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THE EFFECT OF SOCIAL CAPITAL ON
HISPANIC POST-SECONDARY EDUCATIONAL OUTCOMES

by

AMY STALZER

Under the Direction of James Ainsworth, PhD

ABSTRACT

Hispanics have one of the lowest college enrollment rate of any racial/ethnic group in the United States, and for those who enroll, they are three times less likely than Whites to graduate with a four-year degree. Past research has explored racial and socioeconomic disparities for Hispanics and focused on educational attrition. This study takes a different approach, drawing attention to factors which positively influence college degree attainment. Specifically, utilizing a social capital and education retention theory framework, this study sought to understand how social capital factors may contribute to Hispanic educational outcomes. Using a national data set from the Educational Longitudinal Study of 2002, I hypothesized that students who have faculty, peer and family social networks, along with participation in formal extracurricular participation at the high school and college levels, would be more likely to enroll in college after high school

and complete a bachelor's degree. I found that peer networks, faculty encouragement, and participation in extracurricular activities all predict greater educational outcomes for Hispanics, net of racial differences and socioeconomic background. Not all social networks produced positive outcomes: receiving college information from siblings and teachers had detrimental effects for Hispanics. Implications for applied interventions are discussed.

INDEX WORDS: Retention, Educational outcomes, Social capital, Social networks, Engagement, Hispanic, Latino, College completion, Bachelor degree

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AMY STALZER

A Dissertation Submitted in Partial Fulfillment of the Requirements for the Degree of

Doctor of Philosophy in Sociology

in the College of Arts and Sciences

Georgia State University

2015

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DEDICATION

The key finding of this paper is that networks matter. I'm fortunate to have a strong, enthusiastic network whose support made my degree completion possible. My lifelong gratitude belongs to my parents, Richard and Susan Stalzer, who have participated in years and years of school involvement, and expected in a very matter-of-fact way that I would complete this degree. My love and appreciation go to my husband, Neel Sengupta, who was chief sounding board and frontline parent for the bulk of my writing. And heartfelt thanks are shared among my brilliant and beautiful peer network—Dr. Jennifer Gonyea, Kim Zarneke, and Dr. Virginia Dick.

For Maya Sengupta, may you find your own passion and pursue it as doggedly as I have mine.

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1 INTRODUCTION

In the new millennium, the college degree has replaced the high school diploma as the minimum criteria for job security. Over 30% of Americans hold a bachelor's degree, making it an increasingly important credential for the labor force (U.S. Census Bureau, 2012). But college completion is not distributed equally across college enrollees. Hispanics are three times less likely than Whites to graduate with a four-year degree (U.S. Census Bureau, 2012). Consider these statistics: In 2006, over 1.6 million students enrolled in college for the first time; of those, only 206,000 were Hispanic (BLS 2007). In 2010, when the enrolling class of 2006 would traditionally graduate with a four year degree, 1.2 million White students earned a bachelor's degree, compared to just 140,000 Hispanics—representing just 8.5% of all bachelor's degrees earned that year (Fry and Lopez, 2012). Yet Hispanics made up 16.3% of the U.S. population in 2010 and about 25% of the age 22 and under (college age) population (ibid).

The poor college attainment rate of Hispanic adults is a significant societal issue due to the potential socioeconomic ramifications. By some accounts, Hispanics have the highest poverty rate in the country: about 3 in 10 Hispanics live below the federal poverty line (Lopez and Cohn, 2011). Education is a major contributor to the ability to secure gainful employment and a living wage partly for providing a required work credential and partly due to the access to social networks which education provides that increase one's chances of hearing about employment opportunities. In Granovetter's (1973) work on social networks, he found that weak ties—relationships with people outside the immediate family and close friends—are most productive for access to employment opportunities. Teachers, counselors, and more distant friends established during education make up those weak ties. The absence of such a network,

the failure to achieve educational credentials, and the subsequent limited work opportunities are detrimental to both the individual and the society in which s/he resides.

Many studies have endeavored to begin the examination of the disparity in college completion for Hispanics at the earliest levels—high school completion and college entry (Desmond and Turley, 2009; Bohon, Kirkpatrick Johnson, and Gorman, 2006; Zarate and Gallimore, 2005; Zarate, M., Saenz, VB and Oseguera, L., 2011; Cerna, Perez and Saenz, 2009; O'Connor, N., Hammack, F., & Scott, M., 2010). These studies are critical for understanding the significant educational drop-off rates which start around sophomore year of high school as students drop out of high school and/or opt to discontinue their education beyond high school, and result in a much smaller pool of eligible college degree seekers. While studies of enrollment are valuable, ongoing longitudinal examination of persistence and degree completion are still needed. Less than 50% of Hispanics who enroll in a college or university will actually complete the bachelor's degree (Fry, 2004; Fry and Lopez, 2012). College attrition before degree completion is a serious issue for the Hispanic community. So while the studies on college enrollment for this group are helpful, attention must also be paid to factors which help enrolled students ultimately complete the bachelor's degree.

General theories of educational retention and attrition focus on several main determinants of college persistence, including high school academic preparedness, college academic performance, and extracurricular involvement, among others (for example, Astin, 1975; Tinto, 1987; Nora, 2003). Studies on Hispanic college student attrition, in particular, narrow in on socioeconomic factors which interfere with ability to pay for college and/or the need to work to support the family (O'Connor, N., Hammack, F., & Scott, M., 2010; Alon, 2007); disparities in academic preparedness (Zambrana and Zoppi, 2002; Zarate, M., Saenz, VB and Oseguera, L.,

2011); and lack of engagement owing to work commitments, commuting to campus, and family responsibilities (Crisp and Nora, 2010; Desmond and Turley, 2009). Fewer studies have looked at factors which positively affect college retention, which include presence of financial aid, positive mentors, involvement in a community or religious organization, and peer effect in highly selective or Hispanic serving institutions (Cerna, Perez and Saenz, 2009; Alon and Tienda in Fry, 2004; Crisp and Nora, 2010). Many of the related factors tie back to social capital variables like relationships and activities, such as Zarate's (2011) finding that Latinos' retention rate was directly tied to how embedded the student was in the academic and social environment of the institution. This study seeks to add to the existing literature by further examining factors which positively influence educational completion through bachelor's degree attainment.

Using a national longitudinal data set from the Educational Longitudinal Study of 2002, I examine factors contributing to bachelor's degree enrollment and subsequent completion for Hispanics across the secondary and post-secondary experience. The data is examined using a theoretical framework of social capital and social cohesion. Social capital, the idea that social networks hold value, is a commonly utilized framework within the sociology of education and sociology of race literature as it identifies sources of advantage and access to institutions that are unequally distributed. Social cohesion is a term I use, based on the educational literature on retention and attrition (example, Astin, 1973; Tinto, 1987). Retention theorists use variations of engagement, involvement and integration, but all refer back to the common denominator of cohesion to/within the college community (ibid). The combined framework of social capital and social cohesion theories puts a focus on factors of social networks and connections within the high school and college experience which influence retention bachelor's degree attainment for Hispanic students.

2 LITERATURE REVIEW

2.1 Justification

Studying Hispanic college completion is a timely and important undertaking, for four main reasons discussed in detail below. The first two deal with the state of the U.S. population and educational enrollment. The third reason to study Hispanic college completion in this particular framework is to illuminate the differences in social contexts within higher education which are unique to this ethnic group relative to the normative standard previously studied. And finally, this effort provides a much-needed addition to the field on a historically understudied group. Each reason will be explored further in this section.

U.S. Demographic Shift

Hispanics are the largest minority group in the United States, representing 17% of the U.S. population in 2011 (Motel and Patten, 2013). The population is growing quickly, with a 48% increase since 2000 (ibid). The largest portion of Hispanics in the U.S. are of Mexican origin (65%). More than two thirds of Hispanics living in the United States are native born (ibid), and research shows that native born Hispanics are more likely than their immigrant counterparts to enroll in college (Lopez, 2009). The Hispanic population is also very young, with almost half under the age of 25 and with over 25% of all births per year in the United States to Hispanic mothers (Pew Hispanic Center, 2009). The youthfulness of the Hispanic population means that the next twenty years will see a surge of Hispanics becoming college-age. The eligibility of 9.9 million youth to enter and complete a college degree will have a significant impact on the higher education system and its resources (Motel and Patten, 2013).

If colleges are not prepared to do what is necessary to retain Hispanics to college completion, there will be significant economic consequences. By one account, about 3 in 10

Hispanics live below the federal poverty level, by one measure the highest of any minority group (Lopez and Cohen, 2011). Hispanic women are hit particularly hard, with a significant number living in poverty and earning, by one measure, only 55 cents to every (white male) dollar (National Women's Law Center, 2012). The surge in Hispanic population will put a major hardship on federal and state social welfare programs if current trends of attrition before the bachelor's degree continue. It is imperative to respond to the population increase with significant and successful educational supports to avoid economic despair.

Increasing Enrollment, But with Less Value

The media has given much attention to a recently published statistic indicating that Hispanics had surpassed the percentage of Whites going to college (69% to 67%, Motel and Patten, 2013). While at face value this seems to suggest equality of experiences and numbers, the hype is misleading. First, the statistic fails to represent the significant high school fall-off in the Hispanic population; while the percentage of eligible graduates may be similar between the two groups, numerically it fails to capture the high school drop-out rate of 13% for Hispanics--which is more than three times the rate of White high school students (4%) (National Center for Education Statistics, 2012).

Furthermore, Hispanics are overrepresented in community colleges and less selective institutions. Enrollment in community college actually reduces the likelihood of completing a bachelor's degree, and therefore is not any more helpful in the labor market than high school diploma (O'Connor, 2009). According to one national study, only 7% of academically eligible Hispanic students who started in community college went on to earn a bachelor's degree as compared to 16% of Whites (Fry, 2004). Hispanics are also less likely to apply to selective institutions, where greater educational support is provided and the bachelor's degree holds

additional value (Desmond and Lopez Turley, 2009; Cerna, Perez & Saenz, 2009). Attending a less selective institution negatively affects graduation outcomes as well. One study found that 57% of Hispanics attending less selective institutions completed their bachelor's degree, as compared to 81% of Whites. So while the college enrollment rate may appear similar between Hispanics and Whites (in 2012), the types of colleges that Hispanics attend negatively affects their ultimate degree completion. More research on the causes of Hispanic degree completion or attrition in the various college types is required.

Ultimately, while 69% of Hispanic high school graduates in 2012 may have enrolled in an institution of higher education, this does not mean that the same number will receive a bachelor's degree 4+ years later. Less than 50% of Hispanics who enroll in college eventually complete a bachelor's degree, and 66% will receive no post-secondary degree at all (Fry, 2004). It is critical to focus studies on retention factors such as social networks which lead to bachelor's degree completion for Hispanic students in order to improve the academic credentials and related economic security of this part of the population.

Alternative Social Contexts in Higher Education

As was mentioned, Hispanics are more likely to attend community colleges and less selective four year colleges than more selective institutions. While we understand that institutional types have varying outcomes on education, it is important to understand what factors of the student experience at the selected institution might contribute to that enrollment differential. The social and academic communities of a college experience must be examined to understand a key element of retention (Morrison and Silverman, 2012). Integration into these communities may be different for Hispanics than for White students, on whom the traditional

canon of higher education literature is based (see Astin, 1975; Tinto, 1987, 2012; Pacarella and Terenzini, 1991)

For example, the Hispanic concept of familism can play a significant role in college experiences for Hispanic students. Familism is a value which places the family as first priority in life activity (Sarkesian, Gerena, and Gerstel, 2006). Several studies have found that Hispanics are significantly more likely than other race/ethnicities to say that living at home during college was important (Desmond & Turley, 2009; Cerna, Perez and Saenz, 2009; Fry 2004). The traditional college model relies on moving away from the parents' home and establishing an independent social context at a university (Astin, 1975; Chickering and Reisser, 1993). Yet Hispanics are more likely to live with their parent during college (50% of Hispanics as compared to 19% of White peers, Fry 2004). They are also more likely to work full-time during college to support family, which negatively affect college persistence (Crisp and Nora, 2010). And Desmond and Turley (2009) in their study of Texas high school graduates found that Hispanics who reported a value of attending college near home had a 59% lower odds of applying to a four-year college at all. Understanding the social context of familism, as it creates a typical higher education experience for Hispanics, can further our knowledge of the factors which positively and negatively contribute to college completion.

Financial worry creates another social context that appears to be more prevalent for Hispanic students than their White peers. In their national study of Hispanics attending college, Cerna, Perez and Saenz (2009) found that Hispanics were more likely to have financial concerns than Whites, and these concerns at the time of enrollment had a significant negative effect on college completion for Mexican-Americans (the population studied). Specifically they found that having major financial concerns at the time of enrollment significantly decreased the odds of

college completion by 23% for males and 20% for females. O'Connor and colleagues (2010) found that only 37% of Hispanics have achieved some savings for college, compared to 64% of Whites. They also found that over half of Hispanic parents and over 40% of Hispanic students could not identify a single source of financial aid. Absence of college savings and a lack of knowledge of funding sources can push Hispanics into more affordable community colleges, local less selective schools, or hinder enrollment altogether. Financial concerns can impact the continuous social integration on campus, from being away from campus to work, to not participating in social activities that cost money, to discontinuing enrollment for a semester or more to save tuition money. Thus the social context of financial concerns is another example of a context that may be more relevant for Hispanics, and different than the standard norms in existing literature.

Finally, the social contexts engaged by Hispanics during college may involve different activities and relationships than other ethnic groups. For example, Cerna and colleagues (2009) found that Hispanic students were 25% more likely to persist to graduation when they reported expectations of involvement in community and/or religious organizations. Alon and Tienda (2004) found that Hispanics were greatly influenced by mentors, and the Pew Hispanic Center study (Fry, 2004) found a strong peer-to-peer influence in selective colleges, which could create particular social contexts. Greater understanding of the social world of Hispanics during college, particularly those relationships or activities which positively influence college completion, is required to add depth to our understanding of the college experience in general, and college retention for Hispanics in particular.

Contribution to the Field

The growing population of Hispanics in higher education necessitates studies which focus on their unique experiences. The existing body of literature on higher education, particularly within sociological and educational frameworks, is based on a mainstream majority-student experience (i.e., White). What Hispanics experience during their college education may be similar to what has been previously examined for majority students, but may contain specific cultural differences that—once understood—can enhance the scholarly canon in theory and positively impact institutional practices. Specifically, this study adds to the retention literature and the sociology of education literature, as well as to help develop a theory of action to direct educational intervention.

College retention literature emerged in the 1970's under Alexander Astin (1975), and while there is no shortage of theories on retention, most are based on a majority-White reference group. Recent studies of minority student retention call for a retention literature expanded to consider both the unique complexities of non-majority groups, as well as the interactive effects between institutions and students of color. For example, Crisp and Nora (2010) push for retention models to be expanded to include items like family, finances, and occupation—variables they found to be significantly impactful for Hispanic retention. Zarate, Saenz and Oseguera (2011) highlight the need for a paradigm shift in minority retention studies, "...to reframe Latina/o college success within models of persistence that focus on students' cultural validation, legitimize students' cultural identities, and ultimately provide a welcoming and nurturing environment" (p.134). And Berger, Blanco Ramirez and Lyons (2012) call attention to "...the need for taking a closer look at group differences and the interactive influence between organization contexts and the individual and collective characteristics of students" (p.29).

Studies which seek to understand factors positively influencing retention for Hispanics are a necessary contribution to the field in order to address the population's unique situation in time and place.

The study of college success factors for Hispanics can also add to the sociology literature. As respected higher education researcher Sylvia Hurtado points out in her evaluative summary of college impact research and theory, the study of college impact requires attention to both macro-level and micro-level concepts. "...The field (of sociology) essentially studies institutions and individuals, their responses in various contexts, and variation in the college outcomes that are essential to our society" (Hurtado, 2007, p.110). Hurtado indicates four necessary paths for future research in the sociology of higher education relative to college impact; this study focuses on her fourth charge: "At the micro-level, review of how student membership and social networks affect collective behavior, as well as how traditional student life patterns are changing in contemporary times" (ibid).

Micro-level concepts related to student outcomes should examine, as Hurtado points out, the interpersonal experience (quality, substance and quantity of social interactions), students' sense of social cohesion, and personal outcomes (Hurtado, 2007, p.98). In this study, the examination of factors affecting college success for Hispanics examines how the student and the institution together affect persistence outcomes. This adds to sociological knowledge on the relative impact of interactive forces between student and institution, the micro level forces in the college experience, as well as the unique impact of forces for the Hispanic population at this particular point of significant demographic shift.

2.2 Theoretical Framework

This study seeks to bridge the sociological and the educational, bringing together in one approach an examination of the social factors which positively impact college completion. Social factors refer to aspects of social capital and social cohesion/engagement, before and during college enrollment. To that end, two theoretical perspectives are pursued: social capital theory, and social cohesion theory. Both theories focus on the value to be had from relationships within a social network. Social capital refers broadly to the benefits that can be leveraged from a network of productive relationships. Social cohesion—my own term—refers to the level of integration of a student into the social network of an educational institution.

Social Capital

Social capital is a term referring to the idea that relationships have specific value. Put simply, people are able to acquire resources through their social network, and use those resources to achieve their goals. Theoretical development of the concept of social capital is credited to both Pierre Bourdieu and James Coleman, and they differ in approaches. Coleman's (1998) interpretation of social capital places the value in the functional relationship within the network; it is the network itself, structured on relations of trust and obligations held, which is capital. On the other hand, Bourdieu and his colleague Wacquant (1992) associate capital with the product emerging from those relationships. According to Bourdieu and Wacquant, "Social capital is the sum of the resources, actual or virtual, that accrue to an individual or a group by virtue of possessing a durable network of more or less institutionalized relationships of mutual acquaintance and recognition" (1992, p.119). Resources are produced through time and activity in the relationship between particular individuals within the network. Ultimately, social capital enables people to gain resources from others in their network through means of exchange, under

conditions of trust and expectations of reciprocity. The main tenets of social capital theory that apply to this study are the *components* of capital, the *functioning* of capital, and *restricted access* to capital.

In viewing social capital as productive relationships, there are three main components which interact to produce value: the network itself, the norms shared by the network, and the sanctions that help to enforce the norms (Halpern, 2005, p.10). For college-age Hispanics, networks may include family, school, neighborhood, friendship groups, campus resources and religious organizations. Each of these networks conveys norms and sanctions relative to higher education participation and completion. For example, previous studies have illustrated positive effects on college enrollment by parental involvement in school (such as Ibanez et al 2004), access to faculty and campus resources (Hurtado and Carter, 1997; Espinosa, 2004), and neighborhoods with higher status neighbors (Ainsworth, 2002). Norms might include the expectation that a college degree is attained, or that college enrollment immediately follows high school graduation. Sanctions might include the exclusion of a terminal high school graduate from a peer group of college attendees, or the parent forcing a non-college attendee to move out or pay rent rather than remain supported in the household. The interplay between the network and the norms and sanctions of the network provides the power to produce results.

But how does social capital actually function? Mark Granovetter (1973) provides a much cited explanation in his classification of a network's weak ties versus strong ties. Strong ties exist among close friends and kin in a densely knit network, while weak ties are found among acquaintances. Weak ties provide the most benefit related to social capital in their ability to connect to opportunities and resources unknown to one's closest contacts. Halpern points out major differences in U.S. society: "...the middle classes have far more bridging social capital

(weak ties) and this is a major personal advantage in terms of work and professional self-advancement” (2005, p.23). The ability to access and leverage broader network relationships into tangible results may differ by group. For example, Alon, Domina and Tienda (2010) concluded in their nationally representative study that the difference between expected and actual enrollment at four-year schools would be lessened if Hispanic parents transmitted status advantage similar to whites. Their models simulate effects for Hispanics if factors were evenly matched to Whites. While they have no conclusive data explaining why the differential exists, the authors suggest that Hispanic parents may have greater income differentials affecting ability to pay for school, but also that their children may be disadvantaged in high school academic preparation (particularly in math) as well as the parents not encouraging applications to more selective institutions (which have higher yield on college completion). In the context of college completion, those who can engage broader networks may have greater access to admission requirements, financial aid information or academic resources like tutors.

There is a large body of theory and research which illustrates the unequal transmission of social capital, specifically that racial minorities and women are at a disadvantage in accumulating social capital because they lack they network resources and institutional relationship access (for example, Alon, Domina and Tienda, 2010; Lopez, 2009; Morrison and Silverman, 2012; Nora, 2003; Stanton-Salazar, 1997; Seidman, 2005; Zarate, 2011). And absence of social capital in youth leads to disadvantages in future career trajectories, which circularly perpetuates social capital inequities. For example, Ricardo Stanton-Salazar (1997) offers a comprehensive analysis of the interaction of institutions and racial minority children in the stratification of social capital. He pursues two main arguments: first, that structural variations in interpersonal networks of different social classes translate to differential access to institutional

resources, based on social relations embedded in macro-level social structures of society; and second, that low-status children must become proficient in bicultural network orientation, requiring the successful integration into multiple community settings where social capital can be generated. This two-prong approach to social capital recognizes the influence of networks in providing social capital opportunities, while acknowledging that networks reside in larger macro-level social structures based on the same binaries of dominant and dominated groups.

Theory developed by Samuel Lucas (2001) on effectively maintained inequality echoes Stanton-Salazar's conclusions. Effectively maintained inequality suggests that the socially advantaged will secure advantages wherever advantage is possible. To that end, Lucas found that social background predicts who completes a level of education when that level is not universal. In addition, social background predicted the kind of education that one receives within a level that is universal. In other words, socially disadvantaged students will progress less far than their advantaged counterparts; and during the schooling they do receive, their experience will be less advantaged than others in the system.

In relation to this study, the framework of social capital permits examination of the content and functionality of networks utilized by those Hispanics who stay enrolled in college. Based on the aforementioned literature, one would predict that those Hispanics who are retained to graduation have people within their networks that afford benefits related to college retention, such as past high school teachers and coaches, college faculty, academic advisors, mentors, professional staff and college graduates. The individuals in these networks are plugged into the institutional culture, pass along opportunities and support as needed, and serve as a connection between student and institution. Some of those relationships may have more positive impact than others. In addition, the relative strength of those relationships (such as the frequency of contact),

the proximity of the relationship (e.g., outside the classroom, in the context of formal or informal relationship) or the combination of several types of relationships, might also have an effect on college retention. Finally, understanding how Hispanic students' networks may be similar or dissimilar from other students' networks may inform on racial differences in social networks during the college experience.

Social Cohesion

There is a foundational body of literature in the education space related to attrition and retention theory. Most point first to Alexander Astin's (1975) landmark study on attrition, one of the first conclusive longitudinal studies on the topic. Subsequent theorists have built upon Astin's work, most notably Tinto (1987) and Nora (2003). A review of these theorists will inform the framework used to approach this study.

Astin (1975) conducted a longitudinal study of entering freshmen (1968) until predicted graduation (1972) to establish a predictor model of student attrition and, conversely, persistence. He examined 52 specific student characteristics, narrowed into eleven themes found to have significant impact on attrition: academic background, family background, educational aspirations, study habits, expectations about college, financial aid, employment while in school, residence on campus, academic environment, college type and institutional fit. This set of variables has become the common core of most retention theories. Astin's findings on the 1968 freshman class conclude that student background, expectations of college, activities while in college, and fit with the institution all play significant roles to varying degrees in student attrition. His findings placed a spotlight on the time students spend in school—specifically the activities they participate in, where they reside, how embedded they feel in the culture of the

institution—as contributing to student success beyond what was previously viewed in more simple academic preparation terms.

Tinto (1987) built upon the idea of a social connection between student and institution in his theory of student attrition. Like Astin, he highlights the activities of the student during his college career, and further expands the notion that the institution and student alike both have obligations for connection that will impact the student's likelihood of persistence. Tinto speaks in terms of *integration* between the student and the institution, and he focuses primarily on relationships between faculty and students as being a primary form of integrating the student into the organization. Institutions with high levels of faculty-student contact will, he concludes, have higher levels of student retention (1987, p. 66). Absence of integration leaves the student feeling isolated.

To solidify integration, Tinto refers to three particular stages: separation from past communities, transition between communities and, finally, incorporation into the college community (Tinto, 1987). This model is based on the standard college-going model of the White middle class, who leave home to attend a traditional residential college or university. It has come under fire as being less applicable to Hispanics, in particular, who are more likely to reside at home (Desmond and Turley, 2009; Sarkesian, Gerena, & Gerstel, 2006; Tseng, 2004). It is difficult to assess the directional relationship between residence away from campus and integration with the university due to a multitude of confounding variables. For example, students may live at home in order to provide family care for younger siblings, and it is the family care time which interrupts education rather than living away from campus. But concepts related to social and community integration are worthy of exploration to the extent we are able to establish direction.

Tinto also elucidates on four conditions that capture the nature of settings in which students are most likely to succeed. These are expectations, involvement/engagement, feedback and support (Tinto, 2005, p. 255). Students are influenced by the degree to which expectations validate their presence on campus. Expectations are conveyed during formal and informal advising, from advisors, faculty, staff and other students. Expectations are therefore a product of social capital. Involvement/engagement build upon Astin's (1975) theory. Support includes academic, social and financial support. And new to the theoretical discussion of retention is Tinto's idea of feedback, that continual assessment and feedback on performance, on what is being learned, and continual reflection between student and faculty, all play a contributing role in a student's retention. Feedback is the product of an interactive relationship between student and faculty; to that end, the feedback should be validating (expectations) and reflect the quality of the relationship between the two parties. One would expect those who receive more feedback would therefore have more interactions, hold more realistic expectations, and be able to act on opportunities for greater engagement with the college. Therefore feedback is a product of integration and an indicator of the probability of persistence.

