	***Some Vocational***	***Some Graduate School***
Male	**0.80***	0.91
White	**0.69***	0.97
College Educated Parent(s)	0.75	**0.59****
High Income	1.02	1.15
Upper Middle	0.78	**2.01****
Middle Middle	1.20	*1.50*
Lower Middle	1.27	1.29
Constant	0.05	0.04
Observations	3,596	3,596

Then the same set of separate regressions was run using just the protective factors as independent variables. Here table 69 shows the results of the two regressions that had significant

results. Only two variables were significantly predictive of only partial completion of a vocational training program. Specifically, being male and white were both negatively associated with partial completion of a vocational or similar training program. In other words, with a negative coefficient of 0.71 and a p value of 0.05, being male decreased the probability than an individual would only partially complete their desired program therefore males were more likely to complete their training. Additionally, being white had a negative association with partial completion of vocational training with a coefficient of 0.69 and a p value of 0.04. As with being male, this negative association suggests that white respondents were less likely to only partially complete their vocational training, and so they were more likely to complete their program.

The next significant outcome pertains to having college educated parents and partial completion of graduate school. With a negative coefficient of 0.59 and a p value of 0.01 the results suggest that individuals with college educated parents are less likely to attend, but not complete, a graduate program. Therefore, again the negative association between the dependent and independent variable suggests that individuals with college educated parents are more likely to attend and complete graduate school compared to individuals whose parents did not attend and complete higher education programs themselves. The second independent variable to have a significant association with partial completion of graduate school was upper middle income. With a coefficient of 2.07 and a p value of 0.03 the results suggest that individuals in the upper middle income bracket are approximately twice as likely to not complete their graduate education than they are to complete it. Middle middle income also had a positive association to partial completion of graduate school; however it was not quite significant. Middle middle had a coefficient of 1.50 and coefficient of 0.08. This finding suggests that there may be other protective factors that are intervening in order to decrease the significance of this factor. No other relationships were significant (non-significant tables not shown).

Table 70: Logistic Regressions for Mentors, Protective Factors, and Partial Completion of Education Wave 4

Protective Factors/ Mentors	***Some Vocational***	***Some Graduate School***	***Some Professional***
Male	*0.72*	0.92	0.95
White	**0.68****	0.93	2.08
College Educated Parent(s)	0.74	**0.59***	1.17
High Income	1.03	1.33	1.28
Upper Middle	0.81	**2.14****	---
Middle Middle	1.22	*1.56*	1.41
Lower Middle	1.29	1.45	1.29
School Personnel	0.95	0.97	0.81
Friend	0.81	0.67	---
Older Sibling	0.69	0.63	---
Aunt/Uncle	1.14	0.90	1.93
Grandparent	0.90	0.72	0.96
Other Family	1.29	1.15	---
Friend's parent	0.71	1.07	---
Other Mentor	0.92	0.93	*2.72*
Constant	0.06	0.04	0.00
Observations	3,421	3,421	3,421

Table 70 shows the significant results of three separate regressions analyzing potential relationships between protective factors, mentors, and partial completion of three different educational goals. With the introduction of mentors with the independent variables for protective factors, being white maintained its significant negative associations to completion of some vocational training. White had a negative coefficient of 0.68 with a p value of 0.04. This finding

suggests that being white is itself a protective factor and it is not mediated by any mentor variable. On the other hand, being male lost its significance with the introduction of the mentor variables. It maintained a negative coefficient of 0.72, however its p value shifted to 0.07. This suggested that one of the mentor variables did affect the relationship between being male and partially completing a vocational training program.

For partial completion of graduate school college educated parent maintained its significant negative association to the dependent variable. College educated parents had a coefficient of 0.59 and a p value of 0.01. Again, these results suggest that individuals with college educated parents are more likely to not complete the graduate program as they intended. With a positive coefficient of 2.14 and a p value of 0.03 upper middle income maintained its positive significant association to partial completion of graduate school with the introduction of the mentor variables. This suggests that being upper middle income is a risk factor for only partially completing graduate school in Wave 4. Middle middle income also continued to be nearly significant with a coefficient of 1.56 and a p value of 0.06. Its near significance again suggests that this variable is possibly covarying with another protective factor which is decreasing its overall significance.

Finally, the last notable associations pertain to other mentor and partial completion of professional school. Other mentor had a very positive significant relationship to only partially completing professional school when risk factors and mentors were run together as independent variable in the previous section. Here, where protective factors and mentors are included together, other mentor also has a very high odds ratio with a coefficient of 2.72. However, its p value is just above significance with a value of 0.06. The nearly significant p value here may suggest that there is some other variable that is possibly covarying and affecting its significance, or there is a variable that intervening in this relationship between variables, but it is unidentified in the regression. No other protective factors were significant in predicting partial educational outcomes (non-significant tables

not shown). The dummy variable for no mentor was used as a comparison variable so it does not appear in this regression for purposes of assessing variance between the independent and dependent variables.

Educational Outcomes and All Independent Variables

Table 71: Logistic Regression for Risk Factors, Protective Factors, Mentor Types, and Partial Completion of Education Wave 4

Risk/Protective Factors/ Mentors	***Some Graduate School***
Male	0.93
First Generation	**1.66****
Minority	1.09
Low Income	1.17
White	---
College Educated Parent(s)	---
High Income	1.51
Upper Middle	**2.47***
Middle Middle	**1.79***
Lower Middle	1.58
School Personnel	0.99
Friend	0.69
Older Sibling	0.65
Aunt/Uncle	0.94
Grandparents	0.73
Other Family	0.78
Friend's parent	1.15
Other Mentor	0.97
Cons	0.02
Observations	3,394

Lastly, a set of separate regressions were run using all independent variables, all risk, protective, and mentor variables, in order to determine if any of these variables had a significant relationship to any of the dependent variables for educational outcomes. In this final set of regressions, only one regression yielded significant results. These results are displayed above in table 71. First-generation maintained its significance in terms of partial completion of graduate school. With a positive coefficient of 1.66 and a p value of 0.01, it appears that students with non-college educated parents are more likely to only partially complete their intended graduate program and that mentorship is not likely affecting this association. Upper middle income continued to be highly significant in the final regression that included all independent variables. Specifically, upper middle income had a positive coefficient of 2.47 and a p value of 0.02.

This finding suggests that upper middle income students are highly unlikely to complete their intended graduate school program and that risk factors may not be mediated by mentorship. Interestingly, middle middle income shifted from being almost significant in the protective factors/mentor regression to being significant in the final regression. Middle middle income students had a positive coefficient of 1.79 and a p value of 0.04. These results suggest that rather than mentorship mediating the relationship between partial completion of graduate school and being middle middle income, another protective factor likely covaried with middle middle income in the previous regression and decreased its significance enough to make it appear insignificant. Non-significant regressions were not included in the table. The dummy variable for no mentor was used as a comparison variable so it does not appear in this regression for purposes of assessing variance between the independent and dependent variables.

Chapter 10: Educational Aspirations

This chapter will explore the results of survey questions related to educational aspirations and determine whether mentor types, risk factors or protective factors had any influence on respondents who have not realized their educational goals but hope to achieve their goals at some point in their adult lives. In other words, the focus of this chapter is on respondents who have not achieved their desired level of education, but they expect to. As previously discussed, the ADD Health survey asks three questions in the education section regarding whether respondents have achieved their desired level of education or not. For those who have not achieved their educational goals in Wave 4, the survey asks a follow up question regarding what level of education respondents aspire to eventually achieve. As done in previous chapters this section will begin with a frequency table detailing how many people have not achieved their educational goals but expect to. Then a series of regressions will be discussed in order to determine if there was any relationship between certain risk factors, protective factors, and mentor types regarding what level of education individuals aspire to eventually achieve.

It should be mentioned here that the literature reviewed in this study did not explore educational aspirations because the objective of the studies reviewed here were concerned with actual results related to access, retention, and achievement outcomes. As such, no research questions pertaining to individual aspirations were created. However, this set of survey questions offers a useful opportunity to explore a new topic that could become an avenue for future research, especially since educational aspirations appear to be a gap in the literature. For instance, it is entirely possible that educational aspirations vary by mentor relationships, as well as any number of risk or protective factors. If so, then exploring these the conditions for such trends could provide scholars and educational administrators useful information for purposes of recruiting and expanding educational access. However, again, for purposes of this study it is outside the scope of the current

research objective to delve into the literature on this topic. Still, the information is included here because it was incidentally found in the codebooks and it seemed worthwhile to engage in an exploratory examination of this topic.

Frequencies for Have Not Achieved Educational Goals

Table 72: Frequencies for Have Not Achieved Desired Level of Education in Wave 4 But Expect To

Not Achieved Expect To	***Frequency***	***Percent***
Yes	3,221	67.37
No	1,560	32.63
Total	4,781	100

Recall in the previous chapter that 1,122, or 23.47% of the 4,781 person sample said that they had achieved their desired level of education by Wave 4. This left a total of 3,659, or 76.53% of respondents who had *not* yet achieved their desired level of education at the time of data collection. In the frequency table below it is clear that most of the respondents who are still aspiring to complete a credential, 3,221 of the 3,659, certainly expect to achieve their goal at some point in their adult lives. In terms of absolute frequencies, 67.37% of the total 4,781 person sample expect to complete a credential of some kind, whereas 32.63% no longer expect to achieve their educational goal.

Mentor Types and Educational Aspirations

Table 73: Logistic Regressions for Mentor Type and Level of Education Expect to Achieve Wave 4

Mentor Type	***Expect Vocational***	***Expect Bachelors***	***Expect Masters***	***Expect Professional***
School Personnel	0.91	1.16	*0.82*	0.94
Friend	1.20	*1.26*	0.86	0.88
Older Siblings	0.91	1.06	1.01	1.16
Aunt/Uncle	0.98	0.85	0.90	**2.41*****
Grandparents	0.89	1.10	0.75	1.48
Other Family	1.64	1.04	*0.67*	0.47
Friend's parent	**0.29****	1.23	1.24	0.28
Other Mentor	1.00	1.21	**0.71***	**1.86***
Cons	0.10	0.31	0.44	0.04
Observations	3,470	3,470	3,470	3,470

Table 73 (above) shows the results of four separate regressions evaluating potential relationships between mentor types and educational aspirations. In terms of completion of vocational training friend's parent was the only mentor type to have any significant relationship with the dependent variable with a coefficient of 0.29 and a p value of 0.04. This finding suggests that individuals who utilizes their friend's parents as mentors are less likely to expect to complete any vocational training. All other mentor types were insignificant. Aspirations to complete an associate's degree and mentor type yielded no significant results. Similar to the results for the associate's degree, aspirations to complete a bachelor's degree yield no significant results. However, aspiration to complete the bachelor's degree did have one mentor type that was almost significant, friend. With a positive coefficient of 1.26 and a p value of 0.06, friend mentor is close to having a significantly positive impact on expectations to complete a bachelor's degree.

In terms of completing graduate level credentials there were only a few significant results indicating that mentors have a direct effect on individual related to the master's degree level. Other mentor had a coefficient of 0.71 with a p value of 0.01. These results show that utilizing other mentors as a source of mentorship decreases the likelihood that an individual will expect to achieve their master's degree. No other mentor types had any impact on expectations to complete a master's degree (non-significant tables not shown). Both school personnel and other family were close to having significant negative associations with aspirations to complete a master's degree. School personnel had a negative coefficient of 0.80 and a p value of 0.07 and other family had a negative coefficient of 0.67 and a p value of 0.08.

No mentors had any significant association with aspiration to complete a Ph.D. However, two types of mentors had significant relationships to aspirations to complete a professional credential. With a coefficient of 2.41 and a p value of 0.00, aunt and uncle mentors had a highly significant association with the dependent variable expect professional credential. The results indicate that individuals who cited their aunt or uncle as mentors were twice as likely to aspire to complete a professional credential. Similarly, other mentor had a significant positive association with the professional variable. Other mentor had a coefficient of 1.86 and a p value of 0.03, suggesting that individuals who cited other mentors were very likely to aspire to a complete a professional credential. As with previous mentor only tables, no other individual characteristics were controlled for in these regressions. The dummy variable for no mentor was used as a comparison variable so it does not appear in this regression for purposes of assessing variance between the independent and dependent variables.

Table 74: Logistic Regressions for Risk Factors, Mentor Types, and Level of Education Expect to Achieve Wave 4

Risk Factors/ Mentor Type	***Expect Vocational***	***Expect Bachelors***	***Expect Professional***
Male	0.93	1.07	1.22
First Generation	1.11	1.00	1.14
Minority	0.97	0.98	1.04
Low Income	0.71	1.01	**0.53***
School Personnel	0.96	1.13	0.79
Friend	1.29	*1.31*	0.63
Older Sibling	0.93	1.12	0.93
Aunt/Uncle	0.98	0.91	**2.19****
Grandparent	0.76	1.11	1.51
Other Family	*1.74*	1.06	0.24
Friend's parent	*0.34*	1.38	0.29
Other Mentor	1.08	1.17	*1.67*
Cons	0.11	0.29	0.35
Observations	2,967	2,967	2,967

Table 74 displays the significant results found in three regressions included in the series of regressions testing if there were any significant relationships between just risk factors and educational aspirations. No relationships were found to be significant. However, when all independent variables for mentors were combined with all the independent variables for risk factors several significant, as well as nearly significant, relationships appeared. First, aspirations to complete vocational training had two nearly significant associations with other family and friend's parent. Other family had a coefficient of 1.74 and a p value of 0.7 and friend's parent had a negative coefficient of 0.34 and p value of 0.08. These variables near significant results suggest that there may

be some covariance with another variable that decreases their significance in this particular regression. Being low income no longer was significant, which suggests that the negative relationship between being low income and aspiring to complete vocational training was mediated by one of the mentor variables.

Regarding the aspiration to complete a bachelor's degree there were no significant relationships between any of the independent variable and this goal. However, there was one nearly significant relationship with friend having a positive coefficient of 1.31 and a p value of 0.6. Again, some covariance between independent variables may be taking place in order for this variable to now emerge as nearly significant, but not achieve significance in the regression.

There were no significant or nearly significant results to report in regard to aspirations to complete an associate degree, master's degree, or Ph.D. Notably, other mentor previously had a negative association with aspirations to complete a master's degree when the regression only included mentors. Now that significance disappeared when risk factors were included. This suggest again that one of the risk factors likely covaried with other mentor and decreased its significant in the current regression.

Aspirations to complete a professional credential had one significant and several nearly significant outcomes in its regression. The one significant relationship was a positive association between aunt and uncle mentors and the dependent variable. With a coefficient of 2.19 and a p value of 0.01, aunt and uncle mentors continue to have a very positive influence on individuals' aspirations to complete a professional degree. Other family was significant in the mentor only regression but with the introduction of the risk factors to the list of independent variables, this mentor type faded to nearly significant with a coefficient of 1.67 and a p value of 0.7. Finally, where being low income was not even nearly significant in the risk factor only regression, it now appears significant in the current regression with a coefficient of 0.53 and a p value of 0.05. This suggests that some other

variable interacts in the relationship between this educational goal and risk factor. However, correlation matrix tests did not show any mediation between risk factors, mentors, and any of the dependent variables.

Protective Factors and Educational Aspirations

Table 75: Logistic Regressions for Protective Factors and Level of Education Expect to Achieve Wave 4

Protective Factors	***Expect Vocational***	***Expect Associates***	***Expect Masters***
Male	0.94	0.91	0.95
White	0.99	1.07	*0.85*
College Educated Parent(s)	0.89	1.11	1.09
High Income	1.41	0.80	1.22
Upper Middle	1.35	*0.58*	1.15
Middle Middle	*1.38*	**0.73***	1.02
Lower Middle	1.39	0.93	1.05
Cons	0.09	0.15	0.39
Observations	2,740	2,740	2,740

As done with risk factors, logistic regressions were run in order to determine if there were any significant relationships between any independent variables for protective factors and any of the dependent variables for educational goals. Table 75 displays the only significant results found this series of separate regressions. In this set of regressions there was one significant relationship and three nearly significant relationships between protective factors and educational aspirations. The only significant relationship to emerge was a negative association between being middle middle income and expecting to complete an associate's degree. Middle Middle income had a negative coefficient of 0.73 and a p value of 0.05. Upper middle income was close to also having a negative association with expectations to complete and associate's degree with a coefficient of 0.58 and p

value of 0.06. Alternatively, being middle middle income was close to having a positive association with expectations to complete vocational training. In this regression middle middle income had a positive coefficient of 1.78 and a p value of 0.08. Finally, being white had a nearly negative association with expectations to complete a master's degree with a coefficient of 0.85 and a p value of 0.07. None of the relationships between protective factors and aspirations to complete a bachelor's degree, Ph.D., or post bachelor's professional training were found to be significant or nearly significant.

Table 76: Logistic Regressions for Protective Factors, Mentors, and Level of Education Expect to Achieve Wave 4

Protective Factors/ Mentors	***Expect Vocational***	***Expect Masters***
Male	0.96	0.97
White	0.97	*0.85*
College Educated Parent(s)	0.89	1.09
High Income	1.42	1.15
Upper Middle	1.36	1.16
Middle Middle	*1.41*	1.04
Lower Middle	1.34	1.03
School Personnel	1.01	0.86
Friend	1.16	0.84
Older Sibling	1.03	1.01
Aunt/Uncle	1.02	0.89
Grandparents	0.88	0.85
Other Family	*1.81*	0.63
Friend's parent	0.26	1.18
Other Mentor	1.08	0.81
Cons	0.08	0.44
Observations	2,607	2,067

Table 76 (above) shows the significant results found in two separate regressions included in a series of regressions testing the relationship between protective factors and educational aspirations in Wave 4. When mentors were introduced to the protective factors there were no longer any significant results, yet there was a concurrent increase in nearly significant relationships between variables. For instance, neither upper middle nor middle middle income continued to have a

significant, or even a close to significant relationship, to aspirations to complete an associate's degree. In this set of regressions, no independent variables, whether mentor type or protective factors, had any relationship to aspirations to complete an associate degree. The observation that no mentors in their own isolated regression had any relationship to aspirations to complete an associate's degree, but some protective factors did have an associations with dependent variable, which disappeared when mentors were included, suggests that one of the mentor types mediates the relationship between middle middle income, upper income, and disinterest in completing an associate's degree.

On the other hand, both aspirations to complete vocational training and disinterest in completing a master's degree continued to hold their near significance when mentor types were combined with protective factors in this set of regressions. Middle middle income continued to have a positive coefficient of 1.41 and a p value of 0.07. Additionally, with a coefficient of 0.84 and a p value of 0.07 being white continued to have a nearly significant negative association with aspirations to complete a master's degree. Notably, since both of these variables' relationships remained nearly significant, but did not become significant, after the variables for mentors were introduced to the regression suggests that there is some other variable intervening in the relationship between these protective factors and the identified educational aspiration. However, what factor(s) is intervening in these relationships is not captured here. There were no other notable relationships between the independent variables and aspirations to complete a bachelor's degree, Ph.D., or professional training (non-significant tables not shown). No other independent variables were controlled for. The dummy variable for no mentor was used as a comparison variable so it does not appear in this regression for purposes of assessing variance between the independent and dependent variables.

All Independent Variables and Educational Aspirations

Table 77: Logistic Regressions for Risk Factors, Protective Factors, Mentors and Level of Education Expect to Achieve Wave 4

Risk/Protective Factors/Mentors	***Expect Vocational***	***Expect Associates***	***Expect Ph.D.***	***Expect Professional***
Male	0.96	0.86	0.84	1.35
First Generation	1.33	0.85	1.15	1.23
Minority	1.03	0.92	0.82	1.07
Low Income	0.92	0.99	0.75	*0.51*
White	---	---	---	---
College Educated Parent(s)	---	---	---	---
High Income	1.40	0.81	**0.56***	0.70
Upper Middle	1.32	0.60	0.62	0.61
Middle Middle	1.35	**0.69***	1.02	0.91
Lower Middle	1.28	0.87	0.84	0.97
School Personnel	1.00	1.01	1.17	1.06
Friend	1.18	0.84	0.76	0.64
Older Sibling	1.03	0.68	0.85	0.92
Aunt/Uncle	1.03	1.34	0.63	**2.59****
Grandparents	0.88	0.83	1.11	**2.05***
Other Family	**1.87***	0.70	1.41	----
Friend's parent	*0.28*	1.08	1.08	0.40
Other Mentor	1.11	0.83	1.00	**2.13***
Cons	0.07	0.22	0.10	0.03
Observations	2,583	2,583	2.583	2,494

In the final set of regressions all independent variables including risk factors, protective factors, and mentors were run together in order to evaluate any potential relationships between these variables and the dependent variables for educational aspirations. Table 77 displays the results of the

regressions that yielded significant results. In this final set of regressions several significant relationships emerged. For the dependent variable "expect to complete vocational training," an entirely new set of relationships appeared. Previously, friend's parent was significantly negatively associated with aspirations to complete vocational training when just mentors as independent variables were included. When just risk factors were included there was a significantly negative association with being low income. Then when both risk factors and mentors were included in a regression, friend's parent mentor was reduced from very significant to close to significantly associated with the dependent variable. Additionally, other family mentor also emerged as having a nearly significant positive association to the dependent variable. With protective factors, only middle middle income ever became close to significant with a positive association to aspirations to complete an associate's degree. However, in this final regression, with all independent variables combined, now other family has a definite positive association with aspirations to complete vocational training with a coefficient of 1.87 and a p value of 0.05. Additionally, where friend's parent had a very significant association to aspirations to complete vocational training in the regressions with only mentors as independent variables, friend's parent was reduced to a nearly significant association to this dependent variable when all other risk and protective factors were included in the regressions. In this set of regressions friend's parent had a negative coefficient of 0.28 and a p value of 0.07. No other independent variables were found to be significant in this final regression (non-significant tables not shown).

For the dependent variable "expect to complete an associate degree" there continued to be no significant, or near significant relationships between mentors, risk factors, and the dependent variable. Paralleling findings in previous regressions, both middle middle income and upper income had some associations to the dependent variable in the final regressions. Recall previously that in the regressions with just protective factors as independent variables middle middle income had a

significant negative association with aspirations to complete an associate's degree. However, this association was reduced to nearly significant once mentors were included in the list of independent variables. Now, when the risk factors are included with both protective factors and mentors variables, middle middle income emerges again to have a significant negative relationship to aspirations to complete an associate's degree. Here middle middle income has a coefficient of 0.69 and a p value of 0.4.

Aspirations to complete a Ph.D. had no significant relationships in any of the prior regressions. Yet, in this final regression with all independent variables, one significant relationship emerges. With a negative coefficient of 0.56 and a p value of 0.04, being high income has a distinctly negative association with educational goals of Ph.D. completion. No other relationship was significant or close to significant (non-significant tables not shown).

The last set of regressions in this series evaluates the relationship between all independent variables and aspirations to complete post bachelor's professional training. In the first regression testing the relationship between mentor types and the dependent variable, there were two significant relationships in the results. Both aunt/uncle mentors and other mentor had significant positive associations with this educational goal. In the following regressions, neither risk factors nor protective factors yielded any significant relationship in their own sets of isolated regressions. When mentors were combined with protective factors, there were no significant or near significant relationships to report. However, when risk factors and mentors were combined, aunt and uncle mentors held their very significant positive association to the dependent variable, other mentor also maintained its positive association to the dependent variables, and low income emerged as nearly significantly negative in its association with aspirations to complete professional training. Then in this final regression with all independent variables combined grandparents emerged suddenly as having a very positive association with aspirations to complete professional training with a

coefficient of 2.05 and a p value of 0.02. Aunt and Uncle mentors also regain their highly significant association with the dependent variable with a coefficient of 2.59 and a p value of 0.01. Other mentor was also positively associated with aspirations to complete a professional degree with a coefficient of 2.13 and a p value of 0.04. Finally, when combined with the mentor variables, being low income continued to have a nearly significant negative relationship to this educational goal with a coefficient of 0.51 and a p value of 0.07. Notably, no relationships ever emerged in regard to aspirations to complete a bachelor's degree. The dummy variable for no mentor was used as a comparison variable so it does not appear in this regression for purposes of assessing variance between the independent and dependent variables.

Chapter 11: Unrealized Educational Goals

As mentioned previously, ADD Health asked a series of three questions regarding academic completion outcomes. The final question in that series of the survey was "I have not achieved my desired level of education and I do not expect to." That final question, and the respondents who decided that they are unlikely to achieve their educational goals at any time in their adult lives, is the focus of this chapter. As done in the previous chapters, this section will begin with an overview of the frequencies related to this survey question. Then discussions of each series of regressions which evaluated whether there was a relationship between any of the risk factors, protective factors, or mentors and the dependent variable "do not expect to achieve."

Before continuing it is important to note here that this question is asking specifically whether individuals who have *not* achieved their desired level of education expect to or not. It is a question of expectation, not completion. For respondents who answered that they have not achieved and do not expect to achieve their educational goals this statement is taken to mean that they have unrealized educational goals. Notably, this question is distinctly separate from the survey section where respondents specified whether they had any credential. Instead the subject of this survey question is whether individuals had a desire to complete some credential and they currently do not expect that they will achieve that goal.

Have Not Achieved Desired Education Frequencies

Table 78: Frequencies for Have Not Achieved Desired Level of Education and Do Not Expect To Wave 4

Do Not Expect To Achieve	***Frequency***	***Percent***
Yes	438	9.16
No	4,343	90.84
Total	4,781	100

Very few respondents, 438, or 9.16% of 4,343 respondents believed that they would not achieve their desired level of education. The remaining 90.84% or 4, 343 respondents, are those individuals sampled who have achieved their desired level of education, or have not achieved it, but expect to at some point in their adult lives. Recall, that those who had achieved their desired level of education comprised 23.47% of the entire sample. Then those individuals who had not achieved their desired education, but still expected to, comprised 67.37% of the total sample. So, most respondents have not achieved their desired level of education, however, they believe that they will eventually. Those individuals who have decided that they will not achieve their educational goals, are a very small minority in Wave 4.

Mentors and Unrealized Educational Goals

Table 79: Regression for Mentor Types and Do Not Expect to Achieve Desired Level of Education Wave 4

Mentor Type	***Do Not Expect to Achieve***
School Personnel	*1.33*
Friend	1.09
Older Siblings	1.28
Aunt/Uncle	1.16
Grandparents	1.08
Other Family	**2.11***
Friend's parent	0.76
Other Mentor	**1.41***
Cons	0.08
Observations	4,548

As previously outlined, in order to determine whether or not certain mentor types had any significant relationship with individuals not achieving their educational goals a series of logistic regressions using odds ratios were run. Among all independent variables for mentor types, two significant relationships emerged and one nearly significant. Specifically, other mentor had a positive coefficient of 1.41 and a p value of 0.05. Other family also had a positive coefficient of 2.11 and a p value of 0.03. The positive associations between these two types of mentors and lack of expectations to complete desired level of education suggests that individuals who rely on other family members, or individuals in the other mentors category are unlikely to expect to realize their educational goals. With a positive coefficient of 2.11, those who rely on other family members for mentorship are highly unlikely to expect to complete their desired level of education. Notably diverging from the literature, school personnel had a nearly significant positive association to unrealized educational goals. School personnel had a coefficient of 1.33 and a p value of 0.07. It is possible that this

variable is covarying with another one of the independent variables and so its significance was decreased in this regression. The dummy variable for no mentor was used as a comparison variable so it does not appear in this regression for purposes of assessing variance between the independent and dependent variables.

Risk Factors and Unrealized Educational Goals

Table 80: Logistic Regression for Risk Factors, Mentor Types, and Do Not Expect to Achieve Desired Level of Education Wave 4

Risk Factors/ Mentors	***Do Not Expect to Achieve***
Male	1.04
First Generation	1.11
Minority	0.97
Low Income	1.15
School Personnel	*1.35*
Friend	1.13
Older Sibling	1.32
Aunt/Uncle	0.92
Grandparent	1.14
Other Family	**2.24*** **
Friend's parent	0.55
Other Mentor	1.28
Cons	0.08
Observations	3,866

In order to determine whether certain risk factors impacted respondents unrealized academic goals regressions were then run evaluating the relationship between risk factors and the dependent variable, unrealized educational goals. In the regressions with just the independent variables for risk factors, there were no significant relationships found. Next, in order to determine if any mentor type

mediated the relationship between risk factors and unrealized academic goals additional regressions were run which included all independent variables for both mentors and risk factors.

In this set of regressions one significant mentor association became more significant, one mentor type was no longer significant, and one mentor type remaining nearly significant. Other family continued to have a high coefficient of 2.24, however the p value became very significant at 0.00. This finding affirms that individuals who cited other family as their mentors were very likely to expect to not realize their educational goals. Given that this association became more significant when the risk factors were introduced, but none of the risk factors were significant in their own regressions, also suggests that other family as mentors is itself a risk factor. Additionally, other family becomes more positively predictive of unrealized educational goals when it appears to possibly covary with one of the risk factors, such as being low income, of color, or a first-generation college student.

Other mentor was previously significant when just the independent variables for mentors were run in their own regressions. However, when individual risk factors were introduced, other mentor lost its positive association with unrealized educational goals. This suggests that is a mediating relationship between one of the individual risk factors, other mentor, and unrealized educational goals.

Finally, school personnel continued to have a nearly significant relationship to unrealized educational goals even after individual risk factors were introduced. School personnel had a positive coefficient of 1.33 and a p value of 0.07 in the mentor only regression. In this regression, its coefficient remained positive at 1.35, but its p value increased to 0.07. This change in p value and coefficients suggests that the near significance in school personnel's positive association to unrealized educational goals is reduced when individual risk factors are introduced. Consequently, it is likely that some other variable, not captured in this regression, has a important mediating effect on

the relationship between one of the risk factors, this mentor type, and the dependent variable. If introduced to the regression, then school personnel's close association to the dependent variable may perhaps disappear. Correlation matrices revealed no mediation between the risk factors, mentors, and the dependent variable.

Protective Factors and Unrealized Educational Goals

Table 81: Logistic Regression for Protective Factors, Mentors, and Do Not Expect to Achieve Desired Level of Education Wave 4

Protective Factors/ Mentors	***Do Not Expect to Achieve***
Male	1.02
White	1.08
College Educated Parent(s)	0.97
High Income	0.77
Upper Middle	0.79
Middle Middle	0.94
Lower Middle	1.06
School Personnel	**1.45***
Friend	1.18
Older Sibling	1.32
Aunt/Uncle	1.09
Grandparents	1.19
Other Family	**2.25***
Friend's parent	0.62
Other Mentor	1.38
Cons	0.08
Observations	3,413

Regressions were then run for just protective factors and the dependent variable, do not expect to achieve their educational goals. Nothing significant emerged in any of these regressions.

However, in the regressions that combined the independent variables for mentors with the protective factors some significant relationships did emerge. For instance, other family continued to have a high coefficient of 2.25, but in this set of regressions, which now include protective factors, the p value remained stable at 0.05. The stability of the p value and high coefficient after additional independent variables were introduced to the regression suggests that individuals who cited other family as their mentors were very likely to not expect to realize their educational goals. Since other family was found to be significant in each set of previous regressions including regressions with risk factors, protective factors, and mentors, then it is likely that citing other family as mentors is itself a risk factor for unrealized educational goals.

Another significant relationship that emerged in this set of regressions was school personnel. Where it had been nearly significant in previous regressions with just mentors and mentor combined with risk factors, school personnel became significant when protective factors were combined with mentors. With a coefficient of 1.45 and a p value of 0.05 it appears that individuals who cited school personnel as their mentors were more likely to have unrealized academic goals.

Finally, as with the regressions combining risk factors and mentors, other mentor lost its significance in this set of regressions. Other mentor was previously significant when just the independent variables for mentors were run in their own regressions. However, when individual protective factors were introduced, other mentor lost its positive association with unrealized educational goals. This suggests that is a mediating relationship between one of the individual risk factors, other mentor, and unrealized educational goals.

All Independent Variable and Unrealized Educational Goals

Table 82: Logistic Regression for Risk Factors, Protective Factors, Mentors, and Do Not Expect to Achieve Educational Goals Wave 4

Risk/Protective Factors/Mentors	***Do Not Expect to Achieve***
Male	1.02
First Generation	1.02
Minority	0.91
Low Income	1.21
White	---
College Educated Parent(s)	---
High Income	0.83
Upper Middle	0.84
Middle Middle	1.00
Lower Middle	1.03
School Personnel	**1.44***
Friend	1.17
Older Sibling	1.32
Aunt/Uncle	1.09
Grandparents	1.18
Other Family	**2.26****
Friend's parent	0.65
Other Mentor	1.38
Cons	0.08
Observations	3,386

In the final regression combining all independent variables for risk and protective factors, as well as mentors, only two variables had any significant relationship to the dependent variable, do not expect to achieve their educational goals. Other family has maintained a significant positive

association to unrealized educational goals in all of the regression run. With a positive coefficient of 2.26 and a p value of 0.01 in this final regression the results suggest that having an individual categorized as other family as a mentor is highly predictive of not completing an educational goal. Therefore, other family is itself a risk factor when predicting incomplete educational outcomes.

School personnel also carried over its significance in the final regression. With school personnel being nearly significant in the regressions with just mentors as independent variables, as well as the regressions combining both risk and mentor variables, it emerged as significant in the combined protective and mentor regression. With a positive coefficient of 1.44 and a p value of 0.05, school personnel continues to be significantly associated with unrealized educational goals even when risk factors are combined with all other independent variables in this final regression. This final result suggests that school personnel potentially mediates a relationship between one of the protective factors and unrealized education and it does not covary with a risk factor.

Chapter 12: Discussion

Summary of the Literature

The objective of this study was to engage in secondary data analysis using a nationally representative longitudinal data set from the ADD Health Study to empirically test the findings in the qualitative literature pertaining to the role of mentorship in higher education student achievement outcomes. Of interest here was the potential role that mentors play in bolstering student achievement outcomes among students most at risk of early attrition from higher education. The literature that reflects studies based on qualitative data shows that access to quality social capital, operationalized as access to information, is critical for facilitating access to higher education opportunities (Holland, 2015; Lareau, 2011/2000; Kao, 2004, Stanton Salazar and Dornbusch, 1995; Cox, 2014; Cillipone & Stitch, 2017). Additionally, access to social capital was also found to be important in developing the skills and knowledges essential for retention and the realization of academic goals (Karp, 2011; Lareau, 2011/2000; Holland, 2015, Stanton-Salazar & Dornbush, 1995; Turner, 2015, Menchaca, Mills, & Leo, 2016; Seo & Hinton, 2009; Li & Beckett, 2006). However, the literature also show is that access to social capital is not evenly distributed across all demographic groups. In fact, both the qualitative and quantitative research shows that students who are higher income, white, and have college educated parents are much more likely to acquire quality mentoring relationships, access higher education opportunities, and realize their educational goals compared to their lower income, first generation, and non-white peers (Goldrick-Rab, 2010; Martin, Galentino, & Townsend, 2014; Holland, 2015; Lareau, 2011/2000; Kao, 2004, Stanton Salazar and Dornbusch, 1995; Turner, 2015).

The mechanisms by which certain students are granted or denied access to critical social capital networks is the subject of several sociological projects. From a social reproductionist perspective it is not accidental that stratified access to quality higher education reflects broader

systems of stratification in society. Instead, the stratified distribution of educational opportunities, and so opportunities for social mobility, reflects a correspondence between several interacting social institutions, including higher education (Bowles and Gintis, 1975). From a social reproduction perspective these co-operating institutions work together in order to reproduce the existing social order. In Bourdieu (1973)'s analysis of cultural capital and its role in social reproduction he argues that upper class individuals monopolize control over key social institutions. As a result, they shape institutional policies, procedures, and practices in ways that favor the cultural preferences and knowledges (the habitus) of their social class. Consequently, the culture of dominant social institutions disproportionately rewards individuals whose habitus are most like that of the institution and the key actors within it. This preferential treatment then reinforces the likelihood that individuals from the upper classes will achieve their educational goals and position themselves to reproduce their control over key social intuitions.

What was theoretically presented in the review of the literature was a comprehensive analysis that engaged theories of social capital (Coleman, 1988) and cultural capital (Bourdieu, 1973) as complimentary concepts that are both equally useful in explaining mechanisms of social reproduction at the micro, meso, and macro level. In sum, this review of the literature argued that cultural capital is one mechanism by which individuals are selected into or out of closed social capital networks. Since the cultural capital of various social classes are not equally valued in dominant social institutions, stratified access to cultural capital contributes to stratified access to social capital. This was largely attributed to the role that mentors play in accessing social capital. Essentially, mentors function as gatekeepers to social capital networks. For this reason, it was argued that mentors may play a minor, but important role in systems of reproduction in higher education. This assertation was certainly supported by a number of qualitative scholars (Holland, 2015; Lareau, 2011/2000; Stanton Salazar and Dornbusch, 1995; Turner, 2015; Menchaca, Mills, & Leo, 2016).

These findings in the qualitative literature are certainly worth exploring considering that the quantitative literature revealed that there is a distinct subpopulation of individuals who are least likely to gain access to quality higher education opportunities, and that they are less likely to be retained when they do. Namely low income, first generation, and/or students of color (Martin, Galentino, & Townsend, 2014; Goldrick-Rab & Han, 2011; Roderick, Coca, & Nagaoka, 2011; Goldrick-Rab, 2010; Martin, Galentino, & Townsend, 2014; Saenz, et. al., 2011; Pruett & Absher, 2015). Notably, the demographic characteristic of this subpopulation of "at risk" students reflects patterns of racialized socioeconomic stratification across US society in general. For this reason, Critical Race Theory scholars have argued that mechanisms of selective inclusion and exclusion in higher education institutions are anything but color blind. Instead, CRT counter-narratives reveal ways in which students and faculty of color are routinely excluded from social networks rich with social capital (Barber, 2012; Wilkins, 2014; Turner, 2015; Manchaca, Mills, & Leo, 2016). The counter-narratives also reveal some ways in which the cultural preferences of higher education favor the habituses of white higher SES individuals to the exclusion of lower SES and individuals of color (Turner, 2015; Dixson & Rousseau, 2005; Hilrado, 2010). The counter-narratives shed light on how social construction of legitimacy in knowledge production, tenure requirements, journal rankings, and other seemingly race neutral institutional policies function to isolate faculty of color and inhibit their advancement (Turner, 2015; Menchaca, Mills, & Leo, 2016; Pak, Maramba, & Hernandez, 2014; Li & Beckett, 2006; Seo & Hinton, 2009). From a CRT perspective, failure to grant legitimacy to non-traditional forms of knowledge production reproduces social inequality in higher education in two ways. First, it disproportionately negatively impacts individuals of color's advancement in their discipline. Second, limited advancement opportunities of minority faculty also negatively affect the availability of diverse faculty, with diverse habituses, who could otherwise mentor minority

students who often find themselves excluded from mainstream social networks in predominantly white institutions.

Yet, the CRT counter narratives also highlight patterns of resilience, persistence, and resistance to marginalization among low income and minority faculty and students. Counter-spaces created through clubs, associations, and other social outlets, provide safe havens spaces for marginalized students to help each other buffer their experiences with chronic micro aggressions (Case & Hunter, 2018; Horvat, McNamara, & Lewis, 2003; Harper, 2007; Harper, 2008; Bukoski & Hatch, 2016; Harper, 2009; Barber, 2012; Hannon, et. al., 2016), affirm positive social bi-cultural identities (Case & Hunter, 2018; Horvat, McNamara, & Lewis, 2003; Turner, 2015; Menchaca, Mills, and Leo, 2016; Hanselman, et. al., 20140; Bernal, Aleman, & Garavito, 2009; Simi & Matusitz, 2016), preserve their cultural integrity (Koller, 2015; Khalil, 2015; Keene, 2016; Oosahwe, 2008; Waterman & Lindly, 2013; Simi & Matusitz, 2016; Urquidez, 2010), as well as share social and cultural capital resources (Hannon, et. al., 2016; Bukoski & Hatch, 2016). In these counter-spaces friends often become positive sources of mentorship (Pak, Maramba, & Hernandez, 2014; Farley, 2002; Hanselman, et. al., 2014; Bernal, Aleman, & Garavito, 2009; Guilroy & Wolverton, 2008; Mosholder et. al., 2016; Urquidez, 2010).

Yet, the question then becomes what is the quality of the social and cultural capital shared amongst peers in counter spaces? Do friends within the institution provide as quality information as mentors who are institutional figures? What is the role of family in accessing social capital? Do students of different social classes really have varied access to mentors? Finally, how much does mentorship really matter in terms of academic outcomes?

The qualitative and CRT literature certainly shows that mentorship does matter. However, the quality of information received from sources of social capital varies widely. Furthermore, variations in the quality of social capital accessed by individuals have been found to have a

significant impact on student achievement outcomes (Cipollone & Stitch, 2017; Karp, 2011; Progress, 2017). This is especially true for low income and first generation students who often enter higher education with less knowledge regarding the hidden curriculum in their courses, how to navigate institutional resources, and how to develop the academic skills important for being successful (Karp, 2011). Recognizing this need among underrepresented students, a few higher educational institutions have changed institutional policies in order to enhance students' access to quality social capital (Promising, 2016; Progress, 2017; Cox, 2017). Where institutions have tailored their support systems in ways that close gaps in social capital networks and meet the diverse habituses of their students the retention rates, even among students with the greatest number of barriers to achievement, have improved.

Overall, both the qualitative and quantitative research shows that educational opportunities are as stratified as any other opportunity for social mobility. However, the qualitative literature also shows that enhancing student access to quality, diverse, and supportive sources of social capital can and does disrupt systems of social reproduction. Yet, the qualitative findings pertaining to mentors and student achievement outcomes had not been tested empirically. For this reason, this study sought to test the findings of the qualitative literature using the longitudinal ADD Health dataset.

Table 83: Overview of Hypotheses Tested

	Hypotheses Tested
H1	Respondents who are low income, of color, and first-generation (students most at risk) are more likely to than those who are least at risk of early attrition to cite friends are their primary mentors.
H2	Respondents who are white, middle or upper income, and have college educated parents (students least at risk of dropping out) are more likely to cite non-parental family members or school personnel as their primary mentors compared to students most at risk of early attrition.
H3	Respondents who cite school personnel or friends as their primary mentors are more likely to gain access to higher education than respondents who cite other mentors as their primary sources of mentorship.
H4	Respondents who cite school personnel as their primary mentors are more likely to complete their desired level of education compared to those who cite friends as their primary mentors.
H5	Respondents who cite friends as their primary mentors are more likely to complete their desired education compared to those who cite Other Mentor as their primary source of mentorship.
H6	Respondents who cite school personnel or friends as their primary mentors complete higher levels of education than those who cite Other Mentor as their source of mentorship.
H7	Respondents who are middle or upper income, have college educated parents, and are white are more likely to complete their desired level of education compared to students who are low income, of color, and have non-college educated parents.
H8	Respondents who cited non-parental family members or other mentor as their primary mentors are more likely to drop out of college or vocational training prior to degree completion compared to those who cite school personnel or friend as their primary mentor.

Table 84: Hypotheses Tested and Their Corresponding Final Tables that Test the Hypotheses

Hypothesis Tested	Corresponding Table
H1	Table 44 (p.116)
H2	Table 44 (p.116)
H3	Table 50 (p.126)
H3	Table 54 (p.133)
H4	Table 63 (p.146)
H5	Table 63 (p.146)
H6	Table 63 (p.146)
H7	Table 63 (p.146)
H8	Table 71 (p.158)

Chapter 5: Sources of Mentorship

In order to empirically test the findings in the qualitative literature pertaining to the role of mentors and access to social capital in higher education, a series of seven research questions and eight hypotheses were tested. What follows is a review of these hypotheses and the results of the analysis pertaining to each set of research questions.

To begin recall that the ADD Health Survey specifically included a set of survey questions related to mentorship in Wave 4. Respondents were asked if any person, other than their parents, had made a significant positive contribution in their life. Then respondents were asked to identify how this person is affiliated with them (friend, aunt/uncle, therapist, school personnel etc.). The heading of this section of the survey was titled "mentorship," so all survey questions were provided with the objective of evaluating the role of mentorship in respondent's lives.

A total of 76.5%, or 3,722 respondents out of 4,867, said that they had a mentor at some point in their lives (Table 25). Consistent with the social reproduction literature, most respondents, 897 or 18.4%, cited school personnel as their primary source of mentorship (Table 26). Also consistent with the CRT literature, friends were the second most common source of mentorship

with 632 or 13% of respondents citing friends as mentors (Table 27). In terms of familial mentors, not one category claimed even 10% of the sample. Other types of mentors capture less than 5% of the total sample. These results suggest that mentoring relationships are common forms of social relationships and that the majority of individuals do have, or have engaged in, a mentoring relationship. The results also revealed an interesting gender bias among mentors. Specially, womyn and maternal relatives were most frequently cited as sources of mentorship (Table 34). While this study was not concerned with the impact of gender in mentoring relationships, the unexpected bias in terms of gender frequencies suggests that examining the role of gender in mentoring relationships could be an interesting area of future research.

Results Testing Hypotheses 1 and 2

In the first set of regressions evaluating the potential relationships between individual risk factors (first generation, low income, and racial/ethnic minority) and mentor selection, two significant relationships appeared (Table 37). Consistent with the CRT literature, being a racial or ethnic minority had a negative association to school personnel as mentors. Additionally, being first-generation was also negatively associated with having friends as mentors. No positive associations emerged. In Table 43 just protective factors were controlled for. In this set of regressions being white had a positive association with having school personnel as mentors, having college educated parents had a positive association to friend mentors, and being middle middle income had a positive association to friend's parent mentors. These findings do support the qualitative literature which found that individuals who are white and higher SES have habituses most like educational figures. Therefore, they are more successful than their non-white and lower income peers in developing mentoring relationships with institutional figures. The social capital literature also noted that higher income individuals were typically more successful in brokering mentoring relationships with other higher income peers as well (Stanton Salazar & Dornbush, 1995; Holland, 2015). Finally, friend's

parent(s) was used as a proxy for parent(s) mentors since ADD Health specifically excluded parents as sources of mentorship in the survey. Therefore, the finding that respondents with college educated parents are more likely than individuals with non-college educated parents to cite friend's parent(s) as mentor also supports the literature. Specifically, Lareau (2011/2000) has found that higher SES parents are more likely to be primary sources of social and cultural capital for their children compared to parents within the working and lower classes.

The results of the final set of regressions controlled all independent variables for risk factors and protective factors (Table 44). This set of regressions yielded one significant result. Of all the mentor types only the dummy variable for first-generation college student maintained any significant relationship to any of the mentor types. Being a first-generation college student had a significant negative relationship school personnel mentors. Since this negative relationship was present even in previous regressions controlling for just risk factors, then it is likely that being a first-generation college student simply reduces the likelihood that an individual will broker an effective mentoring relationship with school personnel.

This finding supports the overall results presented in the cultural capital and social reproduction literature which found that students who are first-generation and low income often struggle to broker effective mentoring relationships with school officials and higher income peers (Martin, 2015a; Martin, 2015b; Lareau, 2011/2000; Holland, 2015, Stanton Salazar & Dornbusch, 1995; Reay, Crozier, & Clayton, 2009; Duffy, 2007). These challenges are often due to differences in cultural capital between actors. For instance, school personnel and higher income peers are typically college educated, or have college educated parents. One benefit of being college educated is that college educated individuals are also more likely to inhabit social positions that are more socioeconomically privileged relative to lower income non-college educated individuals (US Department of Education, 2014). Socioeconomic and educational status shape the cultural

preferences, or habitus, of individuals in various social strata (Bourdieu, 1973). For this reason, it is often challenging for low income and first-generation students to gain access to social networks dominated by their higher SES peers and college educated school officials who have qualitatively different habituses than their own (Holland, 2015; Lareau, 2011/2000; Stanton Salazar & Dornbusch, 1995; Karp, 2011). That is unless the policies and procedures of the educational institution are intentionally restructured in ways that encourage the closure of gaps in social capital networks (Cox, 2017).

Qualitative research findings also show that access to quality social capital is very important in predicting student's abilities to advance their educational goals (Holland, 2015; Lareau, 2011/2000; Stanton Salazar & Dornbusch, 1995; Karp, 2011; Cipollone & Stitch, 2017; Hanselman, et. al., 2014; Menchaca, Mills, & Leo, 2016). Students who are low income and first-generation are less likely to be able to rely on their parents for social capital related to college access and retention. This is not to say that low income non-college educated parents do not support their children's educational advancement. On the contrary, since they have not completed a higher education credential themselves, they simply lack the social capital important to assisting their children in developing attainable goals, navigating institutional resources, as well as the culture of higher education (Wright, 2011). For this reason, Hypothesis 1 predicted that students who are low income and first-generation often rely on college educated school personnel to assist them in gaining access to social capital. Unfortunately, as previously discussed, brokering effective relationship with key actors is disproportionately more challenging for students who are of color, first generation, and low income (Holland, 2015; Lareau, 2011/2000; Stanton-Salazar & Dornbush, 1995; Kao, 2004; Turner, 2015). So where low income, first generation, and racial/ethnic minority students have the greatest need for quality mentoring relationships with school personnel, they are simultaneously more likely to be rebuked by school officials when seeking these relationships. Therefore, students from less

privileged backgrounds, or marginalized communities, often must find another way to access social capital, such as friends.

Critical Race Theory scholars found that where students of color are systematically excluded from social capital networks with white peers and school personnel/faculty, many students created counter spaces with alternative social networks where social capital was distributed amongst peers. In effect, in these spaces friends became mentors and sources of social capital important to achieving their educational goals. For these reasons, Hypothesis 1 also predicted that students who were of color, low income, and/or first-generation college students would be more likely to cite friends as mentors.

Summary of Hypothesis 1 and 2 Results

In sum, the results of the final regression evaluating the relationship between individual risk factors and types of mentors utilized by low income, first generation, and minority students did not support Hypothesis 1. However, the findings do provide some possible support for the social reproduction literature. To explain, consistent with the social reproduction literature first-generation respondents were found to be unlikely to cite school personnel as mentors. However, the final results did not show that being low income or of color had any positively significant relationships to mentor types either. Therefore, low income and minority respondents were not any more or less likely than any other respondents to cite school personnel or friends as mentors.

The lack of association between mentor types and other independent variables for both risk factors is thought provoking. No mediation was found to have taken place when correlation matrices were completed. Therefore, it is possible that there are some other variables interacting with the variables for risk factors and these interactions may be reducing their significance in relation to mentor types. This could be the case considering that research by Holland (2015) demonstrated that trust, or lack of trust, between actors has an important impact on mentoring relationships. From

this perspective it is probable that other relational or individual characteristics may be significant but missing from this analysis.

In terms of Hypothesis 2 the results of this study also yielded no support for the predictions. Specifically, none of the protective factors yielded any significant results related to mentor selection in the final regressions. Interestingly, when protective factors were controlled for several significant results emerged that were consistent with the social reproduction literature. However, with the introduction of risk factors in the final regressions, significant associations between individual protective factors and mentor types disappeared.

The change in the significant results when all independent variables were controlled for suggests that there may be some explanation effect taking place between protective factors and mentor types. That is when all independent variables are controlled for the relationship between mentors and protective factors is explained away. Alternatively, lack of significant associations between protective factors and mentor types may have failed to appear because the ADD Health Study specifically excludes parents as mentors. This is a major limitation in the dataset since the social reproduction literature specifically identifies college educated and higher income parents as primary sources of social and cultural capital for their children (Lareau, 2011/2000; Bourdieu, 1973).

Chapter 6: Higher Education Participation Wave 3

In Wave 3 the majority of respondents were in the first three years of college attendance. The highest proportion of respondents were attending their second year of undergraduate studies at the time of the sampling (Table 45). In order to determine whether mentors had any impact on access to college in Wave 3 (H3) a series of logistic regressions using odds ratios were run. In the first set of regressions controlling for just mentor types there were several significant associations between mentor types and access to and attendance in higher education in Wave 3 (Table 46).

First, contrary to the social reproduction literature, the results of the initial regressions that controlled for just mentors showed that school personnel had a significant *negative* association with enrollment in the first year of undergraduate school. There were no other significant associations related to higher education participation in Wave 3. Grandparent mentors had a significant negative association with second year undergraduate enrollment. On the other hand, both friend mentor and other mentor had a very positive association to enrollment in the fourth year of undergraduate studies. Yet, other mentor had a negative association to fifth year undergraduate studies in Wave 3. While the findings for friend mentor do lend some possible support the CRT literature, the findings for other mentor and grandparent mentors are neutral in their support for the literature.

The next set of regressions (Table 47) evaluated potential relationships between risk factors, mentors, and college participation in Wave 3. In these regressions several significant relationships emerged. The negative association between school personnel and first year undergraduate enrollment was maintained. So was the negative association between grandparent mentors and second year undergraduate studies. Friend mentor and other mentor had negative associations with fifth year undergraduate enrollment. Friend mentor also had a negative association to first year graduate participation. However, friend mentor and other mentor had very significant positive associations with fourth year undergraduate participation. Since these findings are so conflicting, they neither confirm nor deny the accuracy of the social reproduction literature.

In Table 48 regressions evaluating the potential relationships between protective factors and educational participation in Wave 3 are displayed. Of all the regressions run, only being high income and second year undergraduate participation was found to be significant. This finding does support the literature that has found higher income individuals are generally more likely to access higher education compared to lower income individuals (Pruett & Absher, 2015; Goldrick-Rab, 2010; Center, 2012; Saenz, et. al., 2011; Holland, 2015; Lareau, 2011/2000; Kao, 2004; Stanton Salazar and

Dornbusch, 1995). However, when mentors were included as independent variables (Table 49), this association disappeared. Instead, school personnel continued to have a negative association with first year undergraduate participation and other mentor had a negative association with fifth year undergraduate participation. On the other hand, friend's parent mentor, other mentor, and friend mentor all had positive associations with undergraduate attendance in Wave 3.

Results Testing Hypothesis 3

Table 50 displays the results of five separate regressions evaluating the potential relationships between all independent variables for risk factors, protective factors, mentors, and higher education participation in Wave 3. The final results showed a variety of significant findings that both support and contradict the literature. School personnel continued to have a significant negative association to higher education participation. The persistence of this negative association across all the regressions suggests that school personnel has a negative association to higher education participation regardless of individual risk or protective factors. This finding not only fails to support Hypothesis 3, but it also fails to support the findings in the social reproduction literature that found that school personnel was an important source of social capital for educational advancement.

Additionally, other mentor also continued to have a distinct negative association to fifth year education participation even after all other independent variables were included. This finding did support Hypothesis 3, as well as the social reproduction literature. The literature specifically identified friends, parents, and school personnel as positively associated with access to social capital and subsequent access to higher education. Therefore, it was predicted that relying on other types of mentors in order to access social capital would decrease the likelihood that an individual would successfully gain access to higher education opportunities.

Finally, in this last regression controlling for all risk factors, protective factors, and mentor types friend's parent, friend, and other mentor continued to have strong positive associations to

education participation in year three and four of undergraduate studies in Wave 3. The consistency in these findings across varied sets of regressions suggests that these types of mentors may be predictive of educational participation regardless of a student's demographic characteristics. These results both confirmed and failed to confirm Hypothesis 3. Specifically, friend mentor's positive association to higher education participation confirmed the hypothesis which predicted that friends are source of social capital. This prediction was based on the CRT literature which found that students of color often rely on friends within their counter-spaces as sources of social capital. Relying on friends as sources of social capital is especially common when access to school personnel as mentors is unlikely to be successful as a result of interpersonal discrimination (Pak, Maramba, & Hernandez, 2014; Farley, 2002; Hanselman, et. al., 2014; Bernal, Aleman, & Garavito, 2009; Guilroy & Wolverton, 2008; Mosholder et. al., 2016; Urquidez, 2010). However, the positive association between other mentor and friend's parent failed to support Hypothesis 3. Non-family members and other mentor were both predicted to be negatively associated with higher education participation since none of these mentor types were identified in the literature to be important sources of social capital.

Chapter 7: Higher Education Participation Wave 4

The same hypothesis regarding mentor types and higher education participation (H3) was also used to evaluate Wave 4 educational participation. In Wave 4 the majority of respondents were not in college or vocational training. Only 16% were attending some higher education program, whereas nearly 84% were not (Table 51). In the logistic regressions for this chapter mentors, risk factors, and protective factors alone were not significantly predictive of higher education participation. However, when the independent variables for risk factors or protective factors were combined with the variables for mentors, several significant results emerged.

In the regressions combining risk factors and mentors (Table 52) being low income had a negative association to currently attending in Wave 4. Where school personnel had a negative association to attendance in Wave 3, it had a positive association in Wave 4. Since these associations only appeared after all variables for both risk factors and mentors were included, tests for mediation were completed. There was no mediation. In the regressions including all variables for protective factors and mentors (Table 53) only one significant relationship emerged. As with risk factors and mentors, school personnel had a positive association to higher education access in Wave 4.

Results Testing Hypothesis 3

Finally, when all independent variables for risk, protective factors, and mentors were included in a final set of regressions (Table 54) school personnel continued to have a positive association with higher education participation. Since this variable was predictive in each set of regressions controlling for both risk factors and protective factors, then it is likely that having school personnel as a mentor is itself predictive of higher education participation in Wave 4 regardless of demographic characteristics of the respondents. This finding would be consistent with the social reproduction literature that found that school personnel were important sources of social capital and access to higher educational opportunities (Holland, 2015; Lareau, 2011/2000; Stanton Salazar & Dornbusch, 1995). Being low income was consistently negatively associated with higher education participation. This finding is not surprising given that both the quantitative and qualitative literature has found being low income to be highly predictive of both lack of access to higher educational opportunities and early attrition from higher education (Holland, 2015; Lareau, 2011/2000; Goldrick-Rab, 2010; Goldrik-Rab, 2007; Martin, Galentino, & Townsend, 2014; Goldrick-Rab & Han, 2011; Roderick, Coca, & Nagaoka, 2011; Center, 2012; Saenz, et. al., 2011). Income status was not part of Hypothesis 3, therefore this finding neither supports nor fails to support the hypothesis.

Chapter 8: Achieved Desired Level of Education

In Wave 4 respondents were asked if they had achieved their desired level of education. A total of 23.47% had, whereas 76.53 had not (Table 55). For respondents who answered yes, that they had received their desired level of education, the survey asked them to specify what level of education they had achieved (Table 56 & Table 57). Most respondents either completed high school (16.3%) or a bachelor's degree (19.4%).

In the regressions that controlled only for the independent variables for mentors in relation to the dependent variable "achieved desired level of education" in Wave 4, only one relationship emerged as significant. Other mentor had a negative association with bachelor's degree attainment (Table 58). Inconsistent with the literature, when just the independent variables for risk factors were controlled for, being low income was positively associated with completing a bachelor's degree and being male was highly predictive of Ph.D. attainment (Table 59). When protective factors were isolated as independent variables being male was still highly predictive of Ph.D. completion and being white was negatively associated with Ph.D. attainment. Considering that whites have consistently been found to be disproportionately privileged in higher education (Hiraldo, 2010: Dixson & Rousseau, 2005), this finding was surprising.

However, as previously mentioned in the results section, it is possible that the positive association between being a racial and ethnic minority and Ph.D. attainment may reflect the inclusion of API's in the minority dummy variable. Since API's are the only minority group to achieve higher levels of education than whites (Healey, Stepnick, & O'Brien, 2018; Aquirre & Turner, 2009), then it likely that inclusion of API's in the minority variable skews the findings in ways that are contradictory to the CRT literature. In fact, when API's were removed from the minority dummy variable the positive association between being a minority and Ph.D. completion disappeared. This lends support to the assertion that the inclusion of API's in the minority variable

did contribute to this educational outcome. Still, even though API's are more likely to complete higher education than whites, API's are still marginalized in other ways such as access to professional mentors (Turner, 2015; Pyke & Dang, 2003; Pak, Maramba, & Hernandez, 2014; Li & Beckett, 2006; Seo & Hinton, 2009) and advancement opportunities (Seo & Hinton, 2009; Li & Beckett, 2006), representation in mainstream courses. For this reason, API's were included in the minority variable.

When risk factors and mentors were combined in a series of regressions three significant relationships appeared (Table 60) Being low income continued to have a positive association to bachelor's completion. Since this continued to have that association even with the presence of mentors, it is likely that being low income itself is predictive of bachelor's completion in Wave 4 and mentors do not make an important contribution regarding this outcome. The same was true for being male and completing a Ph.D. Finally, of all the mentors included in these regressions only other family was found to be predictive of completing professional school.

In the regressions isolating just protective factors as independent variables there were only two significant relationships (Table 61). Again, being male was highly predictive of Ph.D. attainment. Being white continued to be negatively associated to completing a Ph.D. When mentors were combined with protective factors two new significant associations appeared. Friend mentor was positively associated with completion of vocational training, whereas being middle income was negatively associated with bachelor's completion (Table 62). These findings were very unexpected considering that the qualitative and quantitative literature shows that higher income individuals are more likely to achieve their higher educational goals compared to their lower income peers (Holland, 2015; Lareau, 2011/2000; Pruett & Absher, 2015; Goldrick-Rab, 2010; Center, 2012; Saenz, et. al., 2011). Again, being male was highly predictive of Ph.D. completion and being white was negatively associated with Ph.D. attainment. Given the consistency of these two outcomes across several

regressions it appears that being male is itself predictive of Ph.D. completion and being white itself is negatively associated with Ph.D. completion.

Results Testing Hypothesis 4, 5, 6, and 7

When all independent variables for risk and protective factors, as well as mentors were combined in a final set of logistic regressions only a few associations remained significant (Table 63). Again, being male was still powerfully predictive of Ph.D. completion. So was being a minority. Friend mentor continued to have a positive association to completion of a vocational certification. No other significant associations were found. Furthermore, no mediation was found in any of these significant relationships when correlation matrices were run.

The findings here do not support Hypothesis 4. Having school personnel as a mentor was not predictive of completing any desired level of education. On the other hand, friend mentor was predictive of completing a vocational program. Hypothesis 5 was partially supported. Friend mentor was predictive of completing a vocational program. However, other mentor was predictive of completing a bachelor's degree, whereas other mentor was predicted to have a neutral or negative association to credential completion. The success of relying on friends as mentors to complete at least vocational training programs lends some potential support to the CRT literature that revealed that marginalized students often turn to friends for sources of social capital (Pak, Maramba, & Hernandez, 2014; Farley, 2002; Hanselman, et. al., 2014; Bernal, Aleman, & Garavito, 2009; Guilroy & Wolverton, 2008; Mosholder et. al., 2016; Urquidez, 2010). On the other hand, hypothesis 6 was not supported. Although friend mentors are predictive of achieving educational goals related to vocational training, other mentor predicted achieving a bachelor's degree, which is a higher level of education than vocational training.

Finally, Hypothesis 7 was also not supported. In contradiction to the quantitative educational literature, social reproduction literature, as well as the CRT literature, being white, higher

SES, and having college educated parents was not predictive of achieving any desired level of education. In contrast, being low income, first generation, or a racial/ethnic minority was not predictive of being less likely to achieve any desired level of education. On the contrary, being a minority was predictive of achieving a Ph.D., which is the highest level of educational attainment possible. Again, this outcome may reflect the inclusion of API's in the minority dummy variable. Still, it could be worth teasing out which subgroups of racial or ethnic minorities are more likely to complete their desired level of education. It would also be useful to include Muslims, who are an invisible minority in most of the literature. Additionally, it could be useful to include working class whites in similar future analyses since they are often minorities in higher education institutions, at least in terms of their SES. Their inclusion in this proposed analysis could provide some basis for evaluating CRT scholar's argument that white privilege, regardless of SES, is a persistent feature in higher education (Hiraldo, 2010; Dixson, & Rousseau, 2005).

Chapter 9: Partial Completion of Higher Education

Respondents who had not yet achieved their educational goals by Wave 4 were asked a series of questions regarding what their highest level of education was at the time of the sampling and if they did/did not expect to achieve their educational goals. Chapter 9 was concerned with respondents who had partially completed their educational goals. In other words, at the time of Wave 4 this set of respondents had attended some college or some professional school, but they had not yet completed it. Overall, attending some college captured the greatest proportion of the sample at 34.4% (Table 64 & Table 65). This is 15% greater than the number of students who had successfully completed college.

These statistics do not necessarily mean that respondents have dropped out. However, considering that the average age of respondents at the time of Wave 4 was 29 years old, then it is likely that many of the respondents will not continue their undergraduate education. At this age

many students still enrolled in or planning to return to higher education would be non-traditional students, which is a risk factor for early attrition (Pruett & Absher, 2015; Goldrick-Rab, 2010; Goldrick-Rab & Han, 2011; Center, 2012; Goldrick-Rab, 2010). Instead, it is predictable that Wave 5 will show some small increase in undergraduate achievement outcomes, but a greater increase will be observed in terms of graduate level achievement outcomes.

In order to determine if mentor types had any significant relationship to partial completion of educational goals in Wave 4, a series of logistic regressions using odds ratios were run. Consistent with theoretical expectations, other mentor was the only mentor to have a significant positive relationship to partial completion of professional school (Table 66). However, contrary to expectations no other mentor types were predictive of partial completion at any other level of higher education. In terms of risk factors, being first-generation was associated with completion of some graduate school (Table 67). This association remained significant when mentors were controlled for. The significant relationship between other mentor and attendance in some graduate school also remained constant even after controlling for risk factors (Table 68). Additionally, other mentor had a very significant relationship to completion of some professional school in this set of regressions (Table 68).

For protective factors having college educated parents was negatively associated with partial completion of graduate school. Additionally, being white and male was negatively associated with partial completion of vocational school. On the other hand, being from the middle middle income strata was positively associated with partial completion of graduate school (Table 69). With exception of the negative association between being male and partial completion of vocational school, all these associations remained consistent even after mentors were controlled for (Table 70).

Results Testing Hypothesis 8:

In the final set of regressions controlling for all risk factors, protective factors, and mentor types three significant relationships emerged (Table 71). Consistent across all the regressions including risk factors, being a first-generation college student remained positively associated to partial completion of graduate school. Similarly, being upper middle income was consistently significantly associated with partial completion of graduate school. Finally, where middle middle was nearly significant in predicting partial completion of graduate school in the regressions controlling for protective factors and mentors, it emerged as significant in this final regression. Again, it is difficult to say whether any of these findings indicate that respondents will not ever complete graduate school. While being a first-generation student would be predictive of partial completion based on the literature (Pruett & Absher, 2015; Martin, Galentino, & Townsend, 2014; Roderick, Coca, & Nagaoka, 2011; Goldrick-Rab, 2010; Saenz, et. al., 2011), being higher income is protective against early attrition (Pruett & Absher, 2015; Goldrick-Rab, 2010; Center, 2012; Saenz, et. al., 2011). However, in this final regression both risk and protective factors were predictive of partial completion at the most advanced levels of formal education. In order to be certain which risk or protective factors are actually predictive of early attrition in advanced higher education Wave 5 data will be needed. Since no other associations were significant hypothesis 8 was not supported. In the final regression mentors appeared to have no significant relationship to partial completion of educational goals outcomes. This was true for undergraduate and graduate level outcomes.

Chapter 10 and 11: Educational Aspirations

Chapters 10 and 11 explore the educational aspirations of respondents who have not yet achieved their educational goals. The topics of these chapters are outside of the original scope of this study. Consequently, neither chapter included supporting literature or hypotheses. Instead, these chapters were intended to be exploratory since the data were available. Ideally, the outcomes found

in these chapters may provide an avenue for future research since the relationship between mentors, risk factors, and protective factors appears to be a gap in the literature.

Chapter 10: *Have Not Achieved Desired Level of Education But Expect To*

In total 67.37% of respondents who said that they had not received their desired level of education continued to aspire to its completion (Table 72). Recall that in chapter 9 a total of 1,122 or 23.47% of the 4,781 person sample said that they had achieved their desired level of education by Wave 4. This left a total of 3,659, or 76.53% of respondents who had *not* yet achieved their desired level of education at the time of data collection. The frequency table for "have not achieved desired level of education but expect to" (Table 72) showed that the vast majority of the respondents who have not yet completed a credential certainly expect to achieve their goal at some point in their adult lives. In terms of absolute frequencies 67.37% of the total 4,781 person sample expect to complete a credential of some kind, whereas 32.63% no longer expect to achieve their educational goal.

In terms of mentor's impact on educational expectations (Table 73) friend's parent had a negative association to expectations to complete vocational training and other mentor had a negative association to completion of a master's degree. On the other hand, aunt/uncle mentors and other mentor had positive associations with expectations to complete a professional degree.

Risk factors alone were not predictive of educational aspirations until mentors were added to the regressions and controlled for. When both risk factors and mentors were controlled for (Table 74) being a minority had a negative association with expectations to complete a professional degree and aunt/uncle mentors continued to have a positive association with professional degree aspirations. This suggests that aunt/uncle mentors are predictive of aspirations to complete a professional degree program regardless of potential risk factors.

Protective factors yielded few significant results. Controlling for just protective factors alone (Table 75), only being middle middle income was significantly negatively associated with

expectations to complete an associate degree. When mentors were added to the regression as additional control variables (Table 76), this association disappeared, and no significant results remained. This finding suggests that the protective factors identified in this study are not reliably predictive of educational aspirations.

In the final regression controlling for risk factors, protective factors, and mentor types (Table 77) several significant associations remained or re-emerged. Specifically, other family mentor emerged as positively association with aspirations to complete vocational training. Being middle middle income's negative association with aspirations to complete an associate degree re-emerged in this final regression. Interestingly, being high income emerged as having a negative association to aspiration to complete a Ph.D. Finally, aunt/uncle mentors and other mentors continued to have a positive association to aspirations to complete a professional degree program. The consistency in these results does suggest that aunt/uncle mentors and other mentors may be predictive of aspirations to complete professional degree programs among respondents most at risk of early attrition. Finally, grandparent mentors also emerged as having a significant positive association to professional degree attainment. However, like high income's association with aspirations to complete a Ph.D. and middle middle income's re-emergence in relation to aspirations to complete an associate degree, the inconsistency in these results suggests that there could be some suppression or explanation effect occurring within these regressions.

Chapter 11: Have Not Achieved Desired Level of Education And Do Not Expect To

Finally, the focus of chapter 11 was evaluation of unrealized goals. This final chapter was concerned with respondents who said that they had not achieved their educational goal and did *not* expect to. The proportion of respondents who did not believe that they would achieve their educational goals was very marginal, 9.16% of the 4,548 respondents who answered the survey question (Table 78).

The first set of regressions controlled for mentors only (Table 79). The results of the regressions showed that having other family or other mentor was predictive of not expecting to achieve educational goals. Individual risk factors were surprisingly not predictive of unrealized educational goals (table not shown). Then when both risk factors and mentors were controlled for other family continued to be associated with unrealized educational goals. However, other mentor was no longer significant (Table 80).

Similar to the regression isolating risk factors, protective factors alone were not predictive of failure to achieve educational goals (table not shown). However, when mentors and protective factors were controlled for in the same regression, two significant relationships appeared (Table 81). In this regression citing school personnel and other family as mentors was predictive of lack of expectations to realize educational goals. Then in the final regression, controlling for all risk factors, protective factors, and mentors (Table 82), both school personnel and other family continued to have significant associations to the variable unrealized educational goals. No other associations emerged in this final regression.

In the end both other family and school personnel were the most consistent predictors of unrealized educational goals. Both were significant or nearly significant in every set of regressions. The consistency of other family in predicting expectations to not achieve desired education suggests that this source of mentorship is likely to be predictive of unrealized educational goals regardless of individual factors. The same conclusion may be true for school personnel as mentors. This is especially interesting given the centrality of school personnel as gatekeepers to social capital networks throughout the social reproduction literature. For this reason, it may be worth teasing out the details of this relationship relative to the literature in future research projects.

Chapter 13: Conclusion

This study makes several theoretical and empirical contributions to the scholarly sociological body. In terms of theory, the literature review demonstrated that multiple sociological theories can be brought together to better understand social phenomenon. In the review of the literature Bowles and Gintis's correspondence principle was used to explain how multiple systems of stratification reproduce social inequality and how this correspondence influences the acquisition of cultural capital. Bourdieu's concept of cultural capital was then used to enhance Coleman's theory of social capital. Coleman's theory of social capital is primarily operationalized as access to information. However, what Coleman did not explain in his theory was what mechanisms operate to select individuals into or out of social capital networks. Therefore, cultural capital was explored as one mechanism by which individuals are evaluated and selected into or out of social capital networks. Then Critical Race Theory, and the concept of color blind racism, were brought together in order to introduce the role of race in the theories of cultural capital, social capital, and the correspondence principle. Examining these theories from a critical race perspective expanded these theories in order to provide some new explanation for how and why individuals of color are often excluded from opportunities for educational advancement, social mobility, and legitimacy in their scholarly pursuits.

At least theoretically, mentors function as gatekeepers to social capital networks. What we have seen in the qualitative literature is that low income, first generation, and individuals of color are routinely excluded from social capital networks. Some of this exclusion was theoretically argued to result from differences in cultural capital that are not equally rewarded in dominant liberal institutions, including higher education. From this perspective, challenges in accessing quality mentors, as a result of differences in cultural capital, theoretically results in exclusion from social capital networks. Exclusion from social capital networks then negatively impacts student's access to college-going information and reduces the probability of achieving educational goals. In this way

systems of social inequality are reproduced in subtle but pervasive ways throughout higher education. Approaching all these theories as complimentary, rather than mutually exclusive, ideally will encourage other scholars to challenge their theoretical constructs to be as diverse and complex as our social world really is.

In terms of empirical results, some of these theoretical assertions were supported and others were not. Failure to support some of the theoretical expectations could be the result of limitations in the dataset. Some of the failures may also reflect flaws in the theoretical logic presented here. Still, empirically testing the observations of qualitative scholars regarding mentorship and student achievement outcomes was the central objective of this study. In the end the findings observed in this study did provide some empirical support for the findings in the qualitative social reproduction and critical race literature, at the same time they challenged them.

In terms of mentors, most respondents, approximately 76%, reported that they had a mentor. Consistent with the qualitative literature school personnel and friends were the most common sources of mentorship. Consistent with the CRT literature, at least in the regressions controlling for just risk factors, being a racial and ethnic minority was negatively associated with having school personnel as a mentor. However, there was no positive association with friends as mentors, which was inconsistent with the CRT literature. Similarly, consistent with the social reproduction and social capital literature, being a first-generation college student was consistently found to be negatively associated with having friends as mentors. This was true when just risk factors were controlled for, as well as, when both risk and protective factors were controlled for. However, there were no positive associations found to compliment this negative finding. This could mean that first-generation college students and minority students are less likely to have mentors. This assertion would also be consistent with the findings in the qualitative and educational literature which has found that lack of access to college-going information does contribute to lower rates of

attendance and retention among at risk students in higher education institutions (Karp, 2011; Karp, O'Gara, & Hughes, 2008; Kao, 2004; Lareau, 2011/2000; Holland, 2015; Cipollone & Stitch, 2017).

When just protective factors were controlled for, being white had a positive association with school personnel as mentors. Having college educated parents was positively associated with having friends as mentors. Finally, being middle middle income was positively associated with utilizing a friend's parent(s) (a proxy for biological parent(s)) as mentors. All these findings are consistent with the qualitative literature. However, the association between protective factors and mentor types did disappear when risk factors were also controlled for. Therefore, it is likely that some other variable was interacting with the protective factor variables in ways that reduced the significance of these associations. Still, the overall findings do indicate that there is likely empirical support for some of the qualitative literature and that further analysis of other potential factors, such as trust (Holland, 2015) or institutional structures (Cox, 2017) is warranted. Additionally, this dataset did not include the demographic information of the mentors, therefore cultural capital's potential relationship to mentor selection could not be empirical tested here. Empirically exploring the potential relationship between cultural capital and mentors could be another productive future research project.

In Wave 3 school personnel as mentors had a persistent negative association with educational participation. This finding stood in stark contrast to the qualitative literature which consistently found that school personnel were primary gatekeepers to social capital. Then in the same set of regressions evaluating mentors and educational participation in Wave 3, friend's parent, friend, and other mentor had a positive association with the first four years of undergraduate studies. Friend's parent and friend were identified as positively associated with individuals enjoying several protective factors in the mentor selection regressions. Taken together, these findings then may indicate that individuals who are higher income, have college educated parents, and are white are more likely to utilize these sources of mentorship and successfully access higher education earlier in

their young adulthood. If this is true, then these results again support the qualitative literature. However, the persistence of other mentor in predicting higher education participation in Wave 3 was surprising. Neither students most at risk of early attrition, nor those least at risk of early attrition cited other mentor as a source of mentorship in the mentor selection regressions. For this reason, the relationship between other mentor and higher education participation in Wave 3 is quite perplexing.

In contrast, in Wave 4 school personnel became positively associated with higher education participation. While this finding supports the literature, it is uncertain why school personnel would have a negative association to higher education participation in Wave 3 but have a positive association in Wave 4. Again, these conflicting outcomes may reflect errors in the data set, or how the survey questions were asked. However, that assumption is just as likely to not be true as well. Given the conflicting findings pertaining to the role of school personnel and educational participation in Waves 3 and 4, empirical support for the qualitative literature that identified school personnel as important sources of social capital is not fully certain. Revisiting this relationship with Wave 5 data could be useful. With the findings presented here it can only be said that the qualitative literature is supported sometimes. Other contextual information is needed to establish a more definitive answer.

In terms of predicting mentor's role in partial completion of educational goals some of the literature was supported and other aspects of it were not. The inconsistency in the results may be more reflective of the median age of respondents at the time of Wave 4 sampling. Respondents were 29 years old. This is believed to be the case since most of the partial completion results pertained to graduate school. Being first-generation and middle middle income was consistently predictive of partial completion of graduate school rather than undergraduate studies. This finding suggests that both first-generation respondents and middle middle income respondents had at least enrolled in

graduate school at the time of Wave 4. Data from Wave 5 will be needed to be certain whether these associations remain significant as respondents age. The fact that first-generation respondents had enrolled, and at least partially completed graduate school, suggests that they had completed their undergraduate studies successfully. This finding contrasts with both the qualitative and quantitative literature that found first-generation college students to be at great risk of early attrition from higher education (Pruett & Absher, 2015; Martin, Galentino, & Townsend, 2014; Roderick, Coca, & Nagaoka, 2011; Goldrick-Rab, 2010; Saenz, et. al., 2011). On the other hand, being middle middle income and completing some graduate school, which implies that these individuals also successfully completed their undergraduate studies, is less surprising. Being higher income was consistently found to be a protective factor against early attrition (Pruett & Absher, 2015; Goldrick-Rab, 2010; Center, 2012; Saenz, et. al., 2011). Still, the conflicting logic in these outcomes will not likely be resolved until Wave 5 data are available. What is interesting is that none of the mentors were predictive of partial completion of either undergraduate studies, nor graduate studies. This fact then fails to support the qualitative literature.

Finally, the intermittent but significant presence of other mentor as predictive of student achievement outcomes and aspirations in some of the findings suggests that qualitative researchers may want to expand their typical list of sources of social capital in their research. Researchers would do well to look beyond just school personnel and friends. It may be the case that when individuals at risk of early attrition from higher education face challenges in acquiring social capital they find other sources of alternative mentorship outside of just friends. Who might that be? What impact, if any, might non-traditional mentors have on student achievement outcomes? The cases collapsed into the dummy variable for other mentor were just too small to reliably test. However, the unexpected positive findings between other mentor and educational aspirations, as well as education

participation, certainly suggests that expanding the pool of prospective mentors could be worth looking into.

It could also be useful to look more critically into the role that mentors play in higher educational aspirations, as well as failure to expect to achieve educational goals. In Wave 4 a total 76% of individuals had not yet achieved their desired level of education. Some of the respondents may still be enrolled in some higher educational program and in Wave 4 they were still working towards their goals. Other respondents may have just stopped at partial completion of their program and they may never achieve their educational goals, even though they continue to hold out hope that they will someday. Again, Wave 5 data will provide more conclusive insights regarding attrition and completion. Still, given the large proportion of individuals who have not yet achieved their desired level of education, this is a topic that is certainly worth continuing to explore. There may be a variety of literature available pertaining to a potential relationship between social capital and higher educational aspirations. However, in this study this was not a topic that was explored within the scope of this literature review. Nevertheless, there were some significant associations between educational aspirations, failure to aspire, and mentors that emerged in the exploratory results. Therefore, it would be interesting to return to these findings when the Wave 5 data are released. In Wave 5 respondents will be in their mid to late thirties. Some respondents may even be in their early forties. Consequently, respondent's educational attainment is likely to be more stable than it was in Wave 4. Therefore, revisiting this topic would be more definitive at least in regard to determining if mentors have significant associations to educational aspirations, failure to aspire, as well as overall completion outcomes.

There were several limitations regarding this dataset, however the limitations do not depreciate the overall findings pertaining to the literature. To review these limitations again refer to the limitations section of the methods chapter on page 92. Overall, the qualitative literature was

mostly supported. There was some initial support suggesting that individuals who are higher income, white, and have college educated parents are more likely to gain access to mentors compared to low income, first generation, and people of color. Additionally, it was found that mentors do have some predictive capabilities in terms of higher education participation and student achievement outcomes. However, not all the significant findings related to mentors and educational outcomes were consistent with the qualitative literature.

Regardless, the results here do indicate that the observations made in the qualitative literature have some empirical merit. As such, it can then be argued that institutional efforts targeted at enhancing student's access to mentors and social capital is one important way that systems of social reproduction can be disrupted within higher education. The few educational institutions that have made genuine efforts to enhance student's access to mentors and social capital have seen positive results, especially for students who are low income, first generation, and of color (Scrivener & Weiss, 2009; Karp, 2011; Promising Practices, 2017; Progress, 2017; Karp, O'Gara, & Hughes, 2008; Beyond, 2015; Schak, et. al., 2017; Karp, Hughes, & O'Gara, 2010). However, quality matters. Not all institutions that have attempted to enhance students' access to social capital have been successful. Institutions that have holistically changed their service delivery and advising and done so in ways that are sensitive to the cultural and social capital assets students already have were most successful (Karp, 2011; Cillopone & Stitch, 2017; Karp, O'Gara and Hughes, 2008; Goldrick-Rab, 2010). Specifically, scholars evaluating successful social capital building initiatives in higher education caution that institutional leaders must be sensitive to the cultural and social capital of their target population in order for the changes to effectively facilitate the empowerment of underrepresented students (Karp, 2011, Cillopone & Stitch, 2017; Karp, O'Gara, & Hughes, 2008; Goldrick-Rab, 2010; Holland, 2015). Overall, it is arguable that mentorship does matter and that enhancing student access to quality mentors, especially within the context of other comprehensive support structures,

can have important social justice implications. Passionate leaders, faculty, and prospective mentors in higher education must be willing to meet students where they are and acknowledge them as holders of knowledge who's voice is calling to be shifted to the center of discourse.

APPENDIX

APPENDIX

Table 85: Consolidated Frequencies for Highest Level of Education Achieved Wave 4 – Restricted Use Data

Highest Level of Education Achieved	***Frequency***	***Percent***
8th grade or less	61	0.4
Some High School	1,191	7.6
High School Graduate	2,565	16.3
Some Vocational/Tech	559	3.6
Completed Vocational/Tech	990	6.3
Some College	5,378	34.3
Completed Bachelor's	3,044	19.4
Some Graduate School	578	3.7
Completed Master's	778	5.0
Some Graduate Training Post MA	144	0.9
Completed Doctoral Degree	114	0.7
Some Post BA Professional	110	0.7
Completed Post BA Professional (i.e. law, nursing, med school)	185	1.2

All frequencies presented here have been copied directly from the ADD Health Survey Wave 4 codebook.

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WORKS CITED

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