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Factors in Immigrant Higher Education Attainment Among Income Groups in the United States

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Factors in Immigrant Higher Education Attainment Among Income Groups in the United States

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Abstract

This research investigated the attainment of bachelor degrees by students from different immigrant generational backgrounds and income levels in the United States through the additional family capital variables of student educational expectations, parental educational attainment, and two-parent households. As the nation continues to mature, gaps in higher education attainment between income groups continue to expand. The educational attainment of students across income groups and among immigrant generations has significant implications for the nation's future regarding equality and workforce capabilities. This study explored how family capital interacts with income and generational status to influence the completion of bachelor degrees. The theoretical framework places cultural capital as its main lens of understanding and supports that concept with a social capital consideration. Additional theoretical support comes from conflict and ecological systems theories. The research used a quantitative design through the use of the publicly-available large-scale survey data from the National Center of Education Statistics, the Educational Longitudinal Survey of 2002 and its third follow-up of 2012 ($n \sim 16097$). Through quantitative analysis, this study compared expectations and predicted outcomes by analyzing variables influencing higher education attainment. The findings showed that expectations for university graduation are almost universally high and are the most significant predictor in degree completion, and that second-generation immigrants and Asian students are likely to outperform their peers in higher education attainment. This investigation will inform the development of policies and programs to address educational and socio-economic inequalities by confirming some existing positions on immigrant and minority populations, expanding the concept of immigrant status and educational attainment, and yielding new insight on the expectations and outcomes of students across multiple reference categories which warrant further investigation.

Chapter I: Introduction

This research focused on bachelor degree completion by students across income groups in the United States and compared the immigrant generational status of these students through a number of variables. The main variables of cultural expectations, family composition and parental educational attainment were assessed to determine which factors, alone or in combination predict the most likely outcome of bachelor degree completion for students with first, second, or third-generation immigrant status.

Higher education enrollment in the United States continues to rise. Between 2000 and 2015, total undergraduate enrollment in degree-granting postsecondary institutions increased by 30 percent, from 13.2 million to 17.0 million. By 2026, total undergraduate enrollment is projected to increase to 19.3 million students (NCES, 2017). Participation by first and second-generation immigrant students is also rising. First and second-generation students constituted about 23 percent of undergraduates in U.S. postsecondary education in 2007-08, an increase from approximately 19 percent in 1999-2000 (NCES, 2012). When looking at *post-bachelor study*, immigrants are competing for and completing degrees at significant rates. From 1990-2014, the number of first and second-generation immigrants with advanced higher education degrees has grown at more than twice the rate of the U.S. population (Pell, 2015).

While there have been increases in overall and immigrant student participation, bachelor degree completion remains significantly skewed toward students at the upper ends of income in the United States. The dataset for this research, the Educational Longitudinal Study of 2002 (ELS:2002), indicates that by the time the third follow-up survey had been completed in 2012, 14.2% of all low SES students had completed a bachelor degree, while 28.8% of middle SES students had done so, and 60.4% of all high SES students had completed their undergraduate

studies (NCES, 2014). The Pell Institute for the Study of Opportunity in Higher Education reports that while over 77% of students from families in the top income quartile complete a bachelor degree by age 24, only 9% of students from the lowest income quartile complete a degree by the same age (Pell, 2015), even though over 92% of students from the poorest families receive federal aid from at least one Title IV source such as Pell Grants, the federal campus-based aid programs, the Teacher Education Assistance for College and Higher Education (TEACH) Grants, the Iraq and Afghanistan Service Grants, Direct Subsidized and Unsubsidized Loans, and Direct PLUS Loans to parents. However, even with these funding sources available, dependent students from the poorest families only account for 15.8% of post-secondary enrollment, while dependent students from families in the highest income brackets constitute 28.3% of all enrolled students (NCES, 2013).

From a racial perspective, there is a gap in educational attainment between students depending on their racial background. In 2015, of the population ages 25 and over, 32.8% of White adults held a bachelor degree or above compared to 15.5% for Hispanic, 22.5% for Black, and 53.9% for Asian (Ryan & Bauman, 2016). Educational attainment for persons of every background has strong personal economic importance as the job market demand for employees with at least a bachelor degree continues to climb. In 1973, only 16% of all jobs in the United States required at least a bachelor degree. That percentage rose to 29% in 1992, 33% in 2010, and will rise to 35% in 2020, an increase of over 100% in less than two generations (Carnevale, Smith, & Strohl, 2013).

Ethnically, the population of the United States is made up of a large and growing first-generation population. In 2015, there were 43.2 million people living in the country who were born in another nation. The top four regions of origin for first-generation immigrants are

noteworthy in their differences between educational attainment and poverty. Those regions, in order of population in the U.S., are Mexico/Central America; South and East Asia, Europe/Canada, and the Caribbean. People from Mexico/Central America are 34.7% or 14.9 million of the first-generation immigrant population. Those from Mexico hold bachelor degrees at a rate of 4.6%, and advanced degrees at 1.6%. Their poverty rate is at 22.3%, and 37.4% for children under 18. Central Americans hold bachelor degrees at 6.9%, and advanced degrees at 2.5%. Their poverty rate is 20.4%, and 34.3% for children under 18.

South/East Asian immigrants account for 26.9% or 10.1 million of the first-generation immigrant population. They hold bachelor degrees at a rate of 28.7%, and advanced degrees at 22.5%. Their poverty rate is at 12.2%, and 17.3% for children under 18. European/Canadian immigrants account for 13.5% or 5.9 million of the first-generation immigrant population. They hold bachelor degrees at a rate of 21.2%, and advanced degrees at 21.3%. Their poverty rate is at 9.6%, and 12.5% for children under 18. People from the Caribbean 10% or 4.2 million of the first-generation immigrant population. They hold bachelor degrees at a rate of 13.6%, and advanced degrees at 6.7%. Their poverty rate is at 18.4%, and 33.4% for children under 18 (Pew Research Center, 2017). To be clear, the national poverty rate is 12.7% (Semega, Fontenot, & Kollar, 2017), and other ethnic groups have higher poverty rates than the four groups noted here, but the large numbers and percentages among the top four immigrant origin areas illustrates with more clarity the significance of seeing the connections between educational attainment and opportunity in the United States.

The income variable alone provides a strong foundation to study higher education attainment. However, it may be insufficient as a means of comparison when the broader background of students is taken into consideration. For instance, as noted, the immigrant

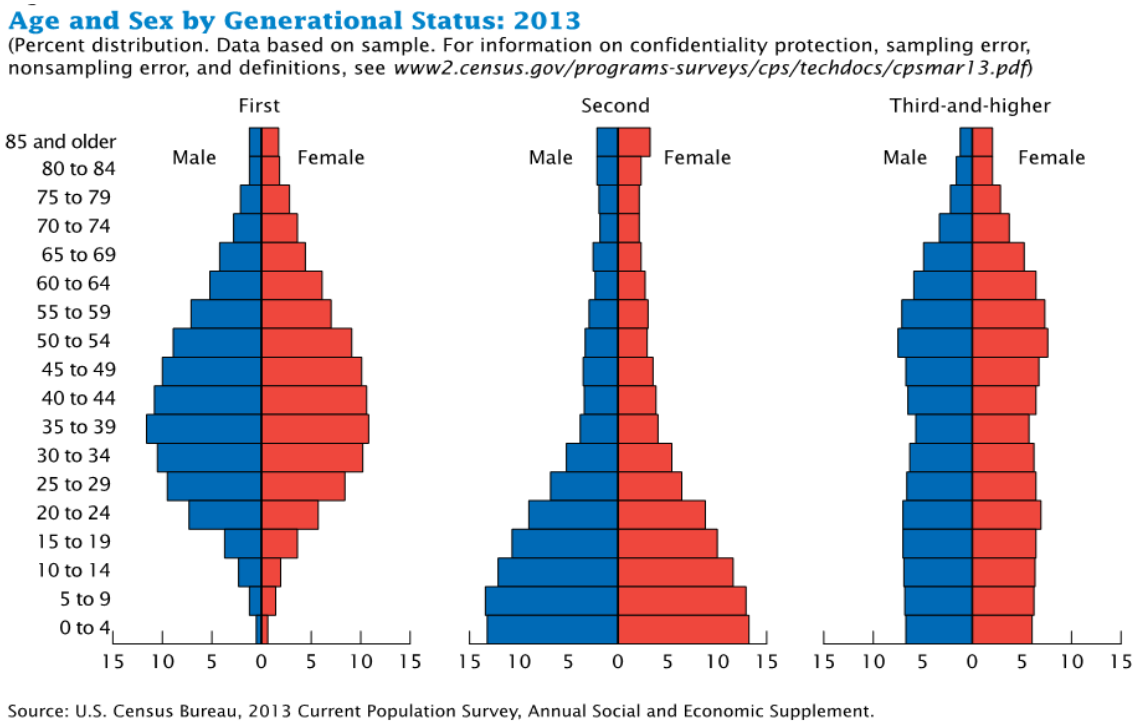
generational status of students is sometimes reported in stand-alone fashion, yet is rarely contextualized across different stratifications of income. Research is also lacking on the combination of student generational status and family capital factors such as student educational expectations, parental educational attainment and the influence of two-parent households on higher education attainment.

This research will contribute to a more complete understanding of the association between income levels, immigrant generation and bachelor degree completion, and therefore, could aid in the development of useful programs to target people at risk for lowered educational and socioeconomic attainment.

Significance

As illustrated in Figure 1, the population distribution represented by the first and second-generation immigrant populations will have long and significant impact on the future of the United States, and their present and probable future level of education is key in positioning them for personal and national contributions. In fact, it is estimated that 93% of the growth rate for the nation's working-age population over the course of approximately the next generation, between now and 2050, will be comprised of immigrants and their U.S.-born children (Pew Research Center, 2013).

Figure 1.



The study will add to the existing literature and dialogue within the discipline of comparative and international education research. There is a significant amount of research on the educational attainment of immigrant students as a whole group. By looking at the demography of the population more specifically by particular immigrant generational status and incorporating the aspects of economic class, attitudes and perceptions between different generations of United States students, there will be a better sense of how students of varying immigrant status attain what for many has become the de facto entry pass to individual opportunity, the college degree.

On the human capital front, bachelor degree recipients earn 67% more per week than high school graduates, experience unemployment at a rate 50% lower, and will earn approximately $1 million more over the course of a full-time working career, or 84% more in median earnings (BLS, 2017; SSA, 2015; Carnevale, Rose & Cheah, 2011). Future earnings are

a key construct for immigrants of all generational status as they directly relate to not only their personal economic well-being, but also their contribution to the national stability and growth.

The largest segment of working-age adults – third-generation immigrants born in the U.S. whose parents also were born in the U.S. – is projected to decline from 2015 to 2035, both in numbers and as a share of the working-age population. Recent estimates place the reduction at 8.2 million, decreasing from 128.3 million in 2015 to 120.1 million in 2035. Second-generation immigrants – U.S.-born adults with immigrant parents – in the working-age population, however, will increase from 11.1 to 24.6 million people by 2035. New, first-generation immigrants – those born outside of the U.S. – will increase from 33.9 million to 38.5 million by 2035 (Pew, 2017).

Table 1.

Projected change in the U.S. working-age population, 2015-2035 *Ages 25-64, in millions*			
Group	2015	2035	% Change
First-generation immigrants	33.9	38.5	4.6
Second-generation immigrants	11.1	24.6	13.6
Third-generation immigrants	128.3	120.1	-8.2
Total	***173.2***	***183.2***	***10.0***

Source: Pew Research Center Fact Tank, 2017.

Combined with the population pyramid noted above, and the fact that the immigrant population continues to grow in the United States, research which investigates the factors affecting higher education attainment can provide key evidence in both educational and economic policy considerations on how best to build and sustain a more expanded and balanced opportunity for all who desire to pursue post-secondary education.

Background/Context

For the purpose of definitions, this study relied on that used by the United States Census Bureau as follows:

- Foreign born: The U.S. Census Bureau uses the term foreign born to refer to anyone who is not a U.S. citizen at birth. This includes naturalized citizens, legal permanent residents, temporary migrants (such as foreign-born students), humanitarian migrants (such as refugees), and undocumented migrants.
- Native born: The term native born refers to anyone born in the United States, Puerto Rico, or a U.S. Island Area (Guam, American Samoa, the U.S. Virgin Islands, and the Commonwealth of the Northern Mariana Islands), or those born abroad of at least one U.S. citizen parent. The terms native and native born are often used interchangeably.
- First generation: Foreign born. The terms first generation and foreign born are often used interchangeably.
- Second generation: U.S. native (born in the United States or territories) with at least one foreign-born parent.
- Third-and-higher generation: U.S. native (born in the United States or territories) with both parents native born. The term third generation is also used interchangeably.

As noted, income is a decisive factor in predicting higher education attainment. For instance, Pell Grant receipt is a legitimate measure for distribution of educational economic support. Eligibility for Pell Grants for both dependent and independent students is based on family income, family size, number of family members attending college, and other factors. Pell Grants are targeted to students from low-income families and independent students with low incomes. In the 2013-14 award year, 61 percent of the more than 3.8 million Pell Grants awarded to dependent students were awarded to students with family incomes below $30,000, well within the lowest quartile of households. What this tells us is that out of approximately 20.2 million students enrolled in some form of higher education, Pell Grants are received by about 11.5% or

2.3 million students each year. Yet, even with this support, just 40% of all Pell Grant recipients, which includes millions of students in households from higher income quartiles as well, complete any degree within six years of enrolling in college (U.S. Department of Education, 2014). This is in significant contrast to the *overall* bachelor degree completion percentage of 59% for *all* students who graduate from a course of study within the same six-year time frame (NCES, 2015).

Generationally, and when including all income brackets, second-generation immigrants outperform those in the first and third generations, with over 37% completing bachelor degrees by age 25 compared to 30% and 31% respectively for those of first and third generation status (U.S. Census Bureau, 2016). Even when controlling for race, second generation immigrants attain college degrees at higher rates than their same-race third-generation peers across the board including those of Hispanic, Black, Asian and White descent.

Table 2.

Share of Immigrants Twenty-Five to Thirty-Four with a Bachelor's Degree or Higher by Generation and by Race and Ethnicity, 2009, by Percent				
Generation	**Hispanic**	**Black**	**Asian**	**White**
Second	19	42	57	48
Third	16	18	33	37

Source: U.S. Bureau of the Census, Current Population Survey, March Supplement, 2009 (Baum & Flores, 2011)

Second generation immigrants also outperform the other groups in comparison regarding completion of graduate degrees, with 15% of the group attaining such education with first and third counting 12% and 11% respectively (U.S. Census Bureau, 2016). Whether these attainment numbers between different immigrant status groups exist consistently across income levels was an important consideration in this study, helping us to understand how the factor of income is associated with attainment in a more detailed manner.

Research Questions

This study investigated how immigrant status across incomes is associated with bachelor degree attainment. The study looked graduation statistics and introduced three additional independent variables – student educational expectations, two-parent households, and parental education attainment to predict how these factors affect the completion of a bachelor degree. In light of the issue and background the following was examined by this research:

1. How well do income levels, student educational expectations, parental educational level, and two-parent households predict bachelor degree attainment among 1st, 2nd, and 3rd generation immigrants?

2. Why do some immigrant students persist to bachelor degree graduation from university at different rates than their other-generational peers?

Key Factors

Immigrants have been an important population of research and past studies highlight a number of the main research themes in this study. As earlier noted, there is a body of work that illustrates the high educational attainment levels of immigrants. What is important to realize is not only are second generation immigrants completing at least a bachelor degree at rates above the common population, the immigrants arriving as new, first generation entrants to the country are also one of the most highly educated groups in history. In fact, since 2010, the share of college-educated immigrants entering the United States in at 44% (Migration Policy Institute, 2016).

There is also evidence supporting the premise that parental educational achievement relates to immigrant student achievement. In fact, data analysis of 2,147 children ages 6-12 showed that parents' pre-migration education is more strongly associated with children's

academic achievement than any other pre- or post-migration attribute (Pong & Landale, 2012). This correlates well with the growth in numbers of immigrants with at least bachelor degrees as noted above. Perhaps surprising is the fact that on average, in 2000, children of immigrants were already nearly as likely as children in native families to have a father with a bachelor degree (Baum & Flores, 2011).

Pushing against this theme of success, however, is economic reality and the expectations which accompany such. Less than half of parents with annual incomes of less than $30,000 expect their child will attain a four-year-college degree, compared with nearly eight in ten parents with incomes over $75,000 (Child Trends, 2015). Regarding immigrant perceptions and attitudes about education, a study on immigrants and their children's access to higher education, with data from the National Education Longitudinal Study (NCES, n.d.), examined whether parent-child interaction varies among racial and generational groups. Researchers found that immigrant parents are more likely to talk about college. In that same study, it was found that that when taking SES and other family variables into account, children of immigrants outperform children of natives in virtually all academic subjects except for reading (Kao, 2006). A recent article published in *Social Science Research* notes that immigrants' children have very positive attitudes and behaviors toward education, including higher educational greater effort expended on schoolwork than children of natives (Greenman, 2013). There is also the argument for the immigrant optimism hypothesis, which frames the concept that immigrant parents come to the U.S. with very high levels of motivation to succeed and optimism about their children's life chances, which they pass on to their children (Kao and Tienda, 1995).

Taking note of expectations in low-income immigrant families, the "immigrant paradox" continues to present in the literature. This phenomenon occurs wherein children escape the fates

that are predicted by their low SES. This may not be as surprising when considering that research has found that both foreign-born and native-born youth with immigrant parents show better academic, behavioral, emotional, and health outcomes than youth with native-born parents. These superior outcomes of the children of immigrants counter what would be predicted, given their lower SES. Corroborating the paradox, one study found a weaker association between SES and student GPA among immigrants' children than among natives' children (Pong & Hao, 2007).

Further connecting the premise that immigrants are well positioned for high achievement in education is the concept that early-generation immigrant students may have advantages, and some may be connected to being present in the two worlds of native and host country and receiving the benefits of both in growth years. These advantages may not only be present educationally through the cognitive domain, but in the socio-behavioral aspect as well (Hao & Woo, 2012).

There is evidence to suggest that in both one- and two-parent families, children born to immigrants are less likely to fall behind in school than those born to U.S.-born parents. This may correlate to research in which about three-quarters of second-generation Hispanics (78%) and Asian Americans (72%) say that most people can get ahead if they're willing to work hard. Similar shares of the immigrant generations of these groups agree. By contrast, 58% of the full U.S. population of adults feel the same way, while 40% say that hard work is no guarantee of success (Pew Research Center, 2013).

In two-parent immigrant families, children born to two immigrant parents have a significant schooling advantage over children born to one immigrant parent (Thomas, 2009). This helps to explain the positive association between the number of immigrant parents in a

family and children's schooling performance and suggests that low-income immigrant students with two parents at home perform better in the education realm (Thomas, 2009). Across the board and including immigrant and domestic students, individuals from intact families completed, on average, more years of schooling and were also more likely to graduate from high school, attend college, and complete college compared to peers raised in blended or single-parent families (Ginther & Pollak, 2004).

Taken in the context of immigrant higher education attainment, these key factors demonstrate that a significant basis exists for exploration on the effects of student educational expectations, two-parent households, and parental education attainment on bachelor degree completion, specifically as it relates to comparison of generational immigrant groups and their peers across income segmentations. As immigrants continue to form a growing base within the national framework, this study is a distinctive research opportunity, providing insight on factors which could demonstrably inform the way higher education is viewed and understood in the United States.

Chapter II: Review of the Literature

To highlight the perspective of immigrant attainment in higher education, it is important to construct the context of achievement by immigrant groups throughout the educational spectrum, including experiences within the K-12 timeline. Successful attainment in higher education is positively associated with achievement in primary and secondary school and the foundation for students to complete university studies is often rooted in these experiences. There is a body of work that illustrates educational attainment of immigrants, and much of it is from the descriptive statistical perspective. The way the terms "immigrant" and "domestic" or "native-born" are used is not consistent in the literature, and that is a limitation of this review as not all research reports their definition of immigrant. Some note that they are representing first generation immigrants, while others state their population as second generation who are, in fact, U.S. born citizens. This is one of the limiting factors in this field of research.

This review will focus on four major areas of existing research, looking at immigrant educational experiences across the K-12 spectrum and in higher education, and investigating the influence of parental higher education attainment on student outcomes; family composition and the association of one and two-parent families on attainment; and the impact of student educational expectations on student experiences and the association with university graduation rates when applicable. When looking at immigrant higher education attainment in general, 29 percent, or 10.5 million of the 36.7 million immigrants ages 25 and older had a bachelor's degree or higher in 2014, compared to 30 percent of native-born adults. Notably, the share of college-educated immigrants is much higher-—44 percent—among those who entered the country since 2010. In the overall sense, immigrants seem to be performing on par with their U.S.-born peers

(Migration Policy Institute, 2016), yet this may be skewed when considering the high percentage of recent immigrants who arrive with a bachelor degree already in hand.

Post-bachelor study is also an area of reporting that is illustrative of the attainment levels for immigrants. As of now, college-educated immigrants are more likely to have advanced degrees than their U.S.-born counterparts. In 2014, 14 percent of the college-educated foreign-born held professional or doctorate degrees, compared to 10 percent of their native-born peers. Both groups were almost equally likely to have a master's degree with 28 percent for the foreign-born and 27 percent for the native born (Migration Policy Institute, 2016). Rates of growth in college-educated immigrants are also increasing compared to domestic students. Recent data from 1990-2014 shows the number of immigrants in the first generation with higher education credentials has grown at more than twice the rate of the same population among the U.S. born (Pell Institute, 2015).

The literature on this topic and the variables listed is expansive. In general, the commentary is highly focused on the overall experiences of immigrants, though many have taken pains to associate quite specific groups, races and ethnicities within the framework of this topic. I find a gap that has yet to be filled and could provide important investigation into immigrant higher educational attainment. The missing piece in the current debate and discussion is research and publication on how varied generational immigrants across income levels within specific personal and family contexts succeed in attaining a university degree.

General Immigrant Educational Attainment

It is important to note that immigrants, even those who attain educational credentials at higher levels and at higher rates than the general population, are not monolithic. Myriad factors, including migrant status, location, parental involvement and expectations, family characteristics,

pre-immigration characteristics, age of arrival of immigrants, English proficiency, generation status and duration of residence in the United States are variables which influence individual and group outcomes.

One factor sometimes overlooked is that of whether the immigrant is of voluntary or non-voluntary status. A noteworthy sub-group within this population are immigrants of refugee status and the burdens they carry in this regard. It has been theorized that no matter what race, those immigrants who willingly migrate to a country are more often optimistic about the connection between hard work and success. In contrast, those who come to a country unwillingly are not as hopeful about their chances to succeed in a country to which they did not choose to migrate (Goyette & Xie, 1999). Some involuntary minorities in the U.S. develop an adversarial sub-culture of their own toward the education system and the society in which they live, seeing the dominant culture as oppressive and something to resist. This creates consistent barriers to attainment at every level of education is exacerbates the challenge of students in this group to reach the same educational status as their more assimilated counterparts (Schmid, 2001).

There is also existing research on higher education attainment expectations among both domestic and immigrant students and provide important points of emphasis. Among the literature available is a 2008 report from the National Center for Educational Statistics, which notes that about 9 in 10 students (91 percent) in grades 6 through 12 had parents who expected them to continue their education beyond high school. Of these, 65 percent had parents who expected them to earn a bachelor's degree or higher, and 26 percent had parents who expected them to complete some postsecondary education. Expectations seem to be high overall, yet there are often significant differences when viewed in more specific contexts.

An important context is income. A higher percentage of students from families with a household income greater than $75,000 (83 percent) had parents who expected them to finish college than students from families with smaller household incomes (51, 56, and 70 percent for students from families with incomes of $25,000 or less, $25,001 to $50,000, and $50,001 to $75,000, respectively) (Lippman, et al., 2008). As noted earlier, in the lowest economic quartile, only nine percent of students graduate with a bachelor degree. The factors investigated in this study point to the stark difficulties faced by all students in this demographic and, particularly, how immigrant status affects outcomes. One factor of interest which may have strong impediment effects on higher education attainment and further on the economic and social mobility such credentials bring is the variable of SES upon arrival to the U.S. Simply put, an immigrant who is poor in their country of origin is likely to be poor in the U.S. If they are rich in their country of origin they have a potential to be rich in the U.S. Even those immigrants who have high SES in their country of origin often find themselves further down the economic ladder when they come to the U.S. (Feliciano, 2006).

Reception of status also marks an important divide between immigrants and how they are perceived in the society. Though perhaps not illustrated in recent refugee events around the world, there is a tendency for host nations and their citizens to accept those who come from nations where they were persecuted and may have had to leave for political reasons or because of war. These immigrants are viewed more sympathetically, receive various forms of federal assistance and through these assets, are often able to create communities of solidarity and entrepreneurship. Cuban and Vietnamese immigrants are part of this category, and they often have optimism about their children's opportunities and encourage academic achievement. Conversely, immigrants from places such as Mexico and Haiti, who come to the U.S. primarily

as economic immigrants, face conditions with far fewer social and state assets, are routinely denied the refugee status which would allow those assets to be secured, and often experience pervasive discrimination in their communities. They have far lower expectations of their children's opportunities and are often well removed from the concept of educational achievement in the U.S. even when they have entered the country legally (Schmid, 2001).

The literature suggests it remains challenging for immigrant students to escape the reality of where they immigrate from. The findings of a study including 5,266 second-generation high school students in Florida and California, who were children of Cuban and Vietnamese immigrants (representative of relatively advantaged groups) and of Haitian and Mexican immigrants (representative of relatively disadvantaged groups) document that challenge. The research found that parents' socioeconomic status (SES), length of U.S. residence, and hours spent on homework significantly affected the students' academic performance, but did not eliminate the effects of ethnic community (Portes & MacLeod, 1996).

Where immigrants land and enter an education system also seems to play an important role in their success and ultimate level of attainment. Highly stratified educational systems present challenges for immigrant students. Analysis of 2000-2012 PISA results in 24 Western nations shows that the more highly stratified the education system, the larger the gaps between immigrant and native student achievement. Conclusions noted that, although differences between native and immigrant youth in numerous countries have decreased, there are still marked and relatively stable differences between various types of immigrant societies. Pronounced yet diminishing differences persist in Continental European countries which are more stratified in their conception and operation, while the Anglo-American immigration countries and several

Eastern European countries show low levels of educational disadvantage for immigrants (Reiderer and Verwiebe, 2015).

Educational attainment is also affected by race and generational status. These factors alone explain some of the differences between immigrant and native students. Combined they help us understand that some race/ethnicities experience more beneficial effects of a generational immigrant status. Specifically, it has been found that the beneficial effects of immigrant status are most pronounced among second-generation Chinese and first-generation Black youth. Many immigrants from the Caribbean, the location of origin for most first- and second-generation Black students, feel a strong desire to maintain their unique ethnic heritage and to distance themselves culturally and socially from native-born Black students. Asians, including Chinese immigrants are more likely than others to be enmeshed in ethnically homogenous communities and organizations, such as religious groups and after-school language/heritage schools, yet questions remain on how these attainment status levels carry through to succeeding generations (Keller & Harker-Tillman, 2008).

Parental Higher Education Attainment

The level of parental university degree attainment also reveals some significant associations to the possibility of student higher education completion. For instance, a higher percentage of students whose parents had earned at least a bachelor's degree (88 percent) had parents who expected them to finish college than students whose parents had completed less education (62 percent for parents who had some postsecondary education, and 44 percent both for parents who had graduated from high school and for those with less than a high school diploma) (Lippman, et al, 2008).

There is also evidence supporting the premise that parental educational achievement relates specifically to immigrant student achievement. Data analysis of 2,147 children ages 6-12 showed that parents' pre-migration education is more strongly associated with children's academic achievement than any other pre- or post-migration attribute (Pong & Landale, 2012). On average, in 2000, children of immigrants were nearly as likely as children in native families to have a father with a bachelor degree (Baum & Flores, 2011). While this is notable and aligns with one of the variables investigated in this study, it is also important that this factor of attainment is driven by expectation with a basis on family income, child gender and parental level of educational attainment. Less than half of parents with annual incomes of less than $30,000 expect their child will attain a four-year-college degree, compared with nearly eight in ten parents with incomes over $75,000 (Child Trends, 2015).

In recent historical trends, college enrollment rates vary considerably with parents' educational attainment. In 1999, 82 percent of students whose parents held a bachelor's degree or higher enrolled in college immediately after finishing high school. The rates were much lower for those whose parents had completed high school but not college (54 percent) and even lower for those whose parents had less than a high school diploma (36 percent). Even for those who did not enroll in postsecondary education immediately after high school, the rates of access are low, with 59 percent of those with parents with no college experience enrolling two years after high school. The enrollment rate increased to 75 percent among those whose parents had some college experience, and to 93 percent among those whose parents had at least a bachelor's degree.

Students whose parents did not attend college are at a distinct disadvantage when it comes to postsecondary access and that disadvantage persists even after controlling for other important factors such as educational expectations, academic preparation, support from parents

and schools in planning and preparing for college, and family income. They also remain at a disadvantage with respect to staying enrolled and attaining a degree, again controlling for the other related factors. Parents' education mattered even for graduates who as seniors had planned to enroll in a 4-year institution immediately after high school. Among these college-bound seniors, 65 percent of those whose parents did not attend college had enrolled in a 4-year institution by 1994, compared with 87 percent of those whose parents had bachelor's degrees or higher. In addition, rather than pursuing their plans to attend a 4-year institution, graduates whose parents did not attend college were about twice as likely as their peers whose parents had attained bachelor's or advanced degrees to attend public 2-year institutions in-stead (20 versus 9 percent) (NCES, n.d.).

Family Composition

We know that family composition, specifically examining the presence of two parents in the household, reveals significant differences in not only student expectations but also attainment in levels of education. Comparing this variable, research shows a strong association between two-parent households and expectations for students to graduate from college. Sixty-nine percent of students from two-parent families had parents who expected them to finish college, compared to 58 percent from single parent families, and 52 percent from other types of family arrangements (Lippman, et al., 2008).

Regarding immigrant educational success and attainment in the presence of a two-parent household, the literature suggests that immigrants who live with this characteristic achieve at higher levels and pave the way for attainment in higher education. Children living with one parent or neither parent generally tend to have lower levels of educational attainment (Lloyd, Tienda, and Zajacova, 2001). Additionally, youth in two-parent households and those in

households with extended families where older relatives monitor and motivate adolescents see an increase in levels of educational attainment (Portes and Fernandez-Kelly, 2008). It is posited that two-parent households provide stronger social networks with more stable psychological conditions that lead to higher academic achievement and educational aspirations than of those children who live in single parent homes (Zhou, 1997).

There is also evidence to suggest that in both one- and two-parent families, children born to immigrants are less likely to fall behind in school than those born to U.S.-born parents. The effect of two-parent families for immigrant students also shows a significant schooling advantage over children born to one immigrant parent (Thomas, 2009). Accounting for the waning effect of immigrant status and the connection to economic status, it was also found that while children born to two immigrant parents in the wealthiest Black immigrant families do better in the second generation than in the first, the reverse is observed among children in less wealthy families (Thomas, 2009). Across the board, and including immigrant and domestic students, individuals from intact families with two parents completed, on average, more years of schooling and were also more likely to graduate from high school, attend college, and complete college compared to peers raised in blended or single-parent families (Ginther & Pollak, 2004).

The literature notes significant overall differences in university attainment by race while not controlling for immigrant or native status. In 2012, the percentage of bachelor degree holders over age 25 by racial category in the United States was Asian – 50%, White – 29%, Black – 18%, and Hispanic/Latino – 13% (U.S. Census Bureau, 2012). This correlates well with the two-parent family context, as Asian immigrant and White parents (regardless of nativity) are the most likely to be married with almost nine in ten Asian immigrant parents married (Raleigh & Kao, 2010). A four-year study of the Miami-Dade (Florida) and San Diego (California) school

systems also concluded that a more cohesive, stable, and resourceful home environment leads to higher educational attainment and the findings on children of immigrants were identical to those on native-born children. Children who come from intact immigrant families in which both parents are present have higher grade point averages, lower dropout rates, and higher aspirations than do children who are raised in stepfamilies or single-parent families (Schmid, 2001).

Although a two-parent home environment seems to be a key in educational persistence across immigrant and native families, there are still significant differences in the generational status of immigrants and their persistence to high-school graduation, a necessary stepping stone to strong higher education outcomes. A 1999 study of immigrant and native Latino youths found that U.S.-born students of U.S.- born parents were more than twice as likely to drop out of high school as were U.S.-born students of foreign-born parents. Extending this comparison to third generation students, sophomores from this group were almost three times as likely to drop out as were immigrant sophomores (Schmid, 2001).

New immigrants often face societal discrimination, even when they live close to American minorities as part of a community. Once landed, it has been shown that second generation is more likely to develop an "adversarial stance" toward the dominant white society. Whether the distinctiveness of skin color, especially of those who are deemed phenotypically Black, this adverse stance, or a combination of both is to blame, these factors nonetheless may exert a powerful influence on assimilation and achievement in school. It has been found that the lightest skin-toned and most European quarter of the Mexican American population has about 1.5 more years of schooling than does the darker looking majority. These differences in schooling persisted even when socio-economic factors were controlled (Schmid, 2001).

Student Educational Expectations

Qualitative analyses of attainment expectations are prevalent throughout the literature. Though this is the norm overall, there is movement to quantify this relationship through some studies and meta-analysis. While it is understood that achievement and attainment are different measures, getting good grades and displaying knowledge (achievement) are quite exclusive in relation to continuing to higher education and graduating from university (attainment). In this regard, it has been posited that parents' aspiration/expectation for their children's educational achievement has the strongest relationship with students' academic achievement (Fan & Chen, 2001).

Within racial groups, the concept of parental expectation as an indicator of higher education is strong. Eighty percent of Asian students had parents who expected them to finish college, compared to 66 percent of White students, 64 percent of Black and Hispanic students, and 53 percent of other, non-Hispanic students. Parental language acquisition also seems to play an important role in their expectations of student outcomes. Seventy-two percent of students whose parents did not mainly speak English at home had parents who expected them to finish college, compared to 65 percent whose parents mainly spoke English. Further, 76 percent of students whose parents were not born inside the United States had parents who expected them to finish college, compared to 63 percent whose parents were (Lippman, et al., 2008).

Not all research, however, concurs with the notion that there are distinct expectation differences based on immigrant race and ethnicity, nor on language spoken inside and outside the home. Some large survey studies of adult immigrants conclude that *all* immigrant parents, regardless of nationality, have high educational aspirations for their offspring and are willing to endure major sacrifices to achieve these goals (Portes & Hao, 2004). Regarding immigrant

perceptions and attitudes about higher education, the National Education Longitudinal Study of 1988 (NELS), examined whether parent-child interaction varies among racial and generational groups. Researchers using that dataset found that first and second-immigrant parents are more likely to talk about college. In that same study, it was found that that when taking SES and other family variables into account, children of immigrants outperform children of natives in virtually all academic subjects except for reading (Kao, 2006). A recent article published in *Social Science Research* notes that immigrants' children have very positive attitudes and behaviors toward education, including higher educational greater effort expended on schoolwork than children of natives (Greenman, 2013). There is also the argument for the immigrant optimism hypothesis, which frames the concept that immigrant parents come to the U.S. with very high levels of motivation to succeed and optimism about their children's life chances, which they pass on to their children (Kao and Tienda, 1995).

Taking note of expectations in low-income immigrant families, the "immigrant paradox" continues to present in the literature This phenomenon occurs wherein children escape the fates that are predicted by their low SES. This may not be as surprising when considering research has found that both foreign-born and native-born youth with immigrant parents show better academic, behavioral, emotional, and health outcomes than youth with native-born parents. These superior outcomes of the children of immigrants counter what would be predicted, given their lower SES. Corroborating the paradox, one study found a weaker association between SES and student GPA among immigrants' children than among natives' children (Pong & Hao, 2007).

Further connecting the premise that immigrants are well positioned for high achievement in education is the concept that early-generation immigrant students may have advantages, and

some may be connected to being present in the two worlds of native and host country and receiving the benefits of both in growth years. These advantages may not only be present educationally through the cognitive domain, but in the socio-behavioral aspect as well (Hao & Woo, 2012). Regardless of their socio-economic background, many immigrant students find themselves in a family environment that is strongly supportive of achievement. They believe education to be the most significant way for their children to improve their status in life. Many parents encourage their children to overcome the difficulties they may face in school because the educational opportunities in the United States are superior to those available in their home countries. The encouragement and aspirations of immigrant parents may be the most important ways they can influence their children's education. Because of their long work schedules or discomfort with speaking English, foreign-born parents are less likely to become involved in their children's school lives through more formal mechanisms such as volunteering at school (Kao & Tienda, 1995).

Some students from immigrant families seem to obtain similar encouragement and support for their educational endeavors from their friends. Asian-American students, many of whom have foreign-born parents, are more likely than other students to be a part of an achievement-oriented peer group. They report the highest level of peer support for academics and are more likely to study together and help each other with difficult assignments. The role of peers in the academic achievement of children and adolescents has been highlighted in numerous studies. Peers may be especially important for students from immigrant families, because their parents are often unfamiliar with the educational system in the United States (Fuligni, 1997).

This is corroborated in a study of approximately 1,100 adolescents with Latino, East Asian, Filipino, and European backgrounds, who reported on their own academic attitudes and behaviors as

well as those of their parents and peers. Students' course grades were obtained from their official school records. Results indicated that first and second-generation immigrant students received higher grades in mathematics and English than their peers from native families. Only a small portion of their success could be attributed to their socioeconomic background; a more significant correlate of their achievement was a strong emphasis on education that was shared by the students, their parents, and their peers (Fuligni, 1997).

Much of the research points to findings which suggest immigrant students and their parents, at least at one point in time, hold higher aspirations than do native students. When examining these assumptions, one study also showed a significant level of variation in aspirations among racial and ethnic groups, as well as between immigrant and native-born parents. For example, with parents of kindergartners, nine out of ten (92 percent) immigrant Black parents said that they expected their child to earn a college degree or higher, compared to 72 percent of native Black parents. It also reports that foreign-born parents have higher levels of *consistent* and *long-term* aspirations than their native counterparts across all racial and ethnic backgrounds. While 81 percent of immigrant Black parents maintained consistently high college aspirations, less than half (46 percent) of native Black parents maintained these aspirations over the course of five years (Raleigh & Kao, 2010).

This pattern of immigrant optimism is similar for Hispanics and Asians, with foreign-born parents reporting significantly higher aspirations than their native-born counterparts. The trend persists as children progress through the school system, with the majority of immigrant parents reporting higher overall aspirations than native-born parents through the third and fifth grades as well (Raleigh & Kao, 2010).

The odds indicate that Black, Hispanic, and Asian immigrant parents on the whole all have significantly higher probability of holding college aspirations for their children than U.S.-born Black, Hispanic, and Asian parents. For example, immigrant Black parents have more than four times the odds of saying that they expect their kindergarten child to graduate from a four-year college compared with native Black parents. Hispanic immigrant parents have about two and a half times the odds of saying they believe their child will graduate from college. Compared to native-born Asian parents, immigrant Asian parents are especially optimistic, with almost nine times the odds of having college aspirations for their children. Even when controlling for socioeconomic status, family composition, gender, and whether or not the child has a diagnosed disability, these immigrant differences remain. With these factors accounted for, Hispanic immigrant parents have more than four times the odds of holding college aspirations for their children and Asian immigrant parents have more than 20 times the odds of having college aspirations (Raleigh & Kao, 2010).

The continued findings that Asian immigrant students and their parents have higher expectation for educational attainment may stem from the basic belief system manifest in a large segment of Asian societies. The Confucian belief about the role of effort in achievement is pointed to in Chinese literature and can be found in Japanese philosophy (Mau, 1997). Both Asian parents and students alike characterize low performance as caused by lack of effort, though students also slightly attribute this to other causes, while White students attribute low achievement more evenly across all causes. It is possible that the view of effort as opposed to innate ability as a driver of academic achievement and attainment may position these students for success in an American context where results are emphasized and Asian students and parents see those results as the extension of effort (Mau, 1997).

Family roles in expectations on student achievement and attainment are well documented, especially when using immigrants as a group as subjects under study. The cultural measurements in these studies tend to show higher than normal correlations for immigrant students when compared to native students. Within-group comparisons are not as present in the literature, yet can illustrate the influence of specific ethnic expectations on educational achievement and attainment. For instance, it was found that, after controlling for parent-child interactions and parents' and children's characteristics, that immigrant Chinese and Korean parents and children have higher educational expectations than do immigrant Mexican parents and children. Thus, ethnic background has a greater indirect effect for immigrant Chinese and Korean students than for immigrant Mexican students. In addition, ethnic background has a direct positive effect on achievement for immigrant Chinese students but a direct negative effect for immigrant Mexican students. As a counterpoint to the overall expectations, it was also found that immigrant Mexican students may have an advantage by retaining knowledge of their parents' language as it was discovered that proficiency in the parental language significantly improved math scores and GPA. An immigrant student who was proficient in his or her parents' language increased math scores by 2.4 points and GPA by .2 points, all else being equal. In this same study, the culture of schooling is also noted to some degree and posits that given their relatively lower SES, immigrant Mexican children are more likely to attend public schools that have many minority and low-SES students. These schools tend not only to be of lower quality and produce students whose achievement is low, reducing the positive effect of any shared family expectations on achievement (Hao & Bonstead-Bruns, 1988).

This brings into question the near-normalized hypothesis of the *immigrant paradox*. Recent scholarly articles question the concept of this paradox as an all-encompassing explanation

for immigrant achievement and higher educational attainment. They argue that, rather than blanketing the immigrant experience with this overarching context, the introduction of specific contexts is the key to understanding and breaking down the wall that has been built across the literature attempting to discern the immigrant versus native narrative. The argument has been laid out that Pierre Bourdieu's concept of habitus, the personal view of where one fits in the social world and the set of dispositions, skills, and habits that emerge from that conception, leads to the kind of social reproduction represented in this paradox, yet the mistake is made in applying the concept broadly as a singular theme that all immigrants live within the same construct. What is important, it is argued, is that each immigrant brings a set of "transferable assets" and that parents use those assets in manner consistent with their value in their new situation and, possibly most importantly, children imitate those habits. This paradox is explained through this much simpler interaction than proponents of the paradox may have considered (Feliciano & Lanuza, 2017).

Some tend to think of culture as related to ethnicity, race or income. It is important to remember that the students in these groups come with norms, trends and expectations of their own. Another cultural group to consider are those who have completed university degrees and how the trends, norms and expectations of parents who live in that category influence decisions on their children's higher education goals. What is also key is to note how early these expectations begin to materialize in the future educational aspirations of young students. University access and acceptance is a relatively sequential, multi-step process and ignoring any steps can be detrimental to entering a 4-year university in the first place. First, students must decide that they want to pursue postsecondary education and what type. Second, they must prepare academically for college-level work. Third, if they want to attend a 4-year institution,

they must usually take the SAT or ACT entrance examinations. Fourth, they must choose one or more institutions and file applications. Finally, they must gain acceptance and make the financial and other arrangements necessary to enroll. The challenge, as noted in earlier-cited articles, is that many parents often do not bring higher education expectations into their particular cultural view, and students feel the effects of this quite early in their primary and secondary educational progress. In fact, high school graduates whose parents did not go to college tend to report lower educational expectations than their peers as early as 8th grade (NCES, 2001).

This literature review outlined a brief assortment of articles aligned with the immigrant and native populations educational attainment in the U.S. Through this condensed selection, it is clear that substantial attention and resources have been allocated to this research. As stated earlier and supported through this review, the question of how immigrants of varying generational status seek out and complete university-level bachelor degrees remains unclear. In the next chapter, I will draw from social capital, cultural capital and conflict theories to explain how the ability to move both within society in positions of relative power, the power to use familial and ethnically personal resources to create and re-create opportunities, and how the search for elite status within and among groups shapes the academic path of students occupying distinctive generational groups.

Chapter IIa: Theoretical Framework

The previous section explored literature on numerous issues surrounding educational attainment. This section will present concepts of theories that help explain the research questions, bring forward a visual representation of how the independent variables - parental educational attainment, two-parent households, and student educational expectations - explained by these theories can be conceptualized together intersectionally, and end with the hypotheses for this investigation. The independent variables in this research are represented mainly by cultural and social capital theories and are supported by the concepts of conflict theory and the macro, meso, and micro levels which are the basis of ecological systems theory. Rather than placing cultural and social capital as external resources to be obtained or gathered, the position is that these capitals are resources which exist as the independent variables for this study, and that students use these capitals and conflict within their ecology as tools for higher education attainment.

Cultural Capital Theory

Pierre Bourdieu's founding work in social and educational reproduction provides a substantial framework from which to base this research. His position that cultural capital is an accumulated asset that can be built and transferred through the lineage of family is a structural component of educational achievement (Bourdieu, 1977). In treating cultural capital as a commodity that is both scarce and distributed among the social classes, he notes that it is not only the production of this asset that is important, but also the reproduction of it which maintains social classes. Though Bourdieu's position on power between classes would premise that low SES students most often begin with a low amount this capital and little opportunity to build this account through the "highbrow" activities often associated with the concept (Lareau &

Weininger, 2003), this narrow band of operationalization limits the work of cultural capital. A framework which includes cultural capital as both a part and extension of parental status (two-parent household), parents' educational attainment and the expectations of higher education attainment as a student educational component provides a broader foundation from which to apply Bourdieu's mechanism.

In the reproduction of cultural capital, it is argued that the terms on which these assets are built are leveraged by those who have acquired and developed this capital in terms of financial power through industrial production and with that have created the institutions and operations, such as the operas, museums and theatres from which access determines social class (DiMaggio, 1982). This reproduction extends to higher education, as the statistics noted earlier suggest, with students from the lowest SES quartile earning university degrees at the rate of only nine percent.

That SES will influence academic performance is consistent with the theory of cultural capital if the basis of this capital is, as Bourdieu and DiMaggio described, being defined and produced by the elite and reproduced through the limitation on access. In classic cultural capital, elite students receive access to significantly more of the important measurables and assumptions that the theory would posit, including embodied, objectified and institutionalized capital. To develop and continue accumulating this capital, poor students must build their account from a different and less advantageous beginning point than more wealthy students. This puts poor students at a significant disadvantage if we see cultural capital only in its classic sense. This study posits that students across incomes access and use cultural capital by drawing the basis for its appropriation from family input and circumstances represented by the study's independent variables. The accumulation of cultural capital within the family structure of this study's independent variables is limited to cultural expectations while the factors of parental educational

attainment and two-parent households are either-or equations. These constructs are key to contextually understanding the role of cultural capital in this research as they do not limit the value and use of cultural capital to only more wealthy families and students and bring the use of cultural capital into the within-group domain of each student from various income groupings. If the broader context of Bourdieu holds, students in this research sample with more cultural capital in the form of the three independent variables of this study - parental educational attainment, two-parent household, and student educational expectations - are likely to reach greater levels of educational attainment.

Expectations play an important role in how cultural capital is used to foster academic attainment in students. Bourdieu posits that cultural capital is reproduced and may rigidly reinforce class status. This reinforcement itself is an expectation for those with higher levels of cultural relative to their peers, both within and outside of specific income groups. The theory would posit that low SES students would have a challenging time in building enough cultural capital to personally influence their outcomes regarding university graduation. This reproduction is also developed and maintained by people in positions of power and authority such as teachers and parents and the expectations they have for students. When the context of the expectations of those in authority is introduced, evidence shows that others' perceptions of student academic abilities is influenced more when students are from low SES families and display cultural acumen than when they are from high SES environments (Dumais, 2006). With this in mind, the circle of cultural acumen and expectations work together to produce class status for students from the low SES category when looking at this capital as a within-group comparison.

Bourdieu's framework on social status reproduction is at work with parents as well as based on both economic status and the race or color of their children. Parents whose children are

the majority race in a school often assert themselves on their children's behalf much more than those parents with minority-race children. As cultural reproduction theory would indicate, those children of the majority parents would spend their capital on behalf of their children. When they spent this, teachers and administrators in turn reciprocated with support for the behavior that was understood and expected to be the norm. (Lareau & McNamara-Horvat, 1999). This reproduction is another way to see Bourdieu's theory, reinforcing the position that class stratifications also exist within SES groups. This directly aligns with the premise that the low SES students are also influenced among their own peers by the expectations of parents, which this research associates with cultural norms though those norms are defined by race in the data.

Alternative positions to cultural capital exist as well. In contesting the concept of social reproduction and cultural capital as the *cause* of its own reproduction, some research has argued that the premise is flawed. Reasons for this argument include the idea that, because it does not consider other variables such as family resources or investment in its conclusion, or that individual student merit such as innate cognitive ability or high educational aspirations are not considered (Meier-Jaeger, 2011), it does not explain Bourdieu's reproduction on its face. Additionally, and in line with the interpretation of cultural capital as an intersection where social capital and conflict theories meet and merge, Lareau & Weininger (2003) posit that cultural capital does not have to be partitioned from educational "skills", "ability", or "achievement". Lamont and Lareau (1988) position cultural capital even more directly within the low SES group when they note that lower class high status signals, such as being "streetwise", perform the same exclusionary function that the legitimate culture performs in the middle and upper classes. Although an alternative position, this research legitimately extends Bourdieu's concepts from *only* among classes to an even more distinct legitimization of his theory in multiple and specific

class statuses. This interpretation fits well for this study regarding the measures of parental educational attainment, family composition and student educational expectations as measures for the cultural capital of students. Regarding cultural capital and its acquisition, Bourdieu (1986) notes:

> "It can immediately be seen that the link between economic and cultural capital is established through the mediation of the time needed for acquisition. Differences in the cultural capital possessed by the family imply differences first in the age at which the work of transmission and accumulation begins…"

While the accumulation of cultural capital is a premise for Bourdieu, the use of this ideal in this study is an extension of Bourdieu's position. In extending Bourdieu, this research proposes that accumulation occurs in in the classic sense Bourdieu defines within the variable of student educational expectations. This happens through the ongoing dialogue between parents and students regarding preparation for university degree attainment. The extent to which families engage in this discussion as well as student perceptions of their capability to attain a university degree exist across a spectrum and is influenced by the interactions within the family, and this study examines how families with different student educational backgrounds approach this. In other words, the variable of student educational expectation is not an either-or premise, but can be accumulated through interaction and, for the purposes of this study, this accumulation is reported by students at the specific time they participate in the survey from which this research data is extrapolated.

This study's framework also alters Bourdieu by defining the variables of parental education attainment and two-parent households as propositions which *do* exist in an either-or position. In this alignment, though the variables exist in the cultural capital continuum, they are

not necessarily possessions which imply time as needed for acquisition or accumulation, nor do they exist in a condition where the capital can increase or decrease. Where Bourdieu's theory meets directly with these variables is through their inherent transmission from family to student as an ongoing and present condition of the overall family dynamic. Contrary to Bourdieu, however, students in this research model do not acquire these two independent variables and they do not accumulate them. They either exist or they do not.

Bourdieu calls cultural capital a family possession. Within this research, these possessions are represented by all three independent variables – parental educational attainment, two-parent household, and student educational expectations and act as the overall family capital which students "spend" to attend university and graduate with a bachelor degree. According to Bourdieu, cultural capital can exist in three forms known as the embodied state, the objectified state or the institutionalized state. In the embodied state, cultural capital exists in the form of long-lasting disposition of the mind and body. This state of capital is internal to the person, and language is an example of this at work, especially as it confers advantage. Of this state, Bourdieu (1986) writes, "The work of acquisition is work on oneself (self-improvement), an effort that presupposes a personal cost". Student educational expectations as a variable fit well in this explanation as they are continually acquired, they are a self-improvement effort on the part of both parents and students, and they cost in time and effort with no guarantee of return on investment. As positioned here, student educational expectations are represented as embodied capital in that they are an integral part of students' lives, continue to be accumulated from within the family structure, much like language as an evolving skill transferred from family to child, and confer advantage for the student as the hypothesis for this research suggests.

The objectified state of cultural capital is represented by goods which may be associated with higher class status. Bourdieu (1986) framed this as "transmissible in its materiality". While the physical existence of cultural goods such as pictures, books, instruments and machines are a standard application of this state, and it follows that those who possess such hold capital in this state at a more substantial level, Bourdieu also presents the idea that objectification exists in the symbolic realm. He suggested that this objectification would only be effective if it was invested as a weapon and stake in the struggles of cultural production in the social classes (Bourdieu, 1986). This conversion of symbolism to weaponization suggests power and conflict at the core of the theory. In this research, the two-parent family reflects the symbolism Bourdieu suggests, and that family status which, on average, provides a stronger economic foundation (U.S. Census Bureau, 2015) even in low SES environments, provides the basis for intact families to use their additional earning power to enhance the acquisition of material goods, and allows the family to wield strength which is then transferred to their children through confidence and ability to enhance local status in their income group.

In the institutionalized state of cultural capital, academic credentials objectively indicate one's class position. The classic example is the college degree. As Bourdieu (1986) states, "…the material and symbolic profits which the academic qualification guarantees also depend on its scarcity". Across SES environments, the university degree can be regarded as a scarce resource. Its value is enhanced within group and across groups if students from different SES background possess the resource. This institutionalized state suggests that the variable of parental educational attainment places students whose parent(s) hold a university degree is in a position of power SES class struggles.

Social Capital Theory

While cultural capital is associated with the accumulation of power and legitimacy, social capital is the expansion of what has been accumulated or stored in a cultural account which can be spent both within, but more importantly, outside of the personal cultural context with the society at large. Students from low SES backgrounds with more substantial accounts internally are more likely to trade their balance for entry, access and competition opportunities with students from other social classes in both their local environment and in the higher education arena. The independent variables of this study act as the indicators of the value these students hold in their cultural capital account and use in the social capital arena as a means of exchange.

Coleman (1988) sees social capital as a resource for action and this position is indicative of the way the independent variables relate to this research. Social capital is the mechanism by which low SES students use the cultural capital they have been given or gained during primary and secondary schooling. Coleman even characterizes expectations as social capital in and of itself. He also describes two intellectual streams for the use of social capital. First, social capital describes action in the social context and explains the way that action is shaped, constrained and redirected by that context. Second, it has a principle of action, most specifically that of maximizing utility. Conceptually, these two streams of use are a good way to explain how university graduates from low SES backgrounds are able to manifest their cultural capital into the outcome variable of this study. Though Coleman argues that the actor has no "engine of action" in the social enterprise, I posit that cultural capital, represented by the family capital of the independent variables, is precisely this engine and allows the use of the theory and these streams to demonstrate their coincidence in outcomes. His assertion that social capital is productive, making possible the achievement of certain ends that in its absence would not be

possible is also supportive of the notion that it acts as the engine for engaging previously accumulated assets. Bourdieu (1986) grounds this concept with his idea of a durable network as the measure of social capital. He simplifies this to membership in a group, and that the group confers "credit" to one another to be exchanged. What is important in the consideration of low-SES students is that Bourdieu does not limit this durable network to those assets already accumulated, which would limit this framework to those who are already resource-rich, likely students from middle and upper-class backgrounds. He is careful to note that "potential resources" also form the basis of the exchange which can occur. This places low SES students on par with those from other backgrounds and avoids the concern of tautology expressed by Portes (1998), in which he notes the importance of distinguishing the resources themselves from the ability to obtain them by virtue of membership in different social structures. This view supports my contention that low SES students have cultural capital resources that, though perhaps different than wealthier families in the classic sense, do bring certain value to the social capital environment. Whether those resources imply contention with wealthier students for the attainment of a bachelor degree is under question.

Chattopadhay (2012) introduces the "3R" approach to situating social capital as a domain of student agency as the interconnected framework of Relationship, Resource and Readiness. ''Relationship'' embodies the networks that students build among themselves, with their educators, and with extra-familial stakeholders through school-facilitated contexts, processes and protocols and associates with the durable network manner to explain social capital. The "Resource" frame importantly recognizes the necessity of being in a resource-rich network for students to cross the bridge from low SES background to university graduate. These resources come from the independent variables which form the student cultural capital already mentioned

and provide initial access to successful higher education completion. “Readiness” refers to a student’s ability to learn the “rules of the game” and conceptualized as a set of socially constructed and contextually defined critical capacities that empower socio-economically marginalized adolescents to negotiate with and navigate through structures of power and domination. Those students who have the three independent variables of this research in their family structure in the greatest combination are the students who are most ready to take on this navigation. This readiness enables students to take their cultural capital and spend it to successfully complete a university degree.

Conflict Theory

Conflict and competition for resources exists throughout the theoretical spectrum of this model. As a supplement for this framework, there is additional engagement in this research from conflict theory, Karl Marx’s sociological position that focused on the conflict between two primary classes. The bourgeoisie represents the members of society with most of the wealth and means. The proletariat includes those considered working class or poor. In this framework, these students represent the proletariat, and while they press in conflict against other students, they continue to use their cultural and social capitals to seek and secure the university education which many now consider the minimum entry barrier into the middle class of the United States. This study positions this conflict as both across class as Marx would identify as the primary struggle, but also within class as students are in conflict with their own economic peer group as they work to distance themselves through their capital acquisitions and circumstances and then confront students from varied economic means as they move toward and through university.

Expanding from Marx, Turner’s (1960) take on “contest mobility”, in which elite status is the prize in an open contest and is taken by the aspirants' own efforts offer a clear and resonant

foundation from which to place this theory into the research. For many students, the prize is a university degree and they are in active contestation for this status marker well before they reach university. They contest their peers for a position that will allow them access to the higher education arena in the first place as they exchange their acquired cultural capital for social capital through their basic education and continue the contestation with these capitals through university.

Additionally, the theory of conflict arising between competing status groups through imposition of cultural standards (Collins, 1971) presents an opportunity to consider higher education as that cultural standard in what Collins refers to as the "struggle for advantage" via membership within a group. This alternative explanation may be positioned by considering how students who arrive at and complete university impose their own cultural expectation standards on themselves through the independent variables of this study as a sort of imprint on their behavior and ability to navigate through university to graduation. They are then positioned to complete the cycle Bourdieu (1977) addresses as the transmission of privilege and power to their children, so their struggle for advantage among peers comes with established roots and the higher probability of competing more advantageously within their resource conflicts.

In the end, the study theorizes that the real conflict exists as students contest the accumulation and presence of cultural capital from within their own family and exert that influence within the groups they encounter. This drive for cultural resources is influenced by the independent variables of the study derived from the family capital framework – parental educational attainment, two-parent households, and student educational expectations. Those students who derive more cultural capital from these variables can then move that into a social capital account in contest outside of their own group and compete for education resources

between themselves and students from other SES groups. This manifests in university access where these capitals continue to provide advantage for these students as they move against the same and opposing capitals from other students striving to acquire the same goal of a bachelor degree.

Ecological Systems Theory

In *The Ecology of Human Development: Experiments by Nature and Design* (1979), Urie Bronfenbrenner likened the environment in which humans develop as a set of Russian dolls, a nested structure having a profound influence on people's lives. This research places its independent variables as part of the micro center of ecological systems theory and surrounds that with the meso and macro areas of this approach. In the micro center, cultural (family) capital exists as the independent variables of the research. This capital is then taken to the meso level, where the influence of neighborhood, peers, school, institutions and play are present. In this level, cultural capital is spent and social capital is accrued. Surrounding the meso and micro is the macro level, where the student's circumstances hold the other levels and inform the manner in which capital is valued by the student and those they interact with in the spending or depletion of their personal capital resources. Where the research adds complexity is the part that will be termed as "replenishment". Rather than conceive the levels as separated and independent of one another, this study takes the independent variables and posits that the value they represent is in a continuous cycling and re-cycling pattern where the students add to their personal cultural account and spend that value as they interact with the other levels. In turn, those levels inform the student and affect the independent variables and their value to the student. When students have a higher amount of cultural (family) capital as represented by the independent variables, they use that to build their social capital. It is posited that those students who can spend more

cultural capital over time in building social capital are in a better position to compete for the scarce resource of a university degree.

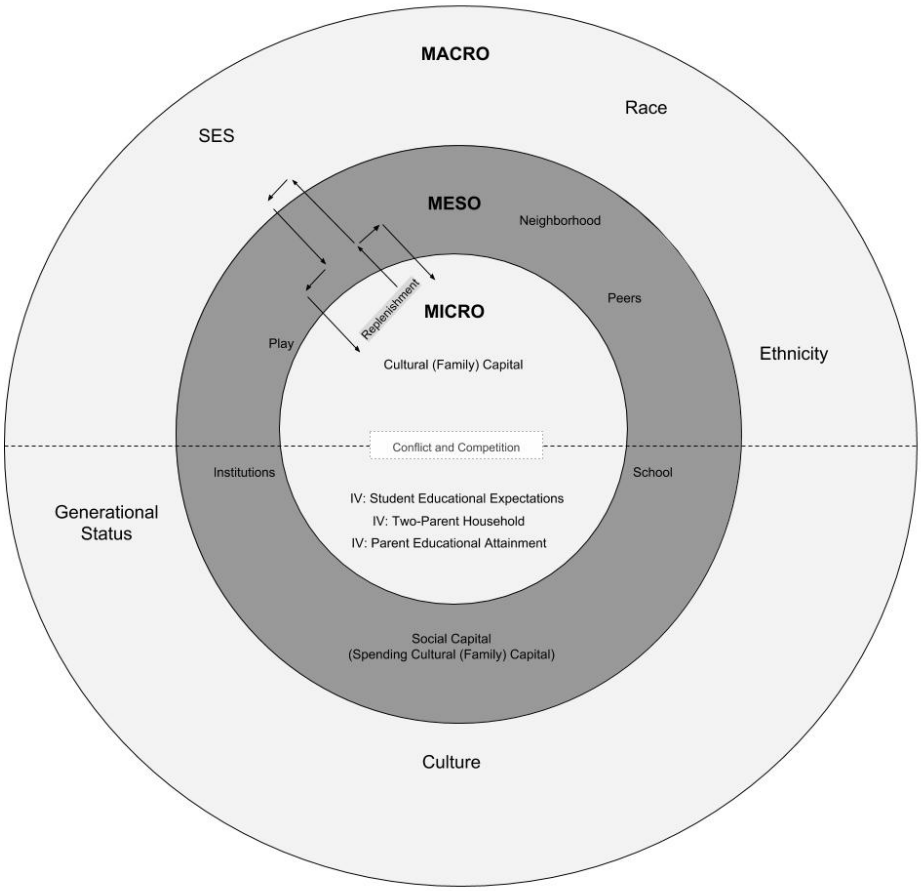
Theoretical Conclusion

Students across immigrant and income spectrums are active participants in the development, acquisition and expenditure of cultural and social capital in a conflict-centric ecology in which the scarce resource of university degrees are contested. This research looked at these students through the lens of these capitals and examined how the variables of this study are associated with higher education attainment. The existing research has focused more on a broad concept of higher education outcome with fewer investigations on different generations of immigrants, incomes and variables associated with bachelor degree attainment. Students in this study use both the acquisition and replenishment of cultural capital from their home environments, and spend that capital pursuing the limited and conflicted resource of access to and culmination of university study and graduation. This occurs through interaction of capitals at the micro, meso and macro levels. These theories combined to create a strong framework for this investigation and support the hypothesis that students with higher incidences of the independent variables in this research are more positively associated with university graduation. Though it has been theorized that families operate as tiny social systems (Furstenburg, 2005), this position bases its premise as an extension of the social capital theory. My position is that *family capital* is a more apt description and theoretical position to contemplate, and that the inter-family facts, dynamics, and circumstances investigated in this research support the idea that family capital as a stand-alone capital system merits consideration in outcomes beyond the household.

Hypotheses

Considering the foregoing framework, prior literature, and positioning of the myriad differences in outcomes in higher education attainment, this study premised two hypotheses to explore. These will also be revisited in the Methodology section, explained further and stated in alternative form. For the purpose of this study, the first hypothesis is that as the data are measured, there will be significant differences in the expectations for students to attain a bachelor degree based on their racial category, their immigrant generation, and their income level. The second hypothesis came from the comparison of family income and generational status with parental educational attainment, two-parent families, and student educational expectations. This hypothesis is that there are significant associations in the completion of a bachelor degree across income stratifications and the three generational statuses when the student's parent had attained at least a bachelor degree; when the student lived in a two-parent family; and when student educational expectations were that the student would complete bachelor level studies.

Figure 2.
Visual Concept of Framework



Chapter III: Methodology

This section of the proposal defines the methods in which this study was carried out. As has been presented in preceding sections, immigrant status can have significant implications for educational attainment. This factor, along with race, family income, parental education, and household composition, all affect the opportunity for and outcomes of students' educational attainment. While second-generation immigrants, those students who have been born in the United States, seem to be performing well compared to their first and third-generation counterparts overall, the associations between income levels, race, parental education and household composition on educational attainment remain largely unexplored, especially as they pertain to low-income students, and when compared across income stratifications.

As the United States matures as a nation, the impact of immigrants continues to grow. Students from backgrounds which are not of a European heritage, will become, as a group, a majority of the students in the nation at approximately the end of the next generation. Of the people in the United States, second-generation immigrant students currently represent a substantial number of people in the population pyramid. With this, the next century of this nation's existence will be influenced to a great extent by the students in this subset of the American population. Regardless of immigration generation, students in the lower-income brackets continue to underperform in educational attainment, yet they will be important to the overall progress of the nation over multiple future decades. This study and the methods in this section will provide insight on various factors which may influence educational attainment between first, second, and third generation immigrants across income levels and within the variables of student educational expectations, parental education level, and two-parent household composition.

The research design was quantitative and addressed the main research questions:

1. How well do income levels, student educational expectations, parental educational level, and two-parent households predict bachelor degree attainment among 1st, 2nd, and 3rd generation immigrants?
2. Why do some immigrant students persist to bachelor degree graduation from university at different rates than their other-generational peers?

The analyses used descriptive statistics, chi-square goodness of fit and independence measures, ANOVA, One-Sample T-Tests, Independent Sample T-tests, and binary logistic regression. To assess the sample size requirements for this study, G*Power analysis software was used. In simple logistic regression, with a single continuous predictor, a small effect size of 1.5 and a power of .95, the approximate sample size would be 337. To achieve a power of .8, the approximate sample size would be 208. With a binary covariate, a large effect size of 2.11 and a power of .95, the approximate sample size would be 1437. To achieve a power of .8, the approximate sample size would be 880. All of the analyses to be proposed will meet the minimum sample size standards to reduce the possibility of a Type 2 error, or accepting a hypothesis that should be rejected.

Participants

The data for this study came from the National Center for Education Statistics (NCES) Educational Longitudinal Study (ELS) of 2002 (ELS:2002) (Base Year: BY) and third follow-up survey conducted in 2012 (F3). The sample population included (among others) all students and parents who participated in the 2002 base year study and the follow-up surveys indicated. These surveys provide data on students between the ages of 16-26, cover a period of 10 years and include up to 16,197 participants. The ELS data used for this study is open for public use and no

human subjects were part of the study. For the purposes of this study, the research examined data collected from the student and parent questionnaires and investigated factors associated with completion of university qualifications designated by graduation with a bachelor degree or above by the time of the third follow-up survey in 2012.

ELS:2002 was designed to monitor the transition of a national sample of students as they progress from 10th grade through high school and beyond. ELS:2002 was a longitudinal study, in which the same units were surveyed repeatedly over time. Individual students were followed for more than 10 years, with follow-up studies conducted in 2004, 2006 and 2012. It was an integrated multilevel study that involved multiple respondent populations. The respondents include students, their parents, their teachers, and their schools (from which data have been collected at three levels: from the principal, the librarian, and from a facilities checklist).

This multilevel focus supplies researchers with a comprehensive picture of the home, community, and school environments and their influences on the student. This multiple respondent perspective is unified by the fact that, for most purposes, the student is the basic unit of analysis (NCES, 2004). Of particular interest in this proposal was the NCES rationale and opportunity for the research examination of educational issues, which included:

- access to and choice of, undergraduate and graduate educational institutions;
- persistence in attaining postsecondary educational goals;
- rate of progress through the postsecondary curriculum;
- degree attainment;
- barriers to persistence and attainment (NCES, 2004).

The base year survey - ELS:2002, measured students' achievement and obtained information about their attitudes and experiences. Questionnaires were also completed by

teachers, parents, administrators, counselors and media specialists. These surveys provided a detailed view of the factors associated with student progress from their sophomore years to post high school. In the base year survey, ELS:2002, high school sophomores were sampled in the spring term of 2002. The survey instrument was web-based self-administered interview, computer-assisted telephone interview or computer-assisted personal interview. The student questionnaire was divided into seven sections: (1) locating information, (2) school experiences and activities, (3) plans for the future, (4) non-English language use, (5) money and work, (6) family, and (7) beliefs and opinions about self.

Sampling

ELS:2002 was carried out in a national probability sample of 752 public, Catholic, and other private schools in the spring term of the 2001-2002 school year. ELS:2002 used a two-stage sample selection process. First, schools were selected with probability proportional to size (PPS), and school contact resulted in 1,221 eligible public, Catholic, and other private schools from a population of approximately 27,000 schools containing 10th-grade students. Of the eligible schools, 752 participated in the study. Private schools were oversampled (NCES, 2004). The sampling frame for public schools was stratified by the nine-level U.S. Census divisions defined as follows:

- New England/Middle Atlantic - CT, ME, MA, NH, NJ, NY, PA, RI, VT;
- East North Central - IL, IN, MI, OH, WI;
- West North Central - IA, KS, MN, MO, NE, ND, SD;
- South Atlantic - DE, DC, FL, GA, MD, NC, SC, VA, WV;
- East South Central - AL, KY, MS, TN;
- West South Central - AR, LA, OK, TX;

- Mountain - AZ, CO, ID, MT, NV, NM, UT, WY;
- Pacific - AK, CA, HI, OR, WA.

The sampling frame for Catholic and other private schools was stratified by Catholic and other private schools. Catholic schools were identified as those schools with affiliation identified on the PSS as Roman Catholic. Stratifications were then made by the four-level Census regions, defined as follows:

- Northeast - CT, ME, MA, NH, NJ, NY, PA, RI, VT;
- Midwest - IL, IN, IA, KS, MI, MN, MO, NE, ND, OH, SD, WI;
- South - AL, AR, DE, DC, FL, GA, KY, LA, MD, MS, NC, OK, SC, TN, TX, VA, WV;
- West - AK, AZ, CA, CO, HI, ID, MT, NV, NM, OR, UT, WA, WY.

Within each of these public school divisional strata or substrata, stratifications were made by metropolitan status based on CCD locale codes and defined as follows:

- Urban: the school is in a large or mid-size central city;
- Suburban: the school is in a large or small town or is on the urban fringe of a large or midsize city; and
- Rural: the school is in a rural area, either inside or outside a metropolitan statistical area (MSA).

Table 3. School sampling, eligibility, and participation, by sampling stratum, 2002

	Sampled schools	***Eligible schools***	***Participating schools***
School sampling stratum	**Number | Percent[1]**	**Number | Percent[2]**	**Number | Percent[3]**
Total	1,268	1,221 | 96.29	752 | 61.59
Public	953 | 75.16	926 | 97.17	580 | 62.53
Catholic	140 | 11.04	140 | 100	95 | 67.86
Other Private	175 | 13.80	155 | 88.57	77 | 49.68
Urban	434 | 34.23	414 | 95.39	250 | 60.39
Suburban	630 | 49.68	609 | 96.67	361 | 59.28
Rural	204 | 16.09	198 | 97.06	141 | 71.21

1 Percent is based on overall total within column. Detail may not sum to 100 percent due to rounding.
2 Percent is based on number sampled within row.
3 Percent is based on number eligible within row.

Source: U.S. Department of Education, National Center for Education Statistics, Educational Longitudinal Study of 2002 (ELS:2002)

These schools were then asked to provide 10th-grade enrollment lists. At this second stage, Asian and Hispanic students were sampled at higher rates than other students. In this second stage of sample selection, approximately 26 students per school were selected from these lists. Of 17,591 eligible selected sophomores, 15,362 initially completed a base year questionnaire, as did 13,488 parents, 7,135 teachers, 743 principals, and 718 librarians (NCES, 2004). The ELS:2002 cohort consisted of 62 percent White, 15 percent Hispanic, 13 percent Black, 5 percent Asian, and 1 percent American Indian/Alaska Native students. Another 4 percent of the senior class identified themselves by more than one racial/ethnic group (Ingels, Planty & Bozick, 2004).

One parent of each participating sophomore was asked to respond to a parent survey. The parent questionnaire was designed to gauge parental aspirations for their child, home background and the home education support system, the child's educational history prior to 10th grade, and parental interactions with and opinions about the student's school. Parent data was collected to support analyses at the student level. Once the full sample of 10th graders was selected, the parent or guardian who was best informed about the child's educational activities was asked to complete an ELS:2002 parent questionnaire. It is important to remember that the student remained the central unit of analysis and that parent reports were collected to provide contextual data for students.

No additional sampling was performed for the follow-up surveys. The sample target of 16,197 consisted of the same populations as those in the base year (2002) survey and the subsequent follow-ups. The number of completed surveys is different for each variable as there

are differing numbers of participants who may have not completed the section or question for various reasons (NCES, 2004). ELS:2002 third follow-up interviews were administered between July 4, 2012, and February 3, 2013. Of the 16,176 sample members identified in the population for the third follow-up, 15,724 were deemed to be in scope for the study after removing those who were ineligible (e.g., deceased) or out of scope for reasons such as being institutionalized, incarcerated, or out of the country. Of these eligible members, 13,250 sample members (84 percent weighted and unweighted) completed a full interview or a partial interview (NCES, 2014).

Variables

The following descriptions identify the summary data obtained from the ELS:2002 and 2012 F3 follow-up surveys. For each variable, the survey total includes data from participants who completed the question with an answer (respondents) and those who skipped the question or did not respond (non-respondents). Non-respondents were not included in the analysis. The manner in which the variable data was recoded is described under the *Procedures* section.

Dependent Variable

Bachelor degree attainment. These data are taken from the ELS 2012 Third Follow-up Survey (F3). The variable is listed in the complete dataset as *Highest level of education earned as of F3* and is question number 913. This indicates the level of education the respondent had completed by the time they took the third follow-up survey in 2012.

- Sample Members: 16197
- Respondents: 13250
- Non-respondents: 2947

Independent Variables

Race. These data are taken from the ELS 2002 Base Year (BY) Survey. The variable is listed in the complete dataset as *Student's race / ethnicity - composite* and is question number 20.

- Sample Members: 16197
- Respondents: 15244
- Non-respondents: 953

Generational Status. These data are taken from the ELS 2002 Base Year (BY) Survey. The variable is listed in the complete dataset as *Generational status* and is question number 42.

- Sample Members: 16197
- Respondents: 13338
- Non-respondents: 2859

Family Composition. These data are taken from the ELS 2002 Base Year (BY) Survey. The variable is listed in the complete dataset as *Family composition* and is question number 39.

- Sample Members: 16197
- Respondents: 15325
- Non-respondents: 872

Family income. These data are taken from the ELS 2002 Base Year (BY) Survey. The variable is listed in the complete dataset as *Total family income from all sources 2001-composite* and is question number 49.

- Sample Members: 16197
- Respondents: 16197
- Non-respondents: 0

Parental Level of Education. These data are taken from the ELS 2002 Base Year (BY) Survey. The variable is listed in the complete dataset as *Parents' highest level of education* and is question number 43.

- Sample Members: 16197
- Respondents: 13338
- Non-respondents: 15321

Student Expectations. These data are taken from the ELS 2002 Base Year (BY) Survey. The variable is listed in the complete dataset as *How far in school student thinks will get-composite* and is question number 59.

- Sample Members: 16197
- Respondents: 13794
- Non-respondents: 2403

Parental Expectations. These data are taken from the ELS 2002 Base Year (BY) Survey. The variable is listed in the complete dataset as *How far in school parent wants 10th-grader to go-composite* and is question number 60.

- Sample Members: 16197
- Respondents: 16019
- Non-respondents: 178

The procedure for developing the combined parental and student expectation responses into a score which acted as a proxy for student educational expectations will be further explained below in the *Procedures* section of this proposal.

Research Design

The study employed a quantitative research design. The research used secondary data and was non-experimental. It can be characterized as survey research and as described by Muijs (2004):

"Survey research is well suited to descriptive studies, or where researchers want to look at variables occurring in particular real-life contexts." (p. 36)

The study design works within this criterion to assess numerous independent variables as they relate to the attainment of a bachelor degree. The study uses logistic regression as one of its main statistical tests. Logistic regression is suitable for this study because, as explained by Field (2013):

"Logistic regression is multiple regression but with an outcome variable that is categorical and predictor variables that are continuous or categorical." (p. 761)

In line with Field's description, this study used an outcome (dependent) variable - attainment of a bachelor degree or above - that is categorical, and various predictor (independent) variables which are either continuous or categorical.

The design involved using existing longitudinal data with respect to higher education attainment from a range of income, student educational, and generational immigrant variables. The use of longitudinal data gave the researcher a substantial picture of sample members over time. The time frame from the original data collection to the final follow-up used in this study is 10 years, 2002-2012, and covers the time when student respondents were sophomores in high school, and approximately 16 years old, to the time when the same respondents were approximately 26 years old.

The comparative nature of this research is mainly situated in the variables of generational status and family income. The comparisons looked at differences in the educational attainment outcomes between overall income groups and within the lower income group. Additionally, the international aspect of the research situates the outcomes of different generations of immigrants to the United States as they relate to educational attainment. The outcome compared by these differences and relationships was the completion of a bachelor degree or above for the student sample member respondents.

Validity measures the extent to which an empirical measure accurately reflects what it is intended to measure (Babbie, 2007). Most of the items used in the ELS:2002 questionnaires were taken from prior studies, particularly High School and Beyond from 1980 (HS&B) and the National Education Longitudinal Study of 1988 (NELS:88). Given their past use with large, nationally representative samples, their measurement characteristics are well established (Ingels, Planty, & Bozick, 2005). One way the ELS:2002 was tested for validity was through the completion of the Education Longitudinal Study of 2002 field test which was conducted in 2001 before the actual survey was initiated. This field test evaluated the validity and reliability of several items taken directly from the 2000 Program for International Student Assessment (PISA). The items appeared on the ELS:2002 field test student questionnaire, which was administered to a purposive sample of 1,005 sophomores in five field test states and informed the ELS:2002 study on the validity of its survey instrument (Burns et al, 2003).

Reliability is a means to measure consistency within a study. Reliability also suggests that an instrument provides the same, predictable results when used under the same conditions using the same participants. More directly, reliability suggests stability of measurement within a study. Cronbach's Alpha is a test of instrument reliability where the score is represented through

a reliability classification index (Babbie, 2007). The internal consistency reliability of the ELS:2002 questions were tested in SPSS with Cronbach's Alpha. The reliability coefficient of .639 indicated that the ELS:2002 measurement tool had good reliability.

Procedures

This section will briefly outline the steps taken in order to conduct the study.

1. Data retrieval. NCES stores publicly available data on the internet. The data from the ELS:2002 is available in an SPSS file. The base year data and subsequent follow-ups were retrieved in this format. The file to be retrieved from NCES is els_02_12_byf3pststu_v1_0.sav from https://nces.ed.gov/surveys/els2002/avail_data.asp.
    a. Though this data is public, it must be accessed only through establishing an account with NCES.
2. Data was cleaned.
    a. ID variables by name and number isolated into a single SPSS file for use in this study. The number indicates which line this variable is attached to in the full dataset.
    b. Variable names and numbers to be included in the study file include:

Table 4. Variable names, numbers and labels from ELS:2002 survey data

Number	**Name**	**Label**
20	BYRACE	Student's race/ethnicity-composite
39	BYFCOMP	Family composition
42	BYGNSTAT	Generational status
43	BYPARED	Parent's highest level of education
49	BYINCOME	Total family income from all sources 2001-composite
59	BYSTEXP	How far in school student thinks will get-composite

60	BYPARASP	How far in school parent wants 10th-grader to go-composite
913	F3ATTAINMENT	Highest level of education earned as of F3

3. Data was coded.

Data Coding

Some of the data was recoded for use in the analysis portion of the study. The manner in which these data was recoded is as follows:

20: BYRACE - Student's race/ethnicity-composite. This variable used data from ELS on the four major categories of White, Hispanic, Black, and Asian. For this study, data on race was recoded into these four categorical variables. Cases not within these four categories was considered as missing.

1: White (Recoded from original of White, non-Hispanic).

2: Hispanic (Recoded from original of Hispanic, no race specified & Hispanic, race specified).

3: Black (Recoded from original of Black or African American, non-Hispanic).

4: Asian (Recoded from original of Asian, Hawaii/Pac. Islander, non-Hispanic).

39: BYFCOMP - Family composition. The data was used in the context of two-parent households. These data were recoded into dichotomous dummy variables which indicated respondents' households as either being two-parent or not. Cases not within these categories were considered as missing.

0: Not two-parent household (Recoded from original of Mother and male guardian, Father and female guardian, Two guardians, Mother only, Father only, Female guardian only, Male guardian only, Lives with student less than half time).

1: Two-parent household (Recoded from original of Mother and father)

42: BYGNSTAT - Generational status. This variable used data from ELS on the three birth origin categories of sample member (SM - student) and mother. These data were recoded into the following categorical variables. Cases not within these three categories were considered as missing.

1: 1st generation (Recoded from original of SM (sample member) born in Puerto Rico or non-US country).

2: 2nd generation (Recoded from original of SM born in US; mother born in PR/non-US).

3: 3rd generation (Recoded from original of SM and mother both born in US).

43: BYPARED - Parent's highest level of education. These data were recoded into dichotomous dummy variables. Cases not within these categories were considered as missing.

0: No Bachelor Degree or Above (Recoded from original of Did not finish high school, Graduated from high school or GED, Attended 2-year school, no degree, Graduated from 2-year school, Attended college, no 4-year degree).

1: Bachelor Degree or Above (Recoded from original of Graduated from college, Completed Master's degree or equivalent, Completed PhD, MD, other advanced degree).

49: BYINCOME - Total family income from all sources 2001-composite. This variable was used as both a continuous variable and as a categorical variable. The original data separated family income into these categories:

- None
- $1000 or less
- $1,001 - $5,000
- $5,001 - $10,000
- $10,001 - $15,000

- $15,001 - $20,000
- $20,001 - $25,000
- $25,001 - $35,000
- $35,001 - $50,000
- $50,001 - $75,000
- $75,001 - $100,000
- $100,001 - $200,000
- $200,001 or more

For the purpose of this study, family income was adapted in the following manners:

To create a continuous variable with more equal unit of measure distribution, the data was recoded into:

1: $0 - $25,000

2: $25,001 - $50,000

3: $50,001 - $75,000

4: $75,001 - $100,000

5: $100,000 and above

To create low and high (not low) income categorical variables with a cutoff more closely aligned with the U.S. Census data (approximately $34,000 for the lowest income quartile), income was recoded into dichotomous dummy variables as follows:

0: >$35,000

1: <=$35,001

To create comparable units of measurement within the lowest income grouping (=>$25,000) for analysis within this grouping alone, the data was recoded into a continuous variable as follows:

1: $0 - $5,000

2: $5,001 - $10,000

3. $10,001 - $15,000

4. $15,001 - $20,000

5. $20,001 - $25,000

59: BYSTEXP - How far in school student thinks will get-composite. These data were recoded into a mean score as well as dichotomous dummy variables. Cases not within these categories were considered as missing. This variable used Base Year 2002 ELS data. Students answered the question of how far they expect the student to get in educational attainment. The student educational expectations mean score variable was developed by assigning dummy codes as follows to both the student expectation responses.

1: Less than high school graduation

2: High school graduation or GED only

3: Attend or complete 2-year college/school

4: Attend college, 4-year degree complete

5: Graduate from college

6: Obtain Master's degree or equivalent

7: Obtain PhD, MD, or other advanced degree

The mean of the score served as student score of educational expectations. These data were also recoded into dichotomous dummy variables.

0: No bachelor degree or above expected (Recoded from original of Less than high school graduation; High school graduation or GED only; Attend or complete 2-year college/school; Attend college, 4-year degree incomplete).

1: Bachelor degree or above expected (Recoded from original of Graduate from college; Obtain Master's degree or equivalent; Obtain PhD, MD, or other advanced degree).

60: BYPARASP - How far in school parent wants 10th-grader to go-composite. These data were recoded into a mean score as well as dichotomous dummy variables. Cases not within these categories were considered as missing. This variable used Base Year 2002 ELS data. Parents answered the question of how far they want the student to get in educational attainment. The parent educational expectations mean score variable was developed by assigning dummy codes as follows to the parent expectation responses.

1: Less than high school graduation

2: High school graduation or GED only

3: Attend or complete 2-year college/school

4: Attend college, 4-year degree complete

5: Graduate from college

6: Obtain Master's degree or equivalent

7: Obtain PhD, MD, or other advanced degree

The mean of the score served as the parent score of educational expectations. These data were also recoded into dichotomous dummy variables.

0: No bachelor degree or above expected (Recoded from original of Less than high school graduation; High school graduation or GED only; Attend or complete 2-year college/school; Attend college, 4-year degree incomplete).

1: Bachelor degree or above expected (Recoded from original of Graduate from college; Obtain Master's degree or equivalent; Obtain PhD, MD, or other advanced degree).

913: F3ATTAINMENT. Highest level of education earned as of F3. These data were coded into dummy variables of 0 and 1. Cases not within these dichotomous categories were considered as missing.

0: Did not attain a bachelor degree or above (Recoded from original of No HS credential, no PS attendance; HS credential, no PS attendance; Some PS attendance, no PS credential; Undergraduate certificate; Associates degree).

1: Did attain a bachelor degree or above (Recoded from original of Bachelors degree; Post-Baccalaureate certificate; Master's degree/Post-Master's certificate; Doctoral degree).

Student Educational Expectations Combined Mean Score. This variable used Base Year 2002 ELS data. Both students and parents answered the question of how far they expect the student to get in educational attainment. The student educational expectations combined mean score variable was developed by assigning dummy codes as follows to both the student and parent expectation responses.

1: Less than high school graduation

2: High school graduation or GED only

3: Attend or complete 2-year college/school

4: Attend college, 4-year degree complete

5: Graduate from college

6: Obtain Master's degree or equivalent

7: Obtain PhD, MD, or other advanced degree

The mean of the two scores served as the overall score of student educational expectations. Only cases in which both student and parent responded to the question of expectations were included in this variable.

- Sample Members: 16197
- Both Scores Recorded: 13794
- Both Scores Not Recorded or Non-respondents: 2403

These data were recoded into dichotomous dummy variables. Cases not within these categories were considered as missing.

0: No bachelor degree or above expected (Composed of Less than high school graduation; High school graduation or GED only; Attend or complete 2-year college/school; Attend college, 4-year degree incomplete). Composite score of 0.00 - 4.99.

1: Bachelor degree or above expected (Composed of Graduate from college; Obtain Master's degree or equivalent; Obtain PhD, MD, or other advanced degree). Composite score of 5.00 and above.

4. Variables were tested. As described earlier, the research used chi-square goodness of fit and independence tests, One-Sample T-Tests, Independent Samples T-Tests, along with one-way ANOVA and binary logistic regression to address the research questions and hypotheses of this study.
    a. Results, implications, discussion, and future research were reported.

Measures

In review, the measures are in the following table.

Table 5. Variables including ID, type, score range or code and source.

Variables/Data ID	*Data Type*	*Score Range or Code*	*Data Source*
Family income 49: BYINCOME	Continuous	1: $0 - $25,000 2: $25,001 - $50,000 3: $50,001 - $75,000 4: $75,001 - $100,000 5: $100,000 and above	ELS:2002 Base Year
Family income 49: BYINCOME	Dichotomous	0: >$35,000 1: <=$35,001	ELS:2002 Base Year

Family income 49: BYINCOME	Continuous	1: $0 - $5,000 2: $5,001 - $10,000 3. $10,001 - $15,000 4. $15,001 - $20,000 5. $20,001 - $25,000	ELS:2002 Base Year
Generational status 42: BYGNSTAT	Categorical	1: 1st generation (Composed of SM (sample member) born in Puerto Rico or non-US country) 2: 2nd generation (Composed of SM born in US; mother born in PR/non-US) 3: 3rd generation (Composed of SM and mother both born in US)	ELS:2002 Base Year
Student's race / ethnicity – composite 20: BYRACE	Categorical	1: White (Composed of White, non-Hispanic) 2: Hispanic (Composed of Hispanic, no race specified & Hispanic, race specified) 3: Black (Composed of Black or African American, non-Hispanic) 4: Asian (Composed of Asian, Hawaii/Pac. Islander, non-Hispanic)	ELS:2002 Base Year
Parents' highest level of education 43: BYPARED	Dichotomous	0: No Bachelor Degree or Above (Composed of Did not finish high school, Graduated from high school or GED, Attended 2-year school, no degree, Graduated from 2-year school, Attended college, no 4-year degree) 1: Bachelor Degree or Above (Composed of Graduated from college, Completed Master's degree or equivalent, Completed PhD, MD, other advanced degree)	ELS:2002 Base Year
Family composition 39: BYFCOMP	Dichotomous	0: Not two-parent household (Composed of	ELS:2002 Base Year

		Mother and male guardian, Father and female guardian, Two guardians, Mother only, Father only, Female guardian only, Male guardian only, Lives with student less than half time) 1: Two-parent household (Composed of Mother and father)	
Student expectations – composite 59: BYSTEXP	Continuous/Dichotomous	0: No bachelor degree or above expected (Composed of Less than high school graduation; High school graduation or GED only; Attend or complete 2-year college/school; Attend college, 4-year degree incomplete). Composite score of 0.00 - 4.99. 1: Bachelor degree or above expected (Composed of Graduate from college; Obtain Master's degree or equivalent; Obtain PhD, MD, or other advanced degree). Composite score of 5.00 and above.	ELS:2002 Base Year
Parental expectations – composite 60: BYPARASP	Continuous/Dichotomous	0: No bachelor degree or above expected (Composed of Less than high school graduation; High school graduation or GED only; Attend or complete 2-year college/school; Attend college, 4-year degree incomplete). Composite score of 0.00 - 4.99. 1: Bachelor degree or above expected (Composed of Graduate from college; Obtain Master's degree or equivalent; Obtain PhD,	ELS:2002 Base Year

		MD, or other advanced degree). Composite score of 5.00 and above.	
Highest level of education earned as of F3 913: F3ATTAINMENT	Dichotomous	0: Did not attain a bachelor degree or above (Composed of No HS credential, no PS attendance; HS credential, no PS attendance; Some PS attendance, no PS credential; Undergraduate certificate; Associates degree) 1: Did attain a bachelor degree or above (Composed of Bachelors degree; Post-Baccalaureate certificate; Master's degree/Post-Master's certificate; Doctoral degree)	ELS:2002 3rd Follow-up (F3)

Data Analysis

Seven types of analysis were performed for this study. The quantitative, secondary data was measured using SPSS. First, data are presented in descriptive, frequency form as variables of students' educational attainment, family income, race, generational status, parents' educational attainment, family composition, combined parent and student educational expectations, parental educational expectations only, and student educational expectations only. Second, chi-square tests for goodness of fit were conducted to determine the variance of the sample. Third, a chi-square independence test was run to assess if independent variables and the dependent variable are significantly associated. Fourth, a one-way ANOVA was run to determine the differences in the means of parent, student, and combined educational attainment expectations through the variables that have three or more categories - race, generational status, overall income, and low income. Fifth, Independent Sample T-Tests were run to determine the differences in the means of

educational attainment expectations through the dichotomous variables – low/high income, parental education, and family composition. Sixth, One-Sample T-tests were run to compare the means of parent, student, and combined educational attainment expectations through the dichotomous variables – low/high income, parental education, and family composition. Seventh, binary logistic regressions were run to predict the dependent variable and assess the significance in association and odds ratio between the dependent variable and the three main independent variables of parental educational attainment, student educational expectations, and two-parent households. These regressions were run across income levels, within the low-income stratifications, and between high and low-income groups. These regressions also included first, second, and third generational status as a predictor.

The Chi-square goodness of fit was appropriate because the sampling method was random, the variables are categorical, and each level of the categorical variable has an expected frequency count of at least 5. This appropriateness is further supported by the large sample sizes in each of the variables. The chi-square test for goodness of fit is designed to test whether observed frequencies differ significantly from expected frequencies (Neuhauser, 2009) and its use is warranted as a preliminary test to assess the variability of the data and speak to the strength of the data distribution. The dependent variable for these preliminary analyses was bachelor degree attainment. The independent variables for this analysis were:

1. Low and high-income categories.
2. Racial categories.
3. Generational status categories.
4. Parents' highest level of education categories.
5. Family composition categories.

6. Student educational expectation categories.

The alternative hypotheses for goodness of fit analyses is:

H_1: The data are consistent with a significant variance in the sample.

Chi-square Independence was conducted to test whether there was a significant association between the dependent variable and categorical independent variables. The dependent variable for these preliminary analyses was bachelor degree attainment. The independent variables for this analysis were:

1. Low and high-income categories.
2. Racial categories.
3. Generational status categories.
4. Parents' highest level of education categories.
5. Family composition categories.
6. Student educational expectation categories.

The alternative hypothesis for Chi-square Independence analyses is:

H_1: The independent variable is related to the dependent variable. (Can help predict the dependent variable).

To compare the parent, student, and combined expectation means, a One-Sample T-test was used. The hypothesis investigated through the One-Sample T-test is shown below in alternative forms:

H_1: There are significant differences between the means of higher education expectations when compared by student-only, parent-only, and combined scores.

To compare the parent, student, and combined expectation means of independent variables with dichotomous categories, an Independent Samples T-test was used with the following variables: low/high income; parental education level; and family composition (two-parent household). The hypothesis investigated through the Independent Samples T-test is shown below in alternative forms:

H_1: There are significant differences between the means of higher education expectations when compared by the categories low and high income.

H_1: There are significant differences between the means of higher education expectations when compared by the categories 'parent does not hold a bachelor degree or above' and 'parent does hold a bachelor degree or above'.

H_1: There are significant differences between the means of higher education expectations when compared by the categories 'student does not live in a two-parent household' and 'student does live in a two-parent household'.

To situate the contexts of race, generational status, and family income in its association of expectation in educational attainment, the individual means scores of student and parental educational expectations, and the composite score of student and parental expectations were tested by one-way ANOVA. The one-way ANOVA is used to determine whether there are any statistically significant differences between the means of three or more independent groups. This test provided a comparison of the mean score on this expectation scale among the four major racial groups used for this study: White, Black, Hispanic, and Asian; the three generational categories: first, second, and third; the five overall income categories of - 1: $0 - $25,000, 2: $25,001 - $50,000, 3: $50,001 - $75,000, 4: $75,001 - $100,000, 5: $100,000 and above; and the five low-income categories of - 1: $0 - $5,000, 2: $5,001 - $10,000,

3. $10,001 - $15,000, 4. $15,001 - $20,000, 5. $20,001 - $25,000.

Considering the theoretical framework, these expectation measures align well with the social capital ideal of the framework. This expectation is most prevalent as the student moves around and within their social circles, acting as a capital to spend as they develop and define their personal place in their peer structures, groups and institutions of daily life.

The specific hypothesis investigated through the one-way ANOVA is shown below in alternative forms:

H_1: There are significant differences between the means of higher education expectations when compared by racial categories.

H_1: There are significant differences between the means of higher education expectations when compared by generational status categories.

H_1: There are significant differences between the means of higher education expectations when compared by income categories.

Binary logistic regression was the predictive statistical analysis for evaluation in the study. Logistic regression is used to predict a categorical dependent variable with a continuous or categorical independent variable and to determine the percent of variance in the dependent variable through that independent variable (Agresti, 2007; Babbie, 2007; Menard, 2002). Logistic regression also allows the researcher to rank the importance of an independent variable and shows the effect of covariates. In logistic regression, the effect of predictor variables is explained in terms of odds ratios (Agresti, 2007; Babbie, 2007). Binary logistic regression uses maximum likelihood estimation by transforming the dependent variable into a logit variable (Agresti, 2007). This lets the researcher estimate the odds of an event (dependent variable) occurring. Stated another way, binary logistic regression permits the researcher to predict the

significance of a binary (dependent) variable from a set of explanatory (independent) variables (Babbie, 2007; Hosmer & Lemeshow, 2000). Binary logistic regression uses maximum likelihood estimation after transforming the dependent variable into a logit variable (Agresti, 2007), predicts whether an event will happen, and calculates the odds of a specified event happening such as bachelor degree completion, the dependent variable for this study. This can be defined as:

$$\text{logit (Y)} = \ln\left(\frac{\text{Probability of Success}}{\text{Probability of Failure}}\right) = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \cdots + \beta_j X_j$$

Logistic regression is the technique used to analyze the degree of the relationship between (a) student educational expectation of student's completion of a bachelor degree, (b) parental completion of a bachelor degree and student's completion of a bachelor degree, (c) two-parent household and student's completion of a bachelor degree, (d) income and student's completion of a bachelor degree, (e) immigrant generational status and student's completion of a bachelor degree. The dichotomous, dependent variable (DV) for each of these regressions was the attainment of a bachelor degree or above. As noted earlier, "0" represents "Did not attain a bachelor degree or above" and "1" represents "Did attain a bachelor degree or above". The reference category for the dependent variable was "0". This was a two-tailed test which accounted for the possibility of a relationship in both directions.

Main analysis for the output for binary logistic regression is interpreted as B (Beta), which represents the coefficient for the constant known as the "intercept"; Sig, which represents the *p* value and indicates whether a significant association at .05 or lower exists; lower and upper limits of the confidence interval (C.I.) which corresponds to Sig and indicates a significant association if "1" is not within the limits; and Exp(B) is the exponentiation of the B (Beta) coefficient, which is an odds ratio. The odds ratio is used for interpretation of the coefficient and

indicates the association of the independent variable as described (Hosmer & Lemeshow, 2000). The regression coefficient describes the size of the association of a contributing element (independent variable). A positive regression coefficient indicates that an independent variable increases the probability of the outcome, while a negative regression coefficient suggests that the independent variable involved decreases the probability of the outcome.

The logistic regression was run in SPSS to provide a predictive value for these associations and allow multiple independent variables to be tested concurrently with the dichotomous dependent variable. The theoretical framework of the study supports the statistical analysis in use by considering and then measuring how variables exert influence on the probability of outcome. For instance, family income directly affects the amount of economic capital a student has available within their family structure. The resources this capital helps them access contributes to the capability of the student to act with a higher capacity in the use of the knowledge, skills or acumen gained through this resource acquisition. This is an example of how economic capital can be used in a culturally-capitalized context and builds on the idea that when the multiple capitals are used in concert, the effect is that of a family capital actually being generated and used. Generational status and race are inherent features within the ecological system of being. As such, they cannot be changed yet contribute most specifically at the macro level of this theory to set specific parameters which they then carry as they cycle through the various levels of the ecological systems theory.

The family composition of the student's household is situated as a convergence point of theories as it directly affects the income and students' expectation categories as well as consistently influencing the opportunity for parents to adjust their own educational attainment status and affect the entire dynamic of the theories represented. As posited earlier, the variables

and the theories they align with all influence the manner in which students can compete for educational resources beyond high school through the construct of conflict theory. When all theoretical foundations are at work together, conflict theory provides a point of confluence where the capitals and system of the student's experience either enable or disable each student as they look at life after high school. The specific hypothesis investigated through the logistical regression is shown below in alternative form:

H_1: There are significant associations in educational attainment when comparing generational status and family income with parental educational attainment, two-parent families, and student educational expectations.

All hypotheses were tested at a minimum of the .05 level of significance. This level of significance means if the probability were less than or equal to the significance level, then the alternative hypothesis would be accepted and the result will be considered statistically significant (Babbie, 2007; Knoke, Bohrnstedt, & Mee, 2002).

Research Questions and Sub-questions

As described in an earlier section, the theoretical framework of this research includes cultural capital, social capital, conflict theory, and ecological systems theory. The research questions of this study align with the theoretical framework to provide a foundation to explain the associations, differences and relationships of the independent variables with the dependent variable. Though each of the variables individually align with the theories explained earlier, their totality sets the foundation for this research. The importance of the variables alone is significant as they each support the theories at work in the study. The research investigated the following main research and sub-questions:

1. How well do income levels, student educational expectations, parental educational level, and two-parent households predict bachelor degree attainment among 1st, 2nd, and 3rd generation immigrants?

   a. How do race, generational status, and income affect educational expectations?
   b. How does race affect educational attainment?
   c. How does parental education level affect educational attainment?
   d. How do two-parent households affect educational attainment?
   e. What differences exist between low and high-income groups regarding educational attainment?
   f. What are the differences in educational attainment across all income distributions?
   g. What effect does income have on educational attainment within the lowest income stratification?

2. Why do some immigrant students persist to bachelor degree graduation from university at different rates than their other-generational peers?

   h. How does generational status affect educational attainment?

Chapter IV: Results

Introduction

In the preceding chapters, the quantitative methodology, research design and approach of the study were presented. Along with this, the population, sample, data collection details and data analysis were explained. In this chapter, the findings of this secondary data study of over 16,000 student and parent sample members will be reported. The chapter includes the following sections: descriptive statistics, preliminary analyses, inferential statistics, and summary.

The research questions focused on how numerous variables influenced higher education attainment among different immigrant generations, and why these different immigrant generations persisted to graduation at different rates than their peers. The hypotheses were that the independent variables of family composition (two-parent households), educational expectations, and parental education attainment across income groupings would be significant variables in the outcome of graduation with a bachelor degree or higher. Statistical investigation for sample frequencies, variability of data, association between variables, means comparisons, and predictive analysis were conducted using SPSS software, and the hypotheses stated that each of the variables would indicate statistically significant associations between the independent and dependent variables individually and through interaction effects.

Data

Data taken from the Educational Longitudinal Survey of 2002 (ELS:2002) and the 2012 Third Follow-up (F3) were used for this dissertation. Variables from the data included student level of educational attainment (F3:2012), family income, generational status, family composition, parental education level, parental expectations of student attainment, student expectation of attainment, and student race (ELS:2002).

Descriptive Statistics

Frequencies and percent of respondents of the variables and corresponding missing data were calculated using SPSS. The total number of possible respondents was 16197. The low-income group included only those respondents who indicated that their family income was below $25,000. The results are summarized in Table 6.

Table 6.

Frequencies and Respondent Percentages of Overall Variable Data

Variable Name	*N Valid*	*N Missing*	*Percent Valid*
Student Highest Education Level	13147	3050	81%
Family Income	16197	0	100%
Low Income	3395	12802	21%
Low/High Income Groups	16197	0	100%
Generational Status	13338	2859	82%
Parent Highest Education Level	15321	876	95%
Family Composition	15180	1017	94%
Parent/Student Combined Expectation	13794	2403	85%
Student Expectation Only	13794	2403	85%
Parent Expectation Only	16019	178	99%
Student Race 4 Groups	14379	1818	89%

Preliminary Analyses

Chi-square Goodness of Fit

A Chi-square Goodness of Fit was run to test whether observed frequencies differed from expected frequencies and if the data had statistically significant variability. The Goodness of Fit results for the variables tested ($p < .001$) indicated there were significant differences in the variability of the sample. Goodness of Fit results are summarized in Table 7.

Table 7.

Chi-square Goodness of Fit

Student Highest Educational Level	*Observed N*	*Expected N*	*Residual*	*Chi-Square*	*df*	*Asymp. Sig*
				756.17	1	<.001

Did Not Attain Bachelor/Above	8150	6573.5	1576.5			
Did Attain Bachelor/Above	4997	6573.5	-1576.5			
Total	13147					
Low/High Income Groups	*Observed N*	*Expected N*	*Residual*	*Chi-Square* 1949.32	*df* 1	*Asymp. Sig* <.001
Low Income <35k	5289	8089.5	-2809.5			
High Income =>35k	10908	8089.5	2809.5			
Total	16197					
Generational Status	*Observed N*	*Expected N*	*Residual*	*Chi-Square* 11468.70	df 2	Asymp. Sig <.001
1st Generation	1422	4446	-3204			
2nd Generation	1641	4446	-2805			
3rd Generation	10275	4446	5829			
Total	13338					
Parent Highest Educational Level	*Observed N*	*Expected N*	*Residual*	*Chi-Square* 481.11	*df* 1	*Asymp. Sig* <.001
Did Not Attain Bachelor/Above	9018	7660.5	1357.5			
Did Attain Bachelor/Above	6303	7660.5	-1357.5			
Total	15321					
Family Composition	*Observed N*	*Expected N*	*Residual*	*Chi-Square* 600.81	*df* 1	*Asymp. Sig* <.001
Not Two-Parent Household	6080	7590	-1510			
Two-Parent Household	9100	7590	1510			
Total	15180					
Combined Educational Expectation	*Observed N*	*Expected N*	*Residual*	*Chi-Square* 4732.96	*df* 1	*Asymp. Sig* <.001
Not Expected to Attain Bachelor/Above	2857	6897	-4040			
Did Attain Bachelor/Above	10937	6897	-4040			
Total	13794					
Student Educational Expectation	*Observed N*	*Expected N*	*Residual*	*Chi-Square* 5469.52	*df* 1	*Asymp. Sig* <.001
Not Expected to Attain Bachelor/Above	2554	6897	-4343			
Did Attain Bachelor/Above	11240	6897	4343			
Total	13794					
Parent Educational Expectation	*Observed N*	*Expected N*	*Residual*	*Chi-Square* 9053.87	*df* 1	*Asymp. Sig* <.001

Not Expected to Attain Bachelor/Above	1988	8009.5	-6021.5			
Did Attain Bachelor/Above	14031	8009.5	6021.5			
Total	16019					
Student's Race	*Observed N*	*Expected N*	*Residual*	*Chi-Square*	*df*	*Asymp. Sig.*
				9685.04	3	<.001
White	8682	3594.8	5087.3			
Hispanic	2217	3594.8	-1377.8			
Black	2020	3594.8	-1574.8			
Asian	1460	3594.8	-2134.8			
Total	14379					

Chi-square Independence

A Chi-square Independence was run to determine if there was a significant association between the dependent variable of attainment of a bachelor degree or above and the independent variables under investigation. The Independence results for the variables tested (p <.05*)* indicated that there are significant associations between the dependent and independent variables. Chi-square Independence results are summarized in Table 8.

Table 8.

Chi-square Independence – Dependent Variable: Student Highest Education Level

Independent Variable Name	*Chi-Square*	*df*	*Asymp. Sig.*
Low/High Income Groups	682.703	2	<.001
Generational Status	13.701	2	.001
Parent Highest Education Level	1335.042	1	<.001
Family Composition	490.740	1	<.001
Combined Educational Expectation	1103.522	1	<.001
Student Educational Expectation	973.043	1	<.001
Parent Educational Expectation	640.547	1	<.001
Student Race	508.417	3	<.001

Means Tests

One-Sample T-Test

To compare the means of expectation for student attainment between parents only, students only, and the combined mean for both of those scores as a single variable, a one-sample t-test was run in SPSS. These means were tested on a scale from 0.00-7.00, with scores from 0.00-4.99 indicating an expectation that the student *would not* complete a bachelor degree or above, and 5.00-7.00 indicating an expectation that the student *would* attain a bachelor degree or above. The one-sample t-test was run for each mean to determine whether the expectation score was different than normal, defined as a student educational expectation score of 5.0. The parent-only mean expectation score ($M = 5.38$, $SD = 1.27$) was higher than the normal expectation score of 5.0, a statistically significant mean difference of 0.38, 95% CI [0.37 to 0.40], $t(16018) = 38.21$, $p < .001$. The combined mean expectation score ($M = 5.32$, $SD = 1.12$) was higher than the normal expectation score of 5.0, a statistically significant mean difference of 0.32, 95% CI [0.30 to 0.34], $t(13793) = 33.12$, $p < .001$. The student-only mean expectation score ($M = 5.20$, $SD = 1.43$) was higher than the normal expectation score of 5.0, a statistically significant mean difference of 0.20, 95% CI [0.17 to 0.22], $t(16018) = 38.21$, $p < .001$. These results suggest that all student educational expectations scores are above the normal mean score of attaining a bachelor degree or above. The results also suggest that parents have the highest expectations of student educational attainment, that combined means scores of expectations are higher than student-only scores, and that students alone have the lowest expectations of attainment among sample members. One-sample T-Test results are summarized in Table 9.

Table 9.

One-Sample T-Test of Mean Educational Expectations

Means Category	*t*	*df*	*Sig. (2-tailed)*	*Mean*	*Mean Difference*	*95% Confidence Interval of the Difference*	
						Lower	*Upper*
Student Expectations	16.087	13793	<.001	5.1961	.19610	.19610	.1722
Parent Expectations	38.210	16018	<.001	5.3849	.38486	.38486	.3651
Combined Expectations	33.118	13793	<.001	5.3168	.31680	.31680	.2981

Test Value = 5

Independent-Sample T-Tests

To compare the means of combined, parent-only, and student-only expectation scores for the dichotomous independent variables of family composition (two-parent households), parent education level, and low/high income, independent sample t-tests were run.

Means of Combined Expectations

An independent-samples t-test was conducted to compare mean combined expectations for not two-parent and two-parent households. Levene's test yielded a significant result, ($F = 80.668$, $p < .001$) so results from Equal Variances Not Assumed were used. There was a significant difference in the scores for not two-parent ($M = 5.18$, $SD = 1.2$) and two-parent ($M = 5.41$, $SD = 1.07$) households; $t(10633) = -11.73$. These results suggest that whether a student lives in a two-parent household has an effect on combined parent/student attainment expectations. Specifically, the results suggest that when students live in two-parent households, there are higher combined expectations that they will attain a bachelor degree or above. This independent-sample T-Test result is summarized in Table 10.

Table 10.

Independent Samples T-Test – Family Composition (Combined Expectations)

Family Composition	*N*	*Mean*	*SD*				
Not Two-Parent Household	5355	5.176	1.180				
Two-Parent Household	8313	5.410	1.073				
Levene's Test for Equality of Variances	*F*	*Sig.*	*t*	*df*	*Sig. (2-Tailed)*	*95% Confidence Interval of the Difference*	
						Lower	*Upper*
Equal variances assumed	80.668	<.001	-11.973	13666	<.001	-.27269	-.19597
Equal variances not assumed			-11.730	10632.85	<.001	-.27349	-.19517

An independent-samples t-test was conducted to compare mean combined expectations for students with parents not attaining a bachelor degree or above and attaining a bachelor degree or above. Levene's test yielded a significant result, ($F = 279.749$, $p < .001$) so results from Equal Variances Not Assumed were used. There was a significant difference in the scores for not attaining a bachelor degree or above ($M = 5.07$, $SD = 1.19$) and attaining a bachelor degree or above ($M = 5.65$, $SD = .93$) conditions; $t(13738) = -32.1$, $p < 0.001$. These results suggest that whether a student's parent holds a bachelor degree or above has an effect on combined parent/student attainment expectations. Specifically, the results suggest that when students have a parent who has attained a bachelor degree or above, there are higher combined expectations that the student will attain a bachelor degree or above. This independent-sample T-Test result is summarized in Table 11.

Table 11.

Independent Samples T-Test – Parental Education Level (Combined Expectations)

Parental Education Level	*N*	*Mean*	*SD*				
Did Not Attain Bachelor Degree or Above	7964	5.072	1.189				
Did Attain Bachelor Degree or Above	5830	5.651	.927				
Levene's Test for Equality of Variances	*F*	*Sig.*	*t*	*df*	*Sig. (2-Tailed)*	*95% Confidence Interval of the Difference*	
						Lower	*Upper*
Equal variances assumed	279.749	<.001	-30.910	13792	<.001	-.61560	-.54218
Equal variances not assumed			-32.102	13738.751	<.001	-.61424	-.54355

An independent-samples t-test was conducted to compare mean combined expectations for students in low-income and not low-income groups. Levene's test yielded a significant result, (F = 167.275, p <.001) so results from Equal Variances Not Assumed were used. There was a significant difference in the scores for low-income (M = 5.06, SD = 1.23) and not low-income (M =5.43, SD = 1.05) conditions; t(7380) = -17.16, p < 0.001. These results suggest that whether a student is low income or not low-income have an effect on combined parent/student attainment expectations. Specifically, the results suggest that when students are not low-income, there are higher combined expectations that the student will attain a bachelor degree or above. This independent-sample T-Test result is summarized in Table 12.

Table 12.

Independent Samples T-Test – Low/High Income (Combined Expectations)

Low/High Income	*N*	*Mean*	*SD*
Low Income <35k	4347	5.063	1.228
Not Low Income =>35k	9447	5.433	1.051

Levene's Test for Equality of Variances	*F*	*Sig.*	*t*	*df*	*Sig. (2-Tailed)*	*95% Confidence Interval of the Difference*	
						Lower	*Upper*
Equal variances assumed	167.275	<.001	-18.167	13792	<.001	-.40959	-.32982
Equal variances not assumed			-17.155	7380.299	<.001	-.41195	-.32746

Means of Parent-only Expectations

An independent-samples t-test was conducted to compare mean parent-only expectations for not two-parent and two-parent households. Levene's test yielded a significant result, (F = 40.608, $p < .001$) so results from Equal Variances Not Assumed were used. There was a significant difference in the scores for not two-parent (M = 5.30, SD = 1.35) and two-parent (M = 5.45, SD = 1.22) households; $t(12056) = -7.08$, $p < 0.001$. These results suggest that whether a student lives in a two-parent household has an effect on parent-only student attainment expectations. Specifically, the results suggest that when students live in two-parent households, there are higher parental expectations that they will attain a bachelor degree or above. This independent-sample T-Test result is summarized in Table 13.

Table 13.

Independent Samples T-Test – Family Composition (Parent Expectations)

Family Composition	*N*	*Mean*	*SD*				
Not Two-Parent Household	6080	5.295	1.353				
Two-Parent Household	9100	5.448	1.215				
Levene's Test for Equality of Variances	*F*	*Sig.*	*t*	*df*	*Sig. (2-Tailed)*	*95% Confidence Interval of the Difference*	
						Lower	*Upper*
Equal variances assumed	40.608	<.001	-7.235	15178	<.001	-.19377	-.11116
Equal variances not assumed			-7.082	12056.055	<.001	-.19466	-.11026

An independent-samples t-test was conducted to compare mean parent-only expectations for students with parents not attaining a bachelor degree or above and attaining a bachelor degree or above. Levene's test yielded a significant result, ($F = 110.819$, $p < .001$) so results from Equal Variances Not Assumed were used. There was a significant difference in the scores for not attaining a bachelor degree or above ($M = 5.17$, $SD = 1.37$) and attaining a bachelor degree or above ($M = 5.69$, $SD = 1.05$) conditions; $t(15180) = -26.52$, $p < 0.001$. These results suggest that whether a student's parent holds a bachelor degree or above has an effect on parent-only student attainment expectations. Specifically, the results suggest that when students have a parent who has attained a bachelor degree or above, there are higher parental expectations that the student will attain a bachelor degree or above. This independent-sample T-Test result is summarized in Table 14.

Table 14.

Independent Samples T-Test – Parental Education Level (Parent Expectations)

Parental Education Level	*N*	*Mean*	*SD*				
Did Not Attain Bachelor Degree or Above	9018	5.172	1.370				
Did Attain Bachelor Degree or Above	6303	5.692	1.053				
Levene's Test for Equality of Variances	*F*	*Sig.*	*t*	*df*	*Sig. (2-Tailed)*	*95% Confidence Interval of the Difference*	
						Lower	*Upper*
Equal variances assumed	110.819	<.001	-25.341	15319	<.001	-.56017	-.47973
Equal variances not assumed			-26.521	15180.238	<.001	-.55838	-.48152

An independent-samples t-test was conducted to compare mean parent-only expectations for students in low-income and not low-income groups. Levene's test yielded a significant result, ($F = 119.427$, $p < .001$) so results from Equal Variances Not Assumed were used. There was a

significant difference in the scores for low-income (M = 5.22, SD = 1.43) and not low-income (M = 5.47, SD = 1.18) conditions; $t(8802) = -11.044$, $p < .001$. These results suggest that whether a student is low income or not low-income have an effect on parent-only student attainment expectations. Specifically, the results suggest that when students are not low-income, there are higher parental expectations that the student will attain a bachelor degree or above. This independent-sample T-Test result is summarized in Table 15.

Table 15.

Independent Samples T-Test – Low/High Income (Parent Expectations)

Low/High Income	*N*	*Mean*	*SD*				
Low Income <35k	5235	5.215	1.43219				
Not Low Income =>35k	10784	5.467	1.18221				
Levene's Test for Equality of Variances	*F*	*Sig.*	*t*	*df*	*Sig. (2-Tailed)*	*95% Confidence Interval of the Difference*	
						Lower	*Upper*
Equal variances assumed	119.427	<.001	-11.794	16017	<.001	-.29409	-.21027
Equal variances not assumed			-11.044	8801.688	<.001	-.29694	-.20741

Means of Student-only Expectations

An independent-samples t-test was conducted to compare mean student-only expectations for not two-parent and two-parent households. Levene's test yielded a significant result, (F= 9.189, p = .002) so results from Equal Variances Not Assumed were used. There was a significant difference in the scores for not two-parent (M = 5.00, SD = 1.52) and two-parent (M = 5.32, SD = 1.36) households; $t(10527) = -12.533$, $p <.001$. These results suggest that whether a student lives in a two-parent household has an effect on student-only student attainment expectations. Specifically, the results suggest that when students live in two-parent households,

there are higher student expectations that they will attain a bachelor degree or above. This independent-sample T-Test result is summarized in Table 16.

Table 16.

Independent Samples T-Test – Family Composition (Student Expectations)

Family Composition	*N*	*Mean*	*SD*				
Not Two-Parent Household	5355	5.003	1.515				
Two-Parent Household	8313	5.3238	1.36				
Levene's Test for Equality of Variances	*F*	*Sig.*	*t*	*df*	*Sig. (2-Tailed)*	*95% Confidence Interval of the Difference*	
						Lower	*Upper*
Equal variances assumed	9.189	.002	-12.829	13666	<.001	-.36879	-.27103
Equal variances not assumed			-12.533	10527.410	<.001	-.36994	-.26988

An independent-samples t-test was conducted to compare mean student-only expectations for students with parents not attaining a bachelor degree or above and attaining a bachelor degree or above. Levene's test yielded a significant result, ($F = 105.303$, $p < .001$) so results from Equal Variances Not Assumed were used. There was a significant difference in the scores for not attaining a bachelor degree or above ($M = 4.92$, $SD = 1.51$) and attaining a bachelor degree or above ($M = 5.58$, $SD = 1.21$) conditions; $t(13680) = -28.29$, $p < 0.001$. These results suggest that whether a student's parent holds a bachelor degree or above has an effect on student-only student attainment expectations. Specifically, the results suggest that when students have a parent who has attained a bachelor degree or above, there are higher student expectations that the student will attain a bachelor degree or above. This independent-sample T-Test result is summarized in Table 17.

Table 17.

Independent Samples T-Test – Parental Education Level (Student Expectations)

Parental Education Level	*N*	*Mean*	*SD*				
Did Not Attain Bachelor Degree or Above	7964	4.918	1.513				
Did Attain Bachelor Degree or Above	5830	5.575	1.213				
Levene's Test for Equality of Variances	*F*	*Sig.*	*t*	*df*	*Sig. (2-Tailed)*	*95% Confidence Interval of the Difference*	
						Lower	*Upper*
Equal variances assumed	105.303	<.001	-27.351	13792	<.001	-.70450	-.61027
Equal variances not assumed			-28.288	13679.577	<.001	-.70294	-.61183

An independent-samples t-test was conducted to compare mean student-only expectations for students in low-income and not low-income groups. Levene's test yielded a significant result, (F = 106.885, p <.001) so results from Equal Variances Not Assumed were used. There was a significant difference in the scores for low-income (M = 4.85, SD = 1.57) and not low-income (M = 5.35, SD = 1.33) conditions; t(7332) = -18.17, p <.001. These results suggest that whether a student is low income or not low-income has an effect on student-only student attainment expectations. Specifically, the results suggest that when students are not low-income, there are higher student expectations that the student will attain a bachelor degree or above. This independent-sample T-Test result is summarized in Table 18.

Table 18.

Independent Samples T-Test – Low/High Income (Student Expectations)

Low/High Income	*N*	*Mean*	*SD*
Low Income <35k	4347	4.853	1.57
Not Low Income =>35k	9447	5.353	1.333

Levene's Test for Equality of Variances	*F*	*Sig.*	*t*	*df*	*Sig. (2-Tailed)*	*95% Confidence Interval of the Difference*	
						Lower	*Upper*
Equal variances assumed	106.885	<.001	-19.296	13792	<.001	-.55038	-.44887
Equal variances not assumed			-18.168	7332.808	<.001	-.55354	-.44572

One-Way ANOVA

To compare the means of combined, parent-only, and student-only expectation scores for independent variables with three or more groups – race, generational status, all incomes, and low income only, one-way ANOVA tests were run. To control for Type I error, a Bonferroni post-hoc test for multiple comparisons was used as Bonferroni has more power when the number of comparisons is small, whereas Tukey is more powerful when testing large numbers of means (Field, 2009). Levene's test for homogeneity of variance is used in some of these analyses. This test is used to test the null hypothesis that the variances in different groups are equal. Levene's test for homogeneity of variance is violated when its significance level is $p < .05$. This means that the group variances are significantly different. If Levene's test is non-significant (i.e. $p > .05$), then the variances are roughly equal (Field, 2014). Some of the results in this section will show that the assumption for Levene's homogeneity of variance was violated. One reason for this is that the Levene's test is often sensitive to a large sample size. That said, overemphasis of this assumption may not be necessary as "in large samples, they [Levene's tests] can be significant when group variances are similar, and in small samples they can be non-significant when group variances are very different" (Field, 2014).

Means of Combined Expectations

A one-way ANOVA was conducted to compare mean combined expectations by the race categories of White, Hispanic, Black, and Asian. Levene's Homogeneity of Variances ($p < .001$) test was included. There was a statistically significant difference between groups, $F(3, 13000) =$

45.80, $p < .001$. Mean scores were lowest for the Hispanic group ($M = 5.20$, $SD = 1.17$), with White ($M = 5.28$, $SD = 1.11$), Black ($M = 5.39$, $SD = 1.14$), and Asian ($M = 5.62$, $SD = .98$) groups as shown. Bonferroni post-hoc tests of multiple comparisons between groups indicated statistically significant differences for each between-group test ($p < .05$). These results suggest that race has a statistically significant effect on combined parent/student attainment expectations. These one-way ANOVA results are summarized in Table 19.

Table 19.

One-way ANOVA – Race (Combined Expectations)

Race	*N*	*Mean*	*SD*
White	7918	5.280	1.112
Hispanic	1932	5.198	1.173
Black	1845	5.385	1.135
Asian	1309	5.624	.997

Bonferroni (I) Race	(J) Race	*Mean Difference*	*Std. Error*	*Sig.*	*95% CI of the Difference*	
					Lower	*Upper*
White	Hispanic	.08162*	.02826	.023	.0070	.1562
	Black	-.10579*	.02879	.001	-.1818	-.0298
	Asian	-.34440*	.03323	<.001	-.4321	-.2567
Hispanic	White	-.08162*	.02826	.023	-.1562	-.0070
	Black	-.18741*	.03626	<.001	-.2831	-.0917
	Asian	-.42602*	.03987	<.001	-.5312	-.3208
Black	White	.10579*	.02879	.001	.0298	.1818
	Hispanic	.18741*	.03626	<.001	.0917	.2831
	Asian	-.23861*	.04025	<.001	-.3448	-.1324
Asian	White	.34440*	.03323	<.001	.2567	.4321
	Hispanic	.42602*	.03987	<.001	.3208	.5312
	Black	.23861*	.04025	<.001	.1324	.3448

A one-way ANOVA was conducted to compare mean combined expectations by the generational categories of first, second, and third. Levene's Homogeneity of Variances ($p = .564$) test was included. There was a statistically significant difference between groups, $F(2, 12024) =$

47.90, $p < .001$. Mean scores were lowest for the third-generation group ($M = 5.30$, $SD = 1.11$), with first-generation ($M = 5.48$, $SD = 1.08$), and second-generation ($M = 5.58$, $SD = 1.07$) groups as shown. Bonferroni post-hoc tests of multiple comparisons between groups indicated statistically significant differences for each between-group test ($p < .05$). These results suggest that generational status has a statistically significant effect on combined parent/student attainment expectations. These one-way ANOVA results are summarized in Table 20.

Table 20.

One-way ANOVA – Generational Status (Combined Expectations)

Generational Status	*N*	*Mean*	*SD*
First	1249	5.476	1.08
Second	1458	5.580	1.067
Third	9320	5.304	1.109

Bonferroni (I) Generation	(J) Generation	*Mean Difference*	*Std. Error*	*Sig.*	*95% CI of the Difference*	
					Lower	*Upper*
First	Second	-.10427*	.04248	.042	.0070	.1562
	Third	.17180*	.03320	<.001	-.1818	-.0298
Second	First	.10427*	.04248	.042	-.1562	-.0070
	Third	.27606*	.03103	<.001	-.2831	-.0917
Third	First	-.17180*	.03320	<.001	.0298	.1818
	Second	-.27606*	.03103	<.001	.0917	.2831

A one-way ANOVA was conducted to compare mean combined expectations by the overall income categories of $0-$25,000; $25,001-$50,000; $50,001-$75,000; $75,001-$100,000; and $100,001 or more. Levene's Homogeneity of Variances ($p < .001$) test was included. There was a statistically significant difference between groups, $F(4, 13789) = 172.46$, $p < .001$. Mean scores were lowest for the $0-$25,000 group ($M = 5.02$, $SD = 1.26$), with $25,001-$50,000 ($M = 5.18$, $SD = 1.17$), $50,001-$75,000 ($M = 5.34$, $SD = 1.06$), $75,001-

$100,000 ($M$ = 5.51, SD = .95), and $100,001 or more ($M$ = 5.77, SD = .88) groups as shown. Bonferroni post-hoc tests of multiple comparisons between groups indicated statistically significant differences for each between-group test ($p < .001$). These results suggest that across economic levels there is a statistically significant effect by income on combined parent/student attainment expectations. These one-way ANOVA results are summarized in Table 21.

Table 21.

One-way ANOVA – Overall Income (Combined Expectations)

Overall Income	*N*	*Mean*	*SD*
$0-25000	2760	5.019	1.258
$25001-50000	4150	5.176	1.17
$50001-75000	2832	5.344	1.056
$75001-100000	1920	5.507	.945
$100001 or more	2132	5.766	.875

Bonferroni (I) Income	(J) Income	*Mean Difference*	*Std. Error*	*Sig.*	*95% CI of the Difference*	
					Lower	*Upper*
$0-25000	$25001-50000	-.15718*	.02693	<.001	-.2328	-.0816
	$50001-75000	-.32543*	.02933	<.001	-.4078	-.2431
	$75001-100000	-.48861*	.03259	<.001	-.5801	-.3971
	$100001 or more	-.74721*	.03162	<.001	-.8360	-.6584
$25001-50000	$0-25000	.15718*	.02693	<.001	.0816	.2328
	$50001-75000	-.16825*	.02673	<.001	-.2433	-.0932
	$75001-100000	-.33143*	.03027	<.001	-.4164	-.2465
	$100001 or more	-.59003*	.02922	<.001	-.6721	-.5080
$50001-75000	$0-25000	.32543*	.02933	<.001	.2431	.4078
	$25001-50000	.16825*	.02673	<.001	.0932	.2433
	$75001-100000	-.16318*	.03242	<.001	-.2542	-.0722
	$100001 or more	-.42178*	.03144	<.001	-.5101	-.3335
$75001-100000	$0-25000	.48861*	.03259	<.001	.3971	.5801
	$25001-50000	.33143*	.03027	<.001	.2465	.4164
	$50001-75000	.16318*	.03242	<.001	.0722	.2542
	$100001 or more	-.25860*	.03450	<.001	-.3555	-.1617
$100001 or more	$0-25000	.74721*	.03162	<.001	.6584	.8360
	$25001-50000	.59003*	.02922	<.001	.5080	.6721

	$50001-75000	.42178*	.03144	<.001	.3335	.5101
	$75001-100000	.25860*	.03450	<.001	.1617	.3555

A one-way ANOVA was conducted to compare mean combined expectations by the low-income categories of $0-$5,000; $5,001-$10,000; $10,001-$15,000; $15,001-$20,000; and $20,000-$25,000. Levene's Homogeneity of Variances (p = .926) test was included. There was not a statistically significant difference between groups $F(4, 2755) = .92$, $p = .45$). Mean scores were lowest for the $0-$5,000 group (M = 4.95, SD =1.25), with $5,001-$10,000 (M = 4.95, SD = 1.29), $10,001-$15,000 (M = 5.01, SD = 1.25), $20,001-$25,000 (M = 5.05, SD = 1.26), and $15,001-$20,000 (M=5.07, SD=1.27) groups as shown. Bonferroni post-hoc tests of multiple comparisons between groups indicated there were not any statistically significant differences for each between-group test (p = 1.00). These results suggest that across low-income levels there is not a statistically significant effect by income on combined parent/student attainment expectations. These one-way ANOVA results are summarized in Table 22.

Table 22.

One-way ANOVA – Low Income (Combined Expectations)

Low Income	*N*	*Mean*	*SD*
$0-5000	450	4.947	1.247
$5001-10000	278	4.949	1.288
$10001-15000	573	5.014	1.247
$15001-20000	634	5.067	1.265
$20001-25000	825	5.047	1.255

Bonferroni						
(I) Income	(J) Income	*Mean Difference*	*Std. Error*	*Sig.*	*95% CI of the Difference*	
					Lower	*Upper*
$0-5000	$5001-10000	-.00186	.09597	1.000	-.2715	.2678
	$10001-15000	-.06618	.07924	1.000	-.2888	.1564
	$15001-20000	-.12005	.07755	1.000	-.3379	.0978

	$20001-25000	-.10010	.07373	1.000	-.3072	.1070
$5001-10000	$0-5000	.00186	.09597	1.000	-.2678	.2715
	$10001-15000	-.06432	.09196	1.000	-.3227	.1940
	$15001-20000	-.11818	.09050	1.000	-.3724	.1361
	$20001-25000	-.09824	.08725	1.000	-.3433	.1469
$10001-15000	$0-5000	.06618	.07924	1.000	-.1564	.2888
	$5001-10000	.06432	.09196	1.000	-.1940	.3227
	$15001-20000	-.05386	.07252	1.000	-.2576	.1499
	$20001-25000	-.03392	.06842	1.000	-.2261	.1583
$15001-20000	$0-5000	.12005	.07755	1.000	-.0978	.3379
	$5001-10000	.11818	.09050	1.000	-.1361	.3724
	$10001-15000	.05386	.07252	1.000	-.1499	.2576
	$20001-25000	.01994	.06645	1.000	-.1667	.2066
$20001-25000	$0-5000	.10010	.07373	1.000	-.1070	.3072
	$5001-10000	.09824	.08725	1.000	-.1469	.3433
	$10001-15000	.03392	.06842	1.000	-.1583	.2261
	$15001-20000	-.01994	.06645	1.000	-.2066	.1667

Means of Parent-only Expectations

A one-way ANOVA was conducted to compare mean parent-only expectations by the race categories of White, Hispanic, Black, and Asian. Levene's Homogeneity of Variances ($p < .001$) test was included. There was a statistically significant difference between groups, $F(3, 14375) = 77.42$, $p < .001$. Mean scores were lowest for the White group ($M = 5.28$, $SD = 1.23$), with Hispanic ($M = 5.41$, $SD = 1.38$), Black ($M = 5.63$, $SD = 1.30$), and Asian ($M = 5.70$, $SD = 1.15$) groups as shown. Bonferroni post-hoc tests of multiple comparisons between groups indicated statistically significant differences for each between-group test ($p < .001$) with the exception of Black and Asian groups ($p = .648$). These results suggest that overall, race has a statistically significant effect on parent-only attainment expectations, but that difference is not present when comparing some groups. These one-way ANOVA results are summarized in Table 23.

Table 23.

One-way ANOVA – Race (Parent Expectations)

Race	*N*	*Mean*	*SD*
White	8682	5.28	1.228
Hispanic	2217	5.41	1.384
Black	2020	5.63	1.301
Asian	1460	5.70	1.148

Bonferroni (I) Race	(J) Race	*Mean Difference*	*Std. Error*	*Sig.*	*95% CI of the Difference*	
					Lower	*Upper*
White	Hispanic	-.130*	.030	<.001	-.21	-.05
	Black	-.352*	.031	<.001	-.43	-.27
	Asian	-.422*	.036	<.001	-.52	-.33
Hispanic	White	.130*	.030	<.001	.05	.21
	Black	-.222*	.039	<.001	-.32	-.12
	Asian	-.292*	.042	<.001	-.40	-.18
Black	White	.352*	.031	<.001	.27	.43
	Hispanic	.222*	.039	<.001	.12	.32
	Asian	-.069	.043	.648	-.18	.04
Asian	White	.422*	.036	<.001	.33	.52
	Hispanic	.292*	.042	<.001	.18	.40
	Black	.069	.043	.648	-.04	.18

A one-way ANOVA was conducted to compare mean parent-only expectations by the generational categories of first, second, and third. Levene's Homogeneity of Variances ($p = .004$) test was included. There was a statistically significant difference between groups, $F(2, 13335) = 47.90$, $p < .001$. Mean scores were lowest for the third-generation group ($M = 5.32$, $SD = 1.26$), with first-generation ($M = 5.62$, $SD = 1.27$), and second-generation ($M = 5.72$, $SD = 1.22$) groups as shown. Bonferroni post-hoc tests of multiple comparisons between groups indicated statistically significant differences between the third-generation group and both other groups ($p < .001$), and no statistically significant difference between first and second-generation groups ($p = .106$). These results suggest that overall, generational status overall has a statistically

significant effect on parent attainment expectations, but that difference is not present when comparing some groups. These one-way ANOVA results are summarized in Table 24.

Table 24.

One-way ANOVA – Generational Status (Parent Expectations)

Generational Status	*N*	*Mean*	*SD*
First	1422	5.62	1.269
Second	1641	5.72	1.223
Third	10275	5.32	1.260

Bonferroni (I) Generation	(J) Generation	*Mean Difference*	*Std. Error*	*Sig.*	*95% CI of the Difference*	
					Lower	*Upper*
First	Second	-.096	.046	.106	-.20	.01
	Third	.301*	.036	<.001	.22	.39
Second	First	.096	.046	.106	-.01	.20
	Third	.397*	.033	<.001	.32	.48
Third	First	-.301*	.036	<.001	-.39	-.22
	Second	-.397*	.033	<.001	-.48	-.32

A one-way ANOVA was conducted to compare mean parent-only expectations by the overall income categories of $0-$25,000; $25,001-$50,000; $50,001-$75,000; $75,001-$100,000; and $100,001 or more. Levene's Homogeneity of Variances ($p < .001$) test was included. There was a statistically significant difference between groups, $F(4, 16014) = 92.65$, $p < .001$). Mean scores were lowest for the $0-$25,000 group (M=5.18, SD=1.47), with $25,001-$50,000 (M=5.28, SD=1.33), $50,001-$75,000 (M=5.37, SD=1.21), $75,001-$100,000 (M=5.53, SD=1.08), and $100,001 or more (M=5.77, SD=.98) groups as shown. Bonferroni post-hoc tests of multiple comparisons between groups indicated statistically significant differences for each between-group test ($p < .05$). These results suggest that across economic levels there is a statistically significant effect by income on parent-only attainment expectations. One-way ANOVA results are summarized in Table 25.

Table 25.

One-way ANOVA – Overall Income (Parent Expectations)

Overall Income	*N*	*Mean*	*SD*
$0-25000	3357	5.18	1.475
$25001-50000	4878	5.28	1.329
$50001-75000	3274	5.37	1.206
$75001-100000	2144	5.53	1.077
$100001 or more	2366	5.77	.982

Bonferroni (I) Income	(J) Income	*Mean Difference*	*Std. Error*	*Sig.*	*95% CI of the Difference*	
					Lower	*Upper*
$0-25000	$25001-50000	-.103*	.028	.003	-.18	-.02
	$50001-75000	-.189*	.031	<.001	-.28	-.10
	$75001-100000	-.354*	.035	<.001	-.45	-.26
	$100001 or more	-.589*	.034	<.001	-.68	-.49
$25001-50000	$0-25000	.103*	.028	.003	.02	.18
	$50001-75000	-.087*	.028	.024	-.17	-.01
	$75001-100000	-.251*	.033	<.001	-.34	-.16
	$100001 or more	-.486*	.032	<.001	-.57	-.40
$50001-75000	$0-25000	.189*	.031	<.001	.10	.28
	$25001-50000	.087*	.028	.024	.01	.17
	$75001-100000	-.165*	.035	<.001	-.26	-.07
	$100001 or more	-.399*	.034	<.001	-.49	-.30
$75001-100000	$0-25000	.354*	.035	<.001	.26	.45
	$25001-50000	.251*	.033	<.001	.16	.34
	$50001-75000	.165*	.035	<.001	.07	.26
	$100001 or more	-.235*	.038	<.001	-.34	-.13
$100001 or more	$0-25000	.589*	.034	<.001	.49	.68
	$25001-50000	.486*	.032	<.001	.40	.57
	$50001-75000	.399*	.034	<.001	.30	.49
	$75001-100000	.235*	.038	<.001	.13	.34

A one-way ANOVA was conducted to compare mean parent-only expectations by the low-income categories of $0-$5,000; $5,001-$10,000; $10,001-$15,000; $15,001-$20,000; and $20,000-$25,000. Levene's Homogeneity of Variances (p = .152) test was included. There was not a statistically significant difference between groups, $F(4,3352) = 1.79$, p = .129. Mean scores

were lowest for the $0-$5,000 group (*M* = 5.05, *SD* = 1.56), with $10,001-$15,000 (*M* = 5.17, *SD* = 1.44), $20,001-$25,000 (*M* = 5.18, *SD* = 1.43), $5,001-$10,000 (*M* = 5.25, *SD* = 1.57), and $15,001-$20,000 (*M* = 5.26, *SD* = 1.45) groups as shown. Bonferroni post-hoc tests of multiple comparisons between groups indicated there were not any statistically significant differences for each between-group test ($p > .05$). These results suggest that across low-income levels there is not a statistically significant effect by income on parent-only attainment expectations. These one-way ANOVA results are summarized in Table 26.

Table 26.

One-way ANOVA – Low Income (Parent Expectations)

Low Income	*N*	*Mean*	*SD*
$0-5000	559	5.05	1.558
$5001-10000	344	5.25	1.571
$10001-15000	692	5.17	1.442
$15001-20000	773	5.26	1.451
$20001-25000	989	5.18	1.431

Bonferroni (I) Income	(J) Income	*Mean Difference*	*Std. Error*	*Sig.*	*95% CI of the Difference*	
					Lower	*Upper*
$0-5000	$5001-10000	-.196	.101	.521	-.48	.09
	$10001-15000	-.114	.084	1.000	-.35	.12
	$15001-20000	-.205	.082	.123	-.44	.02
	$20001-25000	-.122	.078	1.000	-.34	.10
$5001-10000	$0-5000	.196	.101	.521	-.09	.48
	$10001-15000	.082	.097	1.000	-.19	.36
	$15001-20000	-.009	.096	1.000	-.28	.26
	$20001-25000	.074	.092	1.000	-.19	.33
$10001-15000	$0-5000	.114	.084	1.000	-.12	.35
	$5001-10000	-.082	.097	1.000	-.36	.19
	$15001-20000	-.091	.077	1.000	-.31	.13
	$20001-25000	-.008	.073	1.000	-.21	.20
$15001-20000	$0-5000	.205	.082	.123	-.02	.44
	$5001-10000	.009	.096	1.000	-.26	.28

	$10001-15000	.091	.077	1.000	-.13	.31
	$20001-25000	.083	.071	1.000	-.12	.28
$20001-25000	$0-5000	.122	.078	1.000	-.10	.34
	$5001-10000	-.074	.092	1.000	-.33	.19
	$10001-15000	.008	.073	1.000	-.20	.21
	$15001-20000	-.083	.071	1.000	-.28	.12

Means of Student-only Expectations

A one-way ANOVA was conducted to compare mean student-only expectations by the race categories of White, Hispanic, Black, and Asian. Levene's Homogeneity of Variances ($p < .001$) test was included. There was a statistically significant difference between groups, $F(3, 13003) = 47.39$, $p < .001$. Mean scores were lowest for the Hispanic group ($M = 4.92$, $SD = 1.55$), with Black ($M = 5.10$, $SD = 1.51$), White ($M = 5.23$, $SD = 1.39$), and Asian ($M = 5.49$, $SD = 1.30$) groups as shown. Bonferroni post-hoc tests of multiple comparisons between groups indicated statistically significant differences for each between-group test ($p < .05$). These results suggest that race has a statistically significant effect on student-only attainment expectations. These one-way ANOVA results are summarized in Table 27.

Table 27.

One-way ANOVA – Race (Student Expectations)

Race	*N*	*Mean*	*SD*
White	7918	5.23	1.386
Hispanic	1932	4.92	1.552
Black	1845	5.10	1.514
Asian	1309	5.49	1.297

Bonferroni (I) Race	(J) Race	*Mean Difference*	*Std. Error*	*Sig.*	*95% CI of the Difference*	
					Lower	*Upper*
White	Hispanic	.310*	.036	<.001	.21	.41
	Black	.134*	.037	.002	.04	.23
	Asian	-.260*	.042	<.001	-.37	-.15

Hispanic	White	-.310*	.036	<.001	-.41	-.21
	Black	-.176*	.046	.001	-.30	-.05
	Asian	-.570*	.051	<.001	-.70	-.44
Black	White	-.134*	.037	.002	-.23	-.04
	Hispanic	.176*	.046	.001	.05	.30
	Asian	-.393*	.051	<.001	-.53	-.26
Asian	White	.260*	.042	<.001	.15	.37
	Hispanic	.570*	.051	<.001	.44	.70
	Black	.393*	.051	<.001	.26	.53

A one-way ANOVA was conducted to compare mean student-only expectations by the generational categories of first, second, and third. Levene's Homogeneity of Variances (p = .171) test was included. There was a statistically significant difference between groups, $F(2, 12024)$ = 7.888, p < .001). Mean scores were lowest for the third-generation group (M = 5.23, SD = 1.39), with first-generation (M = 5.27, SD = 1.42), and second-generation (M = 5.39, SD = 1.40) groups as shown. Bonferroni post-hoc tests of multiple comparisons between groups indicated statistically significant differences between the second and third-generation (p < .001) groups, and no statistically significant difference between first and second-generation groups (p = .089), and first and third-generation groups (p = 1.00). These results suggest that overall, generational status has a statistically significant effect on student-only attainment expectations, but that difference is not present when comparing some groups. These one-way ANOVA results are summarized in Table 28.

Table 28.

One-way ANOVA – Generational Status (Student Expectations)

Generational Status	*N*	*Mean*	*SD*
First	1249	5.27	1.421
Second	1458	5.39	1.398
Third	9320	5.23	1.393

Bonferroni (I) Generation	(J) Generation	*Mean Difference*	*Std. Error*	*Sig.*	*95% CI of the Difference*	
					Lower	*Upper*
First	Second	-.117	.054	.089	-.25	.01
	Third	.038	.042	1.000	-.06	.14
Second	First	.117	.054	.089	-.01	.25
	Third	.155*	.039	<.001	.06	.25
Third	First	-.038	.042	1.000	-.14	.06
	Second	-.155*	.039	<.001	-.25	-.06

A one-way ANOVA was conducted to compare mean student-only expectations by the overall income categories of $0-$25,000; $25,001-$50,000; $50,001-$75,000; $75,001-$100,000; and $100,001 or more. Levene's Homogeneity of Variances ($p < .001$) test was included. There was a statistically significant difference between groups, $F(4, 13789) = 164.55$, $p < .001$). Mean scores were lowest for the $0-$25,000 group ($M = 4.80$, $SD = 1.59$), with $25,001-$50,000 ($M = 5.02$, $SD = 1.50$), $50,001-$75,000 ($M = 5.28$, $SD = 1.34$), $75,001-$100,000 ($M = 5.44$, $SD = 1.23$), and $100,001 or more ($M = 5.72$, $SD = 1.13$ groups as shown. Bonferroni post-hoc tests of multiple comparisons between groups indicated statistically significant differences for each between-group test ($p < .05$). These results suggest that across economic levels there is a statistically significant effect by income on student-only attainment expectations. These one-way ANOVA results are summarized in Table 29.

Table 29.

One-way ANOVA – Overall Income (Student Expectations)

Overall Income	*N*	*Mean*	*SD*
$0-25000	2760	4.80	1.591
$25001-50000	4150	5.02	1.496
$50001-75000	2832	5.28	1.343
$75001-100000	1920	5.44	1.228

$100001 or more	2132	5.72	1.129

Bonferroni (I) Income	(J) Income	*Mean Difference*	*Std. Error*	*Sig.*	*95% CI of the Difference*	
					Lower	*Upper*
$0-25000	$25001-50000	-.212*	.034	<.001	-.31	-.12
	$50001-75000	-.474*	.037	<.001	-.58	-.37
	$75001-100000	-.638*	.042	<.001	-.75	-.52
	$100001 or more	-.920*	.040	<.001	-1.03	-.81
$25001-50000	$0-25000	.212*	.034	<.001	.12	.31
	$50001-75000	-.262*	.034	<.001	-.36	-.17
	$75001-100000	-.426*	.039	<.001	-.53	-.32
	$100001 or more	-.708*	.037	<.001	-.81	-.60
$50001-75000	$0-25000	.474*	.037	<.001	.37	.58
	$25001-50000	.262*	.034	<.001	.17	.36
	$75001-100000	-.164*	.041	.001	-.28	-.05
	$100001 or more	-.446*	.040	<.001	-.56	-.33
$75001-100000	$0-25000	.638*	.042	<.001	.52	.75
	$25001-50000	.426*	.039	<.001	.32	.53
	$50001-75000	.164*	.041	.001	.05	.28
	$100001 or more	-.283*	.044	<.001	-.41	-.16
$100001 or more	$0-25000	.920*	.040	<.001	.81	1.03
	$25001-50000	.708*	.037	<.001	.60	.81
	$50001-75000	.446*	.040	<.001	.33	.56
	$75001-100000	.283*	.044	<.001	.16	.41

A one-way ANOVA was conducted to compare mean student-only expectations by the low-income categories of $0-$5,000; $5,001-$10,000; $10,001-$15,000; $15,001-$20,000; and $20,000-$25,000. Levene's Homogeneity of Variances (p = .319) test was included. There was not a statistically significant difference between groups, $F(4, 2755) = 1.89$, p = .110. Mean scores were lowest for the $0-$5,000 group (M = 4.73, SD = 1.60), with $5,001-$10,000 (M = 4.60, SD = 1.62), $10,001-$15,000 (M = 4.81, SD = 1.56), $15,001-$20,000 (M = 4.85, SD = 1.55), and $20,001-$25,000 (M = 4.87, SD = 1.62) groups as shown. Bonferroni post-hoc tests of multiple comparisons between groups indicated there were not any statistically significant differences for each between-group test (p > .05). These results suggest that across low-income

levels there is not a statistically significant effect by income on student-only attainment expectations. These one-way ANOVA results are summarized in Table 30.

Table 30.

One-way ANOVA – Low Income (Student Expectations)

Low Income	*N*	*Mean*	*SD*
$0-5000	450	4.73	1.603
$5001-10000	278	4.60	1.622
$10001-15000	573	4.81	1.557
$15001-20000	634	4.85	1.555
$20001-25000	825	4.87	1.621

Bonferroni (I) Income	(J) Income	*Mean Difference*	*Std. Error*	*Sig.*	*95% CI of the Difference*	
					Lower	*Upper*
$0-5000	$5001-10000	.133	.121	1.000	-.21	.47
	$10001-15000	-.073	.100	1.000	-.35	.21
	$15001-20000	-.118	.098	1.000	-.39	.16
	$20001-25000	-.139	.093	1.000	-.40	.12
$5001-10000	$0-5000	-.133	.121	1.000	-.47	.21
	$10001-15000	-.206	.116	.771	-.53	.12
	$15001-20000	-.251	.114	.283	-.57	.07
	$20001-25000	-.272	.110	.137	-.58	.04
$10001-15000	$0-5000	.073	.100	1.000	-.21	.35
	$5001-10000	.206	.116	.771	-.12	.53
	$15001-20000	-.045	.092	1.000	-.30	.21
	$20001-25000	-.066	.086	1.000	-.31	.18
$15001-20000	$0-5000	.118	.098	1.000	-.16	.39
	$5001-10000	.251	.114	.283	-.07	.57
	$10001-15000	.045	.092	1.000	-.21	.30
	$20001-25000	-.021	.084	1.000	-.26	.21
$20001-25000	$0-5000	.139	.093	1.000	-.12	.40
	$5001-10000	.272	.110	.137	-.04	.58
	$10001-15000	.066	.086	1.000	-.18	.31
	$15001-20000	.021	.084	1.000	-.21	.26

Predictive Tests

To compare odds ratios and predict the likelihood of the occurrence of the dependent variable (DV – attainment of a bachelor degree or above) in relation to specific independent variables (IV) and through select interaction terms, binary logistic regressions were run:

- Between the DV and the IV "Generational status".
- Between the DV and the IV "Overall income".
- Between the DV and the IV "Low/high income".
- Between the DV and the IV "Low income".
- Between the DV and the IV "Parental education level".
- Between the DV and the IV "Two-parent household".
- Between the DV and the IV "Combined educational expectations".
- Between the DV and the IV "Race".
- Between the DV and IVs "Generational status" and "Overall income".
- Between the DV and IVs "Generational status", "Overall income", and "Parental education level".
- Between the DV and IVs "Generational status", "Overall income", and "Two-parent household".
- Between the DV and the interaction effect of IVs "Generational status", "Overall income", and "Combined educational expectations".

The binary logistic regression tests used the Hosmer and Lemeshow goodness of fit calculation. Hosmer and Lemeshow is widely used to determine how well the model fits the data. High *p* values (> .05) indicate that a model has data that fits it well. Stated another way, the *p* value of > .05 indicates that there is not enough evidence to conclude that the model does not fit the data.

Some models in this study show results of Hosmer and Lemeshow indicating that the model does not have data that fits it well, and there are times where the testing results do not compute this goodness of fit test. This may be to do with the large sample sizes in the models as any discrepancy between the model and the data will be magnified. As such, a significant Hosmer-Lemeshow test does not necessarily mean that a predictive model is not useful or suspect (Marcin & Romano, 2007).

Generational Status

A binary logistic regression was conducted to predict the likelihood of students attaining a bachelor degree or above based on generational status and to compare the odds ratios (OR) of first, second, and third generation immigrants in successful attainment of this outcome. The Hosmer and Lemeshow test suggests the model is a good fit to the data as $p = 1.00$ (> .05). The model successfully predicted 60.3% of the cases. The model suggests that generational status is a significant predictor for the attainment of a bachelor degree or above, $p = .001$. The reference group is first-generation.

Compared to first-generation students, second-generation student odds of attaining a bachelor degree or above is higher by a factor of 1.32 (or higher by 32%), OR = 1.323 (95% CI: 1.124 – 1.557), $p < .001$. The result is statistically significant at the .05 probability level.

Compared to first-generation students, third-generation student odds of attaining a bachelor degree or above is higher by a factor of 1.09 (or higher by 9%), OR = 1.089 (95% CI: .957 – 1.239), $p = .196$. The result is not statistically significant at the .05 probability level.

For the first-generation reference group, the predicted odds ratio (or likelihood) for first-generation students to attain a bachelor degree or above versus not attaining such is 60% or

lower by 40%, OR = 0.595, $p < .001$. These binary logistic regression results are summarized in Table 31.

Table 31.

Binary Logistic Regression – Generational Status

Predictors	*ß*	*S.E.*	*Wald*	*df*	*Sig.*	*Exp(ß)*	*95% C.I. for EXP(ß)*	
							Lower	*Upper*
First (Reference)			13.670	2	.001			
Second	.280	.083	11.367	1	.001	1.323	1.124	1.557
Third	.085	.066	1.673	1	.196	1.089	.957	1.239
Constant	-.520	.062	70.358	1	<.001	.595		

Test	χ^2	*df*	*p*
Overall Model Evaluation			
Likelihood-ratio test	1715.486	2	.001
Goodness of Fit test			
Hosmer & Lemeshow	<.001	1	1.000

Notes. Pseudo $R^2 = .14$ (Cox & Snell), .19 (Nagelkerke). p values significant at .05.

Overall Income

A binary logistic regression was conducted to predict the likelihood of students attaining a bachelor degree or above based on overall income groupings and to compare the odds ratios (OR) of students in these groups to successfully attain this outcome. Income groups in this analysis are $0 - $25,000; $25,001 - $50,000; $50,001 - $75,000; $75,001 - $100,000; and $100,001 and over. The Hosmer and Lemeshow test suggests the model is a good fit to the data as $p = .319$ (> .05). The model successfully predicted 66.8% of the cases. The model suggests that income level is a significant predictor for the attainment of a bachelor degree or above, $p <$ .001. The reference group is $0 - $25,000. For each unit of increase ($25,000) the predicted

likelihood for a student to attain a bachelor degree or above is 1.64 times as high (64% higher), OR = 1.639. (95% CI: 1.593 – 1.686), $p < .001$.

For the $0 - $25,000 reference group, the predicted odds ratio (or likelihood) for students to attain a bachelor degree or above versus not attaining such is 15% or lower by 85%, OR = 0.15, $p < .001$. These binary logistic regression results are summarized in Table 32.

Table 32.

Binary Logistic Regression – Overall Income

Predictors	*ß*	*S.E.*	*Wald*	*df*	*Sig.*	*Exp(ß)*	*95% C.I. for EXP(ß)*	
							Lower	*Upper*
Overall Income	.494	.014	1165.113	1	<.001	1.639	1.593	1.686
Constant	-1.896	.046	1677.680	1	<.001	.150		
Test		χ^2	*df*	*p*				
Overall Model Evaluation								
Likelihood-ratio test		1266.596	1	<.001				
Goodness of Fit test								
Hosmer & Lemeshow		3.513	3	.319				

Notes. Pseudo R^2 = .09 (Cox & Snell), .125 (Nagelkerke). p values significant at .05.

Low/High Income

A binary logistic regression was conducted to predict the likelihood of students attaining a bachelor degree or above based on low or high income and to compare the odds ratios (OR) of students in these groups to successfully attain this outcome. Income groups in this analysis are <$35,000; and =>$35,000. The model successfully predicted 66.8% of the cases. The model suggests that low or high-income status is a significant predictor for the attainment of a bachelor degree or above, $p < .001$. The reference category is low-income, <$35,000.

The predicted likelihood for students to attain a bachelor degree or above is 3.03 times (203%) as high for students who are not low income versus students who are low income, OR = 3.031 (95% CI: 2.783 – 3.300), $p < .001$.

For the <$35,000 low-income reference group, the predicted odds ratio (or likelihood) for students to attain a bachelor degree or above versus not attaining such is 27.5%, or lower by 72.5%, OR = 0.275, $p < .001$. These binary logistic regression results are summarized in Table 33.

Table 33.

Binary Logistic Regression – Low/High Income

Predictors	*ß*	*S.E.*	*Wald*	*df*	*Sig.*	*Exp(ß)*	*95% C.I. for EXP(ß)*	
							Lower	*Upper*
Low/High Income	1.109	.043	650.648	1	<.001	3.031	2.783	3.300
Constant	-1.291	.038	1154.922	1	<.001	.275		
Test		χ^2	*df*	*p*				
Overall Model Evaluation								
Likelihood-ratio test		718.786	1	<.001				
Goodness of Fit test								
Hosmer & Lemeshow		<.001						

Notes. Pseudo R^2 = .053 (Cox & Snell), .072 (Nagelkerke). p values significant at .05.

Low Income

A binary logistic regression was conducted to predict the likelihood of students attaining a bachelor degree or above based on low income groupings and to compare the odds ratios (OR) of students in these groups to successfully attain this outcome. Income groups in this analysis are $0 - $5,000; $5,001 - $10,000; $10,001 - $15,000; $15,001 - $20,000; and $20,001 - $25,000. The Hosmer and Lemeshow test suggests the model is a good fit to the data as $p = .674$ (> .05). The model successfully predicted 79.7% of the cases. The model suggests that income within the

low-income group is a significant predictor for the attainment of a bachelor degree or above, p = .005. The reference group is $0 - $5,000. For each unit of increase ($5,000 up to $25,000) the predicted likelihood for a student to attain a bachelor degree or above is 1.10 times as high or 10% higher, OR = 1.104. (95% CI: 1.030 – 1.182), p = .005.

For the $0-$5,000 reference group, the predicted odds ratio (or likelihood) for students to attain a bachelor degree or above versus not attaining such is 18.2%, or lower by 81.8%, OR = 0.182, p < .001. These binary logistic regression results are summarized in Table 34.

Table 34.

Binary Logistic Regression – Low Income

Predictors	*ß*	*S.E.*	*Wald*	*df*	*Sig.*	*Exp(ß)*	*95% C.I. for EXP(ß)*	
							Lower	*Upper*
Low/High Income	.099	.025	7.784	1	.005	1.104	1.030	1.182
Constant	-1.706	.133	165.629	1	<.001	.182		
Test		χ^2	*df*	*p*				
Overall Model Evaluation								
Likelihood-ratio test		8.011	1	.005				
Goodness of Fit test								
Hosmer & Lemeshow		1.538	3	.674				

Notes. Pseudo R^2 = .004 (Cox & Snell), .006 (Nagelkerke). p values significant at .05.

Parental Education Level

A binary logistic regression was conducted to predict the likelihood of students attaining a bachelor degree or above based on whether their parent had attained or not attained a bachelor degree or above, and to compare the odds ratios (OR) of students in these groups to successfully attain this outcome. The model successfully predicted 67.4% of the cases. The model suggests that parental education level is a significant predictor for the attainment of a bachelor degree or

above, $p < .001$. The reference group is students with parents who have not attained a bachelor degree or above.

The predicted likelihood for students to attain a bachelor degree or above is 4.03 times (303%) as high for students who have a parent who has already attained a bachelor degree or above versus students who do not have a parent who has attained a bachelor degree or above, OR = 4.025 (95% CI: 3.729 – 4.344), $p < .001$.

For the reference group of parents who did not attain a bachelor degree or above, the predicted odds ratio (or likelihood) for students to attain a bachelor degree or above versus not attaining such is 32.3%, or lower by 67.7%, OR = 0.323, $p < .001$. These binary logistic regression results are summarized in Table 35.

Table 35.

Binary Logistic Regression – Parent Highest Education Level

Predictors	*ß*	*S.E.*	*Wald*	*df*	*Sig.*	*Exp(ß)*	*95% C.I. for EXP(ß)*	
							Lower	*Upper*
Parents Highest Education Level	1.392	.039	1275.08	1	<.001	4.025	3.729	4.344
Constant	-1.130	.028	1685.108	1	<.001	.323		

Test	χ^2	*df*	*p*
Overall Model Evaluation			
Likelihood-ratio test	1345.043	1	<.001
Goodness of Fit test			
Hosmer & Lemeshow	<.001		

Notes. Pseudo R^2 = .102 (Cox & Snell), .139 (Nagelkerke). p values significant at .05.

Family Composition

A binary logistic regression was conducted to predict the likelihood of students attaining a bachelor degree or above based on whether the student lived in a two-parent household or did

not live in a two-parent household, and to compare the odds ratios (OR) of students in these groups to successfully attain this outcome. The model successfully predicted 61.7% of the cases. The model suggests that family composition is a significant predictor for the attainment of a bachelor degree or above, $p < .001$. The reference group is students who do not live in a two-parent household.

The predicted likelihood for students to attain a bachelor degree or above is 2.42 times (142%) as high for students who have a two-parent household versus students who do not have a two-parent household, OR = 2.416 (95% CI: 2.232 – 2.614), $p < .001$.

For the reference group of students who do not live in a two-parent household, the predicted odds ratio (or likelihood) for students to attain a bachelor degree or above versus not attaining such is 35.1%, or lower by 64.9%, OR = 0.351, $p < .001$. These binary logistic regression results are summarized in Table 36.

Table 36.

Binary Logistic Regression – Family Composition

Predictors	*ß*	*S.E.*	*Wald*	*df*	*Sig.*	*Exp(ß)*	*95% C.I. for EXP(ß)*	
							Lower	*Upper*
Two-Parent Household	.882	.040	479.142	1	<.001	2.416	2.232	2.614
Constant	-1.046	.033	999.566	1	<.001	.351		

Test	χ^2	*df*	*p*
Overall Model Evaluation			
Likelihood-ratio test	503.180	1	<.001
Goodness of Fit test			
Hosmer & Lemeshow	<.001		

Notes. Pseudo R^2 = .040 (Cox & Snell), .054 (Nagelkerke). p values significant at .05.

Combined Educational Expectations

A binary logistic regression was conducted to predict the likelihood of students attaining a bachelor degree or above based on whether the student, based on the combination of mean scores of both parent and student expectations, was expected to attain a bachelor degree or above or not expected to attain a bachelor degree or above, and to compare the odds ratios (OR) of students in these groups to successfully attain this outcome. The model successfully predicted 60% of the cases. The model suggests that educational expectations is a significant predictor for the attainment of a bachelor degree or above, $p < .001$. The reference group is students who are not expected to attain a bachelor degree or above.

The predicted likelihood for students to attain a bachelor degree or above is 9.41 times (841%) as high for students who are expected to attain a bachelor degree or above versus students who are not expected to attain a bachelor degree or above, OR = 9.413 (95% CI: 8.072 – 10.977), $p < .001$.

For the reference group of students who are not expected to attain a bachelor degree or above, the predicted odds ratio (or likelihood) for students to attain a bachelor degree or above versus not attaining such is 9.6%, or lower by 90.4%, OR = 0.096, $p < .001$. These binary logistic regression results are summarized in Table 37.

Table 37.

Binary Logistic Regression – Combined Educational Expectations

Predictors	*ß*	*S.E.*	*Wald*	*df*	*Sig.*	*Exp(ß)*	*95% C.I. for EXP(ß)*	
							Lower	*Upper*
Combined Educational Expectations	2.242	.078	817.554	1	<.001	9.413	8.072	10.977
Constant	-1.046	.033	999.566	1	<.001	.351		
Test			χ^2	*df*	*p*			

Overall Model Evaluation			
Likelihood-ratio test	1301.538	1	<.001
Goodness of Fit test			
Hosmer & Lemeshow	<.001		

Notes. Pseudo R^2 = .109 (Cox & Snell), .147 (Nagelkerke). p values significant at .05.

Race

A binary logistic regression was conducted to predict the likelihood of students attaining a bachelor degree or above based on race and to compare the odds ratios (OR) of White, Hispanic, Black, and Asian students in successful attainment of this outcome. The Hosmer and Lemeshow test suggests the model is a good fit to the data as $p = 1.00$ (> .05). The model successfully predicted 61.5% of the cases. The model suggests that race is a significant predictor for the attainment of a bachelor degree or above, $p < .001$. The reference group is White students.

Compared to White students, Hispanic student odds of attaining a bachelor degree or above is lower by a factor of 0.37 (or lower by 63%), OR = .370 (95% CI: .328 – .419), $p < .001$.

Compared to White students, Black student odds of attaining a bachelor degree or above is lower by a factor of 0.39 (or lower by 61%), OR = .391 (95% CI: .345 – .443), $p < .001$.

Compared to White students, Asian student odds of attaining a bachelor degree or above is 1.35 times higher (or higher by 35%), OR = 1.354 (95% CI: 1.196 – 1.533), $p <.001$.

For the reference group of White students, the predicted odds ratio (or likelihood) for students to attain a bachelor degree or above versus not attaining such is 78.2%, or lower by 21.8%, OR = 0.782, $p < .001$. These binary logistic regression results are summarized in Table 38.

Table 38.

Binary Logistic Regression – Race

Predictors	*ß*	*S.E.*	*Wald*	*df*	*Sig.*	*Exp(ß)*	*95% C.I. for EXP(ß)*	
							Lower	*Upper*
White			487.124	3	<.001			
Hispanic	-.993	.062	253.173	1	<.001	.370	.328	.419
Black	-.940	.064	216.161	1	<.001	.391	.345	.443
Asian	.303	.024	22.837	1	<.001	1.354	1.196	1.533
Constant	-.246	.024	108.596	1	<.001	.782		

Test	*χ²*	*df*	*p*
Overall Model Evaluation			
Likelihood-ratio test	531.877	3	<.001
Goodness of Fit test			
Hosmer & Lemeshow	<.001	2	1.000

Notes. Pseudo R^2 = .044 (Cox & Snell), .060 (Nagelkerke). p values significant at .05.

Binary Logistic Regression Interaction Effects

Generational Status and Overall Income

A binary logistic regression was conducted to predict the likelihood of students attaining a bachelor degree or above based on the interaction effects of generational status and income level, and to compare the odds ratios (OR) of students within this study's generational categories in successful attainment of this outcome. The Hosmer and Lemeshow test suggests the model was a good fit to the data as $p = .379$ (> .05). The model successfully predicted 66.7% of the cases. The model suggests that this interaction of variables is a significant predictor for the attainment of a bachelor degree or above, $p < .001$.

Compared to first-generation students, when controlling for generational status as second-generation, each unit of increase in income is associated with increasing student odds of

attaining a bachelor degree or above by a factor of 1.17 (or higher by 17%), OR = 1.168 (95% CI: 1.024 – 1.332), $p = .021$. The result is statistically significant at the .05 probability level.

Compared to first-generation students, when controlling for generational status as third-generation, each unit of increase in income is associated with increasing student odds of attaining a bachelor degree or above by a factor of 1.23 (or higher by 23%), OR = 1.233 (95% CI: 1.111 – 1.369), $p < .001$. The result is statistically significant at the .05 probability level.

For the reference group of first-generation students, the predicted odds ratio (or likelihood) for students to attain a bachelor degree or above versus not attaining such when controlling for unit increases in income is 27.2%, or lower by 72.8%, OR = 0.272, $p < .001$. The result is statistically significant at the .05 probability level. These binary logistic regression results are summarized in Table 39.

Table 39.

*Binary Logistic Regression – Generational Status * Income*

Predictors	*ß*	*S.E.*	*Wald*	*df*	*Sig.*	*Exp(ß)*	*95% C.I. for EXP(ß)*	
							Lower	*Upper*
Generational Status 1st			40.843	2	<.001			
Generational Status 2nd	-.257	.184	1.966	1	.161	.773	.539	1.108
Generational Status 3rd	-.815	.143	32.602	1	<.001	.443	.335	.586
All Income Levels	.352	.050	49.886	1	<.001	1.423	1.290	1.569
GS1*Inc			15.895	2	<.001			
GS2*Inc	.155	.067	5.325	1	.021	1.168	1.024	1.332
GS3*Inc	.210	.053	15.524	1	<.001	1.233	1.111	1.369
Constant	-1.301	.129	101.832	1	<.001	.272		

Test	χ^2	*df*	*p*
Overall Model	1243.553	5	<.001
Goodness of Fit test			
Hosmer and Lemeshow	6.405	6	.379

GS1=1st Generation; GS2=2nd Generation; GS3=3rd Generation; Inc=Income Level
Notes. Pseudo $R^2 = .106$ (Cox & Snell), .144 (Nagelkerke). p values significant at .05.

Generational Status and Parental Education Level

A binary logistic regression was conducted to predict the likelihood of students attaining a bachelor degree or above based on the interaction effects of generational status and parental education level, and to compare the odds ratios (OR) of students within this study's generational categories in successful attainment of this outcome. The Hosmer and Lemeshow test suggests the model was a good fit to the data as $p = 1.00$ (> .05). The model successfully predicted 67.3% of the cases. The model suggests that this interaction of variables is a significant predictor for the attainment of a bachelor degree or above, $p < .001$**.**

Compared to first-generation students, when controlling for generational status as second-generation, having a parent who has already attained a bachelor degree or above is associated with increasing student odds of attaining a bachelor degree or above by a factor of 1.36 (or higher by 36%), OR = 1.364 (95% CI: .968 – 1.920), $p = .076$. The result is not statistically significant at the .05 probability level.

Compared to first-generation students, when controlling for generational status as third-generation, having a parent who has already attained a bachelor degree or above is associated with increasing student odds of attaining a bachelor degree or above by a factor of 1.3 (or higher by 30%), OR = 1.300 (95% CI: .993 – 1.700), $p = .056$. The result is not statistically significant at the .05 probability level.

For the reference group of first-generation students, the predicted odds ratio (or likelihood) for students to attain a bachelor degree or above versus not attaining such when having a parent who has already attained a bachelor degree or above is 35.4%, or lower by 64.6%, OR = 0.354, $p < .001$. The result is statistically significant at the .05 probability level. These binary logistic regression results are summarized in Table 40.

Table 40.

*Binary Logistic Regression – Generational Status * Parental Education Level*

Predictors	*ß*	*S.E.*	*Wald*	*df*	*Sig.*	*Exp(ß)*	*95% C.I. for EXP(ß)*	
							Lower	*Upper*
Generational Status 1st			4.713	2	.095			
Generational Status 2nd	.127	.121	1.107	1	.293	1.136	.896	1.439
Generational Status 3rd	-.061	.095	.406	1	.524	.941	.780	1.135
All Income Levels	1.151	.129	79.770	1	<.001	3.163	2.457	4.072
GS1*PEL			4.041	2	.133			
GS2*PEL	.310	.175	3.149	1	.076	1.364	.968	1.920
GS3*PEL	.262	.137	3.652	1	.056	1.300	.993	1.700
Constant	-1.040	.089	134.970	1	<.001	.354		

Test	χ^2	*df*	*p*
Overall Model	1225.832	5	<.001
Goodness of Fit test			
Hosmer and Lemeshow	<.001	3	1.000

GS1=1st Generation; GS2=2nd Generation; GS3=3rd Generation; PEL=Parental Education Level
Notes. Pseudo R^2 = .105 (Cox & Snell), .142 (Nagelkerke). p values significant at .05.

Generational Status and Family Composition

A binary logistic regression was conducted to predict the likelihood of students attaining a bachelor degree or above based on the interaction effects of generational status and family composition, and to compare the odds ratios (OR) of students within this study's generational categories in successful attainment of this outcome. The Hosmer and Lemeshow test suggests the model was a good fit to the data as $p = 1.00$ (> .05). The model successfully predicted 60.2% of the cases. The model suggests that this interaction of variables is a significant predictor for the attainment of a bachelor degree or above, $p < .001$**.**

Compared to first-generation students, when controlling for generational status as second-generation, living in a two-parent household is associated with decreasing student odds of attaining a bachelor degree or above by a factor of .986 (or lower by 1.4%), OR = .986 (95% CI: .688 – 1.415), $p = .941$. The result is not statistically significant at the .05 probability level.

Compared to first-generation students, when controlling for generational status as third-generation, living in a two-parent household is associated with increasing student odds of attaining a bachelor degree or above by a factor of 1.4 (or higher by 40%), OR = 1.402 (95% CI: 1.056 – 1.862), $p = .02$. The result is statistically significant at the .05 probability level.

For the reference group of first-generation students, the predicted odds ratio (or likelihood) for students to attain a bachelor degree or above versus not attaining such when living in a two-parent household is 38.7%, or lower by 61.3%, OR = 0.387, $p < .001$. The result is statistically significant at the .05 probability level. These binary logistic regression results are summarized in Table 41.

Table 41.

*Binary Logistic Regression – Generational Status * Family Composition*

Predictors	*ß*	*S.E.*	*Wald*	*df*	*Sig.*	*Exp(ß)*	*95% C.I. for EXP(ß)*	
							Lower	*Upper*
Generational Status 1st			12.113	2	.002			
Generational Status 2nd	.267	.154	2.998	1	.083	1.306	.965	1.766
Generational Status 3rd	-.117	.120	.949	1	.330	.890	.703	1.126
All Income Levels	.654	.136	22.994	1	<.001	1.923	1.472	2.513
GS1*FC			11.107	2	.004			
GS2*FC	-.014	.184	.006	1	.941	.986	.688	1.415
GS3*FC	.338	.145	5.454	1	.020	1.402	1.056	1.862
Constant	-.949	.113	70.133	1	<.001	.387		

Test	χ^2	*df*	*p*
Overall Model	507.323	5	<.001
Goodness of Fit test			
Hosmer and Lemeshow	<.001	3	1.000

GS1=1st Generation; GS2=2nd Generation; GS3=3rd Generation; FC=Family Composition
Notes. Pseudo $R^2 = .045$ (Cox & Snell), .061 (Nagelkerke). p values significant at .05.

Generational Status and Combined Expectations

A binary logistic regression was conducted to predict the likelihood of students attaining a bachelor degree or above based on the interaction effects of generational status and combined expectations, and to compare the odds ratios (OR) of students within this study's generational categories in successful attainment of this outcome. The Hosmer and Lemeshow test suggests the model was a good fit to the data as $p = 1.00$ (> .05). The model successfully predicted 58.7% of the cases. The model suggests that this interaction of variables is a significant predictor for the attainment of a bachelor degree or above, $p < .001$**.**

Compared to first-generation students, when controlling for generational status as second-generation, being expected to attain a bachelor degree or above is associated with decreasing student odds of attaining a bachelor degree or above by a factor of .975 (or lower by 2.5%), OR = .975 (95% CI: .483 – 1.968), $p = .944$. The result is not statistically significant at the .05 probability level.

Compared to first-generation students, when controlling for generational status as third-generation, being expected to attain a bachelor degree or above is associated with increasing student odds of attaining a bachelor degree or above by a factor of 1.5 (or higher by 50%), OR = 1.460 (95% CI: .828 – 2.575), $p = 191$. The result is not statistically significant at the .05 probability level.

For the reference group of first-generation students, the predicted odds ratio (or likelihood) for students to attain a bachelor degree or above versus not attaining such expected to attain a bachelor degree or above is 11.3%, or lower by 89.7%, OR = 0.113, $p < .001$. The result is statistically significant at the .05 probability level. These binary logistic regression results are summarized in Table 42.

Table 42.

*Binary Logistic Regression – Generational Status * Combined Expectations*

Predictors	*ß*	*S.E.*	*Wald*	*df*	*Sig.*	*Exp(ß)*	*95% C.I. for EXP(ß)*	
							Lower	*Upper*
Generational Status 1st			4.446	2	.108			
Generational Status 2nd	.295	.346	.727	1	.394	1.343	.682	2.645
Generational Status 3rd	-.204	.280	.530	1	.467	.816	.471	1.412
All Income Levels	1.966	.273	51.912	1	.000	7.139	4.182	12.185
GS1*FC			3.805	2	.149			
GS2*FC	-.025	.358	.005	1	.944	.975	.483	1.968
GS3*FC	.378	.289	1.710	1	.191	1.460	.828	2.575
Constant	-2.183	.264	68.541	1	.000	.113		

Test	χ^2	*df*	*p*
Overall Model	1149.635	5	<.001
Goodness of Fit test			
Hosmer and Lemeshow	<.001	2	1.000

GS1=1st Generation; GS2=2nd Generation; GS3=3rd Generation; FC=Family Composition
Notes. Pseudo R^2 = .108 (Cox & Snell), .146 (Nagelkerke). p values significant at .05.

Generational Status, Overall Income, and Parental Education Level

A binary logistic regression was conducted to predict the likelihood of students attaining a bachelor degree or above based on the interaction effects of generational status, income level, and parental education level, and to compare the odds ratios (OR) of students within this study's generational categories in successful attainment of this outcome. The Hosmer and Lemeshow test suggests the model was not a good fit to the data as p =.037 (< .05). The model successfully predicted 69.2% of the cases. The model suggests that this interaction of variables is a significant predictor for the attainment of a bachelor degree or above, p < .001.

Compared to first-generation students, when controlling for generational status as second-generation, and parent educational level as 1 (attained bachelor degree or above), each unit of increase in income is associated with increasing student odds of attaining a bachelor

degree or above by a factor of 1.06 (or higher by 6%), OR = 1.062 (95% CI: .977 – 1.153), p = .157. The result is not statistically significant at the .05 probability level.

Compared to first-generation students, when controlling for generational status as third-generation, and parent educational level as 1 (attained bachelor degree or above), each unit of increase in income is associated with increasing student odds of attaining a bachelor degree or above by a factor of 1.06 (or higher by 6%), OR = 1.059 (95% CI: 1.006 – 1.116), p = .03. The result is statistically significant at the .05 probability level.

For the reference group of first-generation students, the predicted odds ratio (or likelihood) for students to attain a bachelor degree or above versus not attaining such when controlling for parental education level and unit increases in income is 18.5%, or lower by 81.5%, OR = 0.185, p < .001. The result is statistically significant at the .05 probability level. These binary logistic regression results are summarized in Table 43.

Table 43.

*Binary Logistic Regression – Generational Status * Income * Parent Education Level*

Interaction Variables	*ß*	*S.E.*	*Wald*	*df*	*Sig.*	*Exp(ß)*	*95% C.I. for EXP(ß)*	
							Lower	*Upper*
All Income Levels	.353	.022	260.951	1	<.001	1.424	1.364	1.486
Generational Status 1st			26.951	2	<.001			
Generational Status 2nd	.058	.107	.289	1	.591	1.059	.859	1.306
Generational Status 3rd	-.292	.079	13.547	1	<.001	.746	.639	.872
Parent Education Level	.840	.083	102.099	1	<.001	2.316	1.968	2.726
GS1*Inc*PEL			4.785	2	.091			
GS2*Inc*PEL	.060	.042	2.006	1	.157	1.062	.977	1.153
GS3*Inc*PEL	.058	.027	4.698	1	.030	1.059	1.006	1.116
Constant	-1.685	.098	293.844	1	<.001	.185		

Test	χ^2	*df*	*p*
Overall Model	1715.486	6	<.001
Goodness of Fit test			
Hosmer and Lemeshow	14.934	7	.037

GS1=1st Generation; GS2=2nd Generation; GS3=3rd Generation; Inc=Income Level: PEL=Parent Education Level
Notes. Pseudo R^2 = .144 (Cox & Snell), .194 (Nagelkerke). p values significant at .05.

Generational Status, Overall Income, and Two-Parent Household

A binary logistic regression was conducted to predict the likelihood of students attaining a bachelor degree or above based on the interaction effects of generational status, income level, and family composition, defined as whether or not the student lived in a two-parent household, and to compare the odds ratios of (OR) students within this study's generational categories in successful attainment of this outcome. The Hosmer and Lemeshow test suggests the model was a good fit to the data as $p = .105$ (> .05). The model successfully predicted 67.3% of the cases. The model suggests that this interaction of variables is a significant predictor for the attainment of a bachelor degree or above, $p < .001$.

Compared to first-generation students, when controlling for generational status as second-generation, and family composition as 1 (two-parent household), each unit of increase in income is associated with increasing student odds of attaining a bachelor degree or above by a factor of 1.06 (or higher by 6%), OR = 1.063 (95% CI: .977 – 1.153), $p < .162$. The result is not statistically significant at the .05 probability level.

Compared to first-generation students, when controlling for generational status as third-generation, and family composition as 1 (two-parent household), each unit of increase in income is associated with increasing student odds of attaining a bachelor degree or above by a factor of 1.10 (or higher by 10%), OR = 1.095 (95% CI: 1.095 – 1.036), $p = .001$. The result is statistically significant at the .05 probability level.

For the reference group of first-generation students, the predicted odds ratio (or likelihood) for students to attain a bachelor degree or above versus not attaining such when controlling for family composition and unit increases in income is 18.5%, or lower by 81.5%,

OR = 0.185, $p < .001$. The result is statistically significant at the .05 probability level. These binary logistic regression results are summarized in Table 44.

Table 44.

*Binary Logistic Regression – Generational Status * Income * Family Composition*

Interaction Variables	*ß*	*S.E.*	*Wald*	*df*	*Sig.*	*Exp(ß)*	*95% C.I. for EXP(ß)*	
							Lower	*Upper*
All Income Levels	.428	.024	325.024	1	<.001	1.534	1.464	1.607
Generational Status 1st			36.700	2	<.001			
Generational Status 2nd	-.011	.119	.009	1	.926	.989	.784	1.248
Generational Status 3rd	-.432	.086	24.979	1	<.001	.649	.548	.769
Family Composition	.310	.083	13.909	1	<.001	1.363	1.158	1.605
GS1*Inc*FC			10.516	2	.005			
GS2*Inc*FC	.061	.044	1.957	1	.162	1.063	.976	1.159
GS3*Inc*FC	.090	.028	10.407	1	.001	1.095	1.036	1.156
Constant	-1.685	.098	293.844	1	<.001	.185		

Test	χ^2	*df*	*p*
Overall Model	1366.268	6	<.001
Goodness of Fit test			
Hosmer and Lemeshow	11.870	7	.105

GS1=1st Generation; GS2=2nd Generation; GS3=3rd Generation; Inc=Income Level; FC=Family Composition
Notes. Pseudo R^2 = .117 (Cox & Snell), .159 (Nagelkerke). p values significant at .05.

Generational Status, Overall Income, and Combined Educational Expectations

A binary logistic regression was conducted to predict the likelihood of students attaining a bachelor degree or above based on the interaction effects of generational status, income level, and educational expectations, defined as whether or not the was expected to attain a bachelor degree or above, and to compare the odds ratios (OR) of students within this study's generational categories in successful attainment of this outcome. The Hosmer and Lemeshow test suggests the model was a good fit to the data as $p = .798$ (> .05). The model successfully predicted 67.4% of the cases. The model suggests that this interaction of variables is a significant predictor for the attainment of a bachelor degree or above, $p < .001$.

Compared to first-generation students, when controlling for generational status as second-generation, and combined educational expectations as 1 (expected to attain bachelor degree or above), each unit of increase in income is associated with increasing student odds of attaining a bachelor degree or above by a factor of 1.07 (or higher by 7%), OR = 1.074 (95% CI: .956 – 1.207), p = .230. The result is not statistically significant at the .05 probability level.

Compared to first-generation students, when controlling for generational status as third-generation, and combined educational expectations as 1 (expected to attain bachelor degree or above), each unit of increase in income is associated with increasing student odds of attaining a bachelor degree or above by a factor of 1.14 (or higher by 14%), OR = 1.137 (95% CI: 1.045 – 1.238), p = .003. The result is statistically significant at the .05 probability level.

For the reference group of first-generation students, the predicted odds ratio (or likelihood) for students to attain a bachelor degree or above versus not attaining such when controlling for combined educational expectations and unit increases in income is 6.5%, or lower by 93.5%, OR = 0.065, p <.001. The result is statistically significant at the .05 probability level. These binary logistic regression results are summarized in Table 45.

Table 45.

*Binary Logistic Regression – Generational Status * Income * Combined Educational Expectations*

Interaction Variables	*ß*	*S.E.*	*Wald*	*df*	*Sig.*	*Exp(ß)*	*95% C.I. for EXP(ß)*	
							Lower	*Upper*
All Income Levels	.349	.040	76.257	1	<001	1.418	1.311	1.534
Generational Status 1st			23.820	2	<.001			
Generational Status 2nd	-.045	.166	.074	1	.785	.956	.690	1.324
Generational Status 3rd	-.500	.122	16.917	1	<.001	.607	.478	.770
Family Composition	1.699	.132	165.383	1	<.001	5.468	4.221	7.084
GS1*Inc*EdExpect			9.639	2	.008			
GS2*Inc*EdExpect	.071	.059	1.440	1	.230	1.074	.956	1.207
GS3*Inc*EdExpect	.129	.043	8.930	1	.003	1.137	1.045	1.238

Constant	-2.729	.207	174.597	1	<.001	.065

Test	χ^2	*df*	*p*
Overall Model			
	1881.415	6	<.001
Goodness of Fit test			
Hosmer and Lemeshow	3.844	7	.798

GS1=1st Generation; GS2=2nd Generation; GS3=3rd Generation; Inc=Income Level; EdExpect=Combined Educational Expectations

Notes. Pseudo R^2 = .171 (Cox & Snell), .230 (Nagelkerke). p values significant at .05.

Chapter V: DISCUSSION

Summary

In the previous section, the research tested the variables and hypotheses through SPSS statistical analysis. These analyses tested the family capital variables of parental education level, student educational expectations, and family composition (two-parent household). In addition, the social variables of generational status and race, along with the economic variable of income were analyzed.

I reported on the descriptive statistics of the sample members by the specific groups and variables under investigation. The data show a large sample size even when broken down within an individual variable such as race, generational status, or low-income families. The chi-square goodness of fit test indicated an acceptable level of variance in the sample, and the chi-square independence test showed a significant association between the independent variables and the dependent variables.

To examine the concept of expectations, I specifically looked at differences in the means of student educational expectations across three groups – student-only, parent-only, and combined student-parent scores. Those three groups were further investigated through the contexts of generational status, race, and income, with the economic means of student families being looked at in three different ways – overall income, low-income only and high/low income stratifications, and through the variables of family composition and parent education level.

One Sample T-Test

Means of student educational expectations were compared between student-only, parent only, and combined through a one-sample t-test. This test revealed significant differences in mean expectations between these three groups, and indicated that each group, on average,

expected students to attain the dependent variable of attaining a bachelor degree or above. Of the three groups, the parent-only segment scored highest on this test, with the student-only segment scoring lowest.

Independent Samples T-Test

To test expectations for the dichotomous independent variables of family composition (two-parent households), parent education level, and low/high income, independent sample t-tests were run to compare the means of these variables for student-only, parent-only, and combined expectation scores. In each instance, scores for student educational expectations had statistically significant differences in means for students living in a two-parent household; with a parent who had earned at least a bachelor degree; and in economic circumstances that placed students in an environment that was not low-income. Though these results are significant in the statistical sense, the practical results of this test indicate that, by and large, almost every test of expectations yielded results indicating that the student wanted or was expected to complete a bachelor degree or above. The only two instances in which this was not the case were student-only expectations where their parent had not completed a degree, and where the student lived in a low-income household. In these cases, the mean student expectations scores indicated that, on average, the students expected to attain less than a bachelor degree in post high-school study.

One-Way ANOVA

One-way ANOVA testing was used to test the means for expectations among the categories of race, generational status, all income, and low-income only for student-only, parent-only, and combined expectation scores. Within the ANOVA tests, a Bonferroni post-hoc test was used to make multiple between-group comparisons of statistical significant differences.

When testing the means of combined expectations, each independent variable analyzed displayed statistically significant differences between categories with the exception of the low-income only variable. Between-groups testing revealed the same results, with each variable showing statistically significant differences with the exception of the low-income only variable.

When parent-only expectations were tested, the low-income variable once again was the only variable that did not show statistically significant differences. When means were tested between groups, differences tended to be more variable, with some race categories showing strong similarities, and some generations indicating no significant differences. When income-based variables were tested, overall income showed significant differences while the low-income groups had no statistically significant differences.

In the student-only expectations testing, race and overall income were the variables that showed statistically significant differences both among the overall groups and between groups. Generational status was mixed, with significant overall differences, but only significant differences with between-groups analysis of second and third generations. Again, the low-income variable test resulted in no statistically significant differences in overall means or in multiple between-groups comparisons.

Overall, for all expectation groups, means were highest for Asians within the race category, highest for second-generation immigrants, and highest for the top of the overall income categories. The remainder of the comparisons yielded more mixed results.

Binary Logistic Regression

Binary logistic regression was used to predict the likelihood that students would attain a bachelor degree or above, and to compare the odds ratios of different groups in the sample in doing so. First-generation students had consistently lower odds than others; income increases

produced higher likelihoods and odds ratios the higher the student was up the scale; and higher parental education level, living in a two-parent household, and high combined expectations of students all significantly increased the chances that a student would meet the dependent variable. In the race category, Asian students were far more likely to meet the dependent variable compared to White students, while Hispanic and Black students lagged well behind their peers.

When interaction effects were tested, the combination of generational status and overall income showed results suggesting these variables together were significant predictors of educational attainment for each generation of students. When adding parental education level to the test, the results showed that while this model itself was a significant predictor, only third-generation students were shown to exhibit a statistically significant difference in outcome compared to other students. In testing how generational status and income were influenced by the additional interaction variable of family composition, the overall model was a significant predictor, but only first and third-generation students experienced a statistically significant difference in outcome. The last interaction test involved generational status, overall income, and combined educational expectations of students. When these were tested, this model also suggested that these variables were significant predictors of the dependent variable. However, second-generation students again were not shown to be significantly influenced by the combination of factors, while first and third-generation students had differences that were statistically significant.

Notable Findings

In this section, a number of findings merit mention. In the means comparisons of the three scores from student-only, parent-only, and combined groups, the lowest overall mean score of student expectations came from students themselves. Though this may not be surprising

considering the age group these data were collected from, when considered in light of the higher scores generated by parent-only and combined groups, the importance of student self-concept may be worthy of further attention. Across all groups of comparison, lower mean expectation scores were also recorded when students were not living in two-parent households, without parents with a bachelor degree or above, and for students in low-income situations. Particularly troubling are the groups with scores showing students not expecting to attain a bachelor degree or above at all. These results were recorded from the student-only group with the variables of parents with no bachelor degree, in the low-income <$35,000 category, and under $25,000 in the low-income only group. In addition, the only category from the race variable that did not expect to attain a degree were Hispanic students from the student-only data group. The students who exhibit this low level of expectation may represent a level of educational vulnerability that calls for significant attention and, at the least, warrants further study.

In tests for predicting the likelihood that students would graduate with a bachelor degree or above, binary logistic regression results showed the variable with the highest factor of difference to be combined educational expectations. With this variable, which measured the combined expectations of students and parents regarding post high-school attainment, students who were expected to graduate with a bachelor degree or above were 9.41 times as likely (841% higher) to do so than those who were not expected to complete bachelor-level studies. This suggests that parent/student agreement on attainment expectations regarding student academic trajectory may be a key factor in improving educational outcomes. The second highest mark for bachelor degree prediction comes from the parent education level variable. In this variable, students with at least one parent who already held a bachelor degree or higher were more likely to complete bachelor studies by a factor of 4.025 (302.5%). Other key variables in the binary

logistic regression tests include high income, which predicts that students in this category are 3.03 times (203%) more likely to complete studies than students in low-income families, and family composition which indicates that students with two-parent households are 2.4 times (140%) more likely to attain a degree than students in any other household arrangement.

When testing interaction effects, the key findings for this phase of the research include that the interaction of generational status and income resulted in significant differences in attainment for all generations. This is the only interaction effect that was statistically significant for all three immigrant groups.

In other two-factor interaction tests, the results were slightly more mixed with the interaction effect of generational status and parental educational showing no significance for any group; generational status and combined educational expectations showing the same; and generational status and family composition being significant for first and third generations, but not for second.

When three-way interactions were introduced, results were similar. For generational status/income/parental education level, only third-generation students showed a statistically significant difference in outcome. For generational status/income/family composition, and generational status/income/combined educational expectations, second-generation students were the only group to show results that were not statistically significant.

Hypotheses

This research put forth a number of hypotheses to test through the statistical analysis described in the preceding chapter and illustrated in this Results section. This portion of the section will restate those hypotheses for the main statistical tests and report on their status.

To compare the parent, student, and combined expectation means, a One-Sample T-test was used. The hypothesis tested through the One Sample T-test was:

H_1: There are significant differences between the means of higher education expectations when compared by student-only, parent-only, and combined scores.

After reviewing the results of the One-Sample T-test, this hypothesis is confirmed.

To compare the parent, student, and combined expectation means of independent variables with dichotomous categories, an Independent Samples T-test was used with the following variables: low/high income; parental education level; and family composition (two-parent household). The hypotheses tested through the Independent Samples T-test were:

H_1: There are significant differences between the means of higher education expectations when compared by the categories low and high income.

H_1: There are significant differences between the means of higher education expectations when compared by the categories 'parent does not hold a bachelor degree or above' and 'parent does hold a bachelor degree or above'.

H_1: There are significant differences between the means of higher education expectations when compared by the categories 'student does not live in a two-parent household' and 'student does live in a two-parent household'.

After reviewing the results of the Independent-Sample T-test, these hypotheses are confirmed.

To compare the parent, student, and combined expectation means of independent variables with three or more categories, a one-way ANOVA was used with the following variables: race; generational status; overall income; and low-income only. The hypotheses tested through the one-way ANOVA were:

H_1: There are significant differences between the means of higher education expectations when compared by racial categories.

H_1: There are significant differences between the means of higher education expectations when compared by generational status categories.

H_1: There are significant differences between the means of higher education expectations when compared by income categories.

After reviewing the results of the one-way ANOVA, these hypotheses are unconfirmed as, though each test resulted in statistically significant differences in the overall context, post hoc between-groups testing indicated that all independent variables had some results without these differences in at least two of the score categories under investigation.

To predict the likelihood of students attaining the outcome variable of a bachelor degree or above, and compare the odds ratio of that success between students under numerous variables, binary logistic regressions were run in multiple iterations. The hypothesis tested through binary regression was:

H_1: There are significant associations in educational attainment when comparing generational status and family income with parental educational attainment, two-parent families, and student educational expectations.

After reviewing the results of the binary logistic regressions, this hypothesis is not entirely conclusive. The results are such that a reasonable status may also be confirmed with exceptions. I state it in this manner because the values of overall statistical significance and the odds ratios for differences in outcome exhibit strong associations in nearly every testing scenario. Each model suggests that the regression and interaction effects are significant predictors for the dependent variable. However, it cannot be concluded that significant associations exist across the

board for each student generation. In addition, for the interaction models, only in the base interaction model between generational status and income did I find that second-generation students had statistically significant associations between the independent and dependent variables. In all other situations, second-generation students did not show significance.

Implications

This research considers a number of issues to consider when speaking of the role higher education attainment will play as we progress through the twenty-first century. One factor is the inescapable reality that over the course of a single generation, by 2044, the United States will become an overall majority-minority country. For the first time in our short history, White people will no longer comprise the bulk of the population. As it currently stands, by 2020, over 50% of children under 18 in this country will be of minority background. Between 2014 and 2060, the total United States population will grow to over 420 million people. By proportion, Non-Hispanic Whites will drop from 62.2% of the population to 43.6%. The Asian population will nearly double from 5.2% to 9.1%. The Black population will remain steady from 12.4% to 13.0%. The Hispanic population will see a massive increase in their proportional percentage, increasing from 17.4% to 28.6% by 2060, meaning that over one in four people will be of such origin. As importantly, the population of children within this group follows basically the same trajectory, with minority kids moving from 48% of the youth demographic in 2014 to 64.4% in 2060, and Hispanic children making up 34% of this population group. Summing up, much of the overall population growth over the next 40 years will be due to new immigrants and their U.S.-born descendants. They will account for 82% of the nation's population growth, or 117 million additional people by 2050. Of those new residents, 67 million will be first-generation immigrants themselves, 47 million will be their second-generation U.S.-born children and 3 million will be

their U.S.-born grandchildren. That means new first-generation immigrants themselves will account for 47% of population growth during the projections period (Passel & Cohn, 2008).

As noted earlier in this study, there is an undeniable association between educational attainment and income. With higher levels of educational attainment, people can seek and accept a broader range of opportunities. A more educated populace is also associated with higher levels of innovation as well as higher national GDP (Valero & Van Reenen, 2016), and decreased rates of economic and social inequality (Carnevale & Rose, n.d.). It is reported that, over the course of about the next decade, demand for college-educated workers will increase in the United States by 2% per year, while supply will only increase by 1% per year if current access and attainment standards continue. To better meet this demand, the nation needs to increase its college-educated population by approximately 20 million people before 2025, or an increase of over 2.6% per year in order to keep up (Carnevale & Rose, n.d.). While the raw numbers represent a compelling argument for higher education, I would posit that the groups these new college graduates come from are just as important and this study supports this premise.

As it stands, income and educational attainment levels vary widely and are disproportionately out of balance based on race. In 2016, median household income was reported as the following (Semega, Fontenot, & Kollar, 2017):

- Asian: $81,431
- White: $65,041
- Hispanic: $47,765
- Black: $39,940

Educational attainment shows a similar pattern for the population ages 25 and up in the United States with race statistics for those with a bachelor degree or above as follows (Ryan & Bauman, 2016):

- Asian: 53.9%
- White: 32.8%
- Black: 22.5%
- Hispanic: 15.5%

These income stratifications are coincidental with educational attainment and speak directly to the future direction of the nation should the trends for people of color remain at the bottom of both. Though we cannot ignore any race when it comes to educational and socio-economic equality, addressing the continuing shortfall in educational expectations and attainment by populations exhibiting those characteristics in the United States is a critical need, especially as the number and proportion of immigrants, especially those from Hispanic backgrounds, is projected to rise at such magnitude.

In preceding sections of this study, the independent variables for this study were shown to have some strong associations in predicting higher education attainment. As noted, the only group who did not expect to attain a bachelor degree or above was Hispanic students. From the data in this study, the student group with the lowest percentage of parents who had completed a bachelor degree was Hispanic, followed by Black students, with White and Asian students at the top. As of now, Hispanic students are completing bachelor degrees at the lowest percentage of the four major groups under study. Those students and their children will comprise over 28% of the United States population by 2060, the largest of the minority plurality in the national demographic. In 2012, data on family composition showed that married couples were in 81% of

all Asian households, 80% of White, 62% of Hispanic and 44% of Black households. Children living with one parent made up 12.0% of Asian households, 17.3% of White, 27.5% of Hispanic, and 52.1% of Black families (Vespa, Lewis, & Kreider, 2013). These factors together are indicative of the challenges some immigrant populations face when realizing their collective potential.

By the results presented here, the factors which influence higher education attainment present a challenging landscape for the future, particularly for Hispanic and Black immigrant and minority students. With these results and the supporting social data available, there is room for policy to address the continuing gaps for students and families of immigrant and minority backgrounds in access and attainment, with particular emphasis on how to overcome the most significant factors illustrated in this study. It will also be important to understand the limitations of policy in this regard, as the variables of expectations, parental education level, income, and family composition are complicated structures alone and become even more complex when considered together and within the context of higher education.

If the data and results in this study continue to trend in the same direction, with income and race centrally positioned with strong associations to educational expectation and attainment, and variables like parental educational level and family composition predicting outcomes with such degrees of difference for those who come from households with two parents and history of higher education accomplishment, the next 25-40 years of educational and socio-economic policy and opportunity will be as important as any period in the nation's history.

Conclusions

Developing and sustaining concepts pertaining to higher education access and attainment, especially when considering multiple predictor variables and seeking to understand the

theoretical and practical implications of the subject, is complex. Results from this study suggest the theoretical foundations of family capital in variables such as family composition, expectations, and parental educational attainment play significant roles in how students are able to access and complete higher education studies. While it can an appealing position to gather that expectations and outcomes present a homogenous correlation across any number of variables, this study posits against such generalization, even though throughout this study, individual predictor variables conformed to much of the literature reviewed for this research. For instance, second-generation immigrant students continue to expect higher levels of educational attainment, graduate from universities at higher rates than their peers, and showed smaller or insignificant effect on their outcomes when variables were analyzed for interactions. Although this does not necessarily draw us toward an absolute, this may suggest support for the immigrant optimism hypothesis (Kao & Tienda, 1995) by positioning them as a resolute group of students focused on the goal of a university-level education, though this also requires careful examination of evidence-based factors regarding the connection between expectation and attainment. For instance, though they often occupy opposite ends of the attainment spectrum, Asian and Hispanic parents have been found to hold the same level of optimism for their children (Raleigh & Kao, 2010). That a disconnect in attainment exists for one group and not the other should provide an opportunity for caution when it comes to assigning predictability to the factor of expectation, and this caution should extend to assessment of these and future variables under consideration.

In all, we must maintain a balance when it comes to how we see expectations and outcomes from specific groups, once again taking care not to view any of them as some sort of holy grail. An example of this is the case with Asian students, whom the data show to hold high expectations, fall on the positive side of numerous family and social capital variables, and attain

higher education outcomes beyond any other group in the nation. Should we hold these students as the standard based on the broad grouping of race, we risk not just treating them as the model minority and expecting them to serve as the basis for how to approach educational attainment as though there is some secret to their success (Kao, 1995), but to also neglect them in research in preference for groups with gaps in educational performance. Additionally, their academic and occupational success can possibly be used to forward the concept of meritocracy to a point where those who may not yet have found the path, manner, means, opportunity, or desire to engage in the higher education environment are ignored in research and policy discussions regarding immigrant and minority access and attainment (Museus & Kiang, 2009). Focusing on the success of high performance students and those from higher income populations cannot be excluded from the conversation as they yield insights on factors across the educational spectrum. Expanding the dialogue to be inclusive of those outside that individual and socio-economic reality and changing the dynamics which keep students and families within their limiting scope is where we can recreate a kind of traction that may develop useful discourse in both research and policy.

As we begin and continue research and policy work on higher education attainment, most specifically with immigrant populations as the context, consideration should be given to the level of sacrifice more and more people in the United States have made to arrive here and participate in this nation. Whole lives and complete family economies are disrupted and sometimes bankrupted to gain access to the country and often to the higher education system. On average, immigrants leave behind four people who count on them and their aspirations to better their circumstances and education is often cited as an opportunity to do so (Gálvez, 2011). However,

barriers to access and completion in the higher education environment often add to the stressors and sacrifice necessary for immigrants to navigate and perform at the university level.

For instance, lack of information about postsecondary education such as admissions and financial aid are often formidable obstacles, especially for those who may be English as a Second Language (ESL) students. Immigrants, on average, are not traditional students. In fact, for those who do find their way to matriculation, more than half are age 24 or older, one-third have dependents, and three-quarters work full or part-time while attending school. Students from low-income families often find it hard to afford the expenses and also leave behind earnings from employment to instead pursue a college education, and immigrant families are considerably more likely than the general population to be living in poverty. More than a third of Latin American immigrants, for example, earn incomes below 150 percent of the federal poverty level (Erisman & Looney, 2007). These hurdles present significant problems to overcome if the people arriving in the United States and becoming the majority of our population are to reap the rewards of higher education.

Though I began this research bringing broad groups from the data into the analysis and reported on how these groups respond to various predictors, it is important to realize that within this study, in the research which informed it, and that which will commence beyond its completion, none of these groups are monoliths. That said, I am hopeful that the end result of this research is to illustrate that, even with a limited number of factors investigated, coming to answers which capture in totality the scope of this topic is a distinctly difficult outcome to entertain. What I believe this study provides is a reminder that there are serious challenges to address and barriers to overcome for wide swaths of the country in order for higher education to remain a piece of the American experience for the rapidly-changing population that continues to

evolve into what we know as the American people, and that these challenges, if not met, have the potential for far-reaching consequences now and in future generations.

Limitations

Though using an established data source and standard quantitative methods, this research is limited by the use of variables that are not weighted. Future research should consider this option.

While this research takes its data from a reliable and recognized source representing a large, national random sample, the study uses broad categorical groupings for variables such as immigrant status and race and does not consider the expectations and outcomes of students based on specific countries of origin. This provides a good overview of the problem statement and support the investigation of the research questions and hypotheses. However, further details and nuance would likely be available with a deeper level of data to begin with. The data used in this study is the publicly-available version. More detailed data is accessible by establishing a doctoral-level primary investigator and assigning them as custodian of restricted data.

The number of independent variables in this study, while allowing for robust analysis, exist as only an extremely small fraction of the available variables to consider in the dataset. The binary logistic regression test itself offers some distinct limitations in that beyond perhaps three interaction effects, the returns become less valid and the magnitude of the effect diminishes to the point where it may not provide a reliable prediction of the outcome.

Regarding the data and methodology of the original survey used to develop the Educational Longitudinal Study of 2002, it's self-reported, longitudinal nature itself presents some challenges. As is normal with self-reported data, the responses in the survey are not something that can be independently verified. The information provided by sample members

during the interviews is taken at face-value. In addition to the broad challenge of verification, some self-reporting biases may be present. Among these are these are: (1) selective memory [remembering or not remembering experiences or events that occurred at some point in the past]; (2) telescoping [recalling events that occurred at one time as if they occurred at another time]; (3) attribution [the act of attributing positive events and outcomes to one's own agency but attributing negative events and outcomes to external forces]; and, (4) exaggeration [the act of representing outcomes or embellishing events as more significant than is actually suggested from other data] (University of Southern California, n.d.). It must also be considered that social desirability bias may play a role in sampling this population, as there can be a tendency of survey respondents to answer questions in a manner that will be viewed favorably by others. This can be in the form over-reporting "good behavior" or under-reporting "bad", or undesirable behavior.

Longitudinal studies such as the ELS:2002 and its follow-up activities provide a long-term look at the sample being investigated. This approach, while providing robust information over time with the same sample, also carries some risks. Among these are:

1. Time-consuming – it takes a long time for the studies to be conducted and the results to emerge. Though the ELS:2002 study has compiled a significant base of data over a decade, we would not know if follow-ups after this research would show different results for the dependent variable of bachelor degree attainment should there be further inquiry.

2. Problems of sample mortality heighten over time and diminish initial representativeness. Though the ELS:2002 interviewed subjects between the ages of approximately 16-26, this limitation may be of lower risk as compared to a study that sampled members over a longer period of time.

3. Control effects – repeated interviewing of the same sample influences their behavior.

4. Intervening effects attenuate the initial research plan. There may have been environmental considerations that affected the survey subject's outcomes that could not have been taken into consideration after the study began.

5. Problem of securing participation as it involves repeated contact.

6. Data, being rich at an individual level, are typically complex to analyze. Additionally, it may be difficult to ascertain how individual results could have been influenced by the larger school or social environment that the student lives within without completing a more exhaustive analysis (Cohen, Manion, & Morrison, 2007).

The statistical testing included binary logistic regression with multiple interaction effects. It is acknowledged that while two-way interaction can bring another level of understanding to a study, using three-way interactions can be difficult to interpret. They were used in this instance to introduce a more intricate way of analyzing the variables in the study, yet the nuance and dilution of effect are important to consider in coming to conclusions. The decision to experiment with them here is based on the idea that if it is tested, it can be considered, even when it is challenging to decipher.

This paper explored multiple theories in explaining the phenomenon of higher education attainment. As such, it is an exercise in theory-building. This may be a limiting factor in the depth of the explanation as the theories remain as an explanatory factor in this study and are not held to the testing standards of the data.

Also important is the aspect of researcher bias. Though this study was conducted using secondary data and analyzed through a quantitative lens, the issues of race, cultural context, immigrants, income and family dynamics are central to this investigation. All of these factors can

elicit strong reactions and care was taken to remain objective throughout the process, as ignoring the obvious social consequences of the subject matter and variables could be counterproductive.

Future Research

This study provides a starting point for continued research on higher education attainment. The results presented serve as a preliminary guide to foster other research efforts and can influence deeper understanding of equality, access and the policy and resources necessary to make higher education a more likely outcome for more people and achieve a greater balance between those who complete higher education degrees. Future research should include work on comparisons in gender, and in the classification of more specific racial and ethnic groups to further reveal the dimensions which influence attainment. Because this study involves immigrant status as a variable, it will also be important in the future to test the length of time students have been in their migration country and how that is associated with their level of attainment.

The longitudinal nature of the data in this study is revealing on many levels. One area that the data could be even more useful in is identifying how a change in predictor variable status during the course of the survey and follow-ups influences degree attainment. Additionally, pre-college preparation patterns within the primary and secondary school settings, and how immigrant generations access and use them for future entry into college would bring important insights. There is also room to question how paying for higher education differs for immigrant generations, and to consider the effect that changes in access and public university funding might accommodate both individual and national need. Within this, I believe there must be significant attention paid to research on scholarships and the role they play in opportunity for immigrant and minority students.

To move the research from theory-building to theory-testing, the opportunity to apply statistical analysis to the use of cultural/family capital and how it influences attainment across income levels would help to answer whether Bourdieu's concepts apply to students across income stratifications. Future research on this topic would benefit from multi-disciplinary teams including, but not limited to, investigators with backgrounds in economics, sociology, international relations, and primary/secondary education.

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Education

Ph.D. **Lehigh University** May 2018

Comparative & International Education
Dissertation: Factors in Immigrant Higher Education Attainment Among Income Groups in the United States
Faculty Chair: Alex W. Wiseman, Ph.D.

M.Ed. **Lehigh University** Jan 2015
Educational Leadership

B.A. **Oakland University** Dec 1993
English

B.S. **Central Michigan University** Dec 1993
Theatre and Interpretation

B.S. **Saginaw Valley State University** Dec 1993
Physical and Health Education

A.A.S. **Community College of the Air Force** Feb 1988
Survival and Rescue Operations

Research and Evaluation

Dissertation Research Aug 2015 - May 2018
Department of Education and Human Services, Comparative and International Education Program, Lehigh University

Title: Factors in Immigrant Higher Education Attainment Among Income Groups in the United States

Faculty Chair: Alex W. Wiseman, Ph.D.

Committee: Lisa Damaschke-Deitrick, Ph.D., Joan Fu, Ph.D., Heather Johnson, Ph.D.

Through quantitative research, the study used the large-scale data set from the Educational Longitudinal Survey (ELS) of 2002 and the third followup (F3) of 2012 to investigate how the family capitals of educational expectations, family composition, and parental educational level associates with income and generational status to influence the completion of bachelor degrees.

Title: Evaluation of the BD/AmeriCares Volunteer Service Trip to the Clínica Integral de Atención Familiar (CIAF): Diabetes Assessment, Management, and Education.

Work Location: Santiago de Maria, El Salvador

This evaluation relied on a mixed methods approach (quantitative and qualitative) via the use of both open-ended questions and Likert-type questionnaires to assess the outcomes of a Volunteer Service Trip (VST) program at the CIAF. The study investigated the effectiveness of the Diabetes-focused training in terms of educational outcomes and perceptions of pre and post subject-specific knowledge.

Teaching/Instructional Experience

Lehigh University Spring 2017
Bethlehem, PA

Teaching Assistant - Comparative and International Education 404:
Issues and Institutions in International Education
Course Instructor: Alex W. Wiseman, Ph.D.

Co-created course syllabus, led in-class and online course coverage on myriad topics including educational aid, organizations, and history, and provided guidance on academic papers for 13 masters and Ph.D. students from 7 different countries.

Muan Elementary School/English Village Dec 2011-Dec 2012
Muan, South Korea

Provided curriculum, instruction and management for multi-age students in speaking, listening, reading and writing. Planned and implemented intensive English camps with students from across the district. Installed by board of education to teach special advanced and gifted student workshops and South Korean teacher language development sessions.

Ardmore English Summer 2011
University of California-Berkeley, CA

Planned and conducted large-group, small-group, and individual ESL lessons to beginning and intermediate students from France, Italy, and Russia. Tested multi-domain competencies and directed improvement exercises for all students.

International House May 2011- Jun 2011
Prague, Czech Republic

As part of the Cambridge Certified English Teacher to Adults (CELTA) program, engaged in detailed study, lesson planning, instruction and analysis of ESL teaching for beginning, intermediate, and advanced students from multiple countries.

Paradigm Liaison Services Feb 2001-Jun 2008
SafetyComm Solutions
The Pipeline Group-Midwest
Noblesville, IN

Researched, wrote, planned and delivered over 660 training sessions to over 10,000 participants for nearly 400 clients on pipeline safety and emergency response across 35 states in the US. Supervised staff members in training, preparing and delivering more than 200 annual educational training events.

United States Air Force May 1984-Mar 1988
Tucson, AZ

Designed and implemented new squadron-wide aircrew survival training program for 700 service members and conducted ongoing sessions to meet annual survival training and learning requirements for flight-certified personnel.

EXPERIENCE

Lehigh University Aug 2015-Present
Bethlehem, PA

Graduate Assistant - Center for Community Engagement; Comparative and International Education Program; College of Education Graduate Admissions Office

Developed and implemented Graduate Admissions communication plan including messaging and online portal. Supported new research center advocating for holistic and reciprocal service learning. Planned, developed and disseminated outreach and marketing materials. Worked with center director to plan and conduct major end-of-year symposium. Researched and created dissertation fellowship guide.

Economic Engagement Officer Feb 2013-Jul 2015

Cultivated and managed $7 million in gifts to the university from corporate partners. Oversaw broad portfolio of energy, accounting, and financial services firms. Managed strategy and planning of complex and multi-level relationships across and outside campus. Led relationship of new partner bringing largest corporate cash gift in preceding ten years.

Self-Employed Jun 2008-Dec 2011
Mar 1997-Feb 2001

Indianapolis, IN/Berkeley, CA/Detroit, MI

Consultant/Teacher/Promotional Manager/Product Representative/Writer

Created business strategies to increase growth and exposure through multiple planning and communication platforms. Provided presentation instruction and planning for executive level managers. Led students from Russia, France, and Italy in English language exploration and acquisition. National Product Representative/Sales Training Facilitator - Dodge, Honda, Buick,

Chevrolet. Supervisor - Chevrolet, Buick, Oldsmobile, GMC national promotional events. Supervisor - Word Perfect Software national product roll-out. Grants and development writer.

Youth Living Centers Oct 1992-Mar 1997
Detroit, MI

Development Associate/Youth Support Specialist

Provided support on education equality, HIV, poverty, street gangs, homelessness, runaways, and families in crisis. Researched and wrote grants, budgets and reports, doubling agency revenue to over $3 million. Recruited hundreds of high school students from broad backgrounds for an exploration academy facilitating skills in arts and sciences for higher education entrance.

United States Air Force May 1984-Mar 1988
Tucson, AZ

Aircrew Life Support Specialist Rank: Sergeant

Supervised junior life support personnel in all aspects of section activities. Managed inspection and worldwide readiness of survival equipment on over $500 million in assets. Reconfigured equipment inspection processes with multiple base-wide partners, increasing operational capacity by eliminating redundancies, redesigning chemical survival kit allocation system, bringing mission-critical equipment into more precise oversight and management.

Selected Honors and Awards

Lehigh University: Full graduate tuition, graduate assistantship, and stipend support.	2015-2018
Oakland University: Academic Commendation and Honors Graduate.	1992-1993
Saginaw Valley State University: President's List.	1990-1991
Central Michigan University: Special Talent Scholarship and Academic Honors.	1989-1990
Midland Center for the Arts: Best Actor.	1991
United States Air Force:	1984-1988
Commendation Medal.	
Good Conduct Medal.	
41st Electronic Combat Squadron Airman of the Quarter.	
41st Electronic Combat Squadron Airman of the Year.	
41st Electronic Combat Squadron Professional Performer of the Year.	
836th Air Division (AD) Airman of the Quarter.	
Tactical Air Command (TAC) Life Support Airman of the Quarter.	
Non–Commissioned Officer Preparatory Academy Distinguished Graduate.	
Technical School Honor Graduate.	
Sustained Performance Promotion Award.	

Affiliations

Member - Comparative and International Education Society	2018-Present