Amaury Nora has completed extensive research on Hispanic education, particularly around factors related to college enrollment and completion. His Model of Student Engagement (2003) summarizes an extensive array of empirical studies along with previous theoretical works (including Tinto's) into six major components related to Hispanic student engagement: (1) pre-college and pull factors, (2) sense of purpose and institutional allegiance, (3) academic and social experiences, (4) cognitive and non-cognitive outcomes, (5) goal determination and institutional allegiance, and (6) persistence (Nora, 2003, p.56-57). These themes echo the earlier works of Astin and Tinto in focusing on the student's educational/goal commitment, engagement with the

college community, academic performance, and the influence exerted from external entities—particularly as they relate to family commitments and financial factors (which Nora groups together as “pull” factors), along with institutional commitment. Institutional commitment involves the environment provided by the institution for the student, including the representation of diversity in relation to curriculum (non-Eurocentric), faculty/staff, and campus climate; the support provided for intervention and cohesion particularly in the first year of college; and the financial assistance provided by the institution to the student.

Furthermore, Nora supports his model with empirical evidence that highlights the positive impact of a multitude of specific factors during the college experience. Specifically in the freshman year of college, factors exerting positive influence include desire for a college degree; receipt of financial aid; *absence* of off-campus employment and family obligations; *absence* of the perception of discrimination on campus (which directly impacts academic performance and therefore indirectly persistence); parental encouragement; faculty encouragement which validates belonging; academic performance; presence of intervention and support systems, specifically mentoring, counseling initiatives, and student activities and programming; and religiosity, specifically as evidenced in satisfaction with religious identity and practice of related behaviors (e.g., forgiveness, positive treatment of others). These findings are consistent with the general theories of freshmen retention that highlight increased interventions during the first year to create “fit” between student and institution, leading to return for a second year and increased persistence throughout. Nora’s work here highlights the specific factors particularly in the freshman year to look for when attempting to understand Hispanic student engagement and persistence.

This study builds upon these theories by isolating the impact of social networks and relationships on college enrollment and completion, while controlling for other factors of retention. How might the influence of a social network impact college completion for Hispanics? Does that impact change in significance between high school and college? Do different constituents, like peers or faculty, within the network have stronger impact? Does social integration play a greater role than academic integration for Hispanics? Does a pattern of social integration continue from high school to college for college graduates, and to what effect? A closer examination of theoretically identified persistence factors, their differing weights on college enrollment and completion, and how they change in influence across the secondary and post-secondary career is warranted and adds to the existing theoretical base.

2.3 Empirical Evidence

There has been a proliferation of empirical studies in the last decade focusing on Hispanic high school completion, college enrollment and retention. While some utilize national samples, most are university- or regionally-specific examinations of particular intervention programs. However, this study aims to learn from their findings by highlighting factors that have been found as having significant impact on retention for Hispanics. Research on high school retention and completion have focused on demographics along with academic and social determinants. College retention literature focuses on similar factors falling into three common domains: background and family resources, academic and social determinants, and institutional effects. These factors put in action what the theorists discussed earlier cite as important retention variables, and will now be explored in greater depth.

Background and Family Resources

Gender, ethnicity and economic status are significant factors related to college enrollment and completion for Hispanics. In 2006, approximately 37% of all 18 to 24 year olds were enrolled in a four-year undergraduate institution (17.8 million students). Forty percent of female 18 to 24 year olds enrolled (10.2 million) and 34% of male 18 to 24 year olds were enrolled (7.6 million) (NCES). By ethnicity, only 23.6% of Hispanic 18 to 24 year olds were enrolled (about 2 million students), compared to 41% of White 18 to 24 year olds (about 12 million students) (NCES).

Female Hispanic college students have higher rates of retention than Hispanic males, earning 61% of all degrees awarded to Hispanics (Buchmann & DiPrete, 2006). This is true overall for women of all races, who surpassed their male counterparts in college degree in completion: 61% of females as compared to 56% of male college students who enrolled in Fall 2006 completed a degree within 6 years of enrollment (NCES, 2014). Several studies have introduced possible causes for Hispanic women's advantage over Hispanic men, including an increased likelihood to utilize college counselors while in high school, greater academic preparation in college bound coursework, and differential family support that favors women receiving degrees (Cerna et al 2009; Buchmann & DiPrete, 2006; Beattie,2002; Riegle-Crumb,2010). For example, in a study using the Texas Higher Education Opportunity data, Riegle-Crumb (2010) found that Hispanic women were more likely in high school to utilize college counselors and participate in academically focused peer groups; both of these involvements are thought to increase the social capital required for enrolling in and being retained at a university.

The economic class of the student also plays a role in college enrollment and completion for Hispanics. Higher SES students are more likely to enroll and be retained in college than lower SES students (O'Connor, 2009; Porter, 1990). In addition, Beattie (2002) found in her national study examining return on investment (ROI) factors that lower SES Black and Hispanic men were more likely to enroll in college when living in states with higher return for a college degree; the effect was not significant for women. Given the cost of higher education, however, one would expect a correlation between the ability to afford college attendance and actual attendance. However, O'Connor and colleagues (2010) also found that Hispanics benefit significantly less than Blacks or Whites for each increase in SES; this may suggest that the positive effects of economic status are less related to college funding for Hispanics and more related to other factors such as parent education.

Furthermore, economic status impacts savings, and parent savings was correlated with college enrollment in O'Connor and colleagues work (2010). They found that parents who had saved for college increased the odds of student attendance at a four year institution (which in turn increases odds of completing a four year degree). Song and Elliott (2012) found the same effect in their national sample as well. Further discussion about ability to pay for college will be conducted in the funding section. In addition to its direct impact, economic status influences behaviors or activities which have further negative effect on college completion, including college choice (two year colleges, less selective schools), commuting from home, and working while in school—all found to further impede graduation with a bachelor's degree (Desmond & Turley, 2009; Sarkesian et al, 2006; O'Connor, 2009; Porter, 1990; Beattie, 2002; Cerna et al 2009; Fuligini & Witkow, 2004).

Parental education and employment play critical factors in different ways. Desmond & Turley (2009) found in their limited sample that those Hispanics whose parents have less than college degree are *more likely* than those with college educated parents to feel that college attendance is important (62% to 47%, respectively). Yet this study focused only on anticipated enrollment. Alon and colleagues (2010) studied the same limited data set as well as a national set and found that parental education accounts for 25-33% of the Hispanic-White enrollment gap in actual enrollment. But they also found that beyond parental education was a differential in how parents' utilized social capital that then affected college graduation—White parents were more effective on transmitting social capital leading to college enrollment than equally educated Hispanic parents. Specifically, in simulated exercises that predicted college enrollment if rates of parental transmission rates were equalized, they found Hispanics would be 10% more likely to enroll in college; their conclusion is that the difference in actual versus predicted enrollment indicates a deficiency in the way Hispanic parents leverage their status advantage (Alon et al, 2010). From these two studies we can surmise that, while the desire to enroll may be higher for Hispanics with less-educated parents, actual enrollment is positively correlated with parental education; yet degree attainment relies on other forms of social capital.

Buchmann and DiPrete (2006) further muddy the waters on the parental education variable with their findings on women's degree attainment. They found that the largest female advantage (over men) existed in households where there was a lower-educated or absent father. Women succeeded in degree attainment more often when the father was lower-educated or absent; the authors surmise that this relates to "...women's growing interest in possessing autonomous resources by which they can pursue opportunities in both the labor and marriage markets while protecting themselves against adversity in both realms" (Buchmann & DiPrete,

2006, p. 535). On the other hand, Hispanic men succeeded in earning their degree more often when coming from a home where the father had a college degree. These disparate results should be explored further.

Suffice to say that research has shown that being female and being from a higher socioeconomic class are two significant factors positively related to college enrollment, retention, and ultimate degree attainment—but not evenly distributed for Whites and Hispanics. Related to family socioeconomic class and social capital therein is the knowledge of and access to funding for education.

Finances and Educational Funding

Numerous studies have found a connection between funding and Hispanic student college enrollment and retention to graduation (for example, Cerna et al, 2009; O'Connor et al 2010; Alon, 2007). The disparities between Hispanic students and Whites are significant and illustrate the wide gap between the two groups when it comes family economic situation, knowledge of college resources, and ongoing financial concerns. These three areas will be explored in depth.

First, however, it is important to understand the significance of college costs relative to today's economy. According to a recent Bloomberg study (Jamrisko and Collete, 2013), college costs have risen 538% since 1985, and about 350% of that escalation has occurred since 2000. Unfortunately, federal and state financial aid programs have failed to keep pace. One recent U.S. News Report (Bidwell, October 2013) demonstrated that the net price an individual student has to pay has increased by 10% in the last five years, due largely to decreased amounts of federal grant money made available to families. Research on Hispanic college persistence demonstrates that there is a significant correlation between college persistence and financial concerns. Recent

increases in cost of attendance, combined with decreased financial aid, exacerbate an already tenuous relationship.

Financial concerns related to how college enrollment will be funded has significant effect on the choice of institution and ultimate persistence therein. In Beattie's (2002) study on perceived return on investment for college degree attainment, she found that higher cost of attendance diminishes the odds of enrollment and that Latina women, in particular, were more likely to enroll in a lower cost institution. Cerna and colleagues (2009) found similar results in their study: Latina women (particularly strong for Mexican American) were more likely to choose a lower cost institution and were overall less likely to persist if they had major financial concerns at the time of enrollment. Overall, they found that Hispanics who persisted were more likely than their White counterparts to have financial concerns.

Financial concerns are not surprising for this population due to several major factors: Hispanic college attendees are more likely to be from more modest socioeconomic backgrounds, are less likely to have saved for college, and are less familiar with the sources of available financial aid. O'Connor and colleagues (2010) found that more than half of Hispanic parents did not know a single source of financial aid, as compared to less than 20% of White parents. Conversely, they found that there is a positive correlation between the amount of knowledge about financial aid and the likelihood of enrolling in college; the effect for Hispanics is more than twice that of Whites. Furthermore, they found that Hispanic parents are significantly less likely to have saved any money for their children's college tuition—only 37% of Hispanic parents had, as compared to 64% of White parents. Combine lack of awareness of sources of funding with lack of savings and Hispanics are disadvantaged in both their knowledge of and ability to pay for college attendance.

However, when funding is available, postsecondary enrollment and graduation result. Song and Elliott (2002), for example, found significant correlation between the amount of college savings by Hispanic parents and the likelihood of college attendance. And Alon (2007) found that aid received in the form of grants and scholarships had a significant correlation with college graduation. Furthermore, she found that grant dollars helped equalize the racial/ethnic differences in graduation likelihood. In other words, funding being equal, the playing ground between Hispanics and Whites are equal—suggesting a significantly large role for finances as a factor of college completion.

In conclusion, research has shown that funding plays a significant role in the likelihood of college completion for Hispanics. In the face of escalating tuition costs and decreased financial support, Hispanic enrollment is in jeopardy. Furthermore, the perceived costs combined with a lack of knowledge on available funding leads to attendance at lower cost, often less selective institutions, as well as ongoing financial concerns that can at times interrupt or cease college attendance altogether. This is a self-perpetuating cycle, as not having a college degree then leads to lower socioeconomic status for the next generation. The connection between financial aid, college cost, and college persistence needs further examination to find what, if any, silver linings there may be to maximize for Hispanic students.

High School Academic Preparation

Research has mostly pointed to high school academic preparation as a key and significant predictor of both college enrollment and college completion (Adelman, 1999; Warbuton et al., 2001; Seidman, 2005; Zarate and Gallimore, 2005; Crisp and Nora, 2010; Cerna et al, 2009). Specific studies have highlighted math preparation (Crisp and Nora, 2010); cumulative g.p.a. (Zarate and Gallimore, 2005; Cerna et al, 2009); and feelings of academic competence related to

academic performance (Ibanez et al 2004) as individual variables with positive outcomes on college completion. Given these and other similar studies over the course of history for all races, it is expected that high school performance matters in college completion.

However, two studies in the research challenge this assumption, particularly for Hispanic students. First, Arbona and Nora (2007) found that high school g.p.a. predicted college enrollment, but was not a significant predictor of college completion/degree attainment. And Zarate and Gallimore (2005) found that high school g.p.a. was not a consistently significant predictor of college enrollment for Latina girls in their study. Both used longitudinal studies of national samples, and their findings call to question the rote acceptance of high school grades as predictors of college success.

There are additional reasons why pre-college academic preparation is a problematic variable in college success. First, there is the directionality issue as raised by Zarate and colleagues (2011). They asked whether high school academic success leads to college track coursework, which then receives enhanced support from teachers, or does teacher support lead to a college academic track and increased academic performance. While the outcome of high school achievement may be similar, the question of academic ability or academic encouragement is noteworthy both for the students who've demonstrated college performance and the students who were de-railed along the way.

Several studies illustrate the challenges that Hispanics face in the education system prior to college enrollment. Disparities in education start as early as pre-school or kindergarten (Zambrana and Zoppi 2002; Zarate and Gallimore 2005). "Achievement is compromised by family responsibilities, poverty, lack of participation in preschool, attendance at poor quality schools, placement into lower track classes, poor self-image, limited neighborhood resources,

lack of presence of role models, and gender role attitudes” (Zambrana and Zoppi, 2002, p.33). Another study found the cumulative effect of high school performance and socio-economic status was greater than either variable on its own (Porter, 1990). This study does not seek to explore the educational disparities that exist for Hispanics at the primary and secondary levels, but it is important to highlight some in order to understand the complicated and challenging situations that Hispanics deal with prior to high school graduation. While high school academic performance is a complicated variable in its reflection of cumulative disparities, it remains an important consideration in post-secondary outcomes.

Social Influence/ Expectations

Expectations and its related influence imposed by family and friends have been found to play a significant role in the prediction of college enrollment after high school. In addition, a student’s own expectations have been found in several studies to influence persistence within college. Self-expectations by nature reflect what social messages are conveyed to us and are internalized. Therefore we will consider self-expectations in the context of the social influences which may have led to their creation. We will briefly review research related to all three sets of expectations.

In a significant national longitudinal study, Arbona and Nora (2007) found that the odds of persisting to a bachelor’s degree were increased by 40% for Hispanics who had peers in high school who were also planning to go to college. The authors suggest the following explanations: that high school students with college-bound friends may be more likely to engage in college-preparatory activities (including academic coursework and co-curricular opportunities); and that these same students while in college may continue to seek out goal-driven friends with similar results. Friends’ influence had the largest single variable effect found in their model for four-year

degree completion, and theirs is the only study which explicitly examines this variable, although other studies found connections between friend influence and college enrollment initially (such as Zarate and Gallimore, 2005; Riegle-Crumb, 2010). That said, the ongoing influence of peer group on bachelor's degree attainment while in college can be confounded with other benefits of college participation, whose effects will be examined later.

Parent expectation also plays a significant role in the likelihood of college enrollment and college persistence. Several studies have examined the effect of parent expectation on the intention to enroll in college (Ibanez et al, 2004; Zarate and Gallimore, 2005; Zarate et al, 2011; O'Connor et al, 2010; Arbona and Nora, 2007). According to Arbona and Nora's (2007) longitudinal study, parental expectation increased the odds of bachelor's degree attainment by 33%. Other research has concluded that parents view college degree attainment as a source of social mobility and a method of protection against less desirable alternatives such as early marriage for young women (Zarate et al 2011; Zarate and Gallimore, 2005). For students enrolled in a four-year school, one study found that parents were more likely to rate those students' academic ability higher than others who were not enrolled in a four year institution, which suggests great parental conviction in the enrolled student's potential (Zarate and Gallimore, 2005). All of this related research demonstrates the significant effect that parental expectation of college degree attainment has on student persistence.

Finally, students' own expectations are significant predictors of college enrollment and completion, either on their own or in concert with related variables. Bohon and colleagues (2006) found Hispanic youth had lower self-expectations of college enrollment than non-Hispanic youth, with some variability by specific ethnic identity: Mexicans and Puerto Ricans had the lowest self-expectations, while Cubans had the highest expectations of the Hispanic groups (but

still lower than non-Hispanic youth). This breakdown reflects its corresponding socio-economic status, with Mexicans at the lowest end and Cubans at a higher end. Indeed, the researchers found the expectation differential disappeared for Mexicans when controlling for SES. This demonstrates the complicated relationship between students' expectations and class differences that restrict access to higher education. A further confounding variable is generation, and Bohon and colleagues found that Mexicans who don't speak English at home were *more likely* than non-Hispanics to aspire to college. Unfortunately aspirations do not always lead to actual enrollment.

Robinson and colleagues (2008) examined the self-expectations of Hispanic freshmen to predict retention from first to second-year of college. They found that self-beliefs accounted for 30% of the variance in academic persistence. Specifically, they found self-esteem and educational self-efficacy (the ability to navigate the academic world of the university) were positively related to persistence, and that valuing education accounted for 16% of the variance in cumulative g.p.a. According to the authors, self-expectations of college success and self-beliefs in academic ability provide an intervention direction for university officials to utilize in expanding retention programs for Hispanics. This conclusion is supported in the findings of a university mentor program (Phinney et al, 2011): "Students who are motivated, who feel that they belong in college, and who believe they are able to succeed are most likely to persist in the face of difficulties, and students who are unmotivated or under stress may not persist" (p.615).

Arbona and Nora (2007) came to a similar conclusion in their national longitudinal study, and in discussion they highlight the self-fulfilling prophecy of student expectations. Student goal commitment to attaining his or her degree influences participation in activities, which provides support needed to persist. Activity participation is solidified with relationships built with faculty, staff and students, who reinforce the self-expectation and provide interventions as needed when

expectations are jeopardized. Other studies by Nora and colleagues (1996, 1999) have found that academic performance plays a great role in the decision to discontinue education, and it is the perceived performance rather than the actual ability to continue which forms the expectation—that is to say, they found Hispanics withdrawing not because the school discontinued them, but because they perceived their academic performance to be substandard compared to that of other students (p.265). This conclusion is significantly tied to Frye’s (2002) observation that it is the in-college experience that accounts for the difference between college completion and attrition for Hispanics (p.266): where positive self-expectations are fueled, academic performance and continual enrollment to graduation will continue.

To this end, we now turn to the activities of students during college and the positive and negative outcomes these activities contribute to degree attainment.

College Activities and Degree Attainment

The cornerstone of most retention literature since Tinto’s pivotal work in 1987, college integration through involvement is repeatedly found to relate to college retention to graduation in some form or fashion. Tinto was one of the first to assert that “...institutions with high rates of retention are most frequently those which are marked by high rates of such interactions (between faculty and students)” (Tinto, 1987, p.66). Where he focused primarily on academic integration and relationships between faculty and students, later researchers have expanded this work to include other extracurricular activities and other relationships with students. For example, Zarate, Saenz and Osegura (2011) found in their review of Chicana retention studies that college graduation is facilitated by a successful college transition during freshman year and social/academic engagement across the collegiate time period. “In sum, Hispanic college degree

attainment is directly affected by the extent to which a student is socially and academically integrated into the college environment" (Zarate et al, 2011, p. 130).

Many empirical studies have found varying degrees of retention success relative to individual collegiate programs. For example, a college mentor program was found to have positive effect on student satisfaction and academic motivation and a reduction in stress/depression for participants, all seen as precursors to retention (Phinney et al, 2011). A culturally focused intervention program at three northwest universities was found to have increased social adjustment to college for freshmen, and the authors conclude that relationships built between students and faculty members were the reason (Cerezo and McWhirter, 2012). Min and colleagues (2004) introduce through qualitative autobiography the activities which they attribute to having an effect on their persistence in college, including leadership conferences, community organizations, and campus recruitment programs. Critical to all of the programs is the difficulty in ascribing exactly what the primary variable is which causes retention; the common denominator amongst all of the programs is that relationships between the student and some other person on campus are established, and some residual intervening effect of that relationship (be it encouragement, intervention, a sense of belonging, etc.) leads to greater retention of students. Programs which provide mentorship, community connection, college transition assistance and/or engagement with faculty seem more prominent in the findings for Hispanics, and this speaks to the social capital and social cohesion resulting from such involvement.

In addition to memberships and co-curricular activities listed above, Arbona and Nora (2007) found other college activity had great effect on college retention and these related to coursework net of socioeconomic class. Specifically, they found that attending college fulltime

increased the odds of degree completion by 50%; completing the majority of classes increased the odds of degree completion by 55%; and remaining continuously enrolled at college increased the odds of degree completion by 44%. All three categories relate to positive academic progression towards degree, and it appears from their findings that those students who are progressing will continue to progress, while those students whose studies are interrupted are at greater odds for attrition. These findings combined with studies mentioned earlier on co-curricular involvement are not mutually exclusive; what they have in common is the likelihood that the student is connected to the university in some way.

Are there some activities that are actually detrimental to degree completion? Historically as far back as Astin (1973) researchers have pointed to the detrimental effect of working while in school. But findings have been inconsistent. For example, Crisp and Nora (2010) found that those who did not persist from first to second year were employed for more hours during the school year. But other studies have not established a correlation between hours worked and college persistence or degree completion (Arbona and Nora, 2007; Fuligini and Witkow, 2004). Given the disagreement among findings, it is worth further examination to establish any potential relationship between employment and college completion. Further complicating the understanding of employment effects on schooling is the financial situation of the student, which has its own unique implications for student degree completion. We turn here next.

Institutional Effects

The last factor highlighted pervasively in existing literature is the impact of the institution on a student's decision to persist. Research on this topic has been varied and there is an absence of clarity on institutional effectiveness in assisting students to college completion. The type of

institution and elements of institutional climate appear to play a significant role in student retention.

What types of institutions are most effective for Hispanic students? Private schools, Hispanic-Serving Institutions (HSIs) and institutions in high Hispanic demographic states (NY, TX, CA, FL) have shown the greatest achievement in this regard. O'Connor and colleagues (2010) found that Hispanic students with familistic values held locality to be a particularly important college trait; those who lived in higher Hispanic resident states could select more freely from colleges near home and have a good probability of finding a climate that is receptive to a diverse student base. Cerna and colleagues (2009) found that Hispanic females were more likely to complete college if they attended a private institution rather than a state school; it is unclear what particular attributes about private school attendance contributed to this success rate, although the authors examined both economic and social capital factors.

Hispanic-Serving Institutions (HSIs) are schools defined under Title III (Reauthorization of the Higher Education Act) where at least 25% of the student body is Hispanic and 50% of those Hispanic students are first-generation (Bridges et al, 2005). These are similar in scope to Historically Black Colleges and Universities (HBCUs), which are more numerous. Bridges and associates point out that HSIs often grown out of mainstream universities whose enrollments have shifted through demographic change in the region—for example, southern and southwestern states. To that end, they are more common in states such as NY, TX, CA and FL. Research has shown that Hispanics are more likely to graduate from an HSI (Merisotis and McCarthy, 2005; Seidman, 2005; Crisp and Nora, 2010). Merisotis and McCarthy point out that these institutions do a better job providing a climate that retains students: “focusing in particular on fostering financial access, high levels of academic support through faculty and peer mentoring

and tutoring programs, and the creation of a supportive environment” (p.55-56). This conclusion highlights the importance of a positive institutional climate on retention.

Institutional climate refers to the contextual conditions of mission and culture which affect student experience. Noted higher education expert George Kuh (1993) defines institutional climate as referring to “how students...and other institutional agents experience their institution” (p.38). Climate affects the perceptions of the organization as well as the responses to experiences within it. A student’s perception of the institutional climate will determine how engaged the student is in the programmatic offerings of the institution and with others in the community—which can lead to persistence or attrition. As such, the institutional climate is a particularly important aspect of college persistence.

Empirical studies of Hispanic retention and attrition have concluded that a campus environment which is culturally diverse is particularly impactful on Hispanic retention (Seidman, 2005; Meristotis and McCarthy, 2005). Being part of a community or culture of similar students provides necessary stability, fosters a smoother transition to the college, and allows for transference of social capital in a timely manner. These results, in turn, support persistence to graduation. Absence of a cultural connection can challenge the ability of a student to be integrated into the social and academic life of a college and will lead to isolation and attrition (Seidman, 2005). While any campus can, with intentionality and effort, provide a diverse, engaging climate, some institutions are better able to achieve this than others.

From this research we can conclude that both institutional type and institutional climate have significant impact on Hispanic retention. Being able to further elaborate on what elements make a particular kind of institution effective will be important as universities nationwide see growing Hispanic enrollment and need to engage students until graduation.

2.4 Chapter Summary

Researchers in both social capital and educational retention literature have indicated that network relationships create results. In this space, relationships generate information critical to being retained in college; relationships secure a place for the student within the organizational structure of the institution; and relationships set expectations on whether the student will enroll and ultimately persist. The social capital generated through networks with faculty, staff, family, peers, and neighbors can do much to encourage enrollment and retention in four year colleges and universities. In particular these relationships offer feedback and support; information about access and inclusion; norms and sanctions relative to the institution and higher education in general; as well as the cohesive factor of positively connecting the student to the community. As social capital is unequally distributed by race and class, Hispanics (particularly working class) have found themselves at a deficit in the higher education space.

This has been demonstrated empirically through a multitude of studies that identify specific factors determining retention or attrition. Studies have shown that others' expectations of the student, the student's extracurricular activities while in college, and attending a private school and/or diverse school have positive influence on retention to graduation. In addition, parent savings for college (a social norm in addition to economic influencer) and participating in pre-college academic coursework (which conveys teacher expectations and social influence of college-goers in addition to academic ability) also have a positive influence on college enrollment. Conversely, factors such as working off-campus and discontinuous enrollment jeopardize the cohesion of the community as well as introduce alternative norms and sanctions which negatively impact enrollment to graduation. The empirical studies, with some variation in

conclusions, confirm the ultimate roles that social capital and social cohesion factors play in college retention and ultimate graduation for all students.

