SCHOOL RACIAL AND ETHNIC COMPOSITION EFFECT ON ACADEMIC ACHIEVEMENT OF LATINO ADOLESCENTS

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ABSTRACT

Although the U.S. student population has grown increasingly diverse both in terms of ethnicity and immigrant generational status since the late 1980s, schools have become more racially and ethnically segregated. Data also reveal that Latinos, the nation’s largest minority, have become increasingly segregated over the last 30 years, with their segregation levels surpassing those of blacks. In this dissertation, I investigate the effects of school racial composition on Latino adolescents’ academic achievement. The primary reason for focusing on Latinos adolescents is that they consistently account for the highest high school dropout rate among the nation’s major ethnic groups.

Previous research suggests that academic achievement is a function of both individual and family level characteristics. Using the National Longitudinal Study of Adolescent Health (Add Health) data I examine the interplay of school racial and socioeconomic composition, school social capital, family social capital, ethnic origin, and immigrant generational status on measures of school success, such as school grades and standardized test scores, while controlling for individual (e.g., sex, age) and family (e.g., family structure, SES) factors. The longitudinal Add Health data possess a hierarchical structure such that the individual-level
factors are viewed as nested within the school-level factors. Hierarchical linear modeling is used as an appropriate statistical procedure for examining these nested data.

I found that school racial composition has little, if any, effect on Latino students’ academic achievement, but school socioeconomic composition does. Importantly, family social capital is likely to mitigate harmful influences of attending a low-SES school. I also found school social capital, as measured by peer network homogeneity and density, to be positively associated with Latino achievement. More than any other Latinos, Cuban-American adolescents were shown to have higher achievement in schools with more homogeneous and denser peer networks. Apart from that, I did not find any significant differences between ethnic origin and academic achievement. Similarly, beyond the first generation, immigrant generation was not associated with Latino achievement. However, the first-generation immigrant youth was found to have significantly lower AHPVT scores, but higher GPAs than native Latino adolescents.
This dissertation is dedicated, with gratitude, to my parents,

Larisa and Sergey,

my wife Olena and my children, Oleg and Bohdana.

Without their love and patience, this dissertation would not have been possible.
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CHAPTER 1. INTRODUCTION.

1.1. Statement of the Problem.

This study examines the effects of school racial composition on the academic achievement of the Latino adolescents. Although educational outcomes of all minority children have been studies extensively, the specific foci of this dissertation are the educational outcomes of Hispanics. Why focus on the education of Latino youth? First, Latinos are the youngest and fastest growing population among the major minority groups in the U.S. (Fix, Zimmerman, and Passell 2001; Vernez and Abrahamse 1996). Second, it is well known that Latinos have the highest school dropout rates among the major ethnic groups in the U.S. (Guzman 2001; Kaufman et al. 2001; Orfield and Yun 1999; Van Hook and Fix 2000). Given the persistent impoverished status of Latinos’ schooling outcomes, improving their educational attainment may be the single most important issue facing Latinos presently and in the future as this population grows. A third reason for focusing on Latino students is that today they are the nation’s most segregated minority group (Frankenberg, Lee, and Orfield 2003; Orfield and Yun 1999). Importantly, their segregation, unlike that of blacks, has steadily increased since federal data were first collected more than thirty years ago. The evidence on the significance of segregation for blacks and many theoretical reasons for why school racial composition might have an effect on Latino students suggest that their segregation merits detailed study.

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1 "Hispanic” and “Latino” are used interchangeably in this dissertation to describe persons living in the United States who trace their ancestry to a Spanish speaking country. Many see Latino as more politically correct than Hispanic because it refers to ancestral roots in the Americas rather than to the ties of the Spanish conquerors (Ragsdale 1999).
Latinos are segregated by race and social class, and a pattern of linguistic segregation is also developing (Matute-Bianchi 1986; Schmid 2001; Van Hook and Fix 2000; Van Hook and Balistreri 2002). More than 3.5 million students in public schools are classified as “limited English proficient” (LEP), and 75% of these students are Latino (Riley and Pompa 1998). Approximately half of LEP children attend schools where a third or more of their fellow students are also LEP (Fix et al. 2001).

Lack of English language skills is mentioned by many scholars as a major stumbling block for the adjustment of many immigrant children into their new schools (Carnevale 1999; McDonnell and Hill 1993; Riley and Pompa 1998; Valencia 1997). Because Latino LEP students come from homes where Spanish rather than English is dominant, they have difficulty speaking, reading, writing, or understanding English. School systems have yet to devise comprehensive programs to ensure academic success for these students. Moreover, there is a critical shortage of qualified bilingual teachers (McDonnell and Hill 1993; Riley and Pompa 1998; Schmid 2001; Spring 2000; Valencia 1997). This deficit also affects Latino LEP students’ reading comprehension as well as other test scores (McDonnell and Hill 1993). Many of these children have to overcome poor academic preparation in their country of origin and nearly all have to learn English and new institutional and cultural customs and norms.

Another reason why some groups of immigrant children, primarily Latinos, do not perform well academically is their low socioeconomic status, which affects the financial and parental support that children receive at home, all factors known to affect academic performance (Fix et al. 2001; Glick and White 2003; Kao and Tienda 1995; Van Hook and Fix 2000; Waters 1997). Not only does the poverty mean having little financial resources, it also determines where your family lives and what school you attend. Since more Latino
children are raised in low-income families than non-Hispanic white children they are often confined to live in a segregated neighborhood and attend a segregated school (Fix et al. 2001; Portes and Bach 1985). Therefore the educational problems of Latinos could worsen due to increasing segregation. With the dismantling of many court-ordered desegregation plans, the primary force promoting school integration now is demographic change (Frankenberg et al. 2003; Orfield 1993; Orfield and Yun 1999). As the share of non-Hispanic white students in schools has gradually declined, the number of schools with multiracial populations increased. In 1976 Latinos constituted 6% of students enrolled in American public schools. By 2020, the proportion is expected to be more than 30% (Therrien and Ramirez 2001). Latinos already make up a growing majority of public school students in large urban areas in California, Texas, New Mexico, and Florida. Similar growth is projected in other states nationwide (Guzman 2001).¹

Despite the growing racial diversity of the American population, most schools remain dominated by a single racial group. In 1996, the average white student attended a school that was 81 percent white, the average black student a school that was 55 percent black, and the average Hispanic student a school that was 53 percent Hispanic (Frankenberg et al. 2003). Even in numerically integrated schools, the experience of most students is of racial separation rather than integration, because social activities and friendships in many integrated schools are highly segregated by race (Hallinan and Williams 1989; Joyner and Kao 2000; Moody 2001).

¹ It is important to note that as share of Latinos increases nationwide, white students’ schools have not become as “multicultural” as have black students’ schools (Van Hook 2000).
Not only are Latinos concentrated in high poverty, low-achieving schools, but also, since most are concentrated in the large states where affirmative action for college was illegal until recently (California, Texas, and Florida), the concentration of these students in schools with poor graduation records and low rates of college enrollment is becoming a matter of national concern (Frankenberg et al. 2003; Orfield et al. 1997; Orfield and Yun 1999). Numerous studies show that higher levels of education among Latinos are positively related to better job opportunities, higher income, higher social status, and increased political and civic participation (e.g., Carnevale 1999; Verba, Schlozman, and Brady 1995). Yet Latinos are nearly the most educationally disadvantaged of all groups in the United States.

As an institution, the public school system plays a critical role in educating immigrant children and facilitating their participation into the larger society. The U.S. system that succeeded in integrating European immigrants is now facing a serious challenge as newcomers of Latin American and Asian heritages have become the primary sources of immigrants in recent decades (Frankenberg et al. 2003; McDonnell and Hill 1993; Spring 2000; Zhou 1997). Yet, Latino students often face institutional racism or cultural biases even at school. They are more likely than non-Latino white students to be placed in general or vocational tracks or to be assigned to remedial or special education classes (Spring 2000). They also are more likely than non-Latino whites to be “held back” or required to repeat a grade level (Pallas et al. 1994.). Ability group assignment, teachers’ expectations coupled with insufficient school funding may exacerbate the effect of segregated school environment on Latino achievement (Frankenberg et al. 2003; Orfield et al. 1997).

Ironically, given the gravity of the issue, educators know little about how segregation affects Latino school outcomes. Little sociological research has systematically dealt with the
issue. Specifically, it is unclear how well new generations of Latino immigrants adapt to the U.S. school system and how their great diversity is related to their schooling. The desegregation caucus hopes that racially diverse schools will become settings for hostility-reducing interaction, fostering interracial friendships and, in the long run, contributing to a more integrated and equal society (Frankenberg et al. 2003; Gerard and Miller 1975; Orfield et al. 1997; Orfield and Yun 1999; Rumberger and Wilms 1992). It should not be surprising that the practice of school integration has not completely lived up to this aspiration. More than 40 years after the end of *de jure* segregation of schools the vision of schools as integrated institutions remains far from realized.

1.2. Study Objectives.

The main objective of this study is to estimate the effects of school racial composition on the academic achievement of Hispanic adolescents. I believe that there are several ways in which school racial composition might affect immigrant students. One pathway involves social influences coming from school organization and quality. Another pathway includes factors that facilitate or inhibit social capital building. Social capital can be conceptualized at many levels of aggregation, from the family to the school. Families and peers are two important socialization agents that play almost equal roles in influencing adolescents’ development (Coleman 1988; Lopez, Scribner, and Mahitivanichcha 2001; Laosa 1982; Morgan and Sørensen 1999; Schneider and Coleman 1993; Stockard and Mayberry 1992). In this dissertation, I explore the mediating effects of school-based social capital present in peer relationships, as well as family social capital present in parent-child relationships. Previous
research suggests that positive parental influence and/or maintaining ethnic family ties may help some immigrant groups overcome their limitations, including the disadvantage of attending an impoverished school (Fix et al. 2001; Waters 1997; Zhou and Bankston 1998). It has also been established that the social influences on individual students are contingent upon their membership in peer groups (Blau 1977; Blau 1994; South and Messner 1986; Jencks and Mayer 1990). Thus both family- and peer-based social capital may be important for understanding Latino school outcomes.

My focus on social capital is not trivial. Adolescence is a developmental period characterized by rapid physical, psychological, socio-cultural, and cognitive pressures and social capital is crucial for adolescents during this transition. Throughout adolescence social capital affects children’s motivations and aspirations, such as belief in education, occupational aspirations, the sense of direction and purpose. It is also an important factor that has been demonstrated to affect numerous behavioral outcomes, such as cigarette smoking, substance abuse, romantic relationships, etc. (e.g., Berndt and Keefe 1995; Berndt, Laychak, and Park 1990; Coleman 1988; MacLeod 1995; Savin-Williams and Berndt 1990; Stanton-Salazar 1997).

The adolescent years are an important stage of the life course which may be particularly dramatic for the foreign-born. During these years individuals are not only still undergoing development and socialization phases, but they are also in the process of constructing a social identity. The fact that adolescent immigrants also have the burden of assimilating into American society makes their adolescent years more precarious than those of other adolescents. While immigrant adolescents are striving to be less conspicuous than other adolescents and to be accepted by the majority, they are also forced to contend with
individuals in the family or community who are focused on either slowing down or aiding the assimilation process through the influence of community peers (Harris 1999; Rumbaut 1999; Zhou 1997). Thus, the adaptation process for adolescents often occurs in social contexts that are contradictory.

This study makes use of unique longitudinal data that makes it possible to investigate the school-related influences on behavioral outcomes of adolescents separately from individual-level influences. These data – the National Longitudinal Study of Adolescent Health (Add Health) – allow for the investigation of many factors that influence adolescents’ behavior: schools, peer networks, and families. In other words, the Add Health data allows exploring the influences of both the individual attributes of adolescents and the attributes of their various environments. Moreover, the Add Health makes it possible to identify the impacts of peer networks on academic achievement and to differentiate these from other aspects of the school environment that might drive any observed relationship between achievement and school racial composition. With data from this source many types of analyses are possible, especially those involving the effects of surroundings and circumstances on educational achievement.

In this dissertation, I hypothesize that Latinos’ enrollments in densely concentrated minority schools increases the probability of negative educational outcomes for them both directly and indirectly through school social capital. Because I include variables specific to adult, peer, and institutional contexts, I am able to test alternative hypotheses and learn more about the theoretical pathways through which social environments operate. Notwithstanding the empirical problems of estimating contextual effects, the social capital approach provides a
useful framework from which I can begin to better sort out the influences of segregation at the school level on the educational outcomes of Latino youth.

1.3. The Rationale.

The main contribution of this dissertation to the study of the educational achievement of children is that it examines whether and how peers contribute to the educational achievement of Latino children. In addition, there are several research issues which strengthen the significance of my study. First, literature on immigrant children’s academic achievement, despite its growth over the last several decades, has not yet examined the effect of racial segregation. Researchers have seldom associated the differences in school achievement among major Latino ethnic groups with school segregation. It is increasingly recognized that school racial composition serves as a proxy for peer effects (e.g., Bankston and Caldas 2002; Entwisle and Alexander 1992; Hallinan 1982; Hallinan and Williams 1989; Joyner and Kao 2000; McPherson, Smith-Lovin, and Cook 2001). Yet despite this recognition, the literature lacks extensive quantitative analyses of the effects of school racial composition on the education of Latino adolescents. Moreover, studies about school segregation and the assimilation of ethnic minorities frequently fail to consider mediating effects of the family and peer influences. Even those studies for which the focal point is friendship networks that may enhance or inhibit the formation of social capital often overlook the importance of school friendships for adolescent educational outcomes (e.g., Kubitschek and Hallinan 1998; Moody 2001).
Second, prior research has paid little, if any, attention to the social capital present in peer networks. Moreover, few attempts have been made in this literature to link peer networks and educational achievement. Yet, it has been established that school racial composition affects not only the composition of peer networks, but also their size and structure (Hallinan and Kubitschek 1999; Hallinan and Williams 1989; Stanton-Salazar and Dornbusch 1996). Furthermore, critical assessment of oppositional culture theory (e.g., Ogbu 1974, 1991; Fordham and Ogbu 1986) leads to the conclusion that cultural patterns among some Latino ethnic groups (e.g., Chicano and Puerto-Ricans) penalizing academic achievement (“acting Latino” vs. “acting white”) dominate. Consequently, adolescents in these groups who strive to do well in school may find no support from their co-ethnic peers. However, critics point to the fact that some minority youth do have extremely high educational aspirations (Hauser and Anderson 1991; Kao and Tienda 1998; Ainsworth-Darnell and Downey 1998). Given the complexity of peer influences, more investigations are needed to clarify peer effects on Latino youth’s academic achievement.

Third, one of the major limitations of previous studies is their lack of generalizability. Until recently the lack of good national-level data on immigrant youth meant that much of the research to date is based on samples from states with large immigrant populations, such as California and Florida. Immigrant populations in other regions of the country also deserve study to determine if their experiences are similar to those in the more populated regions. Additionally, a large proportion of this work is qualitative, again restricting the generalizability of the results (Rumbaut 1995).

Fourth, although research identifies the importance of educational assimilation for Latino youth, the reasons for low academic achievement and attainment of Latinos, as
compared with non-Hispanic white and Asian students, have not been fully explicated (August and Hakuta 1997; Kao, Tienda, and Schneider 1996). The popular view that stresses cultural differences between mainstream non-Hispanic white and Latino communities with regard to education as a factor of social mobility ignores how discrimination and racism may intensify the negative effect of linguistic isolation on Latino educational achievement (Valencia 1997). Furthermore, many of the obstacles encountered by Latino students in overcoming social isolation have not been fully explained by prevailing theoretical paradigms (Hirschman 2001; Wojtkiewicz and Donato 1995; Zhou 1997). These obstacles may arise from both the differences in social contexts and students’ personal experiences outside of school. The insufficient theoretical explanations of the educational underperformance of Latinos further justify my research since I am attempting to identify family and personal experiences that affect Latino students’ ability to learn.

Fifth, a further limitation of past desegregation research is its almost exclusive focus on African-Americans (e.g., Bankston and Caldas 2002; Cook et al. 1984; Jencks and Mayer 1990; Mahard and Crain 1983; Schofield 1995). While this focus has helped explain the dynamics of the school process for blacks, it may not be applicable to Latino students. This limitation may well be related to the earlier lack of available data that could provide answers, but also to the traditional status of African-Americans as the largest minority group in the U.S. Given the historically different paths of African-American and Latino communities and uninterrupted immigration flow of the latter, a relative lack of attention to the effect of school segregation on Latino children’s academic achievement may provide a rewarding research opportunity. Although data from the National Longitudinal Study of Adolescent Health has
improved the ability to conduct research on Latino youth, these data are relatively new and thus published results are relatively rare, but this literature is just starting to grow.