This study builds upon the existing empirical literature by looking closely at the Hispanic experience during college. In particular, I examine the strength of social capital that Hispanics engage relative to other identified retention factors. Given the unique data set, I am able to examine the past social network experiences during different points of time, and compare Hispanic responses to their White counterparts to see if any differences exist in their utilization of social capital and their experiences of social cohesion at both points in time. And I consider differences in the strength of the social capital effect for those who stop at different levels of education (high school degree, some college, college degree) to see if there is any particular activity and/or relationship difference that might be important to persistence.

2.5 Research Questions

The goal of this study is to better understand what factors might influence persistence to college graduation for Hispanic students. To that end, I pose the following comprehensive research questions:

1. What predicts social capital for all students in high school and college? How might those predictors differ for Hispanic students in particular?
2. How might Hispanic students differ in the advantageous use of social capital from students of other ethnicities/races?
3. How important is social cohesion for Hispanic students relative to other factors of retention, at different points in the academic career?
4. To what extent does social capital influence college enrollment after high school? To what extent does social capital influence college graduation?
5. Could the social capital built in high school have sustaining effects on college completion? Are some activities or relationships more helpful than others?

3 DATA AND METHODS

3.1 Data

Overview of Data Set

Data for this study come from the Educational Longitudinal Study of 2002 (to be referred to as ELS), administered by the National Center for Education Statistics. The ELS is a nationally representative longitudinal study of students who were high school sophomores in 2002, administered in the spring term of the 2001-2002 school year (Ingels et al, 2004). The study includes four phases: 2002 base year (high school sophomores), first follow-up in 2004 (high school seniors), second follow-up in 2006 (two years after high school) and third follow-up in 2012 (eight years post high-school). The study's purpose is to examine educational outcomes over the ten year period, and offers a rich subtext on a variety of sociological topics such as family, life course, work, race, and social norms.

Data are available in both public-use and restricted-use formats; this study utilized the public-use response data as the majority of required variables were available in this set and allowed for greater ease of completing this study. That said, the restricted use data would have offered the benefit of transcript data from high school and college which would have provided more exact criteria for the variable *of high school academic preparation*. In the public use data, the academic preparation variable must be self-reported based on academic confidence and self-perception of skills in math and English. This data limitation is noted in the study's limitation section, but the work-around still addresses the study's main concerns.

The ELS study includes a two-stage sample design, whereby first a national random sample of high schools were selected with probability proportional to size, and then next a random sample of sophomore students from those schools were selected. The school stage

captures a nationally representative probability sample of public, private and Catholic schools. Schools in the sampling frame (n=1,268) were included if they had a designated school survey day for administration of the instrument. There were 1,221 schools included in the sample, and 752 participated (68% weighted response rate).

From those schools, the target population of students were classified as sophomore standing at the time of administration and were not foreign exchange students. The sample included 17,591 sophomore students, of which 15,362 responded (87% response rate). The base year examination includes five written questionnaires (surveys of students, parents, teachers, school administrators, and library/media personnel) along with academic transcript data, achievement tests in math and English, and a school facilities assessment.

The Base Year set (2002) oversampled Hispanic respondents (Ingels et al, 2004). Specifically, they used a stratified systematic sampling technique where the strata included Hispanic, Asian, Black, and Other race/ethnicity. The required Hispanic sample size was calculated for precision requirements, indicating a required n of 1,356 Hispanics in the population. However, given approximation guidelines for public schools for the 1999-2000 school year, the rate of Hispanic respondents needed to be further increased. A sample size of 2,257 Hispanics was allocated, and sample rates were adjusted to increase Hispanic participation within the schools as samples began to come in. Students were selected from school-provided enrollment and strata lists in a flow as lists were received; Hispanics and Asians were selected first to meet required quotas, followed by Blacks and Other races/ethnicities, until all strata were filled.

The third and final follow-up in 2012 was administered via a web-based instrument, with computer assisted interviewing (telephone or personal interviewer) offered. Batch searches were

used to locate and increase response rate. Responsive design methods, as well as incentives for high school drop-outs, were used; abbreviated questionnaires were used at for the final four weeks of the response period to boost response rate. There were 16,167 eligible sample members for the third follow-up survey, and there were 13,250 respondents who completed the survey.

Final Sample

The sample for this study is limited to those respondents who participated as sophomores in the initial base year (2002) sample and who completed the final follow up (2012) survey. Furthermore, the data is restricted to those who responded to the highest educational credential question in the final follow up (2012) survey, and those students who report having completed at least a high school credential. Most of the analysis focuses on self-identified Hispanic respondents who meet those criteria (n=2,209). However, some analysis considers respondents of all races in the sample (n=12,894).

Variables

This study seeks to understand the educational outcomes of Hispanic students, as well as deepen the knowledge of factors that contribute to social capital for this group given its predicted relationship with educational outcomes. I restrict the data set in some instances to only Hispanic respondents, and in other instances examine differences by ethnicity within the whole data set. The dependent variable indicates the sample being examined. A comprehensive list of all variables is located in Appendix A.

Dependent Variables

The first set of dependent variables relate to social networks in high school based on the first follow-up (2004) survey, and in college based on the final follow-up survey (2012). I selected the first-follow up as the primary time period for dependent variables as this would

allow for the maximum years of opportunity in high school to develop social capital. In order to test the dependencies among my control variables, as well as to understand significant contributors to social capital, I first examine the social capital variables as dependent variables. Social capital theory suggests that relationships with others and activities which lead to enhanced social networks lead to social capital. To that end, three social capital dependent variables were identified.

Social Capital Dependent Variables

High school faculty relationships Faculty relationship is a composite dummy variable combining two questions from the first follow-up survey (2004). Original questions asked about the post-high-school activity recommended by the favorite teacher and school counselor. The original nine options for response (e.g., marriage, military service, full-time employment, etc.) were narrowed down to 1 for college and 0 for everything else in order to isolate the college encouragement. The Cronbach's Alpha is .966, indicating strong internal correlation for this variables

High school extracurricular activity This dummy variable measures extracurricular involvement. It combines three questions from the first follow-up survey (2004) which ask about participation in formal activities: sports organizations, academic clubs, and student interest clubs. Response is measured as no participation (0) or yes (1) for participation, which models the original questions' responses. The Cronbach's Alpha is .988, indicating high internal consistency for this dependent variable.

College social network This composite dummy variable combines multiple social network activities into one measure of college social network. Taken from the second follow-up survey (2006) of college attendees only, it combines three original questions examining the

participation levels in college extracurricular activities, meeting with college faculty outside of class and meeting with an advisor. Frequency of participation is measured as never (0), sometimes (1), and often (2), which models the original questions' responses. This variable is The Cronbach's Alpha for college social network is .989, indicating a strong correlation among social network participation in college.

Educational Outcome Dependent Variables

A series of dependent variables are used, all based on the final follow-up survey (F3) response to highest education level attained at eight years post-high school in 2012. The original variable captures eight levels of educational outcomes, from *no high school diploma* through *PhD/MD/other advanced degree*. I have collapsed the categories for the purposes of this study, and removed the *no high school diploma* responses in order to focus only on those who could have attended college.

All college attendance. This variable measures respondents who either terminated after high school or continued into some post-secondary enrollment. Responses were coded as 0 for high school only, and 1 for any level of post-secondary enrollment.

All college degree. This dichotomous variable measures whether those who enrolled in college eventually obtained a degree. Responses were coded as 0 for postsecondary enrollment with no degree, and 1 for a bachelor's degree or higher.

All education outcomes. The variables above serve the dual-purposes of this study to examine the effect of social capital on college enrollment and college completion, with an emphasis on the completion of a four-year degree. Because the data provided by ELS are so rich in a multitude of educational outcomes, it is worth taking a bit of time to examine any variations in the social network effect on the intermediary levels between high school and bachelor degree

completion, such as Associate's degree and certifications, along with higher educational outcomes to see any remaining lingering effects of high school social capital. This variable therefore includes five levels of educational outcomes. This variable has been re-coded from the initial ELS attainment variable to exclude those who do not complete at least a high school diploma. As such, the categories for this variable are: 0 for high school diploma/no post-secondary work; 1 for some college/no degree (collapses two original responses for undergraduate certificate and Associate's degree into one response); 2 for Bachelor's degree; 3 for post-baccalaureate graduate work; 4 for Master's degree; 5 for doctoral degree.

Independent Variables

The independent variables contain measures of relationships with high school and college faculty (teachers and counselors), high school peers, parents and other family members. Another set of independent variables measure informal and formal organizational involvement at the high school and college levels. Where possible, the same relationship or activity was measured at the base year (2002) when the respondent was a high school sophomore, and again in the first follow-up (2004) when the respondent was a high school senior, to account for any timeliness factors. In this study, where no significant differences were noted, variables from the first follow-up study were used to capture a larger time period of the high school experience¹. A noted limitation of the data is the richness of high school social network questions as compared to the minimal few available to capture the college experience in the second follow-up.

Relationship Independent Variables

High school faculty relationships. Faculty (post-secondary) encouragement is a composite dummy variable combining two original questions on the desired post-high-school

¹ Regression models were tested with both base year and with first follow-up variables and showed no significant differences between their effects in the models.

activity as recommended by the favorite teacher and school counselor². The variety of nine options (e.g., marriage, military service, full-time employment, etc.) were narrowed down to 1 for college and 0 for everything else in order to isolate the college encouragement. There are two related variables, one measured at the base year (2002) and one at the first follow-up (2004); to allow for timeliness relative to college, the first follow-up variables were used in the models. The Cronbach's Alpha is .810, indicating moderate internal correlation for these variables.

A second measure of high school faculty relationship is an index of whether the student has gone to the favorite teacher or school counselor for college entrance information. This composite dummy variables measured at first-follow up (2004) are coded 0 for no and 1 for yes, which models the original response format. Because the Cronbach's Alpha for these variables was so low, at .360, they were left as stand-alone variables in the model.

College faculty relationships. Two variables measure the extent of relationship with college faculty and staff on the second follow-up survey (2006) for those enrolled in post-secondary education. Talking with faculty outside the class and meeting with an advisor about career plans are both measured on a three-point scale of never (0), sometimes (1) and often (2). They will be considered separately rather than as one composite given the different type of relationships carried by those two roles.

High school peer relationships. As with the high school faculty variables above, students were asked about whether they had gone to their friend for college entrance information. The variable for asking a friend for college entrance information is captured at first follow-up and is coded 0 for no and 1 for yes.

² Favorite coach was also considered but eliminated due to large amount of missing data in the variable.

Additional questions measure the importance of school to friends. Friend school importance is a composite variable measured at the base year (2002) which combines five responses on the importance of school, grades, studying, going to classes and attending college. The scale for this measure is 0 for not important, 1 for somewhat important, and 2 for very important. The Cronbach Alpha for this index is .989, indicating reliable consistency among friend opinions on these items.

To measure the educational aspirations of the peer network, a variable measures the number of friends who plan to attend four year colleges. The scale is measured as none (0), some (1), most (2) and all (3).

Finally, students were asked about the Hispanic ethnicity of their three closest friends. Hispanic friends is an index of those responses, where 0 is no and 1 is yes. The Cronbach Alpha for this index is .957, indicating a likelihood of Hispanic friend groups for the respondent. It is anticipated that a peer network of friends of similar ethnicity to the group being studied may have more similar cultural (e.g., language, norms), social and socioeconomic experiences. This could be beneficial in providing a strong support group, or detrimental in the limited extension to a broader network with diversified knowledge of the educational system.

High school family relationships. Five sets of variables measure the relationships with parents and family members relative to educational outcomes. As with high school faculty and peers, variables related to parents include recommended post-high-school activity and whether the student had gone to his/her parents for college entrance information. The family encouraged post-high school activity is recoded to 1 for college and 0 for all other activities, and is measured at the first follow-up (2004). For this variable, individual responses for mother, father and relative were combined into a family index. The Cronbach Alpha for family encourage is .797,

suggesting strong internal reliability. The variable for asking a parent for college entrance information is also measured twice (base year and first follow up) and is coded 0 for no and 1 for yes; a similar variable on whether the student has gone to a sibling for college entrance information was also captured on the same scale. Due to the potential variance between an adult's information and a youth (sibling) information, these were left as separate variables.

Students reported in the first follow-up survey on how far they believed their mother and father wanted them to go in education, on a 7 point scale from no high school diploma through doctoral degree. Responses were combined into one parent index called *parent how far*. The Cronbach Alpha for this variable is .870, suggesting a relationship between mother's and father's responses.

Finally, parent involvement variables are composite indexes captured at the first follow-up (2004), which measure how often students discussed school-related topics with their parents. Parent involvement on academic topics suggests potential influence on students' educational outcomes, as well as provides opportunities for discussion of social norms and sanctions related to educational performance and future higher educational plans. Furthermore, parental views on these topics can contribute to student's forming self expectations. The six topics include courses, activities, grades, studying, SAT preparation and college information. The scale is never (0), sometimes (1), and often (2). The Cronbach Alpha for this index is .992, indicating strong internal consistency. Parents who are involved in some element of their student's academic business are likely to be involved similarly across other related elements.

Organizational Activity Independent Variables

High school peer activities. High school activities have been divided into academic clubs, sports clubs and social clubs. These variables are captured separately as the social

networks to be engaged in the activities are potentially different groups with different associated values. Formal academic and social activities are expected to have more distant weak ties amongst members and therefore could produce potentially new sources of social capital. In addition, formal activities often have faculty or staff sponsors, introducing further social influence. But formal academic activities may have the ultimate network benefit of isolating academically committed students, a group perhaps more likely to pursue higher education. Therefore this grouping is isolated to measure maximum effect.

High school formal social activities include official clubs offered as extracurricular activities at the school. In order to understand the overall effect of formal social activities, a combined formal social activity index of six items will be used. Activities are measured at the first follow-up. Participation in the activities are measured on a scale of 0 for no participation and 1 for participation. The Cronbach's Alpha for the formal social activities index is .983 for the first follow-up. The Cronbach's alpha for the formal sports index is .954 for the first follow-up, indicating strong internal consistency among the variables.

High school formal academic clubs were removed from other high school academic activities and created into their own independent variables. This seems appropriate given the likely correlation between academic activities and educational outcomes. The Cronbach Alpha for the first follow-up is .941.

High school sports activities include varsity and non-varsity participation measured during the first follow-up. The Cronbach Alpha is .485. While not as strongly correlated as the other composite variables, these two responses make sense to go together categorically as being similar activities to each other and different from the other types of high school participation. I

separately test the two individual sports responses within the final models and note any differences in effect.

College formal social activities. A composite variable of three formal social activities taking place in college (F2 follow-up, 2006) is created to measure the frequency of participation in college extracurriculars. It is measured on a three point scale of never (0), sometimes (1), and often (2). The Cronbach Alpha for this variable is .978, indicating a strong internal consistency among the variables included; not surprisingly, involvement in social activities are closely related to each other.

College sports participation is measured as single stand-alone variable capturing varsity sports participation. Given the radically different nature of varsity sports in college, including the many additional services and networks available to players through their affiliation, it is best to measure independently of other sports activities.

Control Variables

As mentioned earlier, there are a number of factors that theorists and researchers have attributed to predicting college enrollment and completion. In order to isolate the effects of social capital on educational outcomes, I control for the other retention factors as follows.

Demographics. A number of demographic variables related to the student and his/her family status are considered, including the sex of the student (with male as the reference category), the primary parent's marital status (0=single parent; 1=married/partnered), and the number of siblings (an ordinal variable from 1 to 6+). To capture socioeconomic status, parental education and family income are used: parent education is a composite index of mother/father education (from no high school diploma through doctoral degree); and total family income is measured from less than \$25,000 to over \$200,000.

High school academic preparation. The public-use data set from ELS does not include high school transcript data access. As a result, high school academic preparation is measured by student responses to questions on academic self-confidence and self-reported coursework. Academic self-confidence is used in relation to the literature which suggests that students who believe they have strong academic abilities (grounded or not) are retained at higher rates than those who doubt their abilities (Phinney et al, 2011; Robinson et al, 2008; Tinto, 1987). *Confidence* is a composite variable of 20 responses to a single question related to assessing ability/skill in math, English, learning new things and doing well on homework and exams. The variable includes four responses, 0 for almost never, 1 for sometimes, 2 for often, and 3 for almost always. The Cronbach's Alpha is .995, indicating that confidence among multiple academic skills is highly correlated.

AP Coursework is measured by two separate composite variables. Advanced placement courses and International Baccalaureate courses are transformed into a composite of college preparation coursework, coded 0 for no and 1 for yes. The Cronbach's Alpha is .958, indicating a strong internal consistency for this variable.

Economic Resources. Several variables are used to capture a student's financial situation as it might relate to their post-secondary decision (whether to go, where to go). High school work captures the number of hours a student works during the week or weekend, an interval variable from 1 to 21 hours. College savings is a variable indicating whether a parent has saved money for their student's college education, where 0 is no and 1 is yes. Senior year financial concern is taken from the first follow up survey (2004) when respondents were high school seniors. It indicates whether available financial aid is an important factor in the college decision process, on a scale of not important (0), somewhat important (1) and very important (2).

High school institutional climate. A series of responses on the survey address the perceived supportiveness, morale, and safety of the high school in which the student is enrolled. They are combined into one composite dummy variable for high school institutional climate. Positive climate factors include three responses related to students getting along, presence of school spirit, and that teachers are interested in students. Negative climate factors are reverse coded related to small crimes--bullying, theft, and drug use. This composite variable has a Cronbach's alpha of .518, indicating an average internal consistency.

School urbanicity and school geographic region are also measured, where urban schools and schools in the South are the reference categories. These are selected as the reference categories as they are historically the schools with the lowest high school graduation rates. In addition, private schools are a predictor, with public schools as the reference category for the same reason.

Living at home. Traditional college retention theory suggests that students who are retained to college graduation often live on-campus or away from home. This variable measures student attitude about the importance of living at home during college, where 0 is not important, 1 is somewhat important, and 2 is very important.

Self-expectations³. Finally, student's own expectations about how far they plan to go are measured in the base year (2002) and again in the first follow-up during senior year (2004). Both variables are measured on the following scale (the F1 follow-up is recoded to match the base year): 0 is no high school diploma; 1 is high school diploma; 2 is some college but no bachelor's degree completion; 3 is a Bachelor's degree; 4 is a Master's degree; and 5 is a doctoral degree.

³ Early regression models showed no significant difference between using the base year or the follow up year expectations; final models use follow-up year to remain consistent with the other measures used.

3.2 Analytic Strategy

This study attempts to predict the influence of social capital variables on college enrollment and college graduation respectively, net of other factors related to student retention. The study utilizes binary logistic regression to capture the predicted odds of the related outcomes. My study also utilizes ordered logistic regression where additional educational outcomes are considered. (Knoke, Bohrnstedt & Mee, 2002). The logistic regression models are used to predict the log odds of control variables on measures of social capital, and a second set of models will predict the log odds of social capital on educational outcomes (college enrollment and college completion, specifically) for Hispanics and for all races, controlling for other associated retention factors.

A series of nested models are used to isolate the effects of individual independent variables, and of independent variables in cumulative combination with each other, while controlling for other factors related to student retention. Chapter 4 discusses the predictors of social capital in high school and college, and any related differences in capital for Hispanics relative other ethnicities. Chapter 5 discusses the effect that social capital has on college enrollment after high school. Chapter 6 discusses how social capital may influence college graduation with a bachelor's degree.

Missing Data and Analytic Weights

The Educational Longitudinal Study uses analytic weights to account for both the unequal probability of selection into the sample and to control nonresponse bias in the data. All weighted response rates are calculated using the base weight appropriate for a given survey. According to the research team, “the third follow-up weighted response rate, therefore, represents the proportion of the combined 10th- and 12th-grade population that was in-scope for

the third follow-up, was fielded, and that responded” (Ingles et al, 2014, p.54). I will select and apply the appropriate weights as specified by NCES.

In addition, survey responses are prone to having nonresponse data in the form of skipped questions, responses of “don’t know,” or refusal to answer a question (Knoke et al, 2002). The ELS uses a process of imputation to derive substitute values and fill-forward methodology where appropriate. The imputation process for nonresponse calibration used in this data set was calculated using RTI’s proprietary generalized exponential modeling procedure (GEM) (Ingels et al, 2014, p.77). Models are run in both unweighted and weighted forms. Weighted values are reported.

There are a variety of techniques for managing nonresponse items, including mean substitution, list-wise deletion, and multiple imputation (Allison, 2002). For this paper, I use mean substitution to derive the final models. This requires substituting the mean of the responses received for value of each nonresponse.

3.3 Chapter Summary

This study seeks to understand the impact that social networks in high school and college have on educational outcomes for Hispanic students. Using data gathered at up to four different points in time (2002, 2004, 2006 and 2012) beginning with high school sophomores, I examine the effect of relationships and activities on college attendance and college completion, along with a broader view on additional educational outcomes (such as two year college degrees). I control for other known factors of educational retention, such as high school academic preparation and self-expectations, in order to isolate the effect of social networks for Hispanic students—which is a unique contribution to the study of higher education administration as well as sociology of education. Going forward, the next chapter will look at results from the regression models

examining correlates of social capital. The proceeding chapters will look at those who enrolled in college, those who completed a bachelor's degree, and then conclusions and limitations.

4 DOES BACKGROUND PREDICT SOCIAL NETWORKS?

4.1 Overview

Which students interact with high school faculty? Does background predict involvement in sports and clubs in high school? Can these high school networks determine whether a student will establish a college network of extracurricular participation and faculty relationships? Which characteristics are the greatest predictors of social capital for Hispanic students? The first three hypotheses examine the relationships among background characteristics and social network activity in order to answer these questions. I specifically examine the predictive effect of socioeconomic class and demographic background on relational network and activities for Hispanics, and whether social network effects differ by ethnic group. The goal is to highlight the varying strengths of social network beyond those mediated by demographic and other retention-related predictors. In the first section I examine the relationship between background characteristics and high school social capital. In the second section, I then look at the relationship among background, high school networks, and college networks. Regression results for these hypotheses can be found in Tables 1-3.

4.2 High School Social Networks

I start by examining the predictive nature of background characteristics on high school faculty relationships and on extracurricular activity participation, as set forth in the first two hypotheses below. Given the interrelated nature of these dependent variables, results will be discussed in tandem. Results are listed in Table 1 (faculty relationship) and 2 (extracurricular participation).

Hypothesis 1: High school relationships with faculty are predicted by background characteristics

Hypothesis 2: High school extracurricular involvement is predicted by background characteristics

Individual Characteristics

Race/Ethnicity

Hispanic ethnicity does not have a significant effect on faculty relationships on its own. But when controlling for socioeconomic class, Hispanics are significantly more likely to develop faculty relationships. The odds of Hispanics developing college-encouraging relationships with faculty are 25% greater than Whites when controlling for parent education and number of siblings (Table 1, Model 2). Faculty may provide more attention and encouragement to middle class Hispanic students beyond what they offer their White counterparts, in an attempt to compensate for historic disparities by race. Or Hispanic parents with greater education may be more in tune with the benefits of faculty relationships, encouraging their students to develop those relationships in a more deliberate way than White parents do. However, once I control for economic factors (particularly desire for financial aid), Hispanic ethnicity is no longer significant (Model 6). Concerns about financial aid, which is a strong predictor of faculty relationships, span the racial groups and appear to remove any racial differences in faculty relationships.

Hispanics are 27% less likely than Whites to participate in extracurricular activities, net of other characteristics (Table 2, Model 8). Notably, total income is not significant in any of the models. However, economic factors are significant and Hispanics are less likely to participate in extracurricular activities when economic factors are introduced in the model (Model 6). This suggests that Hispanics may have a perceived (rather than income-based) need to work or value to contribute to the family income which may interfere with extracurricular participation.

Demographics

Females are 42% more likely to develop college-encouraging relationships with faculty than males, when controlling for all other background characteristics (Table 1, Model 8).

Females are 115% more likely than males to participate in extracurricular activities, net of other characteristics (Table 2, Model 8). These two findings suggest that women will be at an advantage in social capital, given their network access to faculty and to peers within the student clubs. Other research has supported that females, particularly Hispanic females, hold social capital that is relational in nature (Zarate and Gallimore, 2005; Cerna, Perez & Saenz, 2009; Riegle-Crumb, 2010).

Parent's marital status had no significant effect on faculty relationship, but having siblings at home increased the odds of faculty relationship by 13% (Table 1, Model 8). It could be that having a larger family at home forces a student to go outside the home for greater attention to future plans. Or perhaps the faculty member is more aware of students who have siblings at the same school, having been more exposed to the family and thus more attentive to the student.

Parent marital status has a positive effect on extracurricular participation until Model 8 (Table 2); when all other predictors are considered, marital status no longer has a significant effect on participation. Conversely, having more siblings at home has a significant positive effect on extracurricular participation only once all other predictors are accounted for in Model 8. It is unclear what in the combination of other predictor variables would alter the significance of the family variables.

Socioeconomic status does not have a significant effect on faculty relationships once other background characteristics are controlled (Table 1). Parents' education had significant

effects until Model 8, whereas income had no significance across the models. That socioeconomic class neither influences nor discourages social network access to faculty is a notable finding; in other words, faculty relationships are open to all students regardless of class.

Income had no significant effect on extracurricular activities either, but parent education does (Table 2). This suggests that, rather than income, participation may have more to do with parents' familiarity with and/or value of educational opportunities. Again, this opens the potential social capital deriving from the networks of club participation to all students regardless of socioeconomic class.

High School Preparation and Educational Expectations

Academic confidence increased the odds of a faculty relationship by 6%, net of other predictors (Table 1, Model 8). One would expect these variables to be related—one may have academic confidence because she is a strong student, which makes a faculty member more encouraging. Or one may have confidence because a faculty member has encouraged them. Advanced placement courses did not have a significant effect once controlling for other characteristics.

Both academic confidence and AP courses had positive effects on extracurricular participation (Table 2). AP courses increased the odds of participation by 66% in Model 8 with all predictors in the model, just slightly less than in the initial model at 72% (Model 3). It is not surprising that academically engaged students and those with stronger academic performance would also take advantage of extracurricular activities. Given that colleges use extracurricular participation as a factor for admission, this puts these academically strong and co-curricular involved students in a good position for college admission.

Educational expectations increase the odds of faculty relationship by 52% (Table 1, Model 8) and of extracurricular activity by 35% (Table 2, Model 8). This could be caused by two distinct possibilities. First, students who plan to go to higher levels of education are likely to be academically stronger students (related to academic confidence). Top students are more likely to engage with faculty. Second, by senior year, students who plan to go to college may have been informed that faculty recommendations and club activities are factors considered in college admission; therefore students who expect to go farther may be more likely to avail themselves of these resources.

Institutional Climate

Students at urban schools are more likely to have encouraging faculty relationships than peers at suburban and rural locations, after controlling for other characteristics (Table 1). It could be that urban teachers are more actively involved as mentors and counselors, or as advisors in programs like Upward Bound or other college-prep programs which are more prominent in urban locations.

Students at private schools and at schools with positive climates are more likely to be involved in extracurricular activities (Table 2). Attending a private school increases the odds of extracurricular participation by 120% in Model 8. It is not surprising that students whose families pay for educational opportunities would also be investing in their students' co-curricular opportunities as well. And private schools are likely to have greater opportunities for extracurricular activities than public schools due to available school resources. Schools with positive climates are likely more conducive to students wanting to be involved; conversely, a more involved student body may lead to a more positive climate at school. Students at rural institutions are 47% more likely to be involved than students at urban institutions net of other

predictor variables. This could be related to the school functioning as a central hub of activity in a widely disbursed geographic area.

Economic Factors

Students who feel financial aid is important are 22% more likely to have faculty relationships (Table 1, Model 8) and 21% more likely to participate in extracurricular activities (Table 2, Model 8). This could be because students learn about financial aid opportunities through those relationships with faculty and peers in the club network, or because students who desire financial aid in the form of scholarships often need a faculty letter of support (from a faculty or club advisor).

Economic factors were all significant predictors of extracurricular activities when controlling just for race and demographics in Model 6 (Table 2). However, once factors of academic preparation, expectations, and living on campus are considered, student work is no longer significant. This is consistent with demographic variable of total income—it appears that actual financial situation is a weaker influence on extracurricular participation than academic predictors.

Living At Home

The importance of living at home had a negative significant effect on faculty relationships when controlling for race and demographic variables (Table 1). But once other factors were controlled for, it is no longer significant. It makes sense that the value for living at home during college would not be a significant predictor of high school faculty relationships; relationships may also be focused on current academic performance or activities of mutual interest (like a current events club) rather than expressly on future living plans and related educational implications.

The importance of living at home decreased the odds of extracurricular participation by 25% in Model 8 (Table 2), net of all other predictor variables. At first glance, I thought it could be related to having siblings to care for, but the sibling effect increases rather than decreases odds of participation. And since income and student work status are not significant in the model, it is unlikely that it is related to the demand to work to share income. This differs from the conclusions of Sarkesian, Gerena, Gerstel (2006), who found that SES was the single biggest predictor of living at home during college. It could simply be that those who feel living at home during college is important also tend to stay at home more during the high school years, rather than being involved outside the home. However, as I will discuss when reviewing the interaction models, living at home actually increases the odds of extracurricular participation for Hispanics.

Full Model: Does Background Predict Faculty Network?

What background characteristics predict having relationships with faculty who encourage college attendance? Students with academic confidence and those with higher levels of educational expectations have increased odds of a faculty relationship (Table 1, Model 8). And those who feel that financial aid is important also have increased odds of a faculty relationship.

Females and students with siblings increase the odds of faculty relationships. In Zarate and Gallimore's research (2005) on Hispanic female college enrollment, they found that college women were more likely (than non-enrolled) to seek out advice and college information from counselors and teachers in high school. The finding here that female students are 42% more likely than males to have a faculty relationship offers further elaboration on the concept that female students actively seek out support from faculty. Hispanic ethnicity is not a significant predictor once other characteristics are considered; in particular the Hispanic effect seems to be mitigated by economic factors.

Those who live in suburban and rural areas are less likely than urban students to have faculty relationships. It is likely that urban schools emphasize relationships through special college-bound programs given their high volume of (often disadvantaged) students. And those who live in the Midwest and West are also less likely to have those relationships than those in the South.

Full Model: Does Background Predict Extracurricular Participation?

What background characteristics predict participation in extracurricular activities? There are many positive predictors, including gender, parent education, academic and economic factors (Table 2, Model 8). Females and students with siblings have increased odds of participation.

If parents have higher levels of education, have begun saving for college, and who send their students to private school, their students have increased odds of participation. This suggests a parent who may be more aware of available educational opportunities and its related extracurricular opportunities.

Similarly, students with more academic confidence, who take AP courses, and who have higher educational expectations are also more likely to participate in extracurricular activities; these students are likely more comfortable in the academic setting. Related to academic setting, students attending schools with positive climates and private schools are more likely to be involved. In fact, attending private school has the greatest net effect on participation in the model, increasing the odds of extracurricular involvement by 120% (Model 8).

What factors discourage participation? Notably, being Hispanic reduces the odds of participation by 27% (Model 8). Ethnicity alone predicts 35.71% of the difference in participation rates from Whites when controlling for background characteristics. This is particularly compelling given that it is net of socio-economic status and student employment,

which would be expected to detract from time and resources available for student participation. What about Hispanic ethnicity would discourage participation? Possible factors include a desire to be at home rather than at school to help the family (familism); less ethnic diversity represented in club activity which creates isolating experiences; or that the sources of extracurricular participation for Hispanics are largely outside the school rather than school offerings (example, church or community groups). This finding is particularly notable as I move into the predictive power of extracurricular activities on college enrollment and graduation; if enrollment and graduation are predicted by extracurricular participation, then the absence of Hispanics in the rosters of school activities becomes a detriment to ultimate bachelor degree achievement.

Importance of living at home is the other significant negative predictor of extracurricular participation. In studies on the value of familism, researchers have found that Hispanics are more likely to want to live at home or with family than any other racial group (Desmond & Turley, 2009; Sarkesian, Gerena, Gerstel, 2006; Tseng, 2004). This value can ultimately impact higher education trajectory directly by limiting the choice of available colleges to attend. Furthermore, the finding here shows that those who feel living at home is important have limited participation in extracurricular activities, which may prove in later models to be a factor in college enrollment and completion; clubs provide access to a network of peers and faculty who may also play a role in educational attainment.

Hispanic Differences: Do Hispanics differ from Whites in developing faculty networks?

Hispanics who live in two-parent homes are 12% more likely than Whites in two-parent homes to have a faculty relationship (Table 1). In addition, Hispanics whose parents have started saving for college are 15% more likely than Whites with parent savings to have a faculty relationship. Existing research details the positive effect that parent college savings has on

college attendance for Hispanic, and here we see the start of that relationship forming (O'Connor et al, 2009). But taken together with parent marital status, a different story starts to form for Hispanics. The power from a two parent household with parents who save for college is meaningful for Hispanics. Likely this is a story about resources: having two parents at home potentially increases the household resources (from financial resources to time and parent involvement in students' lives). Increased supervision that may come from parents at home and parents who are investing in students' education may lead those parents to proactively encourage students to connect with faculty, or simply charging the student with college preparation which leads the students to seek out those relationships. These two factors may also indicate a more middle-class Hispanic lifestyle, which appears to be a differentiator for Hispanics but not for Whites.

But it isn't a typical social class story. Hispanics who live in the suburbs are 21% less likely than Whites (in the suburbs) to have a faculty relationship. This is mostly attributed to the Hispanic racial effect (.33 in Model 9). Why would this be? Hispanics in the suburbs may not be part of local dominant social networks. Suburban social networks may be stratified by race, restricting access to faculty relationships based on race and based on those in the network. The benefits of involvement in a close knit school community are detailed by Coleman and Hoffer (2011) in their study on private elementary schools; information shared between teachers and families, and among families, in the same school directly impact positive educational outcomes. It is possible that, while controlling for SES, we are seeing a similar effect for Hispanics who have less access to that type of social capital than suburban Whites do.

To complicate matters further, Hispanics with higher incomes were 81% less likely than Whites to develop faculty relationships (income is not significant for Whites). This leads me to

conclude that Hispanics with higher income parents are less likely to engage faculty, which is significantly different than White students with similar higher family incomes. Perhaps Hispanics gain access to helpful networks differently in higher income brackets (for example, extended family or ethnic community neighbors), using those networks rather than faculty for resources and information. However, if faculty networks prove to have some effect on college attendance and graduation, then higher-income Hispanics may be at a disadvantage for not pursuing that network.

Taken together, these two explanations suggest that Hispanics access social networks with faculty differently than Whites and perhaps differently by social class. Those Hispanics with parent college savings are much more likely to access faculty member relationships, but those with higher incomes are less likely. It is unclear whether income has an effect on parent savings, although it is probable that those with more money would be able to put some in savings. If this is the case, then it is likely that those with college savings are engaging faculty for the required connections to college rather than for academic resources (eg, tutoring) that can be procured elsewhere. Those in higher SES classes may not need those relationships as much, gaining network benefits through other resources. In later models we will examine the effect of network on college outcomes and further elaborate on the importance of faculty and other networks. If faculty networks later prove to predict college attendance and completion, Hispanics will be at a significant disadvantage to their White counterparts and there will be greater variance among Hispanic outcomes relative to other Hispanics.

Hispanic Differences: Does Hispanic participation in extracurricular activities differ from Whites?

Hispanic females are 57% less likely than White females to participate in extracurricular activities (Table 2). Why are Hispanic females less likely than Whites to participate in school extracurricular activities? One explanation might be related to available resources which discourage participation. Zambrana and Zoppi (2002) found that Hispanic girls were more often attending poor quality schools and tracked into lower-ability courses; these conditions might discourage the availability of clubs and the desire to participate in school-affiliated activities. Cerna, Perez and Saenz (2009) found that Mexican-American females, in particular, have greatest concerns about cost and paying for college; participating in extracurricular activities may be additional cost in high school that is not feasible given financial concerns.

Another reason Hispanic females may not be participating in extracurricular activities relates to how they may be spending their time instead. Zarate and Gallimore's (2005) research on Latina college enrollment found that Hispanic girls were receiving messages from their parents about the importance of formal education, which perhaps emphasize academic focus and discourages social activities. Other research shows that Hispanic females gain their social capital (network) through academically focused peer groups, religious groups, and volunteer work (Riegle-Crumb, 2010; Cerna, Perez and Saenz, 2009). These types of activities are not explicitly captured in the extracurricular variable. It could be that White students of both genders are more likely to participate in the types of activities captured in this measurement (e.g., school play, student government, yearbook).

The detrimental effect which lack of participation has for Hispanic females remains to be seen as we examine the relationship between extracurricular participation and college outcomes

in later models. Perhaps Hispanic women create their social networks (and related social capital) through other relationships, like family or informal peer groups. But if formal extracurricular participation plays a role in educational outcomes, Hispanic females will be at a disadvantage in this regard.

Hispanics who feel living at home is important are 5% less likely than Whites who want to live at home to participate in extracurricular activities. This is not a huge difference, nor is it surprising. Living at home can be inspired by a variety of reasons, from financial to care of younger siblings to basic enjoyment of our family lives together. Hispanics who hold a value of familism may be more inclined to act on this than their White counterparts due to the cultural importance of this value. For students of any race, participating in activities outside the home would interfere with time spent in the home; presumably those who want to stay near home during college would also want to do so in high school.

4.3 College Social Networks

Now that I've examined the effect of background characteristics on high school social network activity, I turn to college network activity. What elements of high school social capital predict having a college social network (as defined by faculty relationships and extracurricular participation)? How might the significant effects differ for Hispanics?

Hypothesis 3: High school social networks activities predict college social network for those enrolling in college, and is stronger for Hispanics than other races/ethnicities.

Background Characteristics

Hispanics are 49% less likely to have a college social network when controlling for demographic and traditional college retention factors (Table 3, Model 2). When introducing faculty and family social networks and activities, Hispanics continue to be significantly less

likely to have that college network. However, when the peer network is introduced in the model (Model 4), ethnicity is no longer significant. It appears that the peer network, which has a positive influence on college network, may be the cause of this shift.

While income is not significant, having more educated parents increases the likelihood of having a college social network (Model 2). It would be expected that more highly educated parents provide valuable information to foster relationships that lead to greater education. However, the parent education effect is mitigated in models where family influence is considered (Model 5). Parents may want their students to have greater education than they had themselves, and encourage their students to go farther. It could be that parents are embedding that message in their communications to their children. Given that total income was not significant in any model, and parent education is not significant in the final model, there is likely something other than a socioeconomic status effect going on. It may be that social capital in the form of social networks is a more powerful predictor than traditional socioeconomic status here.

High school academic confidence predicts college social networks net of background and high school network, increasing the odds of a having a college network by 6% (Model 8). Educational expectations positively impacts the odds of a college social network, increasing the odds by 42% net of other predictors (Model 8). It is reasonable to conclude that those with higher educational ambitions and with more academic confidence in high school would be more likely to have a college network of faculty and advisors; they are more likely to have enrolled in college in the first place (to be examined in the next chapter). Being enrolled in an AP class decreases the likelihood of a college social network, but is only significant when controlling for extracurricular participation—perhaps an effect of the friction between time spent on homework and club activities.

Institutional climate factors do not play a significant role in predicting college social networks. A positive climate in conjunction with high school extracurricular participation positively increases college networks, but is not significant on its own in Model 8 when all network variables are considered. Attending high school in the Midwest when in conjunction with the combination of all high school social networks (faculty, peers and family) increases the odds of college social network by 86% for those students (Model 6). This suggests a strong social capital effect for those in the Midwest.

Parent savings and the importance of living at home each decrease the likelihood of a college social network each by about 40%. The importance of living at home seems an obvious predictor: if the students follow through on that desire and live at home, their opportunities for developing a social network at college are hindered by geographic proximity and availability (limited time on campus). Parent savings is a little more complicated; if a parent has saved for college, the student is less likely to have a college social network. A few factors could be at hand: despite the activity of savings, if the parent has not saved enough funds, the student may have limited opportunities to develop a network because they have to work while in college or they may reside at home to save funds. Conversely, if the parent has accumulated a lot of savings, the student may be able to afford to purchase resources (like tutoring or affiliation with a Greek organization that provides guidance) and therefore not have had interactions with the network measured on this variable.

High School Networks and Activity

Encouragement from teachers and counselors is a significant predictor of college network net of background characteristics. Indeed, it is a very strong predictor of social network relationships in the model, increasing the likelihood of a college social network by 77% (Model

8). It is likely that those who are encouraged by faculty will be more likely to attend college (explored in the next chapter). But it is also possible that having a positive relationship with faculty in high school may lead to seeking out similar relationships with faculty in college. In this sense, social capital from high school replicates itself in college. If social capital in college has a positive effect on college completion (explored in chapter 6), then these high school relationships are all the more important for long term educational success.

Having a friend who provides college information and friends who intend to enroll in a four year college after high school are significant relationships in predicting college social networks, net of background variables (Model 4). Receiving college information from a friend is no longer significant once controlling for other social networks. Faculty and parent relationships within the network appear to have a stronger predictive effect, which may have reduced the significance of friends. That said, having a friend network who plan to enroll in a four year college remains significant net of other social capital variables, increasing the likelihood of having a college social network by 40% (Model 8).

Students whose parents were involved during high school and whose parents provided them college information were more likely to have a college network. The odds of a college network increased by 19% for those whose parents were involved, and by 70% for those whose parents provided college information (Model 8). These were significant net of all other predictors. This supports the findings of existing research that parent involvement is a key factor in achievement motivation and educational outcomes (Ibanez, Kuperminc, Jurkovic, and Perilla, 2004). Again, it makes sense that students whose parents provided college information might end up in college and would seek out a network of resources to provide information there. In addition, parent involvement in high school may have a continuation effect in college: open

communication on issues of grades, progress, and concerns that come up may continue to be shared from student to parent, and advice from the parent might direct the student to network resources on campus.

Participating in extracurricular social, academic and sports activities all positively predicted college social networks of similar activities net of background characteristics, as one might predict (Model 7). However, only sports retained significance once social networks were considered. Sport participation in high school increased the odds of college social network (inclusive of college sports) by 64% in the final model. Notably the predictive value increased despite more factors being considered in the last model, suggesting a very strong predictive relationship. It is not surprising given sports participation often comes with a strong related social network of teammates, coaches, and (in varsity), advisors and faculty. Furthermore, athletes at the varsity level are considered for college scholarships which increase the likelihood of college attendance and forces the student into an assigned college network of resources.

Full Model: Predicting College Social Networks

What high school factors predict college social networks? Having friends who plan to enroll in college increases the likelihood of a college network by 40% (Model 8). Participating in high school sports, with the network of peers and coaches this infers, increases the likelihood of having a college network by 64%. Faculty encouragement increases the likelihood of a college network by almost 80%. And having parents who were involved and provided college information increases the likelihood of a college network by up to 70%. What do these factors have in common? All likely involve high school access to a set of supportive network of resources: teachers and counselors, coaches and recruiters, parents, teammates, peers and mentors. Net of socioeconomic class, the involvement and resources provided through these

networks predict connection to a new network once enrolled in college. This is the product of social capital.

It is interesting to note that family and peers—two of the three predictors listed above—are what Granovetter (1973) describes as “close ties” or people who are close to you in a network and share many of the same relationships. Granovetter’s argument (related to employment) is that close ties are not as beneficial as “weak ties”, or those more distant from you, since weak ties have less overlap of people in a network and therefore can offer a wider variety of information or connections. Yet, our findings here suggest that close ties have significant beneficial qualities.

Hispanic Differences in College Social Networks

Is the process that leads to developing college social networks different for Hispanics than for Whites (Model 9)? It is notable that the effect of race in Model 9 increases significantly; Hispanics are 99% less likely than Whites to have a college network. There is no factor in the model which will compensate for the magnitude of disadvantage Hispanics have in developing college networks relative to Whites. Whites are more likely across the board to have college networks just by virtue of being White: it is debatable whether that is due to historic segregation, economic factors related to work (with Hispanics typically in more traditional blue collar and agricultural industries), or cultural differences between the two groups. But there are several factors that make a difference for Hispanics, relative to other Hispanics.

Faculty encouragement of a Hispanic student to attend college increases the odds of having a college social network by 11.06 over Hispanics who were not encouraged. Having close friends who are Hispanic increases the likelihood of having a college social network for Hispanics; this is not significant for other races. And participating in high school academic clubs

increases the odds of college social networks for Hispanics who participate by 9.17 over Hispanics who don't. Hispanics who possess these social networks (faculty, peers, clubs) are more likely to have social networks in college. This suggests that social capital is multiplicative for Hispanics.

That said, for each of these networks, Hispanics benefit far less than their White counterparts. Both Hispanics and Whites who receive faculty encouragement in high school are more likely to have a college network. But the odds of Hispanics with faculty encouragement having a college network are 93% less than Whites who are encouraged. And Hispanics who participate in academic clubs are 90% less likely than their White counterparts to have a college network. This demonstrates a continued advantage for Whites racially, but also in how they benefit from or leverage their social capital. Some possible explanations include how they might rely on those networks for assistance in the college enrollment process, or promote being part of those networks for related privileges. It is likely that, for Hispanics, there are greater factors at work which predict college enrollment at all (a precursor to having a college network); for Whites, other resources may be in place such that some positive encouragement is needed only to steer them in the right direction towards college networks.

Two powerful background predictors are the importance of financial aid and parent's marital status. Hispanics who feel financial aid is important are 88% less likely than similar Whites to have a college network, and Hispanics from two-parent families are 89% less likely than Whites from two-parent families to have a college network. Yet both of these factors are positive differentiators among Hispanics: the odds of Hispanics from a two-parent household having a college social network are 11.94 (as compared to other Hispanics), and the odds of Hispanics who think financial aid is important having a college network are 9.79. I point these

out because of the radical differences within and between groups. Relative to Whites, Hispanics are far less likely to develop college networks, which is largely due to ethnicity. What is notable, however, is that there are effects which increase the odds of Hispanic college networks—in this case, coming from two parent households and feeling financial aid is important.

Alternatively, there were several powerful predictors that decreased the odds of college social networks for Hispanics. Receiving college information from a sibling reduced the likelihood of college social networks for Hispanics by almost 100% relative to Whites. This suggests a significant racial disparity related to family networks and access to information. Whites are more likely to have siblings who possess helpful information because Whites are more likely to have siblings who went to college. Hispanic students may receive inaccurate misinformation or discouraging information from their siblings, who are less likely to have gone to college and may be sharing second-hand information. The concern that these students are less likely to have a social network from which to draw accurate and encouraging college information provides a potential intervention opportunity. Based on the historic college attendance rates, Hispanics are more likely to be the first in their family to attend college and therefore may be more likely to be uninformed on the college admission process; but taking information from a sibling is not helpful.

Whites benefitted from a positive high school environment, but Hispanic students who attend high schools with a positive climate were 47% less likely than other Hispanics and 100% less likely than Whites to have a college social network. While at first glance this finding for Hispanics seems counterintuitive—a positive climate should result in seeking out a college network—it is possible that Hispanics in positive climates simply retain their high school network rather than seek out a college network. Given that many Hispanics attend institutions

close to home, it is possible that Hispanics continue to have proximal access to high school networks and are able to leverage them for resources needed. For example, a student may continue to reach out to a high school counselor or peer for support. It is also possible that, by attending school close to home, Hispanic peers attend the same colleges and therefore can leverage others' college networks rather than establishing their own.

4.4 Chapter Summary

I opened this chapter asking three overarching questions about social capital: How are background characteristics related to social networks? Can high school networks predict college network activity? Which characteristics are the greatest predictors of social capital for Hispanic students? We now have the answers to these questions.

Background characteristics do predict social network activity, as evidenced through faculty relationships and extracurricular participation. Being female, having academic confidence and higher education goals, thinking financial aid is important, and some institutional characteristics all predict social capital activities (i.e., faculty relationships and extracurricular activity). For Hispanics, faculty relationships are positively predicted by socioeconomic status, suggesting that Hispanics gain more from a middle class status than Whites. SES was not a contributing factor for Whites.

Some elements of high school networks predict college networks, net of background characteristics. Having friends who intend to enroll in college, parents who are involved and provide college information, and participating in high school sports all positively predict college social network activity for all races. For Hispanics, a faculty's encouragement has an outstanding positive effect, along with participating in high school academic clubs and having Hispanic friends. The lasting predictive effects of high school faculty, parents, and peer networks is net of

socioeconomic status for Hispanics and others. This suggests a social capital effect, where regardless of class, current involvement in networks begets future opportunities in other networks.

For Hispanics, parent marital status plays a prominent role in predicting social network activity. It appears that Hispanics benefit greatly from the intangibles of having a two-parent home. While this is not related to socioeconomic two-income household directly, other economic factors such as considerations regarding financial aid or parent savings, may correlate; Hispanics who live in two-parent homes may benefit from the stability these homes offer relative to planning for future costs of college and current involvement in network activity.

All of that said, no factor can overcome the powerful effect of ethnicity in predicting college networks. Hispanics are significantly less likely than Whites based on ethnicity to have college networks, and this effect is so powerful it reduces any benefit from social capital or background that Hispanics might have. Is a college network an important factor in predicting college completion? If so, Hispanics will be disadvantaged to Whites in the odds of college completion relative to social capital derived from college networks. I will examine this more in depth in Chapter Six.

Given what has been learned about the predictive value of both background and network activity, I first examine the effects of the social capital on college attendance.

Table 1 Binary logistic regression models measuring faculty relationship+

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8	Model 9 [^]
RACE									
Hispanic	1.03	1.25**	1.22*	1.29**	1.29**	1.02	1.25**	1.26	0.33*
Black	1.75***	1.96***	1.95***	1.89***	1.77***	1.69***	2.04***	1.24	1.21
Native American	0.48**	0.51**	0.62	0.44**	0.72	0.77	0.61	0.90	0.91
Asian	1.50**	1.530**	1.42*	1.31	1.54**	1.89*	1.43*	2.04*	2.04*
DEMOGRAPHICS									
Female	-	1.70***	1.72***	1.56***	1.70***	1.36***	1.48***	1.42***	1.38**
Parent Married	-	1.10	1.04	1.07	1.05	1.00	1.14	0.97	0.88
Siblings at Home	-	1.12***	1.13***	1.13***	1.13***	1.11**	1.15***	1.13**	1.17**
Parent Education	-	1.24***	1.21***	1.14***	1.22***	1.17***	1.19***	1.06	1.07*
Total Income	-	1.03	1.01	0.94*	1.02	1.10*	1.00	1.00	1.03
HS PREPARATION									
Academic Confidence	-	-	1.07***	-	-	-	-	1.06***	1.06***
AP Combined	-	-	1.16*	-	-	-	-	1.06	1.08
EDUC. EXPECTATIONS									
How Far	-	-	-	1.65***	-	-	-	1.52***	1.53***
INSTIT. CLIMATE									
Positive Climate	-	-	-	-	1.11***	-	-	1.03	0.99
Private School	-	-	-	-	1.28*	-	-	1.02	1.00
Suburban	-	-	-	-	0.72***	-	-	0.69**	0.59***
Rural	-	-	-	-	0.64***	-	-	0.74*	0.66**
Northeast	-	-	-	-	1.07	-	-	1.07	1.10
Midwest	-	-	-	-	0.87	-	-	0.76**	0.82
West	-	-	-	-	0.62***	-	-	0.49***	0.47***
ECONOMIC FACTORS									
Student Work	-	-	-	-	-	1.00	-	1.00	1.00
Parent Savings	-	-	-	-	-	1.12	-	1.17	1.08
FinAid Important	-	-	-	-	-	1.26***	-	1.22***	1.21**
LIVING AT HOME									
Living at Home	-	-	-	-	-	-	0.83***	0.90	0.89*
INTERACTIONS									
Hispanic Parent Marital	-	-	-	-	-	-	-	-	3.38**
Hispanic Total Income	-	-	-	-	-	-	-	-	0.59***
Hispanic Instit. Climate	-	-	-	-	-	-	-	-	1.27**
Hispanic Suburban	-	-	-	-	-	-	-	-	2.42**
Hispanic Midwest	-	-	-	-	-	-	-	-	0.36**
Hispanic Parent Savings	-	-	-	-	-	-	-	-	3.49**
CONSTANT	4.61***	1.51***	0.61***	0.42***	1.57**	1.43	2.37***	0.30***	0.41**
NAGELKERKE R	0.01	0.05	0.08	0.13	0.07	0.04	0.04	0.13	0.15

*Using Exp(B); [^]Model 9: Interaction terms entered stepwise forward conditional; *p<0.05 **p<0.01 ***p<0.001

Table 2 Binary logistic regression models measuring extracurricular involvement+

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8	Model 9 [^]
RACE									
Hispanic	0.58***	0.73***	0.69***	0.74***	0.77***	0.58***	0.77***	0.73***	0.76
Black	0.80***	0.94	0.88*	0.92	0.98	0.88	0.93	1.01	1.02
Native American	0.74	0.92	1.02	0.94	1.02	1.18	0.96	1.37	1.38
Asian	1.62***	1.73***	1.63***	1.41**	1.78***	1.36	1.66***	1.470*	1.48*
DEMOGRAPHICS									
Female	-	2.26***	2.30***	2.12***	2.30***	2.11***	2.17***	2.15***	2.31***
Parent Married	-	1.27***	1.27***	1.21***	1.27***	1.17*	1.22***	1.01	1.01
Siblings at Home	-	1.01	1.01	1.03	1.01	1.06*	1.02	1.07**	1.08**
Parent Education	-	1.27***	1.23***	1.19***	1.26***	1.25***	1.21***	1.13***	1.13***
Total Income	-	1.06**	1.03	1.01	1.03	0.99	1.02	0.96	0.96
HS PREPARATION									
Academic Confidence	-	-	1.06***	-	-	-	-	1.03***	1.03***
AP Combined	-	-	1.72***	-	-	-	-	1.66***	1.65***
EDUC. EXPECTATIONS									
How Far	-	-	-	1.47***	-	-	-	1.35***	1.35***
INSTIT. CLIMATE									
Positive Climate	-	-	-	-	1.10***	-	-	1.06**	1.06**
Private School	-	-	-	-	1.99***	-	-	2.20***	2.21***
Suburban	-	-	-	-	0.93	-	-	1.05	1.06
Rural	-	-	-	-	1.15*	-	-	1.47***	1.47***
Northeast	-	-	-	-	1.07	-	-	0.98	0.97
Midwest	-	-	-	-	1.06	-	-	1.13	1.13
West	-	-	-	-	0.94	-	-	1.12	1.12
ECONOMIC FACTORS									
Student Work	-	-	-	-	-	0.99**	-	1.00	1.00
Parent Savings	-	-	-	-	-	1.33***	-	1.29***	1.30***
FinAid Important	-	-	-	-	-	1.20***	-	1.21***	1.21***
LIVING AT HOME									
Living at Home	-	-	-	-	-	-	0.69***	0.75***	0.73***
INTERACTIONS									
Hisp* Female	-	-	-	-	-	-	-	-	0.57***
Hisp*Living At Home	-	-	-	-	-	-	-	-	1.25*
CONSTANT	1.72***	0.46***	0.17***	0.14***	0.29***	0.49***	0.80**	0.09***	0.09***
NAGELKERKE R	0.16	0.11	0.15	0.16	0.12	0.11	0.12	0.19	0.19

+ Using Exp(B); ^Model 9: Interaction terms entered stepwise forward conditional; *p<0.05 **p<0.01 ***p<0.001

Table 3 Binary regression models measuring college social network+

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8	Model 9^
RACE **									
Hispanic	0.57***	0.51***	0.41***	0.61	0.50**	0.72	0.52***	0.74	0.01**
Black	0.64***	0.60**	0.66	0.70	0.82	0.76	0.56**	0.69	0.77
Asian	1.05	0.89	0.91	0.83	0.85	0.89	0.85	0.91	1.46
DEMOGRAPHICS									
Female	-	1.14	0.83	0.88	0.75	0.72	1.12	0.77	0.84
Parent Married	-	1.20	1.29	1.10	1.28	1.56	1.21	1.58	1.11
Siblings at Home	-	0.94	0.89	0.91	0.94	0.90	0.94	0.88	0.824*
Parent Education	-	1.14**	1.17**	1.19**	1.04	1.13	1.12**	1.13	1.20*
Total Income	-	0.92	0.93	0.87	0.94	0.88	0.93	0.86	0.91
HS PREPARATION									
Academic Confidence	-	1.05***	1.05**	1.08***	1.07***	1.06**	1.04**	1.06**	1.07**
AP Combined	-	0.81	0.73	0.79	0.71	0.70	0.72*	0.69	0.63
EDUC. EXPECTATIONS									
How Far	-	1.45***	1.43***	1.39***	1.47***	1.44***	1.39***	1.42***	1.56***
INSTIT. CLIMATE									
Positive Climate	-	1.07	0.99	1.03	1.04	1.06	1.07	1.06	1.18*
Private School	-	1.29	1.22	1.10	1.50	1.23	1.07	1.09	1.04
Suburban	-	1.18	1.24	1.14	1.30	1.17	1.08	1.14	1.20
Rural	-	0.83	0.95	0.83	0.99	1.02	0.70*	0.97	1.18
Northeast	-	1.17	1.49	1.38	1.26	1.54	1.12	1.55	2.16**
Midwest	-	0.87	1.11	1.05	1.56*	1.86*	0.83	1.84**	2.15**
West	-	0.84	1.32	1.22	1.47	1.87*	0.81	1.76*	2.68
ECONOMIC FACTORS									
Student Work	-	1.01	1.00	1.01	1.01	1.01	1.00	1.01	1.01
Parent Savings	-	1.14	0.84	0.90	0.61**	0.59*	1.07	0.60*	0.56**
FinAid Important	-	1.13	1.14	1.06	1.07	0.97	1.09	0.94	0.85
LIVING AT HOME									
Living at Home	-	0.65***	0.59***	0.63***	0.52***	0.56***	0.69***	0.59***	0.59***
FACULTY NETWORK									
Faculty Encourage	-	-	1.71***	-	-	1.84***	-	1.77***	1.54**
Counselor Info	-	-	1.29	-	-	0.95	-	0.91	0.89
Teacher Info	-	-	1.84	-	-	1.41	-	1.34	1.19
PEER NETWORK									
Friends are Hispanic	-	-	-	0.84	-	0.81	-	0.81	0.47***
Friend School Import	-	-	-	0.99	-	0.97	-	0.96	0.92
Friend Info	-	-	-	1.55**	-	1.48	-	1.51	1.78**
Friend 4YrColl	-	-	-	1.41**	-	1.48**	-	1.40*	1.49**
FAMILY NETWORK									
Family Encourage	-	-	-	-	1.14	0.90	-	0.90	0.82

Parent HowFar	-	-	-	-	0.97	0.94	-	0.94	0.95
Parent Info	-	-	-	-	2.03***	1.71**	-	1.70**	1.77**
Sibling Info	-	-	-	-	0.94	0.91	-	0.89	1.41
Parent Involvement	-	-	-	-	1.25***	1.19***	-	1.19***	1.22***
EXTRACURRICULAR									
Social activities	-	-	-	-	-	-	1.16*	1.08	1.22
Academic activities	-	-	-	-	-	-	1.32*	1.10	0.92
Sports activities	-	-	-	-	-	-	1.46***	1.64**	1.84***
INTERACTIONS									
Hisp* Parent Marital	-	-	-	-	-	-	-	-	10.76*
Hisp*Positive Climate	-	-	-	-	-	-	-	-	0.45**
Hisp* FinAid Import	-	-	-	-	-	-	-	-	11.52***
Hisp* Faculty Encourage	-	-	-	-	-	-	-	-	7.18***
Hisp* Sibling Info	-	-	-	-	-	-	-	-	0.01***
Hisp* FriendsHispanic	-	-	-	-	-	-	-	-	6.39***
Hisp* Academic activities	-	-	-	-	-	-	-	-	9.97*
CONSTANT	14.33***	1.17	0.68	0.90	0.33	0.23	1.31	0.25	0.148*
NAGELKERKE R	0.01	0.12	0.19	0.16	0.20	0.24	0.14	0.25	0.35

+ Using Exp(B); ^Model 9: Interaction terms entered stepwise forward conditional; *p<0.05 **p<0.01 ***p<0.001

**Native American, which was not significant, was removed from the model due to a very low response rate issue

5 SOCIAL CAPITAL PREDICTORS OF COLLEGE ATTENDANCE

Can high school social networks and extracurricular participation during high school predict college enrollment after high school? Social capital theory would suggest so, that access to information, networks, and activities which promote education would create opportunities which lead to college enrollment. In the previous chapter I found that high school faculty networks and participation in academic activities in high school were positive predictors of having a college network for those who attended college. But who attends? And do these networks/activities have similar influence on attendance that they do for future social capital? This chapter will examine the strength of high school social capital, evidenced through network relationships and extracurricular activities, and their effects on college attendance for Hispanics in particular. In Section One, I examines factors which predict college enrollment for Hispanics only. Then in the next section, I look at differences in college attendance between Hispanics and Whites.

5.1 Predictors of Hispanic College Enrollment

We will begin with examination of the differences in social capital's effects for Hispanics who enroll in college versus Hispanics who do not enroll. Regression results found in Table 4.

Hypothesis 4: Among Hispanics, high school faculty, peer and family social networks predict college attendance.

Hypothesis 5: Among Hispanics, high school extracurricular activities predict college attendance.

Background Characteristics

There are a limited number of background characteristics which predict Hispanic college attendance (Table 4). Socioeconomic status is not a significant predictor of college attendance.⁴ Income does not predict social college attendance in the model, and parent education is significant *except* when controlling for social networks. Significant differences may exist in parent education by nativity, which is not examined here but may account for some of the variance in the sample. The important finding here is that social networks are valuable for Hispanics who attend college net of socio-economic status.

When all networks are included in the model, having married parents significantly decreases the likelihood of college attendance (Model 8). This is an unusual finding which is supported by existing research which found that females were more likely to attend college if they had an absent father (Buchmann and DiPrete, 2006). Researchers concluded that females were more likely to view higher education as a path to financial independence for themselves when the father was absent (or low-income). A family network might mitigate the strength of that desire by providing additional support.

There is a relationship between AP courses and extracurricular activities related to college attendance. AP courses are not significant predictors of college attendance until extracurricular activities are considered. Taking an AP course reduces the likelihood of college attendance for Hispanics when extracurricular activities are engaged. This may have to do with the relationship between college attendance, varsity sports, and college preparation coursework at the high school level. If being an athlete significantly increases the likelihood of college attendance, and it is less

⁴ In the unweighted model, parent education is not significant but total income has moderate significance at .05. This flip suggests an interrelationship between SES variables but no change in predictive power of college attendance.

likely that varsity athletes are enrolled in AP coursework (conjecture), then the high rate of athletes in the model is skewing the results for AP courses. Given the small percentage of respondents, this may be the case.

Education expectations increases the likelihood of college attendance by 141% when social networks are included in the model (Model 8). The greatest single effect appears to come from faculty encouragement, which increases the odds of educational expectations by .22 when introduced in model 3 (from 1.71 in Model 2 to 1.93 in Model 3). It makes sense that having faculty who encourage you to attend college might increase your self-expectations of how much education you will achieve.

Attending a high school with a positive climate increases the odds of college attendance by 48% net of social networks (Model 8). This is only significant once all networks are factored in. I suspect that the existence of positive relationships with faculty and peer networks which exist in a positive school environment are the cause. Hispanics who have connections to faculty and school-focused peers may be more likely to perceive the high school environment as a positive one, which in turn influences the likelihood of continuing education after high school. Hispanics living in rural locations are less likely to attend college when also considering family networks in the model (Models 5, 6, 8). Hispanics living in the Northeast or Midwest are less likely to attend college once all networks are considered (Models 6, 8).

Economic factors and the importance of living at home had no significant effect on predicting college attendance for Hispanics in any of the models. This is surprising, as past research has found relationships between financial aid concerns, parent savings and living at home as predictors of college enrollment (Desmond and Turley, 2009; Cerna, Perez & Saenz, 2009; O'Connor, Hammack and Scott, 2010; Song and Elliott, 2012).

Elements of Social Capital

Teacher information is a significant predictor of Hispanic college attendance, net of all other factors. Getting college info from a teacher reduces the likelihood of college attendance by 74% when background characteristics and other social network/activities are controlled for (Model 8). Similarly, Hispanics who received college information from peers were about 74% less likely to enroll in college when other networks are included in the models (Model 6, 8). This will be discussed more in considering the final model.

Hispanics with a peer network who value school are 72% more likely to attend college (Model 8). The predictive value of this variable increases by about .5 when all networks are accounted for in the models (from 1.23 in Model 4 to 1.72 in Model 8) suggesting peer influence grows when other parties (family, faculty) in the student's network are heard from. Participating in sports (specifically varsity sports) increases the likelihood of college attendance for Hispanics by over 234% net of social networks and background.

Family networks on their own were not significant predictors of Hispanic college attendance in any of the models. This suggests that families play a lesser role than faculty or peers in influencing college attendance.

Full Model: Does social capital predict college attendance for Hispanics?

Which Hispanics attend college? Those who attend differ slightly by background (Model 8). Attending a high school with a positive climate and having higher educational expectations increases the likelihood of Hispanic college enrollment, net of socioeconomic factors and academic preparation.

What effect does social capital have on Hispanic college enrollment? Peer networks play a positive influential role. Having friends who think school is important increases the likelihood

of college enrollment by 72%. Participating in sports activities, specifically varsity sports (intramural sports were not significant in the follow-up model), has a very strong effect on predicting Hispanic college attendance. Varsity athletes are more likely to be recruited for college athletics, be provided funding for college enrollment, and participate in a structured support network which guides college applications (through coaches or assigned team counselors).

Receiving college information from peers or teachers decreased the likelihood of college attendance. Peer information is a logical finding, as peers can spread misinformation gathered from unlikely sources (e.g., an older neighbor who attended). But teacher information is surprising—one would expect teachers providing college information would increase, not decrease, the likelihood of enrollment over those Hispanics who did not enroll. It is possible that Hispanic students who receive college information may be discouraged or confused by the content of those messages. For example, a teacher may attempt to guide Hispanic students towards local two year colleges rather than four year universities without a clear explanation on the path to a bachelor's degree. Based on research that shares that Hispanics are over-tracked into lower academic courses in high school, the messages they receive from teachers may be more discouraging than those who receive no messages at all (Arbona and Nora, 2007; Davis, 2010).

5.2 Social Capital Predictors of College Attendance, Differences by Race

Now that there is an understanding of the factors which predict college attendance for Hispanic college-goers relative to those Hispanics who do not attend, I turn to a comparison between racial groups. How do Hispanics differ from Whites relative to social capital's influence

on college attendance? The answer is, in several unique ways. Regression results found in Table 5.

Hypothesis 6: The predictive relationship between social capital and college attendance will be stronger for Hispanics who attend college than for Whites and for those who do not attend.

Background Characteristics

Hispanics are less likely than Whites to attend college based just on ethnicity (Table 5). However, once socioeconomic status is controlled for, they are 47% more likely than Whites to attend (Model 2). When other background and social capital factors are considered, there is no difference in college enrollment between Hispanics and Whites. This suggests that, if academic preparation, economic factors and access to social capital were evenly distributed, Hispanics would have similar enrollment opportunities to Whites.

Several demographic characteristics predict college attendance. Socioeconomic status is a significant positive predictor of college enrollment, with total income holding a little more weight than parent educational background in the final model (Model 9). Having married parents also increases the likelihood of college enrollment in conjunction with the family network in Models 6 and 7, but is not significant in the final model (Model 9). Having siblings at home increases the likelihood of college attendance in the final model. What does this mean? Having the economic resources to attend college is a positive predictor. Those who can afford to are more likely to attend. In addition, there are some benefits derived from family influence: the network of a two-parent family, the presence of siblings who may have attended or who look to the student as a role model for other children. These findings support the idea of social capital at work that benefits derive from the family network beyond class or economic situation.

High school preparation is not a significant predictor of college attendance for anyone in these models; this supports the earlier finding that high school preparation doesn't predict college attendance for Hispanics in Table 4. However, educational expectations continues to be a consistent, significant predictor of college attendance. That college attendance is predicted for those with higher educational goals rather than simply for those with better academic performance (as measured by academic confidence and college preparation coursework) is encouraging.

Attending private school, attending school in the Northeast and in the Midwest all are positive predictors of college enrollment. Private school attendance has a significant effect in models controlling for faculty and family networks, and extracurricular participation; this makes sense given that families who invest in a private education expect more participation from faculty and extracurricular activities in their students' experiences. But once the peer network is controlled for, private school attendance is no longer significant. Having peers who plan to attend 4 year colleges is a powerful significant predictor, and is likely what evens the playing field between private and public school attendees.

Students who work while in high school are less likely to attend college until controlling for family network (Models 5, 7, 9). Family network (particularly family encouragement and parent involvement in school) appears to alleviate the modest negative effect work has on college enrollment. Students who feel financial aid is important are more likely to enroll in college, net of background and social capital. This could be a spurious effect, in that only those who plan to attend college would have an opinion on financial aid in the first place.

The importance of living at home reduces the likelihood of college enrollment by 34% net of background and social capital (Model 9). There are a multitude of reasons a student may

want to live at home which would prevent college enrollment, such as the desire to enter the workforce or the need to take care of young siblings. It is interesting that this desire is net of socioeconomic class, suggesting the student doesn't need to live there but rather chooses to do so. But as many students may not live in proximity to a college or university, the desire to live at home is detrimental to college enrollment.

Social Capital Factors

High school faculty network does not predict college enrollment once other networks and activities are controlled. Faculty encouragement had a limited positive effect on its own, which suggests there can be some positive outcome from the encouragement of teachers and counselors to go to college. As was discussed earlier, however, Hispanics who receive college information from a teacher are less likely to enroll in college. There is likely a difference in the messages being delivered—or received—related to encouraging attendance in general versus actually providing instruction and concrete information on colleges itself.

Having friends who plan to attend a four year college significantly increases the likelihood of college attendance by 59% (Table 5, Model 9). There are two possible explanations, an active and a passive one: Students who have educational goals may be more likely to actively seek out friends with similar values, and participate in a culture that has college as an expectation for after high school. An alternative is that students who are less academically goal-oriented may passively follow the influence of their friends and do as their friends do. In both cases, the peer network acts as a catalyst for college attendance, supporting the theory that social capital in the form of social networks influence educational outcomes. As will be discussed later, this is not a significant predictor for Hispanic students (Model 9), but only a significant predictor for Whites and other racial groups.

Family network is important. Encouragement by parents and relatives to attend college increases the likelihood of enrollment by 24%, net of background and other social capital characteristics (Model 9). Parent involvement in the student's high school experience is also a significant predictor of college attendance. And as mentioned earlier, two-parent families also positively predict college attendance.

Participating in academic clubs increases the likelihood of college attendance by 86% (Model 9). Sports and social club activities were not significant predictors for all races. Those who participate in academic activities are likely pre-disposed to attending college for further academic pursuits, so this isn't surprising. I would have expected formal social activities to be a positive significant predictor, as it involves students into a formal peer network with a faculty sponsor. This network, I believed, would have provided access to information and engaged students in formal educational activities that might have led higher education pursuit; but this is not the case. And while earlier we saw that sports activities in high school predict college social networks, they do not predict college attendance (for all races; Hispanics to be discussed below).

Full Model: High School Social Capital Effect on College Attendance

Do high school social networks predict college attendance? Yes, to an extent (Table 5, Model 9). Having friends who plan to enroll in college increases the likelihood of college attendance by 59%. This is net of high school preparation and type of school (private versus public). This is even higher than a similar finding from a study of a national data sample collected in 2000 (Arbona and Nora, 2007), suggesting that the predictive strength of group mentality on higher education attendance may be growing. It is also net of socioeconomic class; controlling for these characteristics suggests that this finding is not dependent on resources or access. In addition, friends providing information was controlled for (and not significant); this

suggests that the power of the network is not from the information that is shared within it. I would venture to conclude, therefore, that the power of a college-bound peer network stands on its normative conditions which dictate that college is the next educational step for friends within the network. Normative behavior emerging from a social context is clearly social capital at work.

Participating in an academic club or honor society is a positive predictor of college attendance as well. Related to the friend effect above, those who participate in academic activities are likely more academically successful and are being exposed to peer networks who are also academically successful. They benefit in both regards. However, being smart in isolation doesn't increase the likelihood of college attendance (high school preparation was not significant). Rather the affiliation with other academically involved students in a peer network is what predicts college attendance.

Family encouragement to attend college increases the likelihood of college attendance by 24%. Parent involvement in high school (e.g., conversations about grades, learning, etc.) increases the odds by 1.11. This is net of socioeconomic class and academic ability, two standard predictors which help or hinder college enrollment. Why does the family network matter? Family—parents in particular—create the normative culture at home and help students gain access to other networks through direction and introduction. Parents who are involved in the high school academic experience may encourage the student to access instructional resources like tutoring or advising; and likely set up the expectations about academic behavior that the student should meet (e.g., homework before television, adequate preparation before exams). And past research has shown that family encouragement often emphasizes the ability of education to positively impact social mobility (Zarate, Saenz, and Oseguera, 2011). The emphasis on

education through encouragement and involvement sets up the norm for students on the importance of education which will carry them to the next level of higher education.

That said, receiving college information from siblings reduces the likelihood of college attendance by 34%. Siblings are likely to be less informed or produce misinformation on topics related to college admission. They may be discouraging of a student attending college for a host of reasons. So while having siblings at home increases the likelihood of attendance, receiving information from them does not. In this sense, siblings are better seen than heard!

Social capital as evidenced in family and peer networks has a positive predictive effect on college attendance, net of socioeconomic status. Family and peers provide students with capital in the form of normative behaviors and expectations. It is possible that through these relationships, students increase their educational expectations and see possibilities that would not have occurred to them otherwise. This is the benefit of social capital. It is not, however, without economic implications. As seen in Model 9, those in higher socioeconomic status (as interpreted from income and parent education) are more likely to enroll in college. This is predictable. But the effect of social capital net of SES is still a powerful force; it can level the playing field of private vs. public high school education, as just one example.

Hispanic Differences: How do Hispanics differ in receiving benefits of social capital?

Hispanic students with friends who value school are 251% more likely than Whites whose friends value school to go to college. This is a unique contribution to the existing literature on Hispanic college attendance. School importance was measured in the sophomore year, and includes items like the importance of getting good grades, attending class, doing homework, and taking the SAT. This is an interesting finding for several reasons. First, being part of a network of friends who value educational activities introduces normative behavior,

much like what was discussed earlier in relation to friends attending four year institutions. The predictive power of a peer group's values in sophomore year on college attendance three years later is evidence of the strong power a peer network holds; it sets into motion normative behaviors (and values) which have long term consequences. Second, the subtle difference between the peer network valuing education and the peer network planning to attend college is worth exploring. For Whites, having friends in senior year who plan to attend 4 year colleges leads to college attendance; this can be evidence of a shared value of higher education, or simply a follow-along behavior (my friends are going so I will go). However, for Hispanics who have friends who value school in sophomore year, it is more clearly the shared value of education or commitment to positive education behaviors (e.g., going to class) which leads to college enrollment. Finally, this was the only positive predictor of college attendance which more greatly benefitted Hispanics rather than Whites. This finding suggests the peer network is critical for creating beneficial social capital for Hispanics relative to college enrollment.

Hispanics receive less return on obtaining college information from a teacher than Whites (.73 odds for Hispanics). Why would the return on teacher information be less for Hispanics than Whites? There are several possible explanations. First, this could be a result of Hispanics being tracked into lower academic coursework; teachers in these courses would be providing information on college criteria which the student would not meet. Second, it could be the result of negative stereotypes: since teacher information had a positive (but not significant) effect for other racial groups, it is possible that teachers are discouraging college attendance or providing less helpful information to Hispanics (e.g., information solely about two year colleges or absent of information on financial aid). Third, it may be due to the evaluative nature of the teacher-student relationship; perhaps the teachers providing information are doing so based solely on

perceived student performance in a particular class. Finally, it could relate to the way that Hispanics are hearing and interpreting information from the teacher rather than the intent or actual content. Research conducted by O'Connor (2009) on Hispanic college enrollment in a similar data set found that Hispanics were significantly less likely to attend college than Whites and attributed this to a "...well-documented lack of information about higher education among Hispanic students and parents" (p.138).

Several background characteristics are predictors of Hispanic college enrollment. While females in general are more likely to attend college, Hispanic females are at less of an advantage than White females or Hispanic males. Hispanic females were 41% less likely than White females to go to college. Certainly Hispanic females face additional challenges in how they spend their post-high school time. Zambrana and Zoppi (2005) found in their review of research on Latina higher education that educational achievement for Hispanic females is compromised by family responsibilities, poverty, lack of participation in preschool, attendance at poor quality schools, placement into lower track classes, poor self-image, limited neighborhood resources, lack of presence of role models, and gender role attitudes.

Hispanics in two-parent families were 79% less likely than Whites from two parent families to enroll in college. Having two parents at home does not bring as positive effect for Hispanics as one might predict. Hispanics may be more likely than Whites to come from homes where both parents work; if that's the case, they may experience a different focus on family and finances which actually dissuade from attending college--for example, if there are younger siblings to care for while parents are at work, or if there is a perception that more income is needed to support the household. Alternatively, a two-income household may prevent the student

from eligibility for higher levels of financial aid, which makes attending college cost prohibitive for Hispanics.

Indeed, Hispanics with parent savings were 38% less likely to enroll than Whites with parents savings. This supports earlier research which finds that Hispanic parents are likely to have saved less than Whites and be less aware of financial aid opportunities to fund education (O'Connor, N., Hammack, F., & Scott, M. 2010). This suggests that the effect of family capital (involvement, time, resources and savings) may not be as beneficial for Hispanics as it is for Whites. The amount of parent savings may differ, or financial aid packages may be a detriment to those Hispanics with a little savings, calculating a higher family contribution due to those savings which could be more prohibitive for Hispanics than Whites. These findings are net of socioeconomic differences and suggest a big difference in the way families leverage capital.

Existing research provides another theory on this finding. Song and Elliott (2012) found that student's expectations mediated the effect between parent savings and college attendance for Hispanics. So some of the observed effect here can be from Hispanics whose parents had not saved but there was a strong desire to attend. Educational expectations increased the likelihood of attendance for Hispanics by 141% (in Table 4) and has consistently been a strong determining factor in college networks, college attendance, and college completion (to be discussed in next chapter). The strength of this effect in combination with the low number of Hispanic parents who save for college (37% for Hispanics compared to 64% of Whites in O'Connor et al, 2010) could be creating an interesting mediating effect here.

5.3 Chapter Summary

In this chapter I set out to understand whether and how social capital might predict college attendance. In addition, I wanted to understand how factors predicting college

attendance may differ for Hispanics as compared to other racial groups. What I have concluded is that certain aspects of social capital do predict college attendance, and differences do exist by race.

Hispanics who attend college have a peer network throughout high school who feel that school is important. This increases the odds of attending college over Hispanics who didn't enroll, and had a significant effect overall as compared to Whites (insignificant). In addition to having a peer group who values the importance of school, varsity sport participation in high school increases the likelihood of college attendance for Hispanics over Hispanics who don't enroll. Both of these findings relate to the power of a peer network within high school which connects the Hispanic student to institution and positions them to be admitted to college through academic or athletic performance. The peer network also incorporates students into a normative culture where further education may be expected and activities to work towards that goal are put into place (e.g., taking the SAT or participating in a college recruitment sports event). These two findings introduce an excellent intervention point for enrolling more Hispanics into college by intervening early in the high school career and connecting Hispanic students to programs and services which influence peer culture attitude towards school *or* simulating some of the experiences varsity athletes have into situations applicable to a greater portion of students (e.g., structured regimen of activities, coaches who act as gateways to college recruiters, messaging about direct applicability of high school talent into college performance).

Family encouragement and involvement are significant predictors of college attendance for other racial groups but not for Hispanics. Having a peer network who intend to enroll in a four year college and is also a significant predictor of college attendance for others but not Hispanics. In contrast to the findings above on Hispanic predictors, these factors are more

amorphous in relation to post-secondary activity. Being involved in a peer network that goes to class, completes homework, takes the SAT and practices a sport organizes concrete activities which lead to potential college admission. Having an encouraging family network and peers who plan to attend college are a bit more vaguely encouraging without specific organization around how to get there. It could be that Hispanics do better when channeled into activities which lead to post-secondary outcomes.

Not all social capital outcomes were positive. Receiving college information from a teacher or peer reduces the likelihood of college attendance for Hispanics relative to non-attending Hispanics and Whites by up to 30%. Misinformation, discouraging messages, and perhaps lack of concrete examples on how to proceed are likely the detriment of these information sources. Future studies may want to examine what information sources positively predict college enrollment, and how the content of the messages differ.

With a clearer understanding of how social capital predicts college enrollment, this study turns to examining the influence of social capital on college completion with a bachelor's degree.

Table 4 Binary logistic regression models measuring Hispanic college attendance+

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8
DEMOGRAPHICS								
Female	1.37*	0.70	0.61	0.61	0.43*	0.45	0.70	0.39
Parent Married	1.02	1.32	1.64	1.37	0.47	0.14*	1.33	0.12*
Siblings at Home	0.89*	1.05	1.02	0.94	0.91	1.04	1.05	0.97
Parent Education	1.41***	1.50***	1.09	1.07	1.36	0.89	1.54***	0.85
Total Income	1.12	1.17	1.47	1.62*	1.40	1.58	1.15	1.84
HS PREPARATION								
Academic Confidence	-	1.06*	1.03	1.01	1.04	1.04	1.07	0.97
AP Combined	-	0.58	0.76	0.68	0.46	0.48	0.57*	0.31
EDUC. EXPECTATIONS								
How Far	-	1.71***	1.93***	1.88***	1.54**	2.31***	1.74***	2.41**
INSTIT. CLIMATE								
Positive Climate	-	1.03	1.12	1.06	1.29	1.35	1.07	1.52*
Private School	-	2.53	2.82	2.93	5.50	29.15	2.22	13.32
Suburban	-	0.73	1.16	1.10	0.49	0.35	0.73	0.32
Rural	-	0.61	0.49	0.44	0.21*	0.11**	0.60	0.16*
Northeast	-	1.83	1.23	1.35	0.33	0.15*	1.65	0.13*
Midwest	-	1.13	1.39	1.16	0.51	0.08*	1.19	0.05*
West	-	1.12	1.03	1.04	0.59	0.38	1.14	0.25
ECONOMIC FACTORS								
Student Work	-	1.02	1.01	1.01	1.03	1.02	1.02	1.01
Parent Savings	-	1.10	0.59	0.50	0.65	0.51	1.04	0.47
FinAid Important	-	1.44	1.38	1.48	1.06	0.80	1.42	0.72
LIVING AT HOME								
Living at Home	-	1.08	1.05	0.98	0.99	0.76	1.13	0.78
FACULTY NETWORK								
Faculty Encourage	-	-	0.93	-	-	0.83	-	0.88
Counselor Info	-	-	1.37	-	-	1.01	-	1.00
Teacher Info	-	-	0.54	-	-	0.35	-	0.26*
PEER NETWORK								
Friends are Hispanic	-	-	-	0.78	-	0.69	-	0.72
Friend School Import	-	-	-	1.23*	-	1.74**	-	1.72**
Friend Info	-	-	-	0.55	-	0.24*	-	0.26*
Friend 4YrColl	-	-	-	1.00	-	0.80	-	0.65
FAMILY NETWORK								
Family Encourage	-	-	-	-	0.84	0.58	-	0.59
Parent HowFar	-	-	-	-	1.04	1.02	-	0.96
Parent Info	-	-	-	-	0.84	1.05	-	1.28
Sibling Info	-	-	-	-	0.94	0.95	-	0.84
Parent Involvement	-	-	-	-	1.09	1.19	-	1.13

EXTRACURRICULAR

Social activities	-	-	-	-	-		1.12	0.87
Academic activities	-	-	-	-	-		1.19	4.68
Sports activities	-	-	-	-	-		1.11	3.34*
CONSTANT	3.00***	0.05**	0.07*	0.06*	0.44	1.00	0.03***	5.69
NAGELKERKE R	0.06	0.22	0.25	0.27	0.25	0.43	0.23	0.49

+ Using Exp(B), *p<0.05 **p<0.01 ***p<0.001

Table 5 Binary logistic regression models measuring college attendance+

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8	Model 9	Model 10 [^]
RACE										
Hispanic	0.80***	1.47***	1.01	1.09	1.37	0.88	0.96	1.06	0.98	2.37
Black	0.94	1.35***	1.11	1.52	1.62**	0.96	1.00	1.10	1.00	1.04
Native American	0.47***	0.66	0.372*	1.81	5.52	0.73	0.77	0.40*	0.76	0.91
Asian	2.33***	3.06***	1.10	1.62	2.51	2.53	2.36	1.11	2.30	2.39
DEMOGRAPHICS										
Female	-	2.00***	1.30**	1.38**	1.40**	1.18	1.25	1.23*	1.20	1.59**
Parent Married	-	1.13	1.12	1.23	1.30	1.545*	1.50*	1.09	1.45	1.82***
Siblings at Home	-	0.99	1.02	1.01	1.02	1.08	1.16*	1.02	1.15*	1.16*
Parent Education	-	1.61***	1.40***	1.19**	1.21***	1.19**	1.16*	1.38***	1.15*	1.16*
Total Income	-	1.34***	1.21***	1.39***	1.35***	1.26**	1.34**	1.23***	1.35***	1.34**
HS PREPARATION										
Academic Confidence	-	-	1.02	1.01	1.00	1.00	1.00	1.01	0.99	1.00
AP Combined	-	-	0.98	1.08	1.10	1.08	1.11	0.91	1.03	1.02
EDUC. EXPECTATIONS										
How Far	-	-	1.81***	2.14***	1.97***	1.90***	1.95***	1.75***	1.91***	1.95***
INSTIT.CLIMATE										
Positive Climate	-	-	1.05	1.09	1.05	1.08	1.05	1.05	1.05	1.12
Private School	-	-	2.15**	2.64**	2.00	2.57*	2.14	1.93*	2.01	2.31
Suburban	-	-	0.83	1.07	1.05	1.10	1.24	0.81	1.19	1.10
Rural	-	-	0.96	1.02	1.07	1.11	1.29	0.91	1.21	1.18
Northeast	-	-	1.61***	1.53**	1.68***	1.22	1.27	1.59**	1.29	1.39
Midwest	-	-	1.43**	1.81***	1.74***	1.52*	1.84**	1.42**	1.85**	1.84**
West	-	-	1.20	1.40	1.54**	1.26	1.41	1.15	1.32	1.38
ECONOMIC FACTORS										
Student Work	-	-	0.99**	0.98***	0.98**	0.99	0.99	0.99**	0.99	0.99
Parent Savings	-	-	1.13	1.18	1.14	1.12	1.01	1.17	1.02	1.24

FinAid Important	-	-	1.36***	1.43***	1.46***	1.35**	1.44**	1.37***	1.44**	1.43**
LIVING AT HOME										
Living at Home	-	-	0.75***	0.730***	0.77**	0.67***	0.66***	0.76***	0.66***	0.64***
FACULTY NETWORK										
Faculty Encourage	-	-	-	1.19*	-	-	1.06	-	1.03	1.07
Counselor Info	-	-	-	1.33*	-	-	1.34	-	1.28	1.20
Teacher Info	-	-	-	0.94	-	-	0.83	-	0.81	1.06
PEER NETWORK										
Friends are Hispanic	-	-	-	-	0.831*	-	1.05	-	1.06	1.12
Friend School Import	-	-	-	-	1.00	-	0.99	-	0.99	0.94
Friend Info	-	-	-	-	0.98	-	0.85	-	0.86	0.86
Friend 4YrColl	-	-	-	-	1.49***	-	1.69***	-	1.59***	1.55***
FAMILY NETWORK										
Family Encourage	-	-	-	-	-	1.24***	1.21*	-	1.24**	1.24**
Parent How Far	-	-	-	-	-	0.98	0.95	-	0.95	0.93*
Parent Info	-	-	-	-	-	1.29	1.33	-	1.36	1.38
Sibling Info	-	-	-	-	-	0.69*	0.67*	-	0.66*	0.69*
Parent Involvement	-	-	-	-	-	1.11**	1.19**	-	1.11**	1.11**
EXTRACURRICULAR										
Social activities	-	-	-	-	-	-	-	1.10	0.98	0.96
Academic activities	-	-	-	-	-	-	-	1.66***	1.86***	1.89***
Sports activities	-	-	-	-	-	-	-	1.10	1.05	1.07
INTERACTIONS										
Hisp*Female	-	-	-	-	-	-	-	-	-	0.25**
Hisp*Parent Marital	-	-	-	-	-	-	-	-	-	0.09**
Hisp*Parent Savings	-	-	-	-	-	-	-	-	-	0.26**
Hisp*Teacher Info	-	-	-	-	-	-	-	-	-	0.31**
Hisp*friendsschoolimport	-	-	-	-	-	-	-	-	-	1.48**
Constant	7.43***	0.83*	0.19***	0.05***	0.07***	0.06***	0.02***	0.18***	0.03***	0.03***
NagelkerkeR	0.01	0.14	0.23	0.28	0.27	0.27	0.31	0.23	0.32	0.34

† Using Exp(B); ^Model 10: Interaction terms entered stepwise forward conditional; *p<0.05 **p<0.01 ***p<0.001

6 SOCIAL CAPITAL PREDICTORS OF COLLEGE COMPLETION

In the previous chapter I identified factors which predict college attendance after high school. These findings highlighted some differences in the way that social capital impacts college attendance, and how that differs for Hispanics and Whites. Peer networks played a prominent role for increasing the likelihood of attendance, as did extracurricular participation. But for Hispanics, the benefit came from a high school culture which provided structure around academic commitments. For Whites, benefits were received from the more nebulous encouragement of family, faculty and peers. To this end, college attendance is positive impacted by social capital, but in very different ways.

In this chapter I examine social capital at the next (educational) level. How might social capital, through networks and activities, predict bachelor degree attainment for those who enroll in college? Are there differences in the way social capital is leveraged by Hispanics and White, or Hispanics who graduate as compared to those who don't? Will the earlier finding which showed that Hispanics are less likely than Whites to have a social network in college (Chapter 4) play a significant role in degree outcomes? Or could having the social capital attained through high school networks hold the key to improving college retention for Hispanics? Does high school social capital have any long-range effects on college completion eight years later?

This chapter examines all of these questions in three sections. The first section looks at whether college faculty network (Hypothesis 7) and college extracurricular activities (Hypothesis 8) predict bachelor degree attainment for Hispanics. The data set compares Hispanic college graduates to Hispanics who enrolled but had not completed a degree within eight years later, and considers college involvement during their college sophomore year. The predictive strength of these social capital variables on college completion is detailed in regression models in Table 6.

The second section of this chapter looks at differences in how Hispanics and Whites utilize their college social capital for college completion (Hypothesis 9). Specifically, I examine the racial differences in the likelihood of having college faculty networks or participating in college activities for Hispanics and Whites, and whether those networks differ in their effect on college completion by race. Results of these regressions are listed in Table 7. And in the final section, the strength of high school social capital in predicting college completion for all races is examined. I hypothesize that college completion can be predicted by high school social capital, and that the positive influence of capital will differ by race/ethnicity (Hypothesis 10). In each section I seek to identify which elements of social capital increase the likelihood of college completion, with a mind to creating helpful interventions for retention to graduation.

6.1 College Social Networks Predict College Completion for Hispanics

This section examines the effects that college faculty network and college activities have on bachelor degree attainment for Hispanic college attendees. Results of the related regressions can be found in Table 6. The hypotheses being tested here are:

Hypothesis 7: College faculty relationships predict college completion for Hispanic college graduates.

Hypothesis 8: College extracurricular activities predict college completion for Hispanic college graduates.

Background

Hispanic females and those students with more educated parents are more likely to graduate college. However, these demographics are no longer significant predictors of college completion once controlling for common educational retention factors such as academic preparation, educational expectations, economic factors, and living on campus. This finding mimics the results found earlier for college attendance (Table 4), where gender and parent education lose

significance in the presence of educational retention variables. These findings taken in tandem conclude that higher education outcomes are not limited by gender or class as academic preparation and students' goals increase. That said, it is known that access to stronger academic preparation and the encouragement which helps to form educational goals are restricted by race, class and gender, so the background effect—while muted—is still at work.

This finding builds upon existing research by Cerna, Perez and Saenz (2009) who found that Hispanic females were more likely to graduate than males. Their data was collected on 1998's graduating class and they examine pre-college perceptions, behaviors and values of Latinos who graduate within six years of college enrollment. They did not control for educational retention factors in their study. Their findings may have been different if they had, as my current research illustrates. Clearly educational outcomes are not a story about background alone, but about the complex mediating relationship among background, high school preparation and goals development, and ultimate college outcomes.

Income is a significant predictor of college graduation, increasing the likelihood of college completion by 76% in the full model (Model 5). It is not a surprise that those who can better afford the costs related to education are more likely to persevere, and supports existing research which indicate that SES is a big predictor of college completion (O'Connor, 2009; Porter, 1990).

High school academic preparation significantly increases the odds of college completion. Taking AP coursework in high school increases the odds by up to 133% (Model 5), while having academic confidence predicts an 11% increase in the likelihood of graduation. Having taken AP coursework gives students a solid foundation for the challenging material covered in college, and may allow students to opt-out of tougher freshman level core courses like calculus or English composition. Research has shown that Hispanics who feel their academic performance is less

than their peers are more likely to drop-out (Arbona and Nora 2007; Robinson et al, 2008; Crisp and Nora, 2010). AP courses and a little extra confidence in high school may provide the necessary buffer to that feeling in college. Having higher educational expectations increases the likelihood of college graduation by up to 85% (Model 2). Once controlling for aspects of social capital, the predictive strength diminishes only slightly to 75%.

Institutional climate was not a significant predictor of Hispanic college completion. It was for whether Hispanics attended college, but it appears that any lingering disparities from HS experience are no longer relevant once the students are enrolled in college. As for economic factors, student employment slightly decreases the likelihood of college completion by 6%. This factor has been debated in the research but supports findings from Nora's body of work (1996; 2007; 2010).

Students who state it is important to live at home during college have a reduced likelihood of college completion by approximately 40%. Living at home removes the student from access to the college community and increases the family pull factors which interfere with academic progress. Zarate and colleagues (2011) concluded in their research that Hispanic college completion is closely associated with the extent to which the student is integrated into the college environment (p.128). In this case, lack of integration based on place of residence interferes with college outcomes (note, this assumes that the desire to live at home which was expressed in high school has come to reality in college).

Elements of Social Capital

Extracurricular participation in college increases the likelihood of college completion by 115% in the full model (Model 5).⁵ Participating in clubs and activities increases the peer social

⁵ The question is asked as "other extracurricular participation" not including sports which is asked separately; it does not provide examples of what might be included.

network, provides access to faculty advisors, and entrenches students in the college community. It is surprising that sports activities are not predictors of graduation, given that high school varsity sports played a prominent role in predicting college attendance. It is unclear why this would be. There are a great variety of and complexity within college sports experiences, which is beyond the scope of this project but a worthy undertaking for future research.

Faculty network had no significant effect on college completion. This is not surprising given that faculty relationships were not predictive of college attendance in the previous model; one might assume that the pattern of relationships (or lack thereof) between student and faculty would continue through college. This is likely further compounded by the documented absence of Hispanic faculty or faculty/staff of color to serve as mentors and role models (Min, Cabrales, Juarez, and Rodriguez-Vasquez, 2004).

Full Model: Does Social Capital Predict Bachelor Degree Attainment for Hispanics?

What effect does college social capital have on college completion for Hispanics? Minimal. Participating in social extracurricular activities is the only significant predictor of college graduation. It increases the likelihood of college graduation by 115% net of background and social network (Model 5). As proposed by the educational retention theorists like Vincent Tinto, extracurricular participation functions as an integrative bond between the institution and the student. Those who are engaged in activities are more connected to the overall college network, and more likely to persist in the face of adversity given the relationship between student and institution. As Tinto concludes, “Persistence arises from the social and intellectual rewards accruing to competent membership in the communities of college and from the impact that membership has upon individual goals and commitments, especially commitment to the institution” (1987, p. 182).

Furthermore, extracurricular participation serves to expand the student's peer social network. Social capital theorists like Granovetter (1973), Putnam (2000) and Halpern (2005) suggest that membership within a formal organization broadens one's social network, provides access to social capital restricted for use to those members, and provides the infrastructure for a thriving community. In this case, participating in an extracurricular activity may provide access to campus resources. It also may provide an opportunity to connect with like-minded individuals who value school; earlier findings showed that having friends who value school as important was a significant educational predictor. I propose that participating in clubs in college offers a similar supportive network.

For all Hispanics who attend college, who are more likely to graduate? Those with higher income, stronger academic preparation in high school, higher educational expectations, and who participate in college activities have an increased likelihood of graduating. Those who desired to live at home and those who work have a reduced likelihood of graduating. It makes sense that those who are well-equipped financially, educationally, and have a strong social network are at increased odds for graduation; they have the best individual chance with a support network to provide continued resources and engagement.

6.2 College Social Capital Predicts College Completion, Differences by Race

In this next section I consider how college social capital predicts college completion for all students, and how capital may have differing effects by race. Results for Hypothesis 9 are listed in Table 7.

Hypothesis 9: College social capital predicts degree completion differently for Hispanics who complete college than White college graduates and all who don't complete college.

Background

Hispanics are less likely to complete college than Whites. Being Hispanic reduces the odds of completing a bachelor's degree by 64% (Model 1); when controlling for other aspects of retention and social capital, this effect goes down to 27% (Model 6). Blacks and Native Americans were also less likely than Whites to graduate; Asians, on the other hand, had increased odds of college completion over Whites.

Socioeconomic status, as measured by parent education and total income, is a significant predictor of college completion. The effect is slightly reduced but still significant when controlling for other retention and social capital factors. As we discussed earlier in relation to Hispanic college completion, it makes sense that SES would predict college degree attainment. Higher social classes have more economic resources to be able to afford the cost of college attendance over four or more years. Parents who have increased levels of education themselves model through example and through access to professional networks of other educated adults the value of education; in addition their knowledge of how the education system works is useful in navigating challenges as they arise.

Students with higher levels of academic confidence in high school are about 4% more likely to complete a college degree. Taking AP courses was not a significant predictor for all races; however, as was illustrated earlier (and here in Model 7), it is a positive significant predictor of college completion for Hispanics. Educational expectations increases the odds of college completion by 92% (Model 2). The effect is reduced slightly, but still significant, when controlling for college social networks and extracurricular activity. Net of those factors, educational expectations increases the likelihood of college graduation by 75% (Model 6).

Having attended a high school with a positive climate increases the likelihood of college completion by roughly 10% across the models. One might expect that having a positive high school experience would set a student up for enjoying the educational experience, as well as seeing teachers and peers as allies in the community. That positive experience would likely frame future expectations into a self-fulfilling prophecy. Those who attend high school in the Northeast or Midwest are more likely than those in the South to complete a four year degree. Attending a rural high school significantly increased the likelihood of college completion only once college extracurricular activities are controlled for; this suggests that rural students may benefit more from the social community or resources of a college network than their urban counterparts.

The only economic factor which predicted college completion is student employment. The more hours a student works, the less likely he/she is to complete college. The effect itself was minimal (2% across the models) but significant. It makes sense that a job may take time away from academic performance and the social community of college. However, there are some benefits of student employment which we will later discover for Hispanic students.

Students who feel that living at home is important have a reduced likelihood of college completion by 35% (Model 3). Tinto (1987) indicates that living off campus prevents the student from fully engaging in the college community may have an isolating effect leading to eventual attrition. The effect is lessened when controlling for social capital to 29% (Model 6) suggesting there is some benefit to the having a college network which mitigates the effect of living outside the college community.

Elements of Social Capital

Having a college faculty network increases the odds of college graduation. Meeting with an advisor increases the odds by 45% (Model 4), and just slightly less when controlling for extracurricular participation (34% in Model 6). Visiting a faculty member outside of class increases the likelihood of graduation by 25% (Model 4), but this effect is no longer significant once controlling for extracurricular participation (Model 6). It could be that participating in a club or activity exposes a student to other helpful campus resources (like tutoring programs) and supportive adults such that faculty access is no longer needed. It is also possible that students who engage in extracurricular participation are also more likely to connect with faculty members, which reduces the overall effect.

Participating in college sports increases the likelihood of college completion by 53% net of background characteristics (Model 6). This is slightly higher when faculty network is not in the model (Model 5), suggesting there is a relationship between faculty network and extracurricular sports that may fill a similar need. Many varsity sports have their own academic advisors, tutors and coaches which provide similar resources to a faculty network. Sports also provide engagement into a structured community of peers with similar common interests. Varsity sports typically come with scholarships and incentives to help the student towards college graduation. All of these aspects may be what makes extracurricular sports participation a significant predictor of college completion.

Full Model: Does social capital predict degree attainment for all races?

Do college social networks predict bachelor's degree attainment? Yes. Meeting with a college advisor and participating in college sports activities both increase the odds of college completion by 34% and 53%, respectively. This is particularly good news for those students who

may come from lower socioeconomic families and don't benefit from the gains that social class offers. Advisors and coaches offer a direct relationship within the network of the college community, providing access to services and resources needed for success such as tutoring, financial aid, and registration assistance. They may also offer consultation on psycho-social issues (e.g., dating relationship, family change, depression) and provide timely intervention support. Great advisors and sport team staff are often referred to as family and provide a network away from home. While sports participation (varsity) limits those who can participate, most colleges and universities have assigned advisors in a variety of functional areas (residence, academic, financial aid, career, etc.) for all students.

Back in Chapter 4 we examined who is most likely to establish a college social network. Hispanic males were significantly less likely than White males to have a college social network (not significant for Hispanic or White females). If Hispanic males are less likely to have this network, and one can see that the social capital deriving from the network positive influences graduation, then Hispanic males may be at a significant disadvantage relative to their White peers. This provides an opportunity for intervention as will be discussed in Chapter 7.

Hispanic Differences

Hispanics who take AP coursework in high school are 232% more likely to complete college than Whites who took AP coursework. Taking AP courses provides a solid foundation of core curriculum to be covered in college, assisting those students in both their actual performance and in their confidence level. It appears that Hispanics benefit greatly relative to their White peers from either the preparation or the confidence, or both. Unfortunately Hispanics are less likely to take such courses than their White peers due to racial selection bias, under-resourced schools in lower socioeconomic and rural neighborhoods, absence of preschool/early

childhood foundations, and for native Spanish speakers, language differences which perpetuate lower academic performance throughout the educational experience (Zambrana and Zoppi, 2002). Given these factors, the majority of Hispanics are likely *not* to be tracked into AP coursework. So for those chosen to enroll, they are more academically stellar than the average White AP student. Still, AP courses deliver benefits of advanced critical thinking and academic foundations which are likely to help those students—Hispanic and White—be more prepared for the rigor of college coursework.

Hispanics who work have slightly greater odds of graduating than Whites who work, increasing the odds of college completion by 44%. This is an interesting and notable contribution to the existing research, which either finds that work has detrimental effects on graduation or that it is not significant at all (Arbona and Nora, 2007; Crisp and Nora, 2010; Fuligini and Witkow, 2004). There are likely two factors at work: financial and social capital. For financial reasons, Hispanics who are working may feel more capable of handling expenses related to college and that they are contributing to their family financial burden. They also may feel more onus to complete their degree knowing the great financial expense they and their families are undertaking. The other possibility, however, is that Hispanics who work during high school may be more likely than Whites to participate in work-study programs through financial aid during college. Those programs place student workers in university departments; this has the added benefit of creating network relationships with administrators/personnel who can provide information or resources, as networks do. This may provide Hispanics an advantage that Whites do not have, and should be explored as a potential intervention method for increasing retention rates.

The benefits from social capital deriving from faculty networks and extracurricular participation is largely a White student story. Whites benefit from meeting with faculty and participating in extracurricular activities and sports. Hispanics do not significantly benefit from this capital relative to their White peers, and only by extracurricular participation (nonsports) relative to Hispanics who don't graduate (Table 6).

6.3 High School Social Capital Predicts College Completion

In this final section, I examine the longer-range effects of high school social capital on college completion. What elements of the high school experience might positively predict degree attainment (up to) eight years later? Given what is now known about how background characteristics predict degree completion (from the previous section), how might high school social capital mediate or exacerbate those effects? In this section we will seek to address these questions. Regression results can be found in Table 8.

Hypothesis 10: College completion can be predicted by high school social capital, and the positive influence of capital will differ by race/ethnicity.

Main Effects Previously Discussed

Some background characteristics remain unchanged from the previous findings and are not affected by the introduction of high school social capital factors. Parent education remains significant across the models, and as has been discussed earlier, likely relates to both the familiarity with higher education in order to best support the student's experience as well as access to professional networks with related resources. Students attending high school in the Northeast and Midwest are more likely to earn a four year degree than those in the South. And the desire to live at home reduces the likelihood of college completion.

In addition, having academic confidence and higher educational expectations are strong significant predictors of college completion. Educational expectations are slightly stronger

predictors in Table 8 when controlling for high school social networks than in Table 7 controlling for college social networks.

Main Effects with New Developments

Hispanic ethnicity reduces the likelihood of college completion. When controlling for peer networks and family networks, Hispanic ethnicity is no longer significant. In other words, Hispanics and Whites do not differ in the odds of college completion when they have access to the same faculty and peer networks. Blacks are significantly less likely than Whites to graduate despite controlling for background and social capital.

Socioeconomic class is a significant predictor of college completion. However, high school social capital mediates some of that difference. When peer and family networks are considered, total income loses significance. In the earlier discussions of college completion this chapter, income remains significant despite college capital; yet the existence of earlier high school social capital proves to be a game-changer. This says that family encouragement to attend college and having friends who plan to attend college mitigate any effect that lower income might have on college completion. This could be due to a variety of factors: parents and friends may continue to offer support during college because they bought-in early to the educational objectives; the norms within those families and peer groups may be to expect nothing less than a bachelor's degree of the student; they may have better researched the resources needed for the long-haul from start to finish of the bachelor's degree. In any event, this surprising result gives credibility to the notion that high school social capital has far-reaching powerful effects on educational outcomes.

The effect of a positive high school climate on college completion is mediated where by an encouraging high school family network; it loses significance when family network is added in

the model (Model 5). Family encouragement to attend college may be a more personal message that the student internalizes. This has significant benefits for students who may attend high school in challenging environments or those who don't necessarily feel the positive vibe from teachers and classmates.

Private school attendance becomes a significant predictor of college completion when high school social capital is considered. In considering the effect of private school on college completion, I found in the prior section (Table 7) that it had a significant positive effect when controlling for college faculty network. Now, when considering high school networks (Table 8), I find that it has a positive significant effect when *any* high school network is considered. The only situation where a private school attendance does not have a significant effect on college completion is when the student is involved in college extracurricular activities (Table 7). It is reasonable to conclude that the benefits of private school attendance are tied together with the investment that parents, peers, and faculty make into that education. Public school students can even the playing field for college completion through college extracurricular participation, which may have similar benefits to what private school students experienced earlier (eg, peers and faculty invested in school community).

Having parents who saved for college increase the odds of college completion by 30% when controlling for family and faculty social networks. It loses significance when controlling for peers and extracurricular activities. The relationship between parent savings and family encouragement is clear—savings being a way that parents actualize the plans they want for their children. It is possible that faculty encouragement is better received when the funds are also available. And this combination of social (network) capital and financial capital goes a long way to ensure students have the foundation for success in college.

Elements of Social Capital

High school faculty encouragement to attend college increases the odds of college completion by 31% (Model 3), and just slightly less in the final model (19% in Model 8). Information provided by high school teachers and counselors were not predictive of degree attainment. It could be that high school faculty are encouraging students who have greater academic ability and would be successful in college even without that encouragement. Or it could be that students take this vote of confidence and carry it with them to college. Or perhaps it is both. As illustrated earlier, students who access college faculty networks are more likely to graduate. It could be that the expectation for utilizing the faculty network is first set up in high school and then later continued in college, with advantageous results.

Having high school friends who provide college information in high school senior year, and having friends who plan to enroll in a four year college, both increase the likelihood of college completion. Being part of a peer network in high school that have access to college information and who intend to enroll themselves provides the student with beneficial resources in order to ensure future degree attainment. Part of this is likely due to normative culture, where the student conforms to standards of higher education which dictate degree attainment as the end-goal. Taking it a step farther, however, this peer network also likely has cumulative resources in the information- and resource-gathering stage of planning for education. Asking the right questions about college selection, sharing information about financial aid and applications for scholarships, and envisioning together what the future at college may look like all would make a difference in ensuring a successful college experience. This is truly the long-term value of social capital at work.

Conversely, having friends who think high school is important slightly reduces the likelihood of college completion. It is an unusual finding. One possible explanation is that the student who is part of that group may feel at a disadvantage academically relative to others in the group who may be more intensely focused on school. If students start college with a feeling of being academically inferior to others, they are less likely to be retained (Robinson Kurpius, Payakkakom, Rayle, Chee and Arredondo, 2008).

Family encouragement to attend college (measured in high school senior year) increases the likelihood of college completion by 21% (Model 5). When controlling for other social networks, the effect is slightly reduced but still a positive predictor (13% in Model 8). The long-lasting effect of family encouragement is not surprising, as family is the most consistent network to which the student is a part over this period of time. (Peer groups change, high school faculty are replaced by college faculty, but parents and relatives remain in those roles during this time period). Furthermore, the messages that parents and relatives give in high school about attending college set the direction and lifecourse for the student: they set the expectation of how time will be spent after high school (in college), direct activity required to attend college (e.g., filling out applications), and their encouragement demonstrates confidence in the student that college is a reachable goal. This level of investment in the high school senior year may be repeated as the student progresses through college towards a degree (the data does not include questions on ongoing family involvement/encouragement). But even if it isn't, the student charts a path based on the family's encouragement and it is this which may pay off in degree attainment in the long run. Sibling providing information positively predicted college completion on its own. But when other social networks (peers, faculty) and activities are accounted for, it is no longer significant.

Earlier we found that participating in high school academic clubs increased the likelihood of college attendance by 86% (Table 5). Here I find that participating in high school academic clubs increases the likelihood of degree attainment by 80% (Model 7) and drops only slightly once other networks are considered (68% in Model 8). It is not surprising that students who were academically focused and possibly academically talented (in the case of honor societies) would be more successful in college. Participation in academic clubs also enhances academic confidence (that effect sees a slight drop in strength when academic club activity is considered in the model). High school social and sports activities were not significant predictors of college completion.

Full Model: Does high school social capital predict college completion?

Can high school social capital predict college completion eight years later? In some cases, yes. Students who were encouraged to attend college by family and faculty networks have increased odds of degree attainment. This encouragement sets the wheels in motion in senior year of high school, may provide the student with normative expectations and the self-confidence to pursue higher education, and may instill messages about college importance that are reflected upon during times of challenge in college. More simply, it could be a matter that those students who are encouraged to attend college are more academically pre-disposed/talented and would naturally be able to complete the degree. Either way, students who receive that encouragement in high school senior year are more likely to earn a bachelor's degree in the following eight years.

Similarly, high school peer networks where the friends intend to enroll in a four year college and where friends provide college information can positively predict college degree attainment. Students with friends enrolling in college are 31% more likely to attain a bachelor's degree. Peer networks deriving from academic club participation likely overlap with these friend

groups. Peer networks provide normative expectations, informational resources, and connections to helpful others outside the network (typically weak ties), such as college-educated family members, college counselors, and admissions representatives. Those resources may continue to be helpful during the college experience, or may have just set the student up for success at the beginning. Future research might delve deeper into the relationship between high school peer group and college completion to find out whether the social capital is fixed (i.e., only in high school) or multiplicative (i.e., continues to pay dividends across the college career).

Hispanic Differences in High School Social Capital Effects

Does the effect of high school social networks on college completion differ for Hispanics? Yes, in two noteworthy ways. First, the odds of a Hispanic who receives encouragement from a high school faculty member earning a bachelor's degree are 75% greater than Whites who receive encouragement. Broadly speaking, Hispanics may benefit more from a faculty relationship in instances where lower socioeconomic class means less access to college-educated family, neighbors or other college-knowledgeable adults. Whites may have greater access to those communities and not need the faculty influence as much. Alternatively, Hispanics may place greater value in faculty encouragement, where Whites may be more used to faculty encouragement and value it less. It is interesting that faculty encouragement was not a significant predictor of college *attendance* for Hispanics. This suggests there is some longer-term effect springing from that encouragement; or more simply, perhaps high school faculty are only encouraging of the Hispanics students they see are most exceptional and believe are most likely to graduate.

Second, the odds of a Hispanic who receives college information from a friend earning a bachelor's degree are 96% less likely than Whites who receive peer information. This may be

another social class related issue, if the Hispanic friends are more likely from lower socioeconomic communities with fewer college attendees to provide accurate information. The messaging within the information may differ; for example, if more Hispanics are learning about two year colleges (which have an awful conversion rate to bachelor's degrees) or local less selective schools which have lower graduation rates. A future study might look at the content of information shared among high school students relative to college to see the messaging and the accuracy of content, and how that differs by race.

Finally, some background characteristics prove to be significant predictors for Hispanic college completers. Hispanics who complete their bachelor's degree are more likely than their White peers to be from rural areas and from the Northeast. And, interestingly, the odds of college completion for Hispanics are 44% less likely than Whites for those who have high school student employment. This adds some complexity to an earlier finding (Table 7) which found that student high school work *increased* the likelihood of college completion for Hispanics over Whites; the difference between the two models is the presence of college social capital in the model favoring Hispanic work. This lends credibility to my idea that high school work may lead to financial aid work-study jobs in college; and that this work-study job provides social capital benefits in the college network which then influence college completion. As this model (Table 8, Model 10) does not include college networks, the mitigating effect of college network on college completion is not represented.

6.4 Chapter Summary

The focus of this chapter is on college completion with a bachelor's degree. Over the course of these many pages I've asked what high school and college social capital might predict college completion. I've also examined differences in the effect social capital has by

race/ethnicity, paying particular attention to Hispanic outcomes. It is heartening to conclude that both high school and college social capital do indeed predict college completion, and to identify particular facets of capital which are most beneficial for Hispanic students. Let's review the particularly noteworthy findings.

The odds of a Hispanic who received high school faculty encouragement completing college are significantly greater than for Whites. There is also added advantage for other racial groups (non-Whites) who receive faculty encouragement to graduate with a four-year degree. There appears to be great returns on having a faculty network for minority students, particularly Hispanics.

There is some benefit for Hispanics to have high school peer and family networks. Specifically, Hispanics are no longer less likely than Whites to graduate (based on ethnicity alone) once family and peer networks are controlled. Having family and peer encouragement and/or normative expectations set forth by those groups appear to mitigate any differences resulting from ethnicity alone.

Hispanics who participate in college extracurricular activities are more likely than other Hispanics to complete a four year degree. Extracurricular activities serve two main purposes: they broaden the student's peer network to include members of the group and a faculty sponsor; and they engage the student within the college community. Much of the educational retention literature cites the importance of social engagement for the student in college persistence (see Tinto, 1987; Zarate, Saenz, & Oseguera, 2011). It is possible that the finding indicating Hispanics with high school work, when controlling for college capital, are at greater odds of college completion than Whites shares the common advantage of these social capital benefits.

In addition to these findings, it is noteworthy that all minority groups (reference group, Whites) have increased likelihood of college completion as predicted by social capital across the high school and college periods. High school academic club participation and college sports participation increased the likelihood of college completion for all minority participants. High school faculty encouragement and college advisor meetings increased the odds of degree attainment for minority students. And family and peer networks from high school increased the odds of college completion. The cumulative social capital effect of these individual pieces is substantial.

Social capital, therefore, plays a significant role in predicting the likelihood of bachelor degree attainment. I propose that the value that comes from social networks lies in the normative behavioral expectations set forth which promote higher education; the information and weak ties accessed through the networks which provides timely resources; and the support of encouraging individuals which enhance the academic esteem the student has for him- or herself. Social capital enables students to go beyond what socioeconomic class or background characteristics may limit.

But how far beyond? One of the benefits of the ELS dataset is that it provides all educational outcomes for respondents who completed the third follow-up survey in 2012. As such, I did some additional analysis to test the effect of social capital on all educational outcomes rather than just bachelor's degree attainment. Six educational categories were crafted representing the highest educational outcome obtained: high school diploma, some college/no degree, associate degree, bachelor degree, master degree, and doctorate. Using the PLUM procedure for ordinal regression, I tested the full model of all background and social capital

variables; I ran a subsequent model that included interaction effects. Results are consistent with earlier findings.

All students saw increased odds of additional units of education when receiving college information from a high school friend and participating in high school academic clubs. Hispanics also benefit more than Whites from these activities, as found in the interaction models. In addition, Hispanics saw additional benefit over Whites for having friends who planned to attend four year colleges; this was not significant for other racial groups. These elements of high school social capital center around students who are academically forward-thinking: they plan to go to college, they obtain college information, they spend extra time on advanced academics in student clubs. While it is not surprising that these forms of social capital would predict additional units of education, it is noteworthy. Social capital in the form of high school networks increases the odds of advanced educational outcomes when the student network is academically driven. Creating/expanding networks of such students may provide a worthwhile intervention towards helping students, especially Hispanics, reach higher levels of educational attainment.

Those enrolling in college saw increased odds of additional units of education for participating in college extracurricular activities and meeting with an advisor. These are consistent with earlier findings. In addition, Hispanics have an increased advantage over Whites for educational outcomes when meeting with a college advisor. Advisors and peer networks/activity serve to connect the student to the institution and may, as a result, offer up additional resources which makes further study (e.g., bachelor completion, graduate degree) an option. Social capital factors which influence graduate degree pursuit are beyond the scope of this paper but, based on the consistency of findings here, are likely to be centered around peer networks and college staff resources during the undergraduate experience.

Finally, it is worth mentioning that none of the family network factors were significant predictors of increased units of education. It appears that, when considering the multitude of educational outcomes, high school and college peer networks (through both friendship and formal clubs) and college advisor are the primary influencers.

Table 6 Binary logistic regression models measuring college social capital on Hispanic college completion+

	Model 1	Model 2	Model 3	Model 4	Model 5
DEMOGRAPHICS					
Female	1.82***	1.25	1.19	1.27	1.21
Parent Married	0.90	0.61	0.56	0.57	0.56
Siblings at Home	0.89	1.05	0.95	0.91	0.91
Parent Education	1.30***	1.11	1.06	1.02	1.03
Total Income	1.32***	1.63**	1.69**	1.78***	1.76**
HS PREPARATION					
Academic Confidence	-	1.10**	1.11**	1.11**	1.11**
AP Combined	-	2.11	2.35**	2.42**	2.33**
EDUC. EXPECTATIONS					
How Far	-	1.85***	1.77***	1.75***	1.74***
INSTITUTIONAL CLIMATE					
Positive Climate	-	1.19	1.16	1.20	1.21
Private School	-	0.85	0.70	0.73	0.70
Suburban	-	0.91	1.00	1.02	1.04
Rural	-	2.01	2.19	2.64	2.62
Northeast	-	1.28	1.17	1.10	1.09
Midwest	-	1.39	1.32	1.28	1.28
West	-	0.56	0.455*	0.46	0.47
ECONOMIC FACTORS					
Student Work	-	0.94***	0.94***	0.94***	0.94***
Parent Savings	-	0.98	0.89	0.80	0.78
FinAid Important	-	1.26	1.15	1.19	1.17
LIVING AT HOME					
Living at Home	-	0.64**	0.59**	0.66*	0.64*
FACULTY NETWORK					
F2 Faculty Meeting	-	-	1.49	-	1.29
F2 Meet Advisor	-	-	1.05	-	0.98
EXTRACURRICULAR					
F2 Extracurric. Sports	-	-	-	0.92	0.90
F2 Extracurric. Other	-	-	-	2.23***	2.15***
Constant	0.09***	0.00***	0.00***	0.00***	0.00***
Nagelkerke R	0.11	0.42	0.44	0.47	0.47

+ Using Exp(B)

*p<0.05 **p<0.01 ***p<0.001

Table 7 Binary logistic regression models measuring college social capital on college completion for all races+

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7 [^]
RACE							
Hispanic	0.36***	0.59***	0.68**	0.71**	0.73*	0.73*	1.50
Black	0.39***	0.52***	0.50***	0.45***	0.50***	0.46***	0.46***
Native American	0.35***	0.48**	0.46	0.59	0.48	0.46	0.44
Asian	1.489***	1.78***	1.79**	1.76**	1.78**	1.80**	1.79**
DEMOGRAPHICS							
Female	-	1.38***	1.01	0.91	1.00	0.95	0.96
Parent Married	-	1.13*	0.94	0.94	0.95	0.96	0.97
Siblings at Home	-	0.93***	0.93*	0.94	0.94	0.94	0.94
Parent Education	-	1.41***	1.23***	1.22***	1.20***	1.20***	1.20***
Total Income	-	1.27***	1.14***	1.12**	1.10**	1.10**	1.10*
HS PREPARATION							
Academic Confidence	-	-	1.05***	1.04***	1.04***	1.04***	1.04***
AP Combined	-	-	1.18*	1.15	1.09	1.11	1.04
EDUC. EXPECTATIONS							
How Far	-	-	1.92***	1.81***	1.77***	1.75***	1.76***
INSTIT. CLIMATE							
Positive Climate	-	-	1.13***	1.11***	1.11***	1.10***	1.09***
Private School	-	-	1.41**	1.28*	1.25	1.25	1.24
Suburban	-	-	1.03	1.03	1.03	1.03	1.03
Rural	-	-	1.30	1.22	1.250*	1.25*	1.22
Northeast	-	-	1.44***	1.44***	1.43***	1.45***	1.44***
Midwest	-	-	1.29**	1.35***	1.30**	1.34**	1.33**
West	-	-	0.80*	0.87	0.83	0.86	0.86
ECONOMIC FACTORS							
Student Work	-	-	0.98***	0.98***	0.98***	0.98***	0.99***
Parent Savings	-	-	1.11	1.03	1.04	1.02	1.02
FinAid Important	-	-	1.05	1.04	1.03	1.02	1.02
LIVING AT HOME							
Living at Home	-	-	0.65***	0.65***	0.72***	0.72***	0.72***
FACULTY NETWORK							
F2 Faculty Meeting	-	-	-	1.25***	-	1.12	1.11
F2 Meet Advisor	-	-	-	1.45***	-	1.34***	1.35***
COLLEGE EXTRACURRIC							
F2 Extracurric. Sports	-	-	-	-	1.63***	1.53***	1.52***
F2 Extracurric. Other	-	-	-	-	1.09**	1.07	1.07*
INTERACTIONS							
Hisp_APComposite	-	-	-	-	-	-	2.21**
Hisp_Work	-	-	-	-	-	-	0.96***
Constant	0.84***	0.13***	0.01***	0.01***	0.01***	0.01***	0.01***
Nagelkerke R	0.06	0.19	0.34	0.33	0.34	0.34	0.35

*Using Exp(B); [^]Model 7: Interaction terms entered stepwise forward conditional; *p<0.05 **p<0.01 ***p<0.001

Table 8 Binary logistic regression models measuring high school social capital on college completion for all races+

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8	Model 9 [^]
RACE									
Hispanic	0.59***	0.68**	0.67**	0.79	0.82	0.94	0.74*	1.01	0.58
Black	0.52***	0.50***	0.50***	0.53***	0.48***	0.57**	0.54***	0.62*	0.60*
Native American	0.48**	0.46	0.41	0.41	1.10	1.11	0.42	0.96	0.90
Asian	1.78***	1.79**	1.33	1.61*	1.66	1.72	1.69**	1.74	1.69
DEMOGRAPHICS									
Female	1.38***	1.01	0.97	0.96	0.97	0.96	0.95	0.92	0.92
Parent Married	1.13*	0.94	0.86	0.84	0.87	0.87	0.88	0.85	0.89
Siblings at Home	0.930***	0.933*	0.93	0.925*	0.97	0.97	0.92*	0.96	0.96
Parent Education	1.42***	1.23***	1.22***	1.21***	1.18***	1.17***	1.21***	1.15***	1.15***
Total Income	1.27***	1.14***	1.11**	1.08	1.07	1.04	1.17***	1.06	1.05
HS PREPARATION									
Academic Confidence	-	1.05***	1.03***	1.04***	1.05***	1.05***	1.03***	1.04***	1.04***
AP Combined	-	1.18*	1.06	1.10	1.04	0.99	1.05	0.87	0.85
EDUC. EXPECTATIONS									
How Far	-	1.92***	2.00***	2.04***	2.08***	2.03***	1.82***	1.95***	2.00***
INSTITUTIONAL CLIMATE									
Positive Climate	-	1.13***	1.131***	1.18***	1.06	1.04	1.12***	1.03	1.02
Private School	-	1.41**	1.39**	1.37*	1.46**	1.42*	1.37**	1.43*	1.43*
Suburban	-	1.03	1.02	1.02	1.15	1.22	1.03	1.21	1.16
Rural	-	1.30	1.14	1.23	1.25	1.25	1.21	1.15	1.05
Northeast	-	1.44***	1.46***	1.48***	1.30*	1.32*	1.50***	1.37*	1.35*
Midwest	-	1.29**	1.39**	1.38**	1.34**	1.41**	1.36***	1.48**	1.49**
West	-	0.80*	1.09	1.10	1.01	1.11	0.812*	1.07	1.11
ECONOMIC FACTORS									
Student Work	-	0.98***	0.98***	0.98***	0.98***	0.98***	0.98***	0.98***	0.98***
Parent Savings	-	1.11	1.21*	1.18	1.35**	1.34**	1.08	1.30**	1.31**
FinAid Important	-	1.05	1.04	1.04	1.04	1.00	1.02	0.97	0.97

LIVING AT HOME

Living at Home	-	0.65***	0.67***	0.70***	0.68***	0.67***	0.68***	0.69***	0.69***
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FACULTY NETWORK

F1FacultyEncourage	-	-	1.31***	-	-	1.22**	-	1.19*	1.14
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F1CounselorInfo	-	-	1.06	-	-	0.96	-	0.91	0.90
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F1TeacherInfo	-	-	1.10	-	-	1.04	-	1.01	1.01
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PEER NETWORK

Hispanic Friends	-	-	-	0.82**	-	0.88	-	0.88	0.85
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Friend School Import.	-	-	-	0.97	-	0.95*	-	0.94*	0.95*
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Friend Information	-	-	-	1.18*	-	1.21*	-	1.24*	1.40**
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Friend 4Yr College	-	-	-	1.34***	-	1.34***	-	1.31***	1.32***
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FAMILY NETWORK

Family Encourage	-	-	-	-	1.21***	1.11*	-	1.13*	1.13*
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Parent HowFar	-	-	-	-	0.99	1.00	-	0.99	0.99
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Parent Information	-	-	-	-	1.08	0.99	-	0.97	0.96
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Sibling Information	-	-	-	-	1.265*	1.17	-	1.11	1.12
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Parent Involvement	-	-	-	-	1.03	1.02	-	1.03	1.03
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HS EXTRACURRICULARS

Social Activities	-	-	-	-	-	-	0.99	0.93	0.93
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Academic Activities	-	-	-	-	-	-	1.80***	1.68***	1.73***
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Sports	-	-	-	-	-	-	1.08	1.12	1.14*
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INTERACTIONS

Hispanic*Rural	-	-	-	-	-	-	-	-	5.67**
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Hispanic*Northeast	-	-	-	-	-	-	-	-	4.55**
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Hispanic*Student Work	-	-	-	-	-	-	-	-	0.96*
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Hispanic*Faculty Encourage	-	-	-	-	-	-	-	-	3.02**
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Hispanic*Friends info	-	-	-	-	-	-	-	-	0.12***
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Constant	0.13***	0.01***	0.01***	0.01***	0.01***	0.01***	0.01***	0.01***	0.01***
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NagelkerkeR	0.19	0.34	0.33	0.34	0.33	0.34	0.36	0.36	0.37
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*Using Exp(B); ^Model 9: Interaction terms entered stepwise forward conditional; *p<0.05 **p<0.01 ***p<0.001

7 CONCLUSIONS, FUTURE RESEARCH AND LIMITATIONS

In this work I have sought to understand how social capital may predict college enrollment and college completion, with special attention to the experience of Hispanic students. Hispanics are less likely to enroll in college than all other races, and for those who enroll, they are three times less likely than Whites to graduate with a four-year degree (US Census 2012; Fry and Lopez, 2012). Past research has largely attributed this Hispanic-White difference to socioeconomic class and other income-related factors such as the absence of parent savings, student financial concerns, and the need for the student employment while in school (Beattie, 2002; Bohon et al, 2006; Cerna et al 2009; Alon, 2007; Song and Elliott 2012; O’Conner et al 2010; Crisp and Nora, 2010). A handful of others have pointed to disparities in educational preparation in the lower levels, the interference of family stemming from living at home, and the cultural dissonance arising from low-minority populations in college (Zambrana and Zoppi, 2002; Zarate et al, 2005 and 2011; Seidman, 2005; Cerna et al 2009; O’Conner et al 2010; Sarkesian et al 2006). These background factors have been accounted for in this study, but there is more to the story.

A few researchers have considered elements of social capital in relation to educational outcomes, but not within the framework as I have done here. Research has considered the influence of friends and of parental expectations on college attendance (Arbona and Nora, 2007; O’Conner et al 2010). Zambrana and Zoppi (2002) surveyed the literature and composed a list of ways Hispanics are disadvantaged in social capital, but focused on background factors detailed earlier. And Riegle-Crumb (2010) used a localized sample and identified the advantage of academically-focused peer groups for Hispanic females. Each of these works are valuable in beginning the conversation of how social capital enables educational outcomes. My study has

added to that discussion through a more comprehensive approach to social capital: considering four forms of capital (family, faculty, peers, activities), across three time periods (high school sophomore year, high school senior year, college sophomore year) and two educational outcomes (college enrollment and college completion of a four year degree).

In this study, I have found that there are social capital advantages to be gained by all students and, in particular Hispanic students, net of background characteristics. Furthermore, some elements of social capital increased the odds of college enrollment and degree completion by truly impressive odds. In this section I summarize the formation and value of social capital found in this study. In the following section I share some suggestions on ways to act upon those findings, as well as considerations for future research. And the final section I detail limitations of this work.

7.1 The Formation of Social Capital

As expected, those who create high school networks are educationally focused. Students who are academically confident, who take AP classes and who have expectations to go farther in education are all also more likely to have a high school network. They also come from an educated family: those whose parents have higher levels of education are also more likely to engage a high school network. These parents would likely share a normative expectation based on personal experiences that networking with faculty or through clubs and organizations are expected behavior for the student; they may also realize the value to be derived from that network and be better skilled at accessing it.

For Hispanics, family status is more important than educational background. Hispanics who come from two-parent families, who live in the suburbs, attend positive climate schools and where parents have saved for college are more likely to generate a high school network. These

Hispanics likely benefit from the normative culture around them. They are likely to be family centered, as evidenced by the positive effect of feeling that living at home is important. The picture painted here is of middle-class lifestyle, and while income was not a significant predictor (for any student), the related benefits of a middle socio-economic class plays out in the suburban neighborhood, school, and peer networks.

Those who develop college networks are those who had high school networks. Reinforcing the idea that social capital is multiplicative, several aspects of high school social capital lead to college networks and the pattern continues from above: those who have academically focused high school networks develop college networks. If the high school faculty encouraged college attendance, if the student's friends are planning to attend college, if the parents were involved in the student's academics and provided college information, then the student is more likely to have a college network. High school varsity sports participation leads to college networks and not surprisingly so, since within that network are high school faculty/coaches, peers looking at four year colleges for sports participation, and parent involvement or support in the student's athletic career.

Hispanics who develop college networks benefit from that high school faculty encouragement as well. In addition, those who participate in academic activities and those who have a close Hispanic friend network are more likely to develop a college network. These faculty and peer networks support the same pattern as all students, if but for a few particular deviations. So in this regard, Hispanics who develop social capital do so in similar ways to other students, with a slight variation in more significant emphasis on the middle-class family experience.

7.2 The Value of a Peer Network

The social capital that is gained from a peer network in high school has significant impact on students' educational trajectories; this is particularly true for Hispanics. All students benefit from having friends who plan to enroll in a four year college, as they are more likely to enroll themselves. They are also more likely to graduate with a four-year degree. These outcomes are net of socioeconomic status, indicating a true social capital value. This supports conclusions found in existing research (Arbona and Nora, 2007; Zarate and Gallimore, 2005; Riegle-Crumb, 2010). At the opening of this dissertation I defined social capital as the sum of resources accrued by an individual through a network of institutional relationships (Bourdieu & Wacquant, 1992). In this case, the network is a peer network, and the normative expectation set forth for group members has predictive value of four year enrollment and completion. Friends with higher educational goals likely adopt behaviors to support those goals, such as attending class, gathering college application information, or taking the SAT. Students who don't support these values are likely sanctioned with less social time to spend with the friends who are occupied with these activities.

It is interesting that high school peer networks would also have a significant predictive effect on college graduation (up to) eight years later. Certainly the higher and lower ends would be expected: students who are in college preparation or honors classes are networks built around future educational goals, as compared to students in vocational tracks who never plan to enroll. Their educational outcomes eight years later are practically pre-determined. But the results would suggest that there is a significant peer network advantage for those on the cusp, who may or may not be retained in college year after year.

What is it about a high school peer network that would have such strength to predict persistence to graduation even several years removed from the network itself? It may be the strength of the information/resources accessed through the network during high school sets up their college careers for success (e.g., information on financial aid to finance the college degree). This is supported by the finding that those who receive college information from friends in high school are more likely to graduate from college (for Whites only). Or it may be the normative expectations ingrained in the students that has lasting power to influence persistence. The survey did not provide information on whether high school peers stay in contact and continue to exert influence during the college experience; that would be interesting to know. But for now, having friends who plan to enroll in four year college provides valuable social capital towards enrolling and completing degrees.

Hispanics who have friends that value school are significantly more likely than other Hispanics and Whites to enroll in college. Peer networks that reinforce the importance of academic activities like attending class, studying for exams, getting good grades, and graduating high school are likely to create a culture where these activities are promoted. Healthy academic habits practiced in this culture make higher education goals possible by increasing the likelihood of college admission. By establishing a network of good (habit) students during the high school years, students increase their eligibility for college admission down the road. Hispanics benefit more from this network than Whites, suggesting an important cultural difference. This finding provides a clear direction for intervention: to enroll more Hispanics in college, create more academically focused peer networks in high school.

7.3 The Value of the Extracurricular Activity

Related to the peer network, membership in extracurricular activities provides more than just a forum for friends to interact. High school and college activities offer several unique social capital resources: affiliation with weak ties (students) of similar interests/values; relationship with a faculty or staff advisor assigned to supervise the group; information which may be dispensed through group meetings and membership lists; and connection to the institution which is both literal (through resources like meeting space or budgets) and emotional (through school pride or affiliation representation in competitions against other schools). Not surprisingly, membership in extracurricular groups positively predicts college enrollment and college graduation. The importance of student engagement through social (non-coursework related) opportunities is well documented in educational retention theory for post-secondary education (Astin, 1975; Tinto, 1987), but the theory applies to high school activities as well.

Students who participate in an academic club in high school are more likely to attend college. While there is some obvious pre-selection here, in that academically oriented and high performing students are more likely to select an academic club and were already more likely to go to college, the social capital to be gained from participating in this network cannot be understated. Any student who is a member has increased odds of college attendance which is impacted by the resources accessed through the club—for example, the faculty advisor who can speak to college admissions processes; the peers who are applying for colleges and sharing information on the experience; the normative culture of valuing education and learning, which can be pursued at higher levels of education. In addition, students who participate in high school academic clubs are more likely to graduate from college. Long-range benefits coming from academic club participation may include valuable skill-building such as independent study,

problem-solving, and more abstract thinking which can lead to college success. Other benefits include early exposure and investment in a particular subject area of interest which is pursued in college, and learning the value of engaging a faculty member outside the classroom (institution connection and resources provided through timely advice).

Hispanics who participate in high school varsity sports are more likely to go to college than Hispanics who don't participate in sports. Varsity sports provide an excellent example of social capital at work: selective membership in a club which, through club access, opens opportunities for structured input from a variety of invested parties (coaches, teachers, boosters, recruiters). Resources provided to club members includes assistance with academics and with college admissions processes. By virtue of the exposure offered through participation in high school varsity sports, student athletes gain access to college recruiters who can provide financial scholarships to college. While the number of students who can take advantage of this social capital is significantly limited, the benefits of the network are immense.

The benefits of sports participation continue in college. Students who participate in college sports are more likely to graduate with a four year degree than those who don't. Again, the sports network in college provides structured resources like staff, information, and financial assistance which are leveraged by the athlete in order to complete the degree. While there is much in the news about the poor graduation rates of NCAA athletes, in fact those reports center around football and basketball rather than the many other sports represented in college athletics and intramural/club teams. The finding here about the benefit of sports participation in providing social capital to retain students to the bachelor's degree is heartening.

Finally, Hispanics who participate in college extracurricular (non-sport) activities are significantly more likely to graduate from college than other Hispanics. Several researchers have

detailed the importance of social engagement for Hispanics in a local institution sample (Cerezo and McWhirter, 2012; Phinney et al, 2011; Min, 2004; Berios-Allison, 2011) or have documented the positive effect of club membership for a national sample of students with no mention of racial differences (Pascarella and Terenzini, 1991). My study adds to the literature by identifying the positive benefit of college extracurricular participation for Hispanics in a national data set. This finding supports the educational retention literature, and my own hypotheses, that being engaged predicts college persistence.

7.4 The Value of a Faculty Network

There was no beneficial relationship between high school faculty network and college attendance. This is both surprising and discouraging. Hispanics who received college information from a teacher were significantly *less* likely than other Hispanic and White peers to enroll in college. This is a unique contribution to the existing literature. What is it about the information being transmitted that has such a detrimental effect? It is possible that information provided is biased (e.g. Hispanics should start at two year colleges which are cheaper), inaccurate, or incomplete. The biggest concern with this finding is that Hispanics may be less likely to have other networks from which to draw information; findings indicated that receiving information from peers and siblings also had negative impact on college attendance (parent information was not significant). Teachers should provide educational access through accurate, timely and encouraging information, particularly to populations who may not have other networks from which to gain this material. Future research that delves into the content of teacher-provided college information is warranted.

That said, there is value to be gained from a faculty network on higher educational outcomes. (All) Students who received faculty encouragement to attend college are more likely

to graduate with a four year degree. Even more impressive, Hispanics who received encouragement (to attend college) from high school faculty were overwhelmingly more likely than other Hispanics and Whites to complete college. All of these students are also more likely to develop a college social network, and college social network also positively predicts degree attainment. All of these positive benefits start with an encouraging high school faculty member.

What is the difference between faculty information and faculty encouragement? Faculty encouragement to attend college (rather than go to work or join the military, as examples) may improve the student's self-image which leads to greater chance of success. It may provide the normative expectation for the student that this is the reasonable next educational level and have staying power over the next several years. It may influence the students to obtain faculty networks as a result of the good relationship with the high school teacher. Or it may be a selection bias, that faculty are only encouraging top Hispanic students who would have graduated even without that influence. In the end, encouraging faculty are an important part of the student's social network, which predicts college completion.

7.5 The Value of the Family Network

Family encouragement to attend college increases the likelihood of college attendance and college completion. It is the only aspect of family involvement in the study that had a positive impact on educational outcomes, and it is not surprising. Several earlier studies have found similar positive impact of family encouragement (Ibanez et al, 2004; Zarate and Gallimore, 2005; Arbona and Nora, 2007; O'Connor et al, 2010). Families set the norms for the student from an early age; they provide access to networks (e.g., neighborhood selection, funding for and encouragement of activities); they enforce sanctions when educational objectives are not

achieved. All of these elements create a bank of social capital within the family that can be leveraged towards higher educational goals.

Conclusion

Peers, faculty, and family networks, along with extracurricular participation, significantly increase the odds of college attendance and bachelor degree completion for all students and Hispanics in particular. Through information and resources accessed in these networks, along with the norms and expectations set forth for the student by these entities, students are enabled to overcome background inequalities stemming from socioeconomic status and unequal secondary education experiences. High school social capital seems to have long-range predictive power in its relationship to college degree completion (up to) eight years later. This re-centers the higher education retention discussion to focus on pre-college capital that students may be bringing with them, how to best leverage that capital, and how to encourage further development of college networks to foster the best educational outcomes.

7.6 Where Do We Go From Here?

Practical Implications

I set out on this project inspired by the idea to identify positive predictors of college completion for Hispanics, with an eye towards creating intervention programs which would maximize those opportunities for more students. Three main strategies have emerged based on my research findings.

First, it is imperative that better college information be introduced into all student networks in order to counteract the negative effect of obtaining information from those sources—obtaining information from siblings, peers, and teachers reduced the likelihood of college attendance for Hispanics and others. Colleges must address the inequalities in the way

their messages are distributed, make them more accessible by reaching local sources of social capital in order to target Hispanic applicants. Providing more comprehensive messages (e.g. admission and financial aid together) in simpler terms and in Spanish may help frame the information in ways that are clearer and more accessible to the high school educated student (and parent). Information must couple clear admissions task lists with information on financial aid and student life which present images of Hispanics who have successfully enrolled. Models for minority recruiting show that a one-stop-shop approach for collective admissions applications, which is coupled with admission counselor direction, current student mentorship and funding information, has some success in recruiting minority candidates. This study has illustrated some additional network relationships which could be leveraged for Hispanics in particular in order to increase recruitment success.

Introducing more creative ways to develop networks of academically focused students in high school will positively affect both college enrollment and college completion. Hispanic students benefit greatly from a peer network who feel school is important, and who plan to enroll in college. They are far more likely to complete college if a high school faculty member had encouraged them to attend during senior year. And all who participate in high school academic clubs are more likely to attend and graduate from college. The U.S. Department of Education has established programs focused on low-income students which build on these ideas: the Upward Bound Program creates high school networks surrounding interesting and accessible academic activities, which they couple with high school retention interventions and college application counseling. The TRIO Programs take over with that same population once they enroll in college (U.S. Department of Education). These programs have documented success in educational

retention and completion of degrees, but are subject to federal funding cuts and are restricted to lower income students in certain geographic regions.

Hispanics of all income levels would greatly benefit from this model of academic engagement in high school and college. High schools which can engage and encourage their Hispanic students in interesting academic ways beyond the classroom, while providing faculty and mentor encouragement and creating a culture where being academically motivated is acceptable will likely find greater positive results for their Hispanic students. It is a tall order.

Finally, we must help Hispanic males who do enroll in college to get involved in a college social network. College networks (e.g., extracurricular activities and connection with faculty/staff) predict college completion. Hispanic males are less likely than all other groups to have a college network, which puts them at a significant disadvantage for earning their degree. Providing well-paying campus employment specifically geared towards Hispanic males is one way to address both the pull factors away from the college network and establish a connection to the institution. Ensuring that there are campus resources available for activities that may draw in Hispanics (particularly those who may live off campus) is critical; for example, college football may be less of a draw than major league soccer for these students from a cultural perspective. And using the varsity sports model of centering a support network of adult individuals who interact with the students surrounding their activity may further enhance the likelihood of graduation for these students.

Future Research

There are several additional avenues of research that present themselves as a result of this study's documented relationship between social capital and higher educational outcomes. First, there needs to be deeper research into the social networks which develop during the college

years. The ELS data puts the greatest emphasis on high school experience and the second follow-up is fairly brief with few questions about the college experience. I initially considered another large-sample longitudinal (two-phase) data set which examines college experience but it did not provide final educational outcomes, and the schools surveyed paid a fee to administer the survey which skews the sample towards private institutions. Future study should develop a national set which deeply examines the social network activity during the college cycle, including analysis of new peer (friend) networks, the changing network engagement of family during the college period, and the influence of networks gained from employment during college (with an eye towards professional internships versus menial student labor).

A Hispanic-centered survey is also needed. The major national-sample educational surveys out there are all White-normative in the content covered and the answer options to select from, and fail to include some of the cultural factors which may better capture the Hispanic educational experience. The Texas Higher Education Opportunity Program research comes closest to being culturally inclusive as a model. My research would have benefited from questions that were more particular to the types of relationships and activities that are more prominent in Hispanic culture. For example, there are no ELS questions regarding activities in or relationships from a church or neighborhood community group, which may be traditional places where Hispanics have developed networks. The ELS survey also fails to capture extended-family models of households and family networks. And research which includes a focus on how social networks are created around a shared Spanish language and the strength of those Spanish-speaking networks on predicted educational outcomes would also be culturally relevant for this population. Given the social capital differences between Whites and Hispanics uncovered in my research, further exploration into Hispanic relevant networks and activities is recommended.

Finally, the premise of this paper is that a bachelor degree is now a baseline requirement for entry into a living-wage level position in the workforce. The low number of Hispanic bachelor degree awards may lead to a very large percentage of our population who do not receive living-wage salaries and will be dependent on social services and government aid. This is obviously an educationally-biased position. There may be other ways that Hispanics enter the workforce without bachelor degrees and are quite successful in securing living-wage employment. For example, several recent business articles have cited that Hispanic-owned businesses have increased 44% in a recent five year period, are expected to double in the next five years, and currently bring in over \$500 billion in estimated revenue (Arora, 2014, 2015; Minority Business Development Agency, 2007). It is important for educators and sociologists to better understand entry points into the economy, and to mold educational responses to support these diverse career paths.

7.7 Study Limitations

While this data set provided the greatest amount of information available to me for this project, it is not without limitations. First and foremost, as mentioned previously, the content of the survey is White-normative and fails to capture culturally relevant questions and answers for Hispanics. This project attempted to add to the canon with what Zarate and colleagues (2010) called for in their research: models of student persistence that are culturally validating and legitimizing for Hispanics (pg. 134). But with no questions available on family values, religious beliefs, or community activities, this project is limited in its ability to see the entire scope of social capital utilized by Hispanics. As such I have presented a White-normative version of Hispanic social capital. Future studies would benefit from survey data which is more culturally inclusive.

There were over 2,200 Hispanic students who completed the ELS study through the third follow-up survey. In order to ensure that the Hispanic experience was not overshadowed among the 16,000+ total respondents, both interaction terms and Hispanic-filtered data sets were used. That said, there were missing responses represented in the data on the qualitative (non-demographic) questions in the survey. These questions tended to come towards the end of the survey, and Hispanics may have been at a disadvantage for language barriers, reading skills, or motivation to complete the survey; in any case, missing data is a concern when it reduces our response rate to items of interest. In this study I used mean substitution as a method of dealing with missing data. Some statisticians suggest this is not the best method for dealing with missing data because of its effect on the variance of an individual variable (Allison, 2002). However, it was a preferable alternative to deleting missing cases; any method which required deletion of data (e.g. listwise deletion) would have jeopardized the small number of Hispanic respondents in the overall sample. Future iterations of this study might consider alternative methods of dealing with missing data.

Finally, earlier in the proposed study, I intended to use the longitudinal data to examine how social capital factors might change over time for individual students. This would have fully utilized the three-stage longitudinal data set and might have provided some insights into how social capital changes over time: Do people who develop social capital early (base year) continue to outpace other students in the amount they have later (third follow up)? Are there periods of time when more students had social capital and does capital ebb and flow in relation to other periods? Unfortunately, this portion of the study could not be completed due to limitations in the data. There was too a large degree of multicollinearity between the base year and first follow-up social capital variables. The second follow-up survey failed to include questions regarding peer

network activity and family network activity, and the questions regarding faculty and extracurricular activities were slightly different enough to make direct comparisons from prior years inappropriate. As a result of this challenge with the social capital variables, I did not pursue the analysis on longitudinal change over time.

Overall, despite these limitations, my research still demonstrates significant ways that social capital predicts educational outcomes. Family, peer, and faculty networks, along with extracurricular participation, all play a role in college enrollment and four-year degree attainment for Hispanics as well as for others. Benefits obtained through these networks, including educationally focused norms and expectations along with information and engagement, have a great impact on improving post-secondary educational success net of socioeconomic status and background characteristics. Not only do these findings add unique contributions to sociology of education research, but they provide direction for applied research interventions. More can—and should—be done to help Hispanics gain greater equity in higher education.

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APPENDICES

Appendix A: Variable List

BY = base year survey; F1 = first follow-up survey; F2=second follow-up;

Variable	Coded
DEPENDENT	
High School Faculty relationship	0=other, 1= college
High School F1 extracurricular	0=No; 1=Yes
College Social Network	0=No; 1=Yes
All College Attendance	0=high school graduation; 1=college enrollment
All College Degree	0=some college/no degree; 1=bachelor's degree or more
All Education Outcomes	0=High school diploma; 1=some college/no degree;2=bachelors degree; 3=post-bacc work; 4=masters degree; 5=doctorate
INDEPENDENT	
Faculty Relationships	
F1 Faculty encouragement	0=other, 1= college
F1 Teacher (college) information	0=No; 1=Yes
F1 Counselor (college) information	0=No; 1=Yes
F2 faculty outside class	0=never; 1=sometimes, 2=often
F2 Meet advisor	0=never; 1=sometimes, 2=often
HS Peer Relationships	
BY HispanicFriend (network)	0=No; 1=Yes
BY Friend school importance	0=not import; 1=somewhat import; 2=very import
F1 friend (college) information	0=No; 1=Yes
F1 number of friends going to 4yr	0=none; 1= a few;2=some; 3=most; 4=all of them
Family Relationships	
F1 Family encouragement	0=other, 1= college
F1 Parent How Far	0=HS attend; 1=HS diploma; 2=2yr degree; 3=4yr attend; 4=4yr degree; 5=masters;6=phd
F1 Parent (college) information	0=No; 1=Yes
F1 Sibling (college) information	0=No; 1=Yes
F1 parent involvement	0=never; 1=sometimes, 2=often
Extracurricular Activities	
F1 informal activities	0=rarely/never;1=less than once a week;2=once or twice a week; 3=every day or most days
F1 extracurricular social	0=No; 1=Yes
F1 extracurricular academic	0=No; 1=Yes
F1 sports	0=No; 1=Yes
F2 extracurricular all	0=No; 1=Yes
F2 sports	0=No; 1=Yes

CONTROL

Race

Hispanic	0=all other races; 1=Hispanic
Asian	0=all other races; 1=Asian
Black	0=all other races; 1=Black
Native American	0=all other races; 1=Native American

Demographics

Sex	0=male, 1=female
Parent Education	0=HS attend; 1=HS diploma; 2=2yr degree; 3=4yr attend; 4=4yr degree; 5=masters;6=phd
Parent marital status	0=single parent (widow/separate/divorce/never married); 1=married/living with partner
Siblings at Home	0 to 7+ (0=0, 1=1, etc.)
Total family income	0=no income; 1=25k or less; 2=25,001-50k; 3=50,001-75k; 4=75,001-100k; 5=100,001+

HS Preparation

BY Academic Confidence	0=Almost never; 1=Sometimes;2=Often; 3=Almost Always
AP coursework	0=No; 1=Yes

Economic Factors

BY HS work	0 to 21+ hours per week
BY HS parent college saving	0=No; 1=Yes
F1 financial aid importance	0=not import;1=somewhat import; 2=very import

HS Institutional Climate

BY Positive climate	0=strongly disagree or disagree; 1=agree or strongly agree
Suburban	0=other; 1=suburban
Rural	0=other, 1=rural
Private	0=public, 1=private/Catholic
Northeast	0=other; 1=Northeast
Midwest	0=other; 1=Midwest
West	0=other; 1=West

Living on Campus preference

F1 Living at home student	0=not import;1=somewhat impor; 2=very import
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Self Expectations

F1 How Far	0=HS attend; 1=HS diploma; 2=2yr degree; 3=4yr attend; 4=4yr degree; 5=masters;6=phd
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