Some of the research conducted in the area of educational assimilation is based on classical assimilation theory which proposes the linear assimilation of immigrants towards mainstream American culture (Hirschman 2001). The fact that Hispanics tend to lag behind of other immigrant groups has led some researchers to argue that assimilation is a slow process, and that not enough time or generational distance has passed for the Hispanic population to have yet experienced assimilation (e.g., Alba and Nee 1997; Bean and Stevens 2003; Lollock 2001). Others argue that the unique experience of particular ethnic groups in the United States may affect incorporation into U.S. society (e.g., Portes and Zhou 1993; Valenzuela and Dornbusch 1994; White and Kaufman 1997; Zhou and Bankston 1998). Segmented assimilation theory, in which straight-line integration and acceptance into the American mainstream represents just one possible alternative, asserts that outcomes may vary across and within ethnic groups and immigrant generations. This theory points to the importance of identifying those conditions or social contexts for Latino adolescents that may produce differential educational outcomes. My research is motivated mainly by segmented assimilation theory, which justifies the need to search for new explanations related to the contexts of reception for the school performance of Latino adolescents. Therefore the effects on educational achievement of a multitude of social contexts rather than independent variables related to ethnic origin and/or immigrant generational status is the focus of my attention. In other words, I will investigate how academic performance across immigrant generations and ethnic origin varies by social context. Among the factors I will consider are the effects of school racial and socioeconomic composition, peer networks, and family social
capital. I use the conceptual framework of segmented assimilation to provide the theoretical rationale for the generation of my hypotheses concerning the interplay between different sets of factors. As such my study explores some of the ways school, family, and individual factors influence and combine to influence school achievement.

1.4. Possible Implications.

The results of this study may have important implications for research, public policy, and educational practice. My research findings will contribute to the currently emerging knowledge base on Latino youth and will provide directions for future research. In trying to explain the association between school racial and ethnic composition and school achievement, not only am I providing important information on Latino adolescents that other researchers can hopefully build on, I am also seeking to determine if the factors that have been found to explain academic achievement for the youth in general population are the same for Latino youth.

My findings could also have policy implications by helping to educate the public regarding the advantages that Latino immigrants and their children bring to this country. So much attention is focused on the negative aspects of Latino immigration (e.g., low English language proficiency) that the potential positive contributions of these youth to the future of this country are lost. For example, if Latino youth have better educational outcomes, then fewer low-paying and more high-skilled jobs have to be created. Similarly, if the Latino community can exercise better control over its educational opportunities and consequently compete equally with the white non-Hispanic majority while entering markets, then fewer
dollars have to be spent on publicly funded remedial programs, including Affirmative Action, nationwide.

Knowing why Latino youth do not succeed in school could be of importance to educational practices and, if segregation is found to exert a negative effect on achievement, busing policies. Furthermore, knowing that the factors that contribute to academic achievement among Latino youth are the same or different from those that research has shown to affect the educational outcomes of youth in general, will be of interest to educators. As the number of Latino youth, and in particular Latino immigrant youth, in the country’s school population increases, educators have begun to express concerns about identifying and treating these youths given differences in “culture” which they do not understand. Efforts to design appropriate, efficient, and effective interventions to support Latino adolescents depend upon a comprehensive theoretical and practical understanding of the challenges facing them.

1.5. Summary of Chapters.

The dissertation is organized as follows. In the next chapter, Chapter 2, I review the literature that relates to the topic of this dissertation, including the main theories of immigrant adaptation and social capital, and explore other factors which might affect academic achievement. Chapter 3 outlines the data and measures on which the analyses are based and provides an overview of my analytic strategy. In Chapter 4 I present my analyses of the effects of school racial and socioeconomic composition on Latino students’ academic achievement. Chapter 5 examines the effects of peer networks on Latino children’s educational outcomes. Chapter 6, the final chapter, summarizes the results, discusses the broader implications and limitations of the study, and offers suggestions for future research.
CHAPTER 2. REVIEW OF THE CONCEPTUAL FOUNDATIONS.

2.1. Introduction.

In this chapter, I review the extant literature on the complex influences faced by Latino children in their schools, families and ethnic communities and their needs for educational support. I examine the accrued scholarship explaining Latino youth’s differential educational outcomes – both broadly and specifically in school. I begin by a review of the research literature on school composition and achievement. This is followed by a review that focuses on peer networks. Next, I examine family factors and discuss why family social capital may have an effect on adolescent academic achievement. After examining issues of family process, I outline theoretical explanations for immigrant assimilation and adaptation. I then discuss issues pertaining to Latinos’ ethnic origin and its possible influence in studies of immigrant adaptation. I conclude with an outline of a theoretical perspective that may explain the association between school racial composition and Latino students’ academic outcomes, as well as the role of immigrant generational status, family process and other factors in the association.
2.2. School Racial and Ethnic Composition and Segregation.

Given the strong overlap between race and class found in the United States in general – and between race and concentrated poverty, in particular (Orfield and Yun 1999; Roscigno 1998; Orfield et al. 1997), the effect of school racial composition on achievement is likely to be confounded with that of school SES. In fact, schools composed of mainly white students are more likely to be higher-class schools, while those enrolling more minority tend to be low-class schools (Bankston and Caldas 2002; Caldas and Bankston 1997; Lippman, Burns, and McArthur 1996; Orfield et al. 1997). Below I provide a brief outline of the accumulated empirical evidence linking school composition effects and academic outcomes.

One of the first far-reaching efforts to examine school contextual effects was the Coleman report (Coleman et al. 1966). Using average school-level SES as a measure of socioeconomic composition, the report found that differences in achievement among white, black, Asian, and Latino high-school students were most strongly influenced by parental education, income, and occupational status (i.e. family SES), whereas school socioeconomic composition had a modest effect on academic achievement. In a review of the Coleman results, Jencks and Mayer (1990) concluded that school-level SES has limited influence on white achievement, once individual SES is controlled. However, the estimated school-level SES effect was larger for black students. A wide variety of studies that followed the Coleman report have used essentially the same methodology. Several among them consistently find positive correlations between the average school SES and individual achievement (Lippman et al. 1996; Link and Mulligan 1991; Summers and Wolfe 1977; Willms 1986). Caldas and Bankston (1997), for example, find that, while individual-level SES raises achievement, average school-level family income, proxied by the percentage eligible for free-and-reduced
lunch, is negatively associated with academic outcomes. Some studies yield inconsistent results. Bryk and Driscoll (1988), for instance, find a rather strong effect of school-level SES on individual-level achievement that is offset by a negative effect of school-level achievement. However, using the same data but controlling for a different set of independent variables, Gamoran (1987) concludes exactly the opposite.

With respect to school racial composition, the Coleman report (Coleman et al. 1966) found a weak, but positive, effect of minority enrollment on black achievement and no effect on white achievement. In reviewing the Coleman results, Jencks and Mayer (1990) conclude that blacks in predominantly white schools are more advantaged in terms of their academic outcomes more than those in all-black schools. However, the effect for blacks is limited only to the northern United States. The results also indicate a negative effect of the percentage of minority students on white achievement. Thus, according to Jencks and Mayer’s (1990) results, the process of school desegregation is beneficial to minorities but not to the white majority. Similarly, a study by Bankston and Caldas (1996) documented that both white and black students in high minority schools show lower academic performance than those in schools with lower concentrations of black students. The authors use Louisiana school data in an attempt to demonstrate that going to school with socially or economically disadvantaged peers exposes students to an oppositional youth subculture that is not beneficial to academic achievement. They conclude that the degree of minority concentration has a powerful negative influence on achievement test results and that this influence does not appear to be explained by socioeconomic or other factors. Hoxby (2000) found similar racial composition results when examining Texas student data and controlling for prior achievement. He notes
that the black and Hispanic students tended to enter school with lower levels of initial achievement.

However, the results from other empirical studies are startlingly inconsistent with these findings. An analysis of school effects in Philadelphia finds that student achievement is highest when the student population is racially balanced (about one half black), rather than predominantly black or white (Summers and Wolfe 1977). Gamoran (1987) finds no consistent race effects, while Bryk and Driscoll (1988) conclude that increasing numbers of black students tends to increase achievement, the opposite of hypothesized effects.

Further evidence on the effects of racial composition is provided by empirical studies on the effects of racial desegregation plans in the United States. Due to the decentralized nature of the implementation process social scientists have attempted to determine when desegregation has been successful and under what type of plans (e.g., Crain and Mahard 1978; Gerard and Miller 1975; Longshore and Prager 1985; Orfield and Yun 1999). This literature has been extensively reviewed (e.g., Bankston and Caldas 2002; Jencks and Mayer 1990; Mahard and Crain 1983; Schofield 1995). According to Mahard and Crain (1983), there are two contextual features of desegregated schools that may enhance minority achievement. First, black achievement improves mainly when blacks are in schools that are mostly white and includes students from higher social classes. Second, plans with a metropolitan-wide scope, rather than limited to individual school districts, show greater black achievement gains, possibly because they make contact with more middle-class whites, which seems to imply that successful desegregation is socioeconomic as well as racial (Longshore and Prager 1985). Researchers have also documented the critical role of teacher expectations and attitudes in the success or failure of desegregation programs, particularly with respect to improving
achievement (August and Hakuta 1997; Riley and Pompa 1998; Rist 1970; Valencia 1997). Schofield (1995) finds short-term positive effects of desegregation on black achievement and no long-term effects. Moreover, these short-term effects are limited to the improvement of reading scores among black students, while their math scores usually remain unaffected. After reviewing studies that examine desegregation effects on white achievement, Schofield (1995) concludes that educational outcomes of white students are impervious to changes in school racial composition. Although Bankston and Caldas (2002) note a similar pattern, they urge caution in their conclusions and call attention to the relatively small sample sizes of most studies and the difficulty of finding statistically significant effect sizes.

The most common explanations of how school composition affects educational outcomes focus on peer effects. There are several varieties of peer-effect explanations. Some scholars suggest that students in upper-middle class schools are more likely to start friendships with goal-oriented individuals whose families foster their educational aspirations (e.g., Coleman et al. 1966; Fejgin, 1995; Lou et al. 1996; Patchen 1982; Smith, Beaulieu, and Israel 1992). Alternatively, students in high-poverty schools may not have peer models for success. They do not enjoy a wealth of activist parents who know how to work the educational system and how to succeed in it (Smith et al. 1992; Stanton-Salazar and Dornbusch 1996; Stockard and Mayberry 1992; Teachman, Paasch and Carver 1996.). Furthermore, exposure to high-ability peers may enhance their educational expectations. Pallas et al. (1994: 27) suggests that groups composed of high-ability students provide a “social [setting] in which individual children evaluate their performance and internalize academic norms, thus forming expectations for their academic performance.” In this vein,
high-SES schools may provide more opportunities for students to build up “high-quality” peer networks (Alexander, Entwisle, and Thompson 1979).

A second class of explanations of school composition effects focuses on school quality, namely on how the differing classroom experiences of high- and low-SES groups of students may alter outcomes. Important correlates of school quality are fewer school resources including lower teacher skills, lower teacher expectations of students, higher student and teacher turnover, placement into lower ability groups, placement into lower track courses, and weaker academic climates in schools (Coleman et al. 1966). Pallas et al. (1994: 27) argue that ability group placement may affect the “quantity, quality, and pace of instruction and hence of learning.” Put differently, students of higher abilities benefit from their higher-ability peers indirectly because teachers and schools provide different experiences for higher-ability students. Some researchers (e.g., Dreeben and Barr 1988) show that classroom composition has important effects on moderating the quantity and quality of instruction provided to students in different reading groups. Others explain the better academic results of upper-middle-class schools by teachers’ and administrators’ deep-rooted norms and values that give emphasis to constructive academic outcomes (Alexander and Eckland 1975; Chubb and Moe 1990; Bryk et al. 1993; Longshore and Prager 1985). A similar line of research which focuses on the relationship between school funding and achievement tends to be more polarized. One camp finds no relationship between resources and achievement, while another does not. Hanushek (1986), who represent the first camp, contends that the relationship between spending and achievement is questionable at best. He concludes, “There appears to be no strong or systematic relationship between school expenditures and student performance” (Hanushek 1986: 1162). Hedges, Laine and Greenwald (1994), on the other hand, reanalyze
the same data and find that a 10 percent increase in average spending per pupil would increase student achievement by 0.7 standard deviations, a meaningful amount.

Overall, research on school composition and achievement shows both direct and indirect effects that vary in strength according to the design of the studies and the factors included and not included. Failure of some studies to show the links among these variables may have more to do with inadequate research designs than with the connections among school composition and achievement in the real world. Whether the analyses applicable for studying the effects of segregation on black children’s outcomes hold for immigrant children remains unclear. The few studies that address this question find that ethnic isolation has either little effect or somewhat positive effects on immigrant children (see reviews of this literature in Matute-Bianchi 1986; Rumbaut 1995). Most of these studies rely on very small samples and use subjective assessments of either students or school personnel to describe the ethnic composition of peers (ibid.). Moreover, most studies of residential segregation have found that immigrant families are not nearly as segregated as blacks, that they tend to assimilate over time, and that first generation immigrants from a particular country or region are more segregated than their later-generation counterparts (Cutler, Glaeser, and Vigdor 1999; Glaeser and Vigdor 2001; Frey 1995). Therefore, even if segregation were to have an impact, it may be much smaller for immigrants, and disappear over time.


The effect of school composition on achievement may operate through peer effects. Orientation toward peers and immersion in friendships are defining features of adolescence.
Yet adolescent friendships are not expressed in a single way. Among the many simple forms friendships can take are best friendships between a pair of adolescents, friendships involving peers other than the best friend, and friendship groups formed among a tight cluster of more than two friends. Some adolescents have wide ranging friendships where they intermix with many peers, while others have relatively few friendships. Taken together, these friendship patterns form the social network that binds adolescents into an overall matrix of peer relationships. In addition to direct implications for educational outcomes, the friendship patterns evident in adolescents’ social networks can equally ease or amplify the segregation effects at the school level (Brown 1989; Feld 1981; Feld and Carter 1998).

Particularly relevant for understanding friendships in racially diverse schools are homophily, the tendency to form friendships with similar others, and propinquity, the tendency to form friendships with others who share the same social status. Propinquity relates to the fact that the frequency of day-to-day contacts among strangers strongly predicts the likelihood of friendship formation (Hallinan 1982; Hallinan and Williams 1989; Hallinan and Williams 1990). Homophily, however, is a stronger indicator of cross-group friendship formation. In settings where homophily is strong, even regular intergroup contact may not lead to lasting cross-group friendships (Blau, Blum, and Schwarz 1982; Feld and Carter 1998; McPherson et al. 2001).

A useful baseline expectation for the composition of social networks is the pool of potential ties among all individuals in a setting (McPherson et al. 2001). In this baseline individuals are expected to have friendship networks that reflect the group composition of the social setting. However, it is neither necessary, nor likely that the association between school racial composition and interracial friendships is linear. According to Blau’s theory of relative
group size (Blau 1977; Blau 1994; Blau and Schwartz 1984; South and Messner 1986), the larger the group, the more likely its members are to have relationship just between themselves. Applied to the school environment, as the number of minority students rise, they are able to form a group unto themselves, perhaps interacting less with others. Another practical implication of this theory would be that efforts to promote social diversity may have the unintended effect of promoting separatism. Thus, despite increasing efforts to integrate schools, they may fail if minority and majority simply resegregate socially within the school. Indeed, it is theoretically possible that integrated schools may experience higher levels of racial and ethnic tension and hence less interracial friendships than schools with relatively small minority populations (Epstein 1985).

Furthermore, social capital theory suggests that not only the number and size of peer groups but also the quality of social relationships among peers may influence educational outcomes (e.g., Bourdieu 1987; Bourdieu and Passeron 1977; Coleman 1988; McLeod 1995). Peers provide an important normative context that determines acceptable behaviors (Coleman 1988; McQuillan 1998). In this framework, social capital can be defined as social resources, the sum total of the knowledge and support one has available through the social networks to which one belongs. One characteristic that distinguishes social capital is that drawing on it does not diminish it or make it unavailable for other uses, as is the case for financial capital. Unlike human capital, social capital does not reside within individuals, but resides in the social networks to which they have access. Coleman (1988) suggested that social capital, like

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2 In the literature, social capital – the notion which has lately come into vogue – is a broad concept that has been used to frame explanations for various issues. In this dissertation, I restrict myself to social capital as it applies to the educational institution. In the educational context, researchers have used the concept of social capital to examine the ways in which students benefit by membership in certain networks which allow them to take advantage of positive role models, encouragement, support and advice (e.g., Coleman 1988; McQuillan 1998; Smith et al. 1995).
other capital, is productive and allows individual to achieve certain ends and that social
capital may also be used to improve human capital.

Social capital theory also argues that the structure of networks is important (Coleman
1988; Smith et al. 1995). Structural characteristics of networks include the density of social
ties within the network, and the diversity of the backgrounds and social situations of the
network members. The degree to which networks are dense or closed is also argued to have
implications for the quality of the relationships they embody, and their productive output
(Coleman 1988; Fernandez-Kelly 1995). A dense network is one in which network members
overlap and know one another, and a closed network is one in which social relationships exist
between all parties. Dense, closed networks are argued to better facilitate the enforcement of
group norms and sanctions. Heterogeneity of group or network membership is argued to
influence the levels of trust within networks, the extent to which trust of familiars translates
into generalized trust of strangers, and the extent to which norms within networks are shared.
Heterogeneity of social ties may promote linkages with a diverse range of networks and hence
access to a broad range of resources or opportunities (Grootaert 1998; Narayan 1999).

Regarding social networks, Granovetter (1983: 1361) has noted that the strength of a
tie is determined by a “combination of the amount of time, the emotional intensity, the
intimacy (mutual confiding), and the reciprocal services which characterize the tie”.
According to Granovetter, weak ties are the connections maintained with socially distant
individuals (i.e., acquaintances) who are nevertheless important for gaining access to
information and goods and services that are not available in a relationship characterized by
strong ties (i.e., friends and family). The literature has generally emphasized advantages of
open, non-dense heterogeneous networks, led by Granovetter’s (1973) strength of weak ties
hypothesis. Although interactions with family and close friends may satisfy emotional and social support needs, Granovetter (1973) claims that these ties are not necessarily best for obtaining information and assistance in the socioeconomic sphere. He argues that when it comes to finding a job that the quality of information spread by weaker ties (acquaintances) in open network structures is better than that spread by strong ties in closed networks, which tends to be redundant, and therefore of low utility in finding work. Thus, weak ties are deemed to be important for diffusing societal opportunities for upward mobility.

Network analysts (e.g., Burt and Minor 1983; Lin 1990; Montgomery 1992) argue that minorities and those of lower socioeconomic status have more to gain from the use of weak ties than do non-Hispanic white and wealthy people. Fernandez-Kelly (1995) further observes that dense social networks among inner-city blacks isolate family members from the outside world and reinforce anti-social behaviors. However, according to social reproduction theory, exclusionary barriers to useful information and valuable opportunities are likely to be present early in both in- and out-of-school experiences of poor and minority students (Braddock and McPartland 1987; Bourdieu and Passeron 1977; Wilson 1987). This gives children of wealthy and well-educated parents an additional advantage, especially in school (Lareau 1987; Lareau 1989; Useem 1991; Useem 1992). Schooling, in turn, fosters further inequality by valuing the social and cultural experiences of the intellectual and economic elite and devaluing those of the lower classes. Thus, social class and race may play a crucial role in the structure and strength of an individual’s social network.

In view of that fact that many theorists argue that the effects of social capital cannot be completely isolated from those of cultural capital (Bowles and Gintis 1976; DiMaggio and Mohr 1985; Bourdieu and Passeron 1977; Wells and Serna 1995). The concept of cultural
capital refers to the cultural background that families and communities transmit to their members, such as taste in art and music, religion, way of talking, and manners (Bourdieu 1984). From this definition it follows that cultural capital involves reproduction of cultural heritage, whether ethnicity-based or class-based. Consequently, the effect of social capital on the educational achievement of children from different ethnic groups may be positive as well as negative.

In particular, oppositional culture theory stemming directly from the work of the anthropologist Ogbu (1974, 1991) argues that minority students receive less support for achievement from their peers of the same ethnic background than do non-Hispanic white students. The idea is that because of the long history of discrimination minority youth develop an oppositional identity relative to non-Hispanic whites (Ogbu 1991). This identity makes them suspicious of anything that comes from the dominant “white” society. Fordham and Ogbu (1986: 181) wrote: “Subordinate minorities regard certain forms of behavior and certain activities or events, symbols, and meanings as not appropriate for them because those behaviors, events, symbols, and meanings are characteristic of White Americans. At the same time they emphasize other forms of behavior and other events, symbols, and meanings as more appropriate for them because these are not a part of White Americans’ way of life. To behave in the manner defined as falling within a White cultural frame of reference is to “act White” and is negatively sanctioned”. The items that are identified by Fordham and Ogbu (1986: 186) as “acting White” are: (1) speaking Standard English; (2) listening to white music and white radio stations; (3) going to the opera or ballet; (4) spending much time in the library studying; (5) working hard to get good grades in school; and (6) getting good grades in school. Thus, under the impression that the aforementioned behaviors only benefit Whites,
minorities tend to undervalue schooling as a legitimate path to upward mobility. This issue is particularly troubling since it may well explain the differences in academic and career achievement between non-Hispanic whites and minorities.

The cornerstone of oppositional culture theory is its distinction between minority groups (Ogbu 1978, 1991). African Americans, Mexican Americans and Puerto-Ricans are thought to be involuntary minorities due to their mode of incorporation into American society (i.e., slavery or conquest) and to their opposition to the dominant group. More academically successful groups are labeled voluntary or autonomous minorities because their incorporation into American society was more or less voluntary, and they do not perceive the dominant group as a threat to their identity. Asian Americans and Cuban Americans are identified as voluntary minorities because they came to the United States on a more or less voluntary basis, whereas Mormons or Jewish Americans are labeled autonomous minorities for their distinct religious identity and for the fact that they are primarily minorities in the numerical sense. Ogbu (1991) proposes that voluntary immigrants tend to embrace the mainstream culture and seek assimilation while involuntary immigrants resist assimilation, establish an oppositional culture, and attempt to maintain boundaries between themselves and the mainstream culture. This clear-cut typology is, nevertheless, difficult to apply in practice as the number and diversity of immigrant groups in the U.S. tend to increase over time. Even the proponents of the oppositional culture theory (e.g., Ogbu 1991) experience this difficulty themselves while treating some refugees as voluntary migrants and other refugees as involuntary migrants. For example, some immigrant generations of Cuban-Americans easily fall into the category of involuntary immigrants, even though the oppositional culture theory treats all Cuban immigration as voluntary (Ogbu 1978, 1991).
Many scholars challenged oppositional culture theory and in particularly the idea of “acting white” (Ainsworth-Darnell and Downey 1998; Cook and Ludwig 1998; Senior and Anderson 1993). Indeed, oppositional culture theory resonates greatly with the “culture of poverty” and other race-based cultural arguments. The “culture of poverty” thesis, championed by Lewis (1969), contended that cultural patterns and values among the poor inhibit their participation in social, political and economic institutions. According to this perspective, children who grow up in the “culture of poverty” will face enormous barriers to socioeconomic mobility (Wilson 1987). Wilson (1987, 1996) further argued that unemployment and concentrated poverty in America’s inner cities create a context in which there are no positive adult role models, thereby reducing youth motivation to stay in school. The lack of job opportunities in these environments and the resulting alienation from the productive labor further diminishes the connection between education and work in the minds of inner-city youth. Thus, the “culture of poverty” merely signifies an adaptation to the miserable social and economic conditions the poor face. Similarly, oppositional culture theory maintains that a historical legacy of involuntary servitude, discrimination, segregation, and lack of political opportunity have compelled certain racial and ethnic minorities to culturally adapt and to develop the oppositional identity. Thus, for example, involuntary minorities might respond to job discrimination by rejecting school because of the belief that it only benefits white, middle class students (Ogbu 1978; see also Wilson 1987, 1996).

In any case, oppositional culture theory, in general, and the “acting White” hypothesis, in particular, gained widespread attention in the media as an explanation for black and Hispanic academic underachievement (e.g., Gregory 1992; Pearson 1994). Further, oppositional culture theory inspired extensive discussion and criticism, spanning numerous
lines of investigation. It should be noted that research in general has placed little emphasis on the positive aspects of peer socialization when investigating minority adolescents. Therefore, oppositional culture theory is largely in agreement with related research that links adolescent peer influence to negative outcomes across several domains (e.g., Berndt, Laychak, and Park 1990; Berndt and Keefe 1995; Cotterell 1992; Fenzel and Blyth 1986). The most common explanation for focusing on negative aspects of peer influence originates from the belief that influences coming from parents are protective and supportive, while those coming from peers are not. During adolescence the ability of families to protect their children wanes, and the influence of peers increases. Indeed, the social world of an adolescent is no longer as family oriented as that of the pre-school child.

There are several theoretical models that have been offered to explain the concrete mechanisms of peer influence. Contagion models imply that everyday peer interactions encourage the spread of anti-social behaviors among students (e.g., Rowe and Rodgers 1991). Once highly visible students begin, say, to cut classes, other students will follow. Thus, popular students, by virtue of their numbers of linkages within a school, are potential transmitters of norms that reinforce or sanction specific behaviors (see also Jencks and Mayer (1990) for the details on contagion or epidemic models). Using peer modeling and reinforcement, these students contribute to the initiation and maintenance of anti-social behaviors. On the other hand, social influence theories cite conformity to group norms as an important predictor of individual behavior (e.g., Coleman 1988; Braddock and McPartland 1987; Bowles and Gintis 1976; Ogbu 1991). In this theoretical framework, an adolescent’s fundamental desire to belong to a group stimulates the effect of social norms on individual attitudes, values, and behaviors. If the social norm is to cut classes as reflected in schools with
high absenteeism, popularity or social prestige will be closely aligned with absenteeism. To be popular, a student must be willing to adopt the norms of the larger group, even if it means engaging in anti-social behavior. Similarly, attending schools where little emphasis is placed on academic success increases adolescents’ exposure to underachieving peers. This greater exposure to academically less motivated adolescents increases the likelihood of selecting such peers as friends, which in turn increases their potential influence.

2.4. Families.

Families are often described as the structural settings for social relationships (Kandel and Lesser 1969; Lee 1993; Schneider and Coleman 1993; Zhou 1997). Most existing research links family structure to the relationship between family type and size, on the one hand, and resources, on the other. Socialization theory predicts that children from two-parent families get more economic, social, and cultural resources, which help facilitate educational success (Hetherington 1998; Thomson, Hanson, and McLanahan 1994). Family structure and economic resources have interrelated effects on parenting, as one-parent households, more often than those with two parents, have fewer economic and emotional resources. Single mothers tend to have fewer positive interactions with their children and provide less firm and consistent discipline than mothers in two-parent households (McLanahan and Sandefur 1999). In addition, children with more siblings have fewer financial resources available to them as well as less time with and attention from parents. Depending on their ages, however, older siblings may help care for younger siblings (McLoyd 1998). Family economic resources, including income from employment as well as other sources, such as welfare, are found to
influence parenting both directly and indirectly (McLoyd 1998). Like many parents who are single, those facing economic hardships tend to be less effective because they have more stressors in their lives and thus are likely to have greater psychological distress. Low-income parents have been found to use less effective parenting strategies, including less warmth, harsher discipline, and less stimulating home environments (ibid.). Thus, the structural features in the family such as presence of one or both parents in the home, the number of siblings, and socioeconomic background are deemed to be important factors in creating advantageous relationships (Hetherington 1998; Israel et al. 2001; Thomson et al. 1994). These features determine the opportunity for interactions between parents and children, and contribute to the frequency and duration of such interactions.

While structure shapes the potential for social relationships, process, on the other hand, determines the quality, frequency and duration of parent-child interactions. Family social capital as process emerges from “emotionally intense, trusting associations among individuals” (Bankston and Zhou 2002a: 288), with parents and children communicating and engaging in activities together. These characteristics of families manifest themselves in the degree of sensitivity and emotional closeness that family members have to each other (Laosa 1982; Schneider and Coleman 1993; Smith et al. 1992). The family bonds serve to organize family members around socially desirable activities while bringing children into closer proximity to their parents whose interests and social obligation are to act as their supporters and protectors (Foner 1997; McNeal 2001; Schneider and Coleman 1993; Zhou 1997). Thus the process elements of family social capital include not only parents’ encouragement of and involvement in socially accepted activities (e.g., helping children with homework, discussing their grades, working together on a school project, etc.), but also their efforts to constrain
inappropriate behaviors and leisure time of their children (e.g., such as television viewing, sleeping, eating, hanging around with friends, etc.). In other words, families provide both a primary normative climate, which shapes values, and a disciplinary climate, which shapes the opportunities and costs associated with deviant behavior (Bulcroft, Carmody, and Bulcroft 1998). Both normative and disciplinary aspects of family life are influenced by family structure, resource availability, and the level of trust and caring between parents and adolescents (Valencia 1997). In homes with consistent discipline, adequate physical and emotional resources, and good parent-child communication, troubled adolescents can likely resolve problems that arise at school or among peers through family guidance (Foner 1997; Zhou 1997).

Further, it is not only relationships or connections within family but also between families that make family social capital a valuable educational resource. It is through these relationships that parents get to know their children’s friends, as well as the parents of their children’s friends. Coleman (1988) described how “social closure,” i.e., environments in which parents know each other, facilitates children’s attachment to school. Bankston and Zhou (2002b: 15) wrote that: “Coleman defines social capital in terms of network closure. Social capital exists, in Coleman’s view, when there are close and closed networks among a set of individuals, promoting advantageous behavior. When parents, for example, maintain close contacts with their own children and with other adults who affect the lives of their children, parents and other adults in the parental networks can impose consistent norms and standards to direct the behavior of young people.” This network of connections gives parents an opportunity to build lasting relationships with other youth in the community. Collective socialization within the community is the community counterpart of family socialization,
which positively contributes to adolescents’ academic outcomes (Coleman 1990; Jencks and Mayer 1990). Similarly, in the absence of collective socialization within communities, the community may not be able to prevent negative or risky behaviors that may interfere with adolescent educational progress.

Since parenting occurs within communities and interacts with that context, socialization practices differ from one community to another (Delgado-Gaitan 1991; Dwiwedi and Varma 1996). For example, minority groups in racially and ethnically segregated communities may have more opportunities to form informal social networks and relationships among themselves. Arguably, those minority groups that maintain strong ethnic ties provide better opportunities for their youth through the creation of ethnic social capital (Borjas 1992, 1995, 1998; Galster and Killen 1995). In addition, the ethnic community can often function as a mediator between an individual family and the larger society. Within tightly knit ethnic communities, minority parents and children are unlikely to keep their experiences to themselves. Instead, they are likely to share their experiences with other parents and children within the community. As these experiences tend to be similar across families, the ethnic community may act as a buffer that alleviates the tension between parents and their children (Zhou 1997).

By extension, it is reasonable to expect that parenting and socialization practices vary across ethnic groups and by the level of assimilation into American society. Indeed, the strength and direction of relationships between specific parental behaviors/styles and academic achievement have been found to vary across cultural groups (Asakawa and Csikszentmihalyi 1998; Chao 1996; Dornbusch et al. 1987; Steinberg, Dornbusch, and Brown 1992.). Hao and Bonstead-Bruns (1998) studied the effect of social capital on four
immigrant and three native ethnic groups. They found that high parental educational expectations enhance achievement and that immigrant status increases such expectations. They also found that Mexican-American families possess lower levels of social capital than do Chinese and Korean families. Roscigno and Ainsworth-Darnell (1999) examined the differential effect of social capital on academic achievement between groups of white and black students. They found that significant differences in social capital are largely accounted for by differences in socioeconomic status. Valenzuela and Dornbusch (1994), in a comparative study of Anglo and Mexican-American youths, found that social capital in Mexican families exerted a positive effect on educational success, but only when the educational level of the parents was no less than 12 years. Zhou and Bankston (1998a, 1998b) examined how the cultural characteristics of Vietnamese immigrant youths help overcome the effects of poverty and minority status. They found that Vietnamese parents teach skills to assist their children navigate ethnic and racial barriers, and concluded that Vietnamese ethnic social capital, apart from that of their families, benefit adolescents in school. In sum, immigrant disadvantages, such as a lack of English-language proficiency and familiarity with the host community, could be mitigated by higher levels of family social capital (e.g., Hagen, MacMillan, and Wheaton 1996; Sanders and Nee 1996).

The research that has focused on Latino families is limited. Usually, studies on Latino families take as their point of departure the notion that Latino families are highly familistic and routinely confronted by hardships stemming from immigration, poverty, and minority status (Therrien and Ramirez 2001). Within an immigrant context, Portes and Bach (1985) argue that theoretically driven comparative studies are necessary to grasp how differing Latino ethnic groups with similar family values are accommodating to local opportunity
structures and social conditions. Most research on Latino families is centered on the role of families for socialization, distribution of resources, preservation of cultural forms, immigrant settlement, changing family life and gender-role patterns (Vega 1995).

For several reasons Latino children tend to live in larger households than other children (Therrien and Ramirez 2001). Latino women in the U.S. have higher fertility rates than African American and non-Hispanic white women; thus, on average, Latino youth have more siblings than other youth. In addition, Latinos are more likely to live in “horizontal” families, that is, related adult members of the same generation living in one household. This arrangement results in Latino youth living with aunts, uncles and cousins more often than youth of other racial groups. Latino youth are more likely than African Americans, but less likely than whites, to live with both parents. Half (49%) of Latino teens live with both parents, as do 62% of white teens and a quarter of African American teens. About one-third (35%) of Latino teens live with a single parent, as do one-fifth (19%) of whites and three-fifth (61%) of African Americans (Nelson, Clark, and Acs 2001).

The limited research that has examined the family structure and process indicates that family capital is associated with the educational achievement among Latino children (e.g., Angel and Tienda 1982; Hetherington 1998; Israel et al. 2001; Morgan and Sørensen 1999; Patterson, Reid, and Dishion 1992). Accordingly, academic achievement is higher among adolescents from intact families than among those in single-parent families, and from families with well-developed social networks whose members are socially integrated (Foner 1997; Oropesa and Landale 1997; Stanton-Salazar and Dornbusch 1996; Waters 1997; White and Glick 2000; Zhou 1997). Although this evidence is common across all ethnic and immigrant groups, little is understood about the relative importance of different aspects of family social
capital and so more about the mechanisms through which family social capital translates into educational success. Because of the obvious difficulty in measuring social capital, the majority of studies on family social capital focus on one particular aspect of parent-child relationships. Below I outline some of the components of parent-child relationships that are often used as proxies for family social capital, including parental supervision, limit setting, closeness, educational expectations and involvement.

An important way that parents influence their children’s behavior is by being aware of what their children do, who their friends are, and where they spend their time. The process of parental supervision works in two directions. Parents who are aware of their teens’ activities can provide them with guidance or feedback on the events in their lives. Moreover, they are more able to prevent or discourage activities or friendships of which they disapprove. Teens who know that their parents are watching over them may be less likely to engage in activities they know their parents do not sanction out of fear of discovery (Coleman et al. 1966). Greater communication within the family has been linked to greater social skills, higher academic achievement, and more positive attitudes among children (Dornbusch 1989). Research has found that children who are highly supervised are less likely to experience psychological problems, less likely to commit delinquent acts and engage in impulsive behavior, and more likely to succeed academically (Dornbusch et al. 1987). There is little research on the level of parental supervision in immigrant families; however, a recent study by Harker (2001) found that foreign-born youth experience greater parental supervision than native-born youth.

Parental limit setting is an important aspect of the relationship between parents and adolescents. Recent studies have suggested that the educational payoff of authoritative
parenting strategies may be greatest to American-born families with European backgrounds (Chao 2001; Steinberg et al. 1991). The link between such parenting behaviors and educational success is less evident among cultural groups that traditionally place a greater emphasis on parental control and obedience among children, such as those with Asian backgrounds (ibid.). These results suggest that some traditional developmental theories of effective parenting strategies may not apply to different ethnic groups with their own cultural traditions regarding autonomy and obedience among children.

A high level of closeness between parents and children may be associated with high levels of involvement, with parents and children communicating and engaging in activities together. It may also increase children’s perception of parental support and decrease conflict within the home. There is some evidence that adolescents tend to feel close to their parents (Steinberg et al. 1991) and that those who do tend to experience greater psychological well-being (Dornbusch et al. 1987, Dornbusch 1989; Steinberg et al. 1991). There is little research on the level of closeness and involvement between immigrant parents and their children, although Harker (2001) finds that immigrant children feel less close to their parents.

The literature on achievement has consistently shown that parent educational expectations are an important factor in predicting their children’s achievement (e.g., Carbonaro 1998; Bridge et al. 1979; Goldenberg et. al. 2001; Steinberg et al. 1992). High parental expectations, even if they are perceived by the student, influence academic achievement (Carbonaro 1998). Questions remain concerning whether it is the children’s own beliefs and expectations or actual parent expectations influence achievement, and whether parents’ expectations influence or are a reflection of children’s school achievement. (Bridge et al. 1979; Goldenberg et. al. 2001). Research on parental educational expectations among
immigrant groups is relatively scarce. A recent study comparing the educational aspirations of Asian Americans and white-Americans found that Asian-American students had substantially higher educational expectations than did white students, tracking closely with parental expectations (Goyette and Xie 1999). Another study by Goldenberg et al. (2001) on Latino children throughout their elementary years and their immigrant parents showed that immigrant Latino parents attribute high instrumental value to formal schooling, and that neither years in the U.S. nor perceived discrimination diminish this belief.

Parental involvement is another factor to influence school achievement, because parental involvement has been shown to make a difference in school performance in general (Coleman et al. 1966; Muller 1995; Stevenson and Baker 1987). Previous research on parental involvement has largely focused on the social class variation of parental involvement, illustrating how high socioeconomic parents navigate their children through school (Conger et al. 1994; Conger et al. 1997; Coleman et al. 1966; Stevenson and Baker 1987). McNeil (1999) found, for example, that social capital, as measured by parental involvement in school, has differential effects. Students from lower class families, minorities, and students from divorced families received no benefit from parental involvement on measures of success in science classes and in the reduction of problematic behavior – truancy and dropping out of school. Others have investigated the extent to which the disadvantaged parents improve their children’s educational outcomes through partnerships with the school community (Epstein 1991; Schneider and Coleman 1993). Some even advocate parental involvement programs organized by the school to apply parental practices found to be effective for whites to minority groups (Boutte et al. 1992; Williams and Chavkin 1989).
It is important to consider that “parental involvement” often means something different to educators than it does to the poor, minority and immigrant parents. Further, differences in family structure, culture, ethnic background, and school experiences can lead to interpretations within the immigrant community that are quite different from those of other minority parents. Mexican Americans, for example, tend to value parental involvement in schools when they see their activities enhancing the school environment for their children (Delgado-Gaitan 1991). They are likely to become more involved when educators show concern for their child. Educators, on the other hand, generally understand parent involvement to be efforts aimed at increasing student achievement. Lopez et al. (2001) call for a restructuring of parental education programs that apply traditional practices of parental involvement. They argued that the guidelines, materials or training the schools give parents to engage their children in school-like activities at home do not work for migrant families. Other practices, such as taking children to the field to show them the value of hard work is an effective form of parental involvement among Mexican migrant farm workers to promote children’s hard work at school (Lopez 2001). The implication of these studies is that there is no reason to believe that immigrant parents’ involvement in their children’s schooling is similar to non-immigrant parents’ involvement, either in terms of level or of effectiveness.

Indeed, Dwivedi and Varma (1996) believe that the forms of parental involvement differ among children of different immigrant generations. First-generation immigrant parents are new to the environment and, lacking the necessary cultural capital for partnership with the school, they are likely to keep their contact with school personnel to a minimum unless there is a problem. Above all, as Valencia (1997) reported, some immigrant parents may come from a more centralized and authoritarian school system, and they do not have the experience
participating in school like the non-immigrant American parents do. These immigrant parents tend to monitor their children’s school progress directly and primarily at home. Their home-based involvement may include talking to the child about their school grades and schoolwork, conveying their high educational expectations to their children, and tutoring or monitoring their children at home. Some immigrant parents may also rely on their co-ethnic communities to help monitor their children. A tightly knit co-ethnic social network may help to enforce norms of the immigrant community and reinforce parents’ high educational expectations. This form of community-based parental involvement complements the home-based involvement (Dwiwedi and Varma 1996).

Abundant empirical evidence highlights the benefits of non-school parental involvement. Home-based parental involvement, such as high educational expectations, has been found to be associated with high academic achievement among immigrants (Hao and Bronstead-Bruns 1998). Parental control and parent-child emotional bonds are found to have positive influences on adolescent development as well (Stevenson and Baker 1987). When adolescents spend more time talking and eating dinner with their parents, there is better communication between parents and the child. These parental practices – talking and eating together – have been linked to adolescent’s restraint from engaging in risky behaviors such as smoking, drugs, use of alcohol, and unprotected sex (Harris 1999). Immigrant protection is also found among children whose families are connected to a larger ethnic community. Such connections promote the school success of immigrant youth living in an impoverished neighborhood and going to poor minority schools (Bankston and Zhou 1995).

Generally speaking, the findings on the effect on school outcomes of school-based parental involvement are less consistent than those on the effect of home-based parental
involvement. Compared to immigrant parents, native parents are more familiar with the school system since they have gone through the same system, and thus feel more comfortable participating in schools or networking with other parents (Buriel 1993). Such school-based involvement may include participating in parent-teacher associations (PTA), assisting classroom teachers, helping with school events, and engaging in information exchange with other parents. Empirical evidence on parents’ PTA participation on academic achievement has been mixed, ranging from no apparent effect (Muller 1995) to significant influence at the aggregate level (Hao and Bonstead-Bruns 1998). Similarly, acquaintances and communications between parents (social closure)\(^1\) have significant positive influences on student performance in some studies (Carbonaro 1998, Hofferth, Boisjoly, and Duncan 1999) but negative influence in another study (Morgan and Sørensen 1999).

### 2.5. Assimilation.

Contemporary discourse on assimilation is, to a large extent, indebted to a classical study by Gordon (1964), which posited that the social distance between minority and majority groups decreases as immigrant groups assimilate into American society. Gordon (1964) believed that the process of assimilation involves several dimensions, among which the most important are acculturation and structural assimilation. Acculturation refers to the adoption of mainstream cultural patterns by minority groups, whereas structural assimilation involves the entrance of minority groups into mainstream social institutions. Although both types of

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\(^{1}\) Carbonaro (1988) reported that social closure was related to better performance on mathematics test scores and a decrease in the probability of dropping out, but had no effect on reading test scores or grades. Importantly, Morgan and Sørensen (1999) analyzing the same data concluded that social closure was associated with lower math test scores, and so the debate regarding the benefits of social closure in school persists (Hofferth et al. 1999).
assimilation are thought to increase with each generation, there is no guarantee that a minority group will ever experience complete structural assimilation. Yet, both types of assimilation are essential to narrow the social distance between a minority group and the majority group (Alba and Nee 1997).

Assimilation paradigms generally suggest three possible outcomes for immigrant offspring differentiated by generation status. These three are labeled as: classical, segmented assimilation, and “immigrant optimism” hypothesis (Hirschman 2001). The straight line or classic assimilation paradigm implies that usually after two to three generations in the host society, the descendants of immigrants are virtually indistinguishable from the rest of society in their behaviors and socio-economic characteristics (Gans 1997). As immigrants assimilate into America’s mainstream society the classic assimilation paradigm suggests they also are able to overcome their cultural and socioeconomic disadvantage. Without fast assimilation, however, immigrants would remain confined to immigrant enclaves.

The first orientation following the classic paradigm argues that the observed differences between the first, second and subsequent generations is mainly due to school composition (Vernez and Abrahamse 1996). Given that immigrants, on average, face economic and linguistic disadvantages, one would expect to see aggregate differences in academic achievement for immigrants as an undifferentiated group. Once the immigrant disadvantage is controlled, the hypothetical effect of immigrant generation status would be practically zero. The second orientation follows the classic assimilation model and perhaps has even fallen out of favor (Alba and Nee 1997). It simply states that there are genuine differences that ascribe to immigrants and their descendants. These differences are not merely attributable to socioeconomic composition but are associated with the immigration process
itself and settlement in the host society. Furthermore, these differences are expected to attenuate monotonically with time, both within and across generations. Thus under this perspective, recent immigrants are expected to do less well than earlier arrivals and those in the second and subsequent generations because they all have not yet experienced significant cultural and structural changes that pertain to “assimilation”, even after controlling for SES.

The other two paradigms – segmented assimilation and “immigrant optimism” hypothesis – suggest that assimilation will not progress monotonically across generations. Segmented assimilation theory highlights divergence in socio-economic status among immigrants with respect to variations in skin color and the level of parental and community-based resources (Zhou 1997). As a consequence, the patterns of assimilation are thought to vary by immigrant group (Portes and Zhou 1993). Some groups follow a linear assimilation process and eventually escape poverty and achieve socioeconomic advancement. Others groups, however, may experience deterioration in socioeconomic status and become susceptible to long-term poverty and discrimination. The former immigrant type typically has a middle-class background, while the latter type has a working class background. These different types of immigrants are likely to be associated with the level of economic development in their countries of origin (Portes 1995; Portes and Zhou 1993).

The third paradigm known, as the “immigrant optimism” hypothesis, is a newer theoretical development and relies heavily on the findings from a study by Kao and Tienda (1995). According to this theoretical notion, academic achievement among the U.S.-born youth of immigrant parents is higher than that of both the first and third or higher generations. Kao and Tienda (1995) suggest that it is the combination of benefits derived from having immigrant parents who are optimistic about their children’s futures and the children’s own
fluency in English that enhance performance among this generation. These differences should be observed regardless of the cohort under examination once parental characteristics and linguistic background are introduced. On the whole, having immigrant parents is associated with higher academic achievement in both math and reading (ibid.). This immigration protection effect is found among all major ethnic groups (Kao 1995; Vernez and Abrahamse 1996). Furthermore, recent studies also found immigration protection on a number of adolescent risk-taking behaviors (Harris 1999).

Empirical evidence from research on immigrant children’s academic achievement has rejected the classical assimilation paradigm (Portes 1995; Portes and Zhou 1993). Increasingly, immigrant research supports segmented assimilation theory. Today’s first generation of foreign-born children generally performs better academically than their third generation, U.S.-born counterparts (August and Hakuta 1997). Evidence of greater attitudinal and motivational forces among immigrant children is also widely available. In their extensive study of Mexican and Mexican-American adolescents in the U.S., Suarez-Orozco and Suarez-Orozco (1995: 5) say that “Teachers working with Latino immigrant students reported to us, almost unanimously, that the new arrivals are simply the best students they ever had: appreciative, well-behaved, and above all desperate to learn.” At the same time, American-born Latino children and older, more acculturated immigrants were not found to have the same motivational characteristics. “Whereas new immigrants are widely reported to be extremely motivated to learn English and use the educational system to improve their lot, more acculturated Latinos drop out of schools at alarmingly high rates. The same teachers who reported “loving” to teach newly arrived immigrant students were at a loss to explain the problems of more acculturated Latino students.” (ibid.: 6).
Recent investigations associated with these theoretical revisions have usually focused on selected ethnic or racial groups (Waters 1997). Although such studies can be exceptionally innovative, frequently revitalizing and redirecting second and higher generation research, they are not flawless. Boyd (2000) suggests that the segmented assimilation theory rests on the unique history of race relations in the United States, and may not hold elsewhere. Glick and White (2003) in their recent cross-sectional study argued for the importance of factors that are closely linked to U.S. opportunity structures, such as SES. Alba and Nee (1997, 2003) note that childhood circumstances for young immigrant offspring are not necessarily identical to or predictive of experiences in adulthood. Such observations point to the need for additional studies that extend beyond the U.S. to focus on other countries and assess the differences and similarities in how these socioeconomic situations affect the second generation in adulthood.


While individual and family variables are influential, the contexts of origin and destination play a decisive role in the course that their offsprings’ lives will follow. These contexts includes such factors as political relations between the sending and receiving countries, the state of their economies and labor markets, and such specific variables as the degree to which the immigrant group encounters discrimination and finds a pre-existing ethnic community (Zhou 1997). Today large-scale immigration from Mexico, along with newer flows from Central America, South America, and the Caribbean define what Portes and Rumbaut (1996, 2001) called “the new immigration.”
**Mexicans.** Approximately 60% of the Hispanic population is comprised of Mexican Americans. Mexicans also currently represent the largest group of undocumented immigrants to the U.S. (Therrien and Ramirez 2001). For many years Mexico has been the number one sender of immigrants to the United States. Many of the reasons Mexicans move to the U.S. are deeply rooted in Mexico’s history with the U.S. In recent years, Mexicans have migrated to the U.S. mainly to find jobs. At times the U.S. has welcomed them, especially when cheap labor was needed. The U.S. has even sponsored various programs to recruit Mexican laborers. The Bracero program began in 1942 because the U.S. needed extra farm workers. Although the program officially ended in 1964, Mexicans and their employers continued their working relationship (Massey, Durand, and González 1987).

Many Mexican communities have practiced temporary labor migration to the U.S. since the 1920s, and many more since the 1940s. Three generations of experienced temporary migrants exist, and it is now a way of life deeply rooted in some rural communities (ibid.). The opportunity of migration is at times seen as an alternative to farming, particularly when crops fail or when local economies are not stable. In the home community, however, money and knowledge acquired abroad have frequently been instrumental in making improvements to the local economy. Even for permanent migrants, the home community offers temporal shelter from the intolerance and hegemony of American culture, and a place for retirement (ibid.). According to Zhou (1997), many Mexican immigrants do not expect to stay long in the United States. They put down shallower roots. Their families are more isolated, and the organizations in their community are more concerned with migration issues than education.

Like in the majority of Latin American countries, schooling in Mexico is centralized at the federal level. Students progress through primary school (grades 1-6), middle school
(grades 7-9), and high school (grades 10-12). Although compulsory schooling was extended from six to nine years in 1993, direct and indirect costs of education often restrict parents’ ability to comply with the law. Consequently, it remains under-enforced, particularly in rural areas of the country (Palafox, Prawda, and Velez 1994). Moreover, despite the extraordinary expansion of education in Mexico over the past five decades, problems regarding school quality and the labor market’s capacity to absorb graduates from the different education levels may prompt parents and children to question the rationality of additional schooling (ibid.).

Although investments in education pay off in more advanced occupations and higher pay (Massey et al. 1987), the prevalence of migration within households and communities offers the prospect of an alternative to education for economic mobility. This alternative has implications for educational attainment in Mexico due to a peculiar attribute of the U.S. labor market: education in Mexico is not rewarded economically to the same degree as education acquired in the U.S. New labor market entrants with the equivalent of a high school education can obtain remunerative clerical, administrative or even professional work without having to consider the alternative of U.S. migration and its attendant hardships, legal and economic risks, and low status (Bean and Stevens 2003). In migrant communities, in contrast, it is generally understood that additional schooling in Mexico has little impact on one’s labor market prospects in the U.S. compared to one’s understanding of English, work experience in the U.S., social networks, and documentation (Carnevale 1999). Thus, if parents and children believe their futures lie in the United States they have few incentives to invest in Mexican schooling.

McDonnell and Hill (1993) state that educational research regarding Mexican Americans is greatly dependent on the length of time a family has lived in the United States.
The average Mexican immigrant has about seven to eight years of education, but immigrant children educated in the U.S. will most likely attain higher levels of education (ibid.). Moreover, age at arrival is an important factor that affects the amount of education they attain. It is important because immigrant children who arrive at a young age will have an easier time adjusting to the educational system in the U.S., and will have fewer obstacles to overcome (such as English language ability) than older immigrant children starting out in the education system. This also implies that immigrants who arrived at earlier ages and attended school in the U.S. will earn more than other immigrants, holding total education constant, as long as the returns to U.S. schooling are greater than the returns to foreign schooling (ibid.).

The educational status of Mexican immigrants lags far behind that of natives and some other Hispanic groups. As I have mentioned earlier, in 2000 only 51 percent of Mexican-Americans were high school graduates compared to 71.6 percent for all U.S. Hispanics (Therrien and Ramirez 2001). One of the more alarming findings of Zhou (1997) on how immigrants fare in the U.S. education system was the low academic aspirations of Mexican immigrant children compared to those of other immigrant groups. Even more disturbing was the finding that their academic aspirations weakened in subsequent generations.

School dropout rates among immigrant children are highest among Mexicans, particularly those who migrated to the United States after starting school in Mexico. The dropout rate of foreign-born Mexicans is more than twice that of U.S.-born Mexicans in the same age range (Kaufman, Alt, and Chapman 2001). Especially alarming is the consistently slow or total lack of educational progress across generations of Mexicans. Mexican Americans have been steadily falling behind non-Mexicans in high school and college attendance rates. According to Fix et al. (2001: 28) “Mexican dropout rates for each of the
first, second, and third generations are roughly double the national average”. However, the reasons Mexicans drop out at such a high rate are disputed. Riley and Pompa (1998) argue it is because of a lack of bilingual education and courses in English as a second language. Fix et al. (2001) attribute this generations-long lack of education to the historically high levels of segregation and discrimination.

Mexicans’ educational outcomes appear even worse when they are compared with non-Hispanic immigrant groups. Among youth ages 16 to 24, status dropout rates in 2000 of non-Hispanic whites and Asians were, correspondingly, only 19 and 12% of Mexican American dropout rate (Kaufman et al. 2001). Mexican immigrants’ English skills are worse than those of earlier European or Asian immigrants (Portes and Rumbaut 1996, 2001). Asians, who have not as yet pushed for bilingual education, excel in high school and frequently graduate from college. Yet many scholars insist on bilingual-bicultural instruction for Hispanic children (e.g., Schmid 2001; Valencia 1997).

*Puerto Ricans.* Much like other Hispanics, it is important to place the situation of Puerto Ricans in contemporary American society within a historical context. First, unlike many other Hispanics, Puerto Ricans migrated with a different legal status, conferred upon them by the Foraker (1900) and the Jones Act (1917) Acts. The latter granted U.S. citizenship to all Puerto Ricans. Second, a salient feature of Puerto Rico throughout the first half of the twentieth century was its extreme poverty (Maldonado-Denis 1972). After the U.S. took control of Puerto Rico, Puerto Rico underwent an economic transformation, as big U.S. sugar and coffee companies came in and established plantations. Previously the island’s main crops had been grown on small subsistence farms. Small farming was shattered and these new plantations only cultivated one crop, coffee or sugar cane for the international market. As with
any monoculture, problems would arise. The sugar plantations induced thousands of people to move down to the coastal lowlands. Many of the displaced farmers who moved to the city to find employment were unsuccessful (Carr 1984).

After the Jones Act made Puerto Ricans citizens of the U.S. large numbers of Puerto Ricans moved to the mainland in search of better economic opportunities. Initially most settled in New York City but later they moved throughout the northeast. Puerto Rican migration has passed through several stages, the most important of which was the massive migration of Puerto Ricans in the 1950s. Many Puerto Ricans were directly recruited to work on the mainland. Here they were faced with discrimination, and oftentimes uncomfortable working conditions (Maldonado-Denis 1972). As the numbers grew in the 1950s they were increasingly portrayed as welfare prone freeloaders, drug addicts and juvenile delinquents. As a consequence of this public view, business and government leaders were able to get away with policies and practices that exploited and demeaned Puerto Ricans in jobs, housing, and education (Moore 1989).

Generally speaking, Puerto Rican migration is characterized by a transnational pattern. Many Puerto Ricans participate in life both on the mainland and on the island. This type of migration is made easy because of geographic proximity to the mainland, low-cost transportation and, most importantly, because their citizenship poses no legal barriers to re-entry to the mainland (Duany 2002).

Comparative studies indicate that Puerto Ricans are the most disadvantaged Hispanic group in the United States (Moore 1989; Tienda 1989). Even Mexican Americans, who have limited English skills, less likely to have finished high school, and more likely to have arrived

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1 Despite heavy immigration from Latin America, Puerto Ricans are still by far the largest Hispanic community in New York city (U.S. Census Bureau 2000).
here recently, have a much lower poverty rate than Puerto Ricans (Therrien and Ramirez 2001). According to Tienda (1989), Puerto Ricans are more severely affected than Mexican-Americans by the secondary effects of poverty, including family breakup and the failure to secure employment, factors which ensure the continuation of poverty.

*Cubans.* The image of Cuban refugees fleeing Cuba tightly packed in small boats to Florida shores is common, but not an entirely accurate depiction. In fact, Cubans immigrated in several waves which roughly corresponded to their socioeconomic status in the origin (Garcia 1994). Cuban immigration was slowly rising in the 1950’s as a result of the growing political instability in Cuba, but the numbers increased substantially after 1959. That year Fidel Castro initiated the restructuring of Cuban society, and this threatened the lifestyle of many middle- and upper-class Cubans. Those who arrived in the United States as refugees sponsored by the U.S. State Department in the early 1960s formed the first wave of Cuban immigrants. This is an older population, light complexioned and generally well educated (ibid.). The first wave was interested in saving their financial assets. Besides money, this first wave brought skills, education, contacts, and fluency in English, all of which enabled them to have positive acculturation experiences. Thus, Cuban immigrants of the 1960s came under perhaps the best circumstances: they were welcomed by the government, did not meet great prejudice, and soon formed a supportive community.

Political and economic reasons equally influenced the second wave of Cuban immigrants (arriving from the mid-1960s to the mid-1980s). Until 1985, there was no quota for Cubans entering the United States via normal immigration procedures, as there was for other immigrant groups. Cuban undocumented entrants have always had special status: while entrants from other countries have been required to demonstrate that they were fleeing
political persecution to be granted refugee status, it was officially assumed that anyone arriving in the United States from Cuba was a \textit{bona fide} refugee and therefore had automatic access to the special benefits that refugees are entitled to (Garcia 1994). By the beginning of 1980’s Castro had lifted restrictions on emigration to the point where over one hundred thousand Cubans (some of whom were mentally ill, criminal, and social outcasts) were “expelled” to the United States, by way of the Mariel Port. This group of Cubans (known as “Marielitos”) arrived in United States and their backgrounds generated fear among both American and Cuban American communities (Silva 1995).

The most recent wave of Cuban immigration to the U.S. peaked in the mid-90s. The main factor influencing this last wave of immigration was the shrinkage of the Cuban economy following the post-USSR dissolution. Shortages worsened (e.g., electricity, gas and food) while frustration and discontent grew. Thousands of Cubans attempted to enter the United States via rafts and boats built out of available materials (Garcia 1994).

As far as geographical distribution, the U.S. population of Cuban heritage is heavily concentrated in one single place. In 2000, more than half of all Cuban Americans (52 percent) live in Miami, Florida (U.S. Census Bureau 2000). The unique social and economic characteristics of various waves of Cuban immigrants, the governmental support given them, and the changing economy of Miami propelled the Cubans into significant and important statuses both in the general Miami economy and within their particular enclave economy. In their primary port-of-entry – Miami – Cubans have created a prosperous community. Signs of this prosperity abound. The proportion of Cuban owned businesses in Miami rose from 8 to

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3 Miami is the one major city in the United States where Hispanics dominate numerically, politically, and economically. They make up about 60 percent of the population, a stunning rise from only 5 percent in 1960 (Calculated from: U.S. Census Bureau 2000). Although the center of Cuban community is in Miami, there are sizable communities in other cities in Florida and in New York, Illinois, and California as well (U.S. Census Bureau 2000).
21 percent between 1973 and 1979, forming the core of the Miami ethnic enclave. By 1989, Cuban family incomes approximated those of the native-born non-Hispanic white population. The Cuban community also developed a private school system oriented to its values and political outlook (Research Perspectives on Migration 1997, Zhou 1997). In terms of the above typology of vulnerability and resources, well-sheltered Cuban-American teenagers lack extensive exposure to outside discrimination and have little contact with youth from disadvantaged minorities. Moreover, the development of a Cuban enclave has created economic opportunities beyond those in the narrowing industrial and tourist sectors on which most other immigrant groups in the area depend (Portes and Bach 1985).

There is general agreement among scholars (e.g., Silva 1985; Vernez and Abrahamse 1996; Zhou 1997) that the level of education in Cuba is high, but sources disagree as to why. Those favorable to the Castro government claim that it is the result of the emphasis placed on education since the revolution, while anti-Castro sources assert that the level of education in Cuba has always been high. In contrast to Mexicans and other Latinos, seven out of ten Cubans have a high school diploma. Among 18 to 24 year old Latinos, Cubans have the highest rate of college enrollment with 45 percent of Cuban high school graduates enrolled in undergraduate, graduate or professional schools, a figure close to that of non-Hispanic whites. Analysts attribute the disparity mainly to two reasons: Cuban-American immigrants tend to be older and make more money (e.g., Guzman 2001; Silva 1985; Vernez and Abrahamse 1996). In 2000, the median age for those of Mexican origin was only 24.3 years, while for people of Cuban descent it was 40.1 years (Therrien and Ramirez 2001)\(^4\). Compared to Puerto Ricans

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\(^4\) The median age for the total U.S. population was 35.3 years in 2000 (Therrien and Ramirez 2001).
and Mexicans, Cubans in the United States have always been regarded as economically quite successful. The median earnings of employed Cubans are above $13,500, compared to about $10,000 for Puerto Ricans and $8,500 for Mexicans. Only 18% of Cubans fall below the poverty line, compared to 26 and 30% of Mexicans and Puerto Ricans, respectively (ibid.).

“New Latinos”. According to the 2000 Census, 14.5 percent of all Hispanics in 2000 were from Central and South America (Therrien and Ramirez 2001). The fastest growing Hispanic populations in the 1990s were not Mexicans, Puerto Ricans or Cubans, but Hispanics from the Dominican Republic and a diverse set of countries in Central and South America (ibid.). Generally 45-50 percent of their foreign-born arrived in the last ten years. While among Central American immigrants Salvadorean dominate, Colombians are the most numerous South American group (Guzman 2001). It is because of the wars and repression in that region that most Salvadoreans, Guatemalans, Nicaraguans and Hondurans have fled their countries. It is important to note that migration to the United States took place under contrasting circumstances. Due to the “cold war” between the U.S. government and the Sandinista regime, Nicaraguan emigrants, for example, enjoyed more types of government assistance, such as political asylum, than did other Central Americans (Dunkerley 1994).

Recent Latino migrants and immigrants to the U.S. have primarily settled in areas where jobs at the low-wage end of the labor market, often in traditional industries, are abundant. The largest number of “New Latinos” are in New York state, closely followed by California. Because they are so highly concentrated in a few regions, and often in a fairly narrow set of neighborhoods within those regions, each group has special local significance in those places (ibid.). One common feature of the new wave of Hispanic immigration is its reliance on foreign born persons who come to the United States by virtue of family
connections, work, or exile (ibid.). The large majority of Central American immigrants residing in the United States arrived since the early 1980s.

Differences in earnings among new Hispanic immigrant groups are more likely to be the result of educational level than of ethnic origin than (Zhou 1997). Among the “New Latinos” Salvadorans and Guatemalans have the least education (below 10 years), while South Americans are even better educated than Cubans (Guzman 2001). Among the New Latinos, the poverty rate is the second highest, following only immigrants from the Dominican Republic. The major Central American groups are roughly equivalent to Puerto Ricans in average earnings, though they are less likely to fall below the poverty line. South American immigrants whose educational levels are closer to those of Europeans than to those of other Hispanic groups, earn substantially more than do other Hispanic immigrants. On average, South American immigrant groups have the lowest Hispanic poverty rates (ibid.).

2.7. Overview.

The influx of immigrant children into the U.S. public school system has generated a great deal of scholarly interest regarding their adaptation in school. To date researchers have studied adolescent school achievement by ethnic origin and generational status, and tried to examine family factors that contribute to their achievement differences (e.g., Vernez and Abrahamse 1996; Kao and Tienda 1995; Kao 1999). Like all large immigrant groups, Latinos vary in terms of their family backgrounds and resources, their immigrant experiences, human, social and cultural capital. The cultural diversity among Latino immigrants is striking. Latinos in the U.S. represent about twenty countries, each with its own culture and history (Lopez et
Latino youth differ from one another in additional important ways. Some of these contrasts stem from influences of the school environment and/or attending a low-quality school with other minority children (Van Hook and Balistreri 2002).

While differences in ethnic background are considered to be most important in accounting for ethnic and generational differences in children’s school performance, little is known about school factors and how they may affect the differences in school performance by children. Research has typically focused on the specific problems pertinent to adaptation to the U.S. school system of immigrant children in general. However, empirical research has not “caught up” with the theory. Firstly, it is practically impossible to find a robust theoretical model applicable to a wide variety of social contexts or, vice versa, to match detailed theoretical explanations with the scope and resources of empirical studies. Secondly, available data often lack information on social contexts related to immigration. This constrains the empirical studies’ possible application.

Studies of educational assimilation often exploit the idea that the factors responsible for school performance relate to students’ ethnic and family backgrounds, while ignoring the impact of institutional racism, or more broadly, the particular historical contexts. In addition to these external factors, current research also tends to overlook the combined effect of peer groups, social networks, and parent-child relationships in the process of adjusting to a new environment while maintaining traditional values and beliefs. The educational assimilation literature (Portes 1995, Vernez and Abrahamse 1996, Zhou 1997) suggests the need to explore social capital factors in the families, communities, and schools where immigrant children are finding their places and building the foundation for their futures. In addition to the educational assimilation literature, social capital theory (e.g., Burt and Minor 1983; Granovetter 1973,
1983) and oppositional culture theory (e.g., Ogbu 1981; Fordham and Ogbu 1986), two paradigms that are of particular interest to this study, suggest different outcomes for Latino youth depending on the size and direction of peer effects in school.

My contribution to the literature on educational assimilation consists in the following. First, I further investigate school context of assimilation though an emphasis on peer effects. Second, earlier segregation studies almost exclusively focused on African Americans, often ignoring the fact that Latinos are now the most segregated minority group. I expand this literature by focusing on Latinos. Third, I examine the degree to which different aspects of school and family contexts interact to shape Latino adolescents’ educational outcomes.
CHAPTER 3. DATA AND METHODOLOGY.

3.1. Data.

The Add Health. The data used in this study is the 1995 National Longitudinal Study of Adolescent Health (commonly known as Add Health). The Add Health, a school-based study of adolescents in grades 7 through 12, examined the health-related behaviors of adolescents in the context of family, peers, school, neighborhood, and community (Bearman, Jones, and Udry 1997). The Add Health sample was obtained through a random sample of all high schools in the United States. The sample of schools was stratified by region of the country, type of residence, school type (public/private) and size, ethnic composition (proportion black, proportion white), and grade span (e.g., 9 to 12, 10 to 12). The probability of selection for each school was based on size – thus, schools with higher enrollments had a greater probability of selection. Over 70 percent of the high schools originally sampled were recruited into the study. Those schools that refused to participate were replaced with other high schools within the same strata (ibid.).

Each high school recruited into the study was asked to identify its “feeder” schools. Feeder schools are those that include seventh grade and send a portion of their graduates to the recruited high school. As most high schools have more than one feeder school, one particular feeder school was selected for each high school with the probability proportional to the number of its graduates who attended the high school in question. For example, a feeder school whose graduates made up one-quarter of the freshmen class at a recruited high school

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1 Although debatable, the definition of adolescence used in this study, which is not described by age but year in school, serves more practical, rather than purely methodological concerns.
had a selection probability of 0.25. The objective was to have a pair of schools (one high school and one junior high/middle school) in each of the 80 communities that ultimately comprised the sample. In some cases, however, the “pair” was a single school because high schools that spanned grades 7 through 12 served as their own feeder school. The resulting sample is comprised of 132 discrete schools – 80 high schools and 52 junior high and middle schools (ibid.).

Each student in grades 7 to 12 who was present during the predesignated class period that the questionnaire was administered to their particular school was asked to participate. More than 90,000 students completed this in-school questionnaire. A subset of students was also asked to complete an in-home interview. This in-home sample consisted of a core sample, as well as specially selected oversamples. The core sample was selected from school rosters. Seventh to twelfth grade students in each school were stratified by grade and sex. Approximately 17 students were chosen randomly from each stratum resulting in about 200 students selected from each high school/middle school pair. A total of 21,105 students were interviewed to form the core sample. Adolescents were selected for oversamples based on their responses to the In-School Questionnaire. The oversampled adolescents include (1) blacks with well-educated parents (i.e., at least one parent had a college degree), (2) Chinese, (3) Cubans, (4) Puerto Ricans, (5) the physically disabled, and (6) sibling pairs (e.g., twins, half-siblings). Additionally, to facilitate research on social networks, all students from 16 selected schools also completed in-home interviews. A total of 20,745 adolescents (including core and oversamples) completed in-home interviews¹ (ibid.).

¹ This number is smaller than the core sample size because not all adolescents completed in-home interviews.
A parent of each adolescent respondent was also asked to complete a “parent” questionnaire. This questionnaire covered topics such as household income, education and employment, inherited health conditions, health behaviors, and marriages and marriage-like relations. A total of 17,700 parents were interviewed (The National Longitudinal Study of Adolescent Health 2003). Sample weights are available in Add Health in order to compensate for differences in selection probabilities and survey nonresponse. However, weights are only available for 18,924 adolescents in the 1995 data set. Adolescents without valid weights are those (1) who were added in the field, (2) who were selected as part of a sibling pair but both siblings were not interviewed, and (3) who were incorrectly assigned an allocation flag (Bearman et al. 1997).

The Add Health is used in this study because it is a nationally representative dataset that provides extensive information on immigrant generational status and ethnic background. Not only does Add Health allow researchers to differentiate first- and higher-generation immigrants from others, it also allows for detailed analysis of specific Latino (e.g., Mexican, Puerto Rican) groups. The possibilities this allows are especially noteworthy given Add Health’s large sample size. Additionally, this dataset provides extensive information on a broad array of topics related to school racial and ethnic composition, peer networks, and behavioral and family dynamics that are of interest to my research. There are two waves of Add Health data, 1995 and 1996. The 1996 dataset contains follow-up interviews with adolescents, with the exception of those who were high school seniors at the time of the original interview and those who were only a part of the disabled sample. As a result of these exceptions and those who refused to be re-interviewed, the sample size for the 1996 dataset was reduced to 14,738 (The National Longitudinal Study of Adolescent Health 2003). This
sample size does not allow for statistically reliable inferences about small ethnic Latino groups by immigrant generational statuses. The 1996 sample also excludes interviews with parents. I chose to use the 1995 dataset because it has a larger number of adolescents and includes data collected directly from parents.

The Add Health has a potential to present a unique vision of the face of immigrant Latino children and the influence of different social contexts on their educational performance. Nativity data for youth and their parents, both resident and nonresident, are easy to use. Ethnic background for children and their parents can be matched across in-home (reported by children and their parents) and in-school data, providing comparisons of social context and educational outcomes by immigrant generation, and by ethnicity.

*Sample Size.* The total sample size of the Wave 1 In-Home sample consists of 20,745 students from 132 schools across the nation. With the intention of taking into account the unequal probability of selection and survey nonresponse, those cases without valid weights were excluded from my analyses (Chantala and Tabor 1999). Due to this attrition, the sample size was reduced to 19,117 students. However, as Table 1 reveals, this reduction of cases generally did not introduce any significant bias. Further analyses required construction of a sample that includes only Latinos. The final sample contains 3,888 Latino students from 132 schools. This study sample is large enough to test the research hypotheses, which are laid down in the next section and make significant statistical inferences about Latino adolescent population in the nation.
3.2. Study Hypotheses.

The main objective of this dissertation is to examine possible associations between school racial composition and educational outcomes in order to understand more clearly how important these predictors are in explaining the academic achievement of Latino youth. The predictors to be considered monitor school racial composition, peer network density and homogeneity, academic achievement, ethnic origin, immigrant generational status and other factors capturing family context like parental supervision, family income, etc.

Prior studies that reflected on the factors contributing to the educational assimilation of Latino children observed the following:

1. Prior research has shown that socially and linguistically segregated Latinos find it difficult to cope with the basic school curricula (e.g., Bean and Stevens 2003; McDonnell and Hill 1993; Portes and Rumbaut 2001; Riley and Pompa 1998). Additionally, studies on the academic achievement of Non-White minority children suggest that this pattern of lagging behind native white children has historically occurred for segregated minority groups (Orfield et al. 1997; Orfield and Yun 1999; Van Hook and Balistreri 2002). Therefore, it is reasonable to expect that low levels of educational achievement among Latinos may be explained at least partially by their school segregation.

2. Many Latino families tend to compensate for the shortage of human capital, such as education and income, in extensive social networks that provide necessary resources and information to their members (Parcel and Dufur 2001; Portes and Bach 1985; Waters 1997). Moreover, it is common among immigrant Latino communities to rely on social capital in search of better educational and occupational opportunities (Bankston and Zhou 2002; Portes 1995; Portes and MacLeod 1996).
3. There is an association between generational status and/or time of arrival in the U.S. and the educational outcomes of immigrant children. The more time spent in the U.S., the better educational outcomes are for the majority of immigrant groups (Alba and Nee 1997; Rong and Grant 1992; White and Glick 2000). This assumption, consistent with assimilation theory, emphasizes how cohort affects exposure to assimilation pressures. For example, cultural or, more specifically, linguistic assimilation accounts for the gradual improvement of the academic achievement over time.

4. Ethnicity has a significant effect on educational outcomes. As a critical criterion of segmented assimilation, it serves as a proxy for cultural background. Numerous studies address ethnicity as an independent variable that influences the experiences and expectations of ethnic youth (e.g., Park 1928; Portes and Rumbaut 1996, 2001; Zhou 1997; Lopez et al. 2001).

As indicated above, the key independent variables of this study are school racial composition, socioeconomic composition, peer network homogeneity and density. However, it is also important to examine the effect of other factors on the educational achievement of Latino children. The variables which will be used as controls are related to individual and family context. These include socioeconomic status (SES), gender, age, frequency of involvement in extracurricular activities, and family structure.

The main hypotheses of this study may be stated as follows.

H1: School racial composition is directly related to Latino immigrant children’s academic achievement, or more specifically, concentration of Latino immigrant children in schools with a high minority enrollment negatively affects their academic achievement. That is, the higher the odds that a Latino adolescent is placed in a school where he or she and other
minority students are numerically superior to non-Hispanic whites, the lower chances are that this adolescent will be in good academic standing. This hypothesis is based on extensive literature on the academic achievement of minority students (e.g., Coleman et al. 1966; Bankston and Caldas 2002; Caldas and Bankston 1998; Crain and Mahard 1978; Jenks 1972; Longshore and Prager 1985; Mahard and Crain 1983). First, more than 1 in 3 Latino students attends a school with minority enrollment of more than 90 percent – a ratio that compares with that of black students (Orfield and Yun 1999). Van Hook and Balistreri (2002) used administrative data on LEP students in California public schools from 1985 to 2000 to confirm that Latino children from immigrant households attend schools with many more minority students than do other immigrant groups, including non-Spanish-speaking LEP students. Second, those schools that are a locus of minority concentration typically offer students vastly unequal educational opportunities (Orfield and Yun 1999). Achievement gaps have long been associated with public school segregation (Coleman et al. 1966). Research on the effects of desegregation on academic achievement documented some gains in the school achievement of minority children (e.g., Crain and Mahard 1978; Longshore and Prager 1985; Mahard and Crain 1983). Structural and cultural processes at school may further divide students by race and ethnicities and distribute opportunities among students in a way that reproduces social inequities.

H2: Another school-level factor that can influence academic achievement of Latino immigrant children independently from racial composition is the student body’s socioeconomic composition. Researchers noted that Latino students tend to be poor and segregated in low-SES schools together with other minority and poor white students (Van Hook and Balistreri 2002). Moreover, scholars in the field of education argue that
socioeconomic composition, together with racial composition, may influence the academic performance of students (e.g., Bankston and Caldas 1996; Hoxby 2000). Thus, I hypothesize that those Latino students who attend schools with a high percentage of low-SES students have lower academic achievement than those that attend schools where students come predominantly from middle- and upper-class backgrounds.

H3: School-based social capital may influence Latino immigrant children’s academic performance. Several peer network factors that may indicate the presence of social capital will be considered. The most important among these are network density and homogeneity. Specifically, strong ties among the peers that are characteristic of homogeneous and dense networks may provide better social support for Latino youth’s academic achievement than weak ties. In other words, Latino children in schools with denser and more homogeneous networks are more likely to succeed academically.

According to contemporary reworkings of assimilation theory (Alba and Nee 1997; Kao and Tienda 1995; Portes 1995; Vernez and Abrahamse 1996; Zhou 1997) both ethnicity and immigrant generational status are important predictors of how immigrant children fare in the U.S. educational system. The following hypotheses will test several aspects of assimilation theory.

H4: Latino adolescents are differentially successful in school in spite of the school composition effects (Kao and Tienda 1995). One of the factors that may explain these differentials is ethnic origin. In this study, ethnic origin can serve as a proxy for mode of entry and migrant selectivity. As it was discussed in Chapter 2, the differences in educational attainment and achievement among Latino ethnic groups stem primarily from differences in the selectivity process at the origin and mode of reception at the destination. Consistent with
the disparities in educational achievement and attainment among Latino groups that exist at the national level (Therrien and Ramirez 2001), I expect that Mexican and Cuban students in the Add Health sample, respectively, will be least and most likely to perform well in school.

**H5:** I expect that the differences in academic performance among immigrant Latino children will be influenced by their generational status, both independently and in interaction with their ethnicity, while keeping other things constant. Moreover, in accordance with the “immigrant optimism” hypothesis, it is the second generation (U.S.-born children of immigrant parents) that I expect to perform better than other generations because of the high educational expectations of their parents and their advantage in reading proficiency over the first generation (Kao and Tienda 1995). Irrespective of their ethnicity, the most recent arrivals should be the least likely to have good academic outcomes. Thus, I also hypothesize that there is a significant difference in educational outcomes between generation 1 and 1.5 of Latino immigrant children. The first-and-half generation is different from the first generation in their time at arrival in the U.S. The first-and-half generation youth arrived being 6 years of age or older (i.e. the school-age children), whereas the first generation youth arrived at ages 0-5.

**H6:** Because family context of assimilation is emphasized by many students of immigrant adaptation (Bankston and Zhou 2002; Foner 1997; Oropesa and Landale 1997; Waters 1997; White and Glick 2000; Zhou 1997), I expect to observe some important influences of family social capital on academic achievement. More specifically, I hypothesize that higher levels of family social capital may have a positive association with Latino students’ academic achievement.

**H7:** Family structure, size and SES are likely to have an effect on academic achievement of Latino students, while keeping other things equal. With regard to family
structure and size, I expect sample respondents who belong to large families and/or single-parent families to have lower levels of academic achievement. Each of these arrangements adversely affects the ability of parents to monitor academic achievement, as single parents and parents with numerous children are often afforded less time to supervise the movements and actions of their children (Cox, Paley, and Harter 2001; Muller 1995; Nelson et al. 2001).

With regard to family background, I anticipate that family SES will have a positive association with academic achievement. That is, individuals belonging to higher classes will be exposed to numerous socially approved activities, including good schooling. This is expected because social class is often cited as one of the strongest determinants of educational outcomes (e.g., Conger, Conger, and Elder 1997; McLoyd 1998; Lareau 1987, 1989; Teachman et al. 1996; Willms 1986).

H8: I believe that family and school social capital will help explain generational differences in academic achievement. More specifically, controlling for family and school social capital may reduce differences in academic achievement between Latino foreign-born youth and youth of other generations, if these exist. This is expected because prior research has shown that strong family influences may guard children from immigrant families against adversities of the unfamiliar school environment, whereas peer influences on achievement of native-born adolescents have been found to be rather harmful (e.g., Alba and Nee 2003; Fernandez-Kelly 1995; Foner 1997; Pallas et al. 1994; Rumbaut 1995).

3.3. Measures.

*Exploratory Analysis.* Before constructing dependent and independent variables, I employed the strategy of exploratory factor analysis. Exploratory factor analysis is a
technique often used to detect and assess latent sources of variation in observed measurements. It is widely recognized that exploratory factor analysis can be quite useful in the early stages of experimentation or test development (Stevens 1996). In an exploratory analysis, one wants to explore the empirical data to discover and detect characteristic features and interesting relationships without imposing any definite model on the data.

Although common factor analysis and principal component analysis are two similar exploratory techniques, in the sense that the purpose of both is to reduce the original number of variables to fewer composite measures, I preferred common factor analysis to principal component analysis. In principal component analysis the objective is not to find the latent constructs, like in common factor analysis, but to account for the maximum portion of the variance present with a minimum number of composite measures called principal components. Instead I chose common factor analysis because I was interested in identifying the latent dimensions of these data, where the observed variables are hypothesized to be indicators of latent constructs (e.g., family social capital).

3.3.a. Dependent Measures.

*Academic Achievement.* I examined differences across two indicators of academic achievement that are closely related to one other – Add Health Picture Vocabulary Test (AHPVT) and Grade Point Average (GPA). The first measure of academic achievement, AHPVT, is an abridged version of the Peabody Picture Vocabulary Test-Revised (PPVT-R). For the test an interviewer reads a word, and then asks the respondent to select which of four illustrations best fits the word. Add Health Picture Vocabulary Test contains 78 items, and
was constructed by taking every other item from the PPVT-R. Overall, PPVT-R scores can be considered as an indicator of a combination of innate ability (intelligence) and learned information. Prior research shows that PPVT-R scores differ substantially between white and black youth (Crouse and Trusheim 1988; Dreeben and Gamoran 1986). Phillips et al. (1998) use the Add Health data to estimate the relative effects of different family characteristics by seeing how much the black-white gap decreased when different characteristics were taken into account. The authors suggest that the gap between majority and minority students is large when responses to the more challenging types of questions are compared. About one-third of the racial gap is explained by family income, and an equal amount appears to be due to a broad array of contextual factors (Phillips et al. 1998). The underlying assumption is that PPVT-R scores, however imperfect, measure some degree of ability or intelligence. Hence, when racial and ethnic differences persist after taking parental socioeconomic background into account, sociologists often fault unmeasured differences in quality of schooling and other contextual differences (ibid.).

My second education measure is self-reported GPA which is computed by averaging grades in four classes: English or language arts, mathematics, history or social studies, and science. Perhaps because of its greater availability, GPA is commonly used to assess racial differences in education (e.g., Dornbusch et al. 1987; Fuligni 1997; Kao et al. 1996). Although some researchers fault grades as being an imprecise measure that is affected by biases in teachers’ attitudes as well as the quality of schools, grades are an important outcome because students and parents regularly monitor student performances via grades (Fuligni 1997). Grades are routinely made known to students and parents, and are intended to provide direction to students about which areas need more attention and improvement (DiMaggio
1982; Fehrman et al. 1987; Farkas et al. 1990; Valenzuela and Dornbusch 1994; Fuligni 1997, Kao 1995; Kao et al. 1996). Many researchers prefer GPA to achievement tests because of their higher sensitivity to student effort, such as hours spent on homework or watching television (see Fehrman et al. 1987; Kao et al. 1996; Fuligni 1997). Because the Add Health includes only self-reports of grades, GPA is calculated from student reports of their grades in each of the four aforementioned subjects during the latest grading period. Grades are self-reported and therefore contain a subjectivity bias. Nevertheless, researchers have found significant correlations between grades reported by students and those recorded by schools. Dornbusch et al. (1987) found the correlation between self-reported and actual grades to be 0.75, while other studies discovered correlations as high as 0.80 (Bogenschneider 1997).

I examine GPA and AHPVT separately because they tap into different dimensions of achievement. Standardized test scores aim to measure logical reasoning independently of school- or teacher-specific standards. In addition, standardized test scores play a significant role in college admission and thus determine in part future educational trajectories. The main disadvantage of using AHPVT lies in its hidden ethnocentric and linguistic biases which may make the test endogenous to the process of educational assimilation. Some scholars claim that this kind of bias has been all but eliminated from standardized tests since testing organizations carefully study response patterns and drop any question that favors one racial or ethnic category over another (Ravitch 2003). Critics, however, maintain that some bias based on class, race, or ethnicity is inherent in any formal testing because questions inevitably reflect our society’s dominant culture and thereby put minorities at a disadvantage (Owen 1985; Crouse and Trusheim 1988). Therefore, even after taking parental socioeconomic background into account, ethnic differences in test scores usually persist (Dreeben and Gamoran 1986).
3.3.b. Independent School-Level Measures.

Racial and Ethnic Composition of Schools. Although the measures of school racial and ethnic composition (percentage Hispanic, percentage Mexican, etc.) are not provided by the Add Health, they can be directly calculated from the student race-ethnicity responses. School-level race-ethnicity codes for these calculations are defined using the same coding as for individuals. More specifically, I construct the race and ethnicity composition variable to measure the proportion of minority students in the schools. It was calculated as a person-count variable across the sample schools. I only considered Latinos and blacks as minority students when I constructed my measure of racial and ethnic composition. I did so due to the following reasons. First, according to oppositional culture theory, Asians are classified as “voluntary minorities”, whereas the vast majority of Latinos and blacks are classified as “involuntary minorities” (Fordham and Ogbu 1986; Ogbu 1974, 1991). Therefore, the predicted school outcomes for Asians will be different from those for Latinos and blacks. Second, Latinos attend schools with far higher average black populations than whites. Likewise, blacks attend schools with much higher average Latino enrollment than do whites. Third, Asians, the nation’s most highly educated racial group, attend the most integrated schools and experience less linguistic segregation than Latinos (Frankenberg et al. 2003; Orfield and Yun 1999). Analyses presented below in Figure 3.1 confirm that Asian GPAs and AHPVT are almost as high or even higher than those of non-Hispanic white students.

Socioeconomic Composition of Schools. I examine two variables to indicate certain socioeconomic and educational characteristics of the students’ families: family income and parents’ education. I consider it important for the purposes of this dissertation to measure and analyze these separately at the individual level. I do so due to the following reason.
Educational and income levels vary largely among Latino immigrant groups and often do not correlate with each other. Some ethnic groups, especially Mexicans, report very low levels of educational attainment, which does not parallel their income levels, while other groups, especially South Americans, tend to have levels of attainment higher than those expected from their incomes. It is a well-known that the jobs (and therefore income) available to immigrants often do not correspond well with their educational attainment. At the school level, however, parents’ income and educational attainment are strongly intercorrelated (Cronbach’s alpha = 0.91). Thus I constructed an aggregate school-level SES measure as the sum of the standardized scores of parents’ income and educational attainment.

*Peer Network Density.* Peer network density indicates how many friends an adolescent is expected to have given his/her peer network size. The Add Health includes a set constructed a series of peer network variables. One of them is relative density. It is calculated as the observed density divided by maximum possible density given out-degree = 10 (maximum number of friendship nominations of both sexes possible in the Add Health).

\[
\text{Relative Density} = \frac{\text{Maximum Density}}{\left(\frac{(10 \times g)}{(g \times (g-1))}\right)},
\]

where: \(g = \text{number of nodes}\) in the total peer network.

I preferred to use relative density rather than observed density because the former accounts for the size of a peer network. The exploratory analysis showed that observed density increases with network size.

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5 The Add Health in-school and in-home questionnaires both ask students to list their five best male friends and, in a separate question, their five best female friends (including their girlfriends and boyfriends). For each participating school, the Add Health obtained a roster of its students and assigned identification numbers to them. These rosters enabled students to find their friends in their school and a sister school. These identification numbers can be used to determine the race and ethnicity of adolescents’ friends.

6 Node is unique member of a network.
Peer Network Homogeneity. Peer network homogeneity indicates a proportion of nodes in a network that share the same trait. This measure was obtained by modifying an individual-level race-ethnicity heterogeneity variable which is computed by the Add Health. The Add Health created a series of variables that assess the heterogeneity of a network with respect to the traits of a categorical attribute (race-ethnicity, grade, and gender). The formula used to calculate network homogeneity with respect to Hispanic race-ethnicity is:

$$Homogeneity_A = \sum_{1}^{n} \left( \frac{A_r}{E_n} \right)^2,$$

where:

$A = \text{Hispanic race-ethnicity};$

$A_r = \text{the number of nodes with Hispanic peers in the network};$

$E_n = \text{the number of nodes in the network with valid data on hispanicity};$

$n = \text{the total number of Hispanic traits represented in the network}.$

The school-level network homogeneity measure was obtained by averaging the individual-level measures across schools. This variable was chosen as a measure of school peer network homogeneity because it is not dependent on the school racial composition and has more valid cases than, for example, racial segregation index and salience indices (also calculated by the Add Health). Therefore, peer network homogeneity captures the intensity of in-group preferences regardless of whether Hispanics, as a group, are numerous enough in a particular school to construct a network.

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7 Trait is a characteristic which defines a sub-population in terms of a categorical attribute. Examples are male, female, black, white, 8th graders, 16 year olds.
3.3.c. Independent Individual-Level Measures.

Hispanic Ethnic Background. The Add Health data asked separate questions on race and Hispanic origin. First, respondents were asked if they were Hispanic. Those who responded “yes” were then asked to identify their ethnic origin group. Hispanic background is specified by a set of dummy variables that I group into four categories: Mexican/Chicano\(^1\), Cuban, Puerto Rican, and other Hispanic\(^2\).

Immigrant Generational Status. Prior research shows that the outcomes of immigrants’ lives are associated with their immigrant generational status (e.g., Kao and Tienda 1995; Hirschman 2001; Portes and Rumbaut 1996, 2001). This variable is measured by a set of dummy variables contrasting first, one-and-half, second, second-and-half, and third and higher generation immigrant youth. The definition I use is close to the one frequently utilized by other researchers who study immigrant adaptation (e.g., Kao and Tienda 1995; Harker 2001; Hirschman 2001; Portes and Zhou 1993). Because preliminary analyses revealed that arrival by age 6 was associated with markedly different educational outcomes, adolescents who are foreign-born and who were less than 6 years of age at the time of immigration are coded as first-and-half-generation immigrants. Foreign-born adolescents who arrived in the U.S. after age 6 are coded as first-generation immigrants. I further distinguish second generation – U.S.-born children with two foreign-born parents – and second-and-half generation – U.S.-born children with one native-born parent and one foreign-born parent. The third- or higher generation group consists of cases where both adolescents and their parents

\(^1\) Due to their very small number in the sample, Chicanos are included in the larger group – Mexicans.

\(^2\) Since the data combine Hispanics from places other than Mexico, Puerto Rico, and Cuba together as “Central and South America” or “other Hispanic” it is virtually impossible to refer to these as Hispanic “ethnic origin groups”. Therefore, the “other Hispanic” dummy was created.
are U.S.-born. Foreign-born children of U.S.-born parents (most of whom are probably adoptees) are coded as third or higher generation.

Language Spoken at Home. More than 36% of Latino students in the sample identified Spanish as the language that is used most often at home. It implies that they are more proficient in a language other than the language of instruction in school (English), and research has emphasized the fact that the lack of English language skills can be detrimental for academic achievement (McDonnell and Hill 1993; Riley and Pompa 1998). Language spoken at home is a binary measure. Language spoken at home is coded as “1” for Spanish and “0” for English.

Frequency of Involvement in Extracurricular Activities. Typically, high-achieving students spend more time engaged in learning activities in school and outside of school than lower-achieving students (Blum and Reinhart 1997). These activities include reading, writing, arts and crafts and other extracurricular activities. The question on extracurricular activities comes from asking: “During the past week, how many times did you do hobbies, such as collecting baseball cards, playing a musical instrument, reading, or doing arts and crafts?” The answers vary from 0 “not at all” to 3 “5 or more times”.

Control variables also include Age and Sex. Age is measured in years. Sex is coded 0 for females and 1 for males.


Family structure. Family structure is indicated by a set of dummy variables obtained from the household roster that contrasts youth who live with both biological or adoptive
parents (reference), a single parent, and other relatives. Family structure is believed to affect well-being by influencing family functioning (Astone and McLanahan 1991; Hetherington 1998; McLanahan and Sandefur 1994; Thomson et al. 1994). For example, research has found that parental supervision and involvement are lower in single-parent than two-parent families (ibid.).

*Household Size.* A measure of household size is represented by a dummy variable (a family of four is considered small and coded as the reference category). This variable is included as a control measure because immigrants living in large households may have different experiences than those in small households. For example, immigrant youth in large households will likely have to share resources more than youth in smaller households. An example of an important resource is parents’ time and attention. Insufficient attention and time may affect adolescent’s educational outcomes. Additionally, research on household composition (e.g., Bridge et al. 1979; Nelson et al. 2001) suggests a link between household size and adolescent well-being with adolescents in smaller size households exhibiting better well-being, especially with regard to educational achievement.

*Socioeconomic Status (SES).* As explained earlier, household income and parent’s education are included to control for SES, a factor often linked to adolescent academic achievement (e.g., Bridge et al. 1979; Conger et al. 1997; McLoyd 1998). Income is obtained from the response by parents to the question: “About how much total income, before taxes did your family receive in 1994? Include your own income, the income of everyone else in your household, and income from welfare benefits, dividends, and all other sources.” Responses are coded in units of 1000 and range from 0 to 999. Those cases with negative income (less than 1% of all cases) were recoded as zeros because reports of negative household income, as
opposed to individual income, may indicate debt and, thus, differ from the income measure in nature. Parents’ education comes from items asking: “How far did she [mother] go in school?” or “How far did he [father] go in school?” This is a measure of the highest level of education completed. Response categories range from “eighth grade or less” (coded 1) to “graduate training beyond a four-year college or university” (coded 9). Parents’ education is recoded to account for family structure and captures the highest level of education achieved. If mother’s and father’s educational level differed, the average of two was used as parents’ educational attainment.

*Family Social Capital* is a latent construct which cannot be measured directly as one aggregate index. There is a section of the Add Health In-Home questionnaire related to the quality of parent-child relationships. Questions in this section are used in this dissertation to construct a series of family social capital measures. Below is a description of these measures.

*Parental Supervision and Limit Setting* capture key social control mechanisms. Parental supervision is a count variable ranging from 0 to 3 indicating whether a parent is present in the home most or all of the time when the adolescent (1) goes to school in the morning, (2) comes home from school in the afternoon, and (3) goes to bed at night (Cronbach’s alpha of 0.68). A lack of parental presence reduces supervision of youth and reduces the effectiveness of socialization and social capital resources since such mechanisms cannot operate without time shared by parents and adolescents (Morgan and Sørensen 1999). Parental limit setting is a 7-item index that measures the extent to which adolescents are

---

8 Factor analysis results indicate that all family social capital variables described below cannot be represented by a common factor.

9 Cronbach’s alpha is an index of reliability that measures how well a set of items (or variables) captures a single unidimensional latent construct. Here, the reliability is moderately low because alpha is 0.68. Note, that a reliability index of 0.75 or higher is considered as “acceptable” in most Social Science applications (Stevens 1996).
allowed to make their own decisions and rules. Adolescents were asked “do your parents let you make your own decisions about”: (1) the time you must be home on weekend nights, (2) the people you hang around with, (3) what you wear, (4) how much television you watch, (5) which television programs you watch, (6) what time you go to bed on weeknights, and (7) what you eat. Response choices are “yes” or “no”. Responses are averaged to produce an index. The index is reverse coded such that high measures indicate high limit setting. Missing values were imputed by Markov Monte-Carlo method (see section 3.4). A reliability test indicates a Cronbach’s alpha of 0.64.

The index Parents’ Educational Expectations was created from two items separately asked about mother’s and father’s expectations. Respondents were asked how disappointed each of their parents would be if they failed to graduate from college and high school. Responses range from 1 (low disappointment) to 5 (high disappointment). The reliability coefficient for these items is 0.82. Responses were averaged to create an index. Parental educational expectations capture cultural variation in the family’s emphasis on educational achievement, a family context characteristic that is often linked to immigrant academic success (Vernez and Abrahamse 1996).

3.3.e. Variables Considered but not Included in the Analysis.

Race Segregation Index. This school-level peer network measure is the modified version of Freeman’s (1978) race segregation index. In a rough form this index can be conceptualized as follows:
The segregation index is defined as:

\[
\text{Segregation Index} = \frac{\text{Expected Ties} - \text{Observed Ties}}{\text{Expected Ties}}
\]

where *ties* refers to the total number of ties sent from a network member of a particular race-ethnicity to all other network members of different race-ethnicity, summed across all characteristics (for more information on the Add Health segregation indices, see *The National Longitudinal Study of Adolescent Health* 2003). The race segregation index has a theoretical minimum of -1 (pure out-group preference) and a theoretical maximum of 1 (pure in-group preference, or total segregation). A value of 0 indicates no group-preference: ties are set randomly with respect to this categorical attribute.

Although the race segregation index is a useful indicator of in-group friendship preferences, it is neither a pure measure of homophily, nor homogeneity of the peer network. The number of expected ties, which is the denominator of the index, is determined by the school racial composition. Accordingly, the index in a school with a more racially heterogeneous student population is expected to approach -1, with a more homogeneous one would approach 1. Since 80% of Latino students attend schools that tend to have a heterogeneous student body (where one racial group accounts for less than 20% of all students), the index for these schools is negatively skewed.

**Salience Indices.** Salience indices measure trait-specific in-group preferences. In-group preference is defined as the extent to which persons with a particular trait tend to nominate other persons with the same trait as their friends (Rytina and Morgan 1982).

\[
\text{Salience}_r = \frac{t_r/T_r}{g_r / g},
\]

where
r = relevant race category;

$t_{rr}$ = number of ties sent by adolescents of a particular race to adolescents of the same race;

$T_r$ = total number of ties sent by adolescents of a particular race;

$g_r$ = number of nodes with a particular race;

$g$ = total number of nodes in the network.

Salience indices carry the same bias as race segregation index. That is to say, they tend to positively skewed when a student body is more racially heterogeneous, and negatively skewed when it is more homogeneous. Moreover, the salience indices are not calculated for schools where less than 2% of the school student body belong to a particular race-ethnicity. Therefore, Hispanic salience index is available for only 62% of schools.

*Grade.* This measure was not chosen due to two reasons. First, the grade variable is almost perfectly collinear with age. Second, grade is ordinal while age is interval/ratio measure, which is a plus for the latter because usually continuous scales like that of age are more sensitive to changes in human development.

*Expectations for Further Education.* This variable was constructed as an index of answers to two questions on the desirability and likelihood of having a college education (Cronbach’s Alpha = 0.82). Unfortunately, sociological research is inconsistent with regard to the effect of educational expectations on promoting academic achievement (Goyette and Xie 1999, Goldenberg et al. 2001). In particular, it is unclear whether parents’ expectations for education influence children’s expectations or vice versa, and whether student’s expectations are a reflection of his or her school performance (Goldenberg et al. 2001).

*School Connectedness.* This index was produced from responses to seven items: (1) if adolescents feel close to people at their school, (2) if they are happy to be at their school, (3)
if they feel like being a part of school, (4) whether the teachers at school treat students fairly, (5) how often have they had trouble getting along with their teachers, (6) how much they feel that teachers care about them, (7) if they feel safe in school. The index has a reliability index (Cronbach’s alpha) of 0.73.

The first in-depth look at school connectedness – a student’s perception of being part of and cared for at school – showed that this is an important factor to consider while studying academic achievement (McNeely et al. 2002). The main problem with using school connectedness as an independent measure in this dissertation refers to the reverse causality between this measure, academic achievement, and racial segregation. For example, a student who is unsatisfied with his or her academic achievement might also be unsatisfied with school, while blaming teachers and other students. Likewise, the atmosphere of a racially and ethnically segregated school can produce a feeling of disconnectedness and even social apathy. This is consistent with what was observed by Coleman (1961) and Stevenson and Baker (1987).

There are several family social capital measures that were not included in the analyses presented in Chapters 4 and 5. These are parents’ involvement, parent-child closeness and self-perceived social support. The reasons for excluding these variables from further analyses relate to concerns of collinearity with the other measures of family social capital and the relatively low reliability of the scales. The index Parents’ Involvement is composed of nine items that inquire into the activities that parents and adolescents do together within a 4-week period. Adolescents were asked if they had done each of the following with each parent: (1) gone shopping, (2) played a sport, (3) attended a religious service or related event, (4) talked about life, (5) talked about a date or party attended, (6) attended a movie, sports event,
concert, play, or museum, (7) talked about a personal problem, (8) discussed grades or school work, (9) worked on a school project, and (10) talked about other school activities. Response choices are “yes” and “no”. The activities in which the adolescent and at least one parent had engaged are summed to form the index. The scale has a Cronbach’s alpha of 0.56. Adolescent responses to four items asked about each parent separately are used to construct the scale Parent-Child Closeness. The items are (1) how close do you feel to your mother/father, (2) how much do you feel that he/she cares about you. Responses to items (1) and (2) range from 1 (“not at all”) to 5 (“very much”). High scores indicate positive or good parent-child relationships. Valid responses to these items are used to construct an index. This scale has a Cronbach’s alpha of 0.59. Eight items are used to construct the scale Social Support. Adolescents were asked how much they feel that: (1) adults care about them, (2) teachers care about them, (3) parents care about them, (4) friends care about them, (5) people in the family understand them, (6) they want to leave home, (7) their family has fun together, and (8) their family pays attention to them. Items are measured on a 5-point scale where 1 = “not at all”, 2 = “very little”, 3 = “somewhat”, 4 = “quite a bit”, and 5 = “very much”. The response to the item that asked the extent to which adolescents want to leave home is reverse coded to make it compatible with the other items such that higher numbers represent stronger feelings that others care for them. Responses to these items are averaged to produce an index. A reliability test indicates a Cronbach’s alpha of 0.67.

3.4. Analytic Strategy.

Research Model. This dissertation incorporates data from multiple levels in an attempt to determine the impact of individual and societal factors on an individual level outcome –
academic achievement. Thus, student achievement may be characterized as a function of individual and family level characteristics (e.g., age, sex, family structure), and school level factors (e.g., school racial and ethnic composition). It is shown in the research model presented in Figure 3.2.

_Treatment of Missing Data._ Data sets like the Add Health, where missing values occur on a number of variables, are often encountered in Social Sciences. Some statistical procedures assume complete data. Consequently, values for the missing information should be either imputed or the units in question should be deleted. At the same time, listwise and particularly pairwise deletion may result in discarding a large proportion of the data, which in turn, tend to introduce bias. Another strategy for handling missing data is data imputation, which substitutes a value for each missing value. However, any strategy or method of imputation chosen depends on the data being analyzed. Thus, it is imperative to study the sources of missing data in each variable before imputing or deleting incomplete cases.

There are four values in each variable of the Add health dataset that were re-coded as missing: “Refused”, “Legitimate Skip”, “Don’t Know” and/or “Not Applicable”. For all variables the “Legitimate Skip” label has a higher frequency than other missing value labels. In variables like Mexican origin, “Legitimate Skip” values result from respondents answering negatively on the Hispanicity question and thus skipping all other options that follow (Mexican, Cuban, etc.). These values cannot be imputed or dealt with in any other way except to produce a dummy for a specific Hispanic ethnic origin. The case is quite different for variables that specify relationships with parents. For example, there are two variables in the original Add Health dataset that ask respondents how close they feel to their mother and father. The numbers of missing cases that these variables include are, respectively, 1,276 and
6,303 out of 20,745. The vast majority of these cases are “Legitimate Skips” because this question was not asked for non-resident parents. Thus, if a researcher wants to construct a measure of closeness to both parents or any other measure of family social capital, single-parent households should be taken into account. In this dissertation, I construct all measures of family social capital and parents’ education as aggregate averages if responses on both parents are available, and as simple measures if responses for only one parent are available.

Not considering the family structure effect while constructing family measures may result in a serious bias that would enhance collinearity among all family measures. This approach also ignores possible systematic differences between the complete and incomplete cases, and the resulting inference may not be applicable to the population of all cases.

Recoding variables while taking into account the diverse origins of missing values does not completely solve the missing data problem. Several methods of imputation may be considered. For example, each missing value can be imputed with the variable’s mean for all of the complete cases, or it can be imputed with the mean conditional on observed values of other variables. This approach treats missing values as if they were known in the complete data analysis. However, single imputation does not reflect the uncertainty about the predictions of the unknown missing values, and the resulting estimated variances of the parameter estimates will be biased toward zero (Rubin 1987). The bias toward zero, in turn, can significantly diminish the magnitude of associations among the variables. Instead of filling in a single value for each missing value, multiple imputation (Rubin 1976, 1987) replaces each missing value with a set of plausible values that represent the uncertainty about the right value to impute. Multiple imputation does not attempt to estimate each missing value through simulated values but rather to represent a random sample of the missing values. This
process results in valid statistical inferences that properly reflect the uncertainty due to missing values. Therefore I used multiple imputation as the main technique to eliminate missing values in my data set. For variables like Parents’ Supervision and Parental Limit Setting that have from 1.7 to 2.1% incomplete cases, respectively, I used simple imputation at their components level while replacing missing values with the mean of complete cases. For all other variables that have a much higher percentage of incomplete cases I used a Markov Chain Monte Carlo method that assumes multivariate normality (Rubin 1976, 1987).

Transformations. Although most of the individual-level variables in my analyses are slightly skewed, only one is clearly non-normal – household income (taken from the Parents questionnaire) which has a mean of $45,500 and a median of $38,000. Preliminary analyses also indicate that three school-level variables – the percentage of minority students, peer network homogeneity and density – are distributed non-normally. I transformed these variables to conform to multivariate normality assumption. Skewed variables can produce heteroscedasticity and inflated standard errors of the estimates in regression analysis. These problems reduce the statistical power of significance tests and result in larger confidence intervals, which make the rejection of the null hypotheses more difficult (Stevens 1996).

I chose to use the Box-Cox family of transformations because it includes all possible log-linear variants. The Box-Cox transformation is a family of power transformations of the positive dependent variable $y$ controlled by the parameter $\lambda$. Transformations are linearly related to each other and the square root, inverse, quadratic, cubic, logistic, and so on are all special cases. The limit of $\lambda$ when it approaches 0 is the log transformation. The Box-Cox transformation has the form:
((y + c)^\lambda - 1)/(\lambda g), \text{ if } \lambda \neq 0
\log(y + c)/g, \text{ if } \lambda = 0

By default, c = 0. The parameter c can be used to rescale y so that it is strictly positive.
By default, g = 1. Alternatively, g can be \hat{y}^{\lambda-1} where \hat{y} is the geometric mean of y (Box and Cox 1964). In order to find the optimal transformation, I used the SAS boxcox macro that finds maximum likelihood power (or folded power) transformations by the Box-Cox method. This macro yielded \lambda \text{ values for the respective transformations. My transformed variables were obtained according to the following formulas:}

Income = \frac{(Income + 1)^{0.2} - 1}{0.2}

\text{Percentage Minority} = \frac{(Percentage \text{ Minority} + 1)^{-0.2} - 1}{-0.2}

\text{Network Homogeneity} = \frac{(Network \text{ Homogeneity} + 1)^{-2} - 1}{-2}

\text{Network Density} = \frac{(Network \text{ Density} + 1)^{-1.9} - 1}{-1.9}

Hierarchical Linear Modeling. The complexity of Add Health’s design structure necessitates the use of survey software that can properly incorporate the characteristics of the survey design in its statistical computations. As clusters were sampled with unequal probability, observations are not independent and identically distributed. The statistical package must be able to account for the hierarchical structure of the data in order to produce unbiased estimates of variances and standard errors. Obtaining such results through the use of traditional statistical packages such as SPSS and SAS is time consuming. Thus, I used HLM,
which can incorporate such factors in a manner better than ordinary least squares since HLM takes into account error structures at each level.

The analysis of data with a hierarchical structure has been described in the literature under various names, including hierarchical modeling, random coefficient modeling, latent curve modeling, growth curve modeling or multilevel modeling (Bryk and Raudenbush 1992; Raudenbush and Bryk 2002). The basic underlying structure of measurements nested within units at a higher level of the hierarchy is, however, common to all. In a growth model, with repeated measures, for example, the measurements or outcomes are nested within the experimental units (second level units) of the hierarchy. Regression coefficients may be present at some or all of the levels, and variance components at different levels of the hierarchy may also be obtained (ibid.).

Inference can be drawn from available data for such a model for the population means at any level. Hierarchical modeling is a particularly useful statistical technique in the modeling of data from complex surveys, as cluster or multi-stage sample designs are frequently used for populations with a hierarchical structure. Ignoring the hierarchical structure of data can have serious implications, as the use of alternatives such as aggregation and disaggregation of information to another level can induce high collinearity among predictors and large or biased standard errors for the estimates. Standard fixed parameter regression models do not allow for the exploration of variation between groups, which may be of interest in its own right.\(^\text{10}\) In contrast, multilevel or hierarchical modeling provides the opportunity to study variation at different levels of the hierarchy. Such a model can also include separate regression coefficients at different levels of the hierarchy that have no

\(^{10}\) For a discussion of the effects of these alternatives, see Bryk and Raudenbush (1992) and Longford (1987).
meaning without recognition of the hierarchical structure of the population (Raudenbush and Bryk 2002).

Stages of Analysis. The first part of the analysis is descriptive. Means are provided at the end of this chapter for school- and individual-level variables separately for each immigrant generation (Table 3.1). As revealed in Table 3.1, the sample’s sex ratio is more or less balanced, with equal proportions of male and female students, and the average age of respondents in the summer of 1995 was 15 years (SD=1.49). Approximately 53% reported they were Mexican-American (or Chicano), 6% Cuban-American, 16% Puerto-Rican, and the rest other Hispanic. Roughly half (51%) of all Hispanic adolescents in the Add Health came from two-parent households, while the proportions of those from households headed by a single parent or other relatives than parents (guardian households) are smaller (30 and 19%, respectively). It should be noted that shares of single-parent, guardian and large households are larger among the most recent immigrant generations.

The descriptive analyses across immigrant generations in Table 3.1 demonstrate that AHPVT increases from the first to the second-and-half generations and then drops somewhat in the third-or-higher generation while no consistent pattern across the generational statuses is observable for GPA. Moreover, the range of the distribution of GPA across generations is smaller than that of the AHPVT distribution. The range of AHPVT is 16% (max/min) and that of GPA is only 4%. This may be suggestive of more distinct differences between immigrant generations (particularly the first and the second) in their AHPVT scores rather than grades.

With respect to school composition, the more recent immigrant generations tend to be clustered in low-SES and high-percent minority schools, consistent with the findings of the previous research (e.g., Van Hook and Balistreri, 2002). Noteworthy are other differences
between immigrant generations. For instance, the average family income level rises with generation while parental influences, parents’ supervision in particular, tend to diminish from the first generation to the last. Thus, the most recent Latino immigrants are expected to be poorer than their native counterparts but to have stronger family ties. This characteristic of the assimilation process of Latino families has been repeatedly mentioned in the literature (e.g., Portes and Bach 1985; White and Kaufman 1997; Portes and Rumbaut 1996, 2001).

Table 3.2 provides descriptive statistics of the most important school ecological and structural features separately for schools with high and medium to low concentrations of Latino students.11 These statistics indicate that schools where Latino students are highly concentrated are remarkably different from schools where Latino youth are less numerous. These differences occur on the majority of the variables that reflect schools’ compositional and ecological features (e.g., urban location, region, percentage of foreign-born and linguistically isolated in the community) as well as family SES, structure and size (e.g., parents’ education, family income). The schools with high concentration of Latino youth tend to be in urbanized communities with high proportions of foreign-born and linguistically isolated populations. The student body in these schools is likely to come from large, single-parent and guardian households and be from economically impoverished families with low levels of parental education. Furthermore, the percentage of minority in these schools is higher among teachers as well as students. As evidenced by differences in the class size, the higher a student body’s proportion of Latino youth, the higher the school’s likelihood of being crowded. In sum, the statistics presented in Table 3.2 highlight the importance of ecological

11 The upper quartile of the percentage distribution of Latino youth across schools was chosen as the threshold for distinguishing schools with high and medium to low concentrations of immigrant children.
and structural constraints that the majority of Latino students face when living in poor urban communities and attending low-quality schools.

Further descriptive analyses are given in Chapters 4 and 5. They explore the importance of the issues examined in those chapters and help to understand the multivariate analyses. I conduct most of my multivariate analyses using HLM. The research model (Fig. 3.2) highlights a hierarchical data structure with two levels of variation in which the errors of prediction at each level are assumed to be normally distributed. Each regression coefficient in the individual-level analysis becomes an outcome variable in the school-level analysis. In other words, the parameter estimates from the individual-level analysis are used as outcome variables in the school-level analysis.

The complexity of the research model suggests that it is practical to test the hypotheses of the study in stages (Table 3.7). The modeling strategy involves estimating a baseline model and then adding mediating variables in sets. Each chapter includes a more detailed outline of the analytic strategy used in that chapter. In the next chapter, Chapter 4, I examine the effects of school racial composition on Latino adolescents’ academic achievement with and without extensive controls. In Chapter 5, I explore the effects of school social capital as measured by peer network homogeneity and density on academic achievement, while controlling for other school- and individual-level factors. In Chapter 6, I summarize my results, discuss their implications, and directions for further research.
Figure 3.1. AHPVT and GPA of African-Americans, Asians and Latinos in the Add Health Sample (AHPVT and GPA of non-Hispanic Whites =100).
Figure 3.2. Research Model.

Academic Achievement

- School Racial Composition
- School Socio-Economic Composition
- School Social Capital
- Ethnic Origin
- Immigrant Generational Status

Controls

Individual:
- Age
- Sex
- Freq. of Extracurr. Activities

Family:
- SES
- Household Size and Structure
- Family Social Capital
Table 3.1. Weighted Means of All Variables by Immigrant Generational Status.

<table>
<thead>
<tr>
<th>Immigrant Generation Status</th>
<th>All Latinos</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
</tr>
<tr>
<td>N(^1)</td>
<td>529</td>
</tr>
<tr>
<td><strong>Dependent Variables</strong></td>
<td></td>
</tr>
<tr>
<td>AHPVT</td>
<td>80.040</td>
</tr>
<tr>
<td>GPA</td>
<td>2.655</td>
</tr>
<tr>
<td><strong>School Composition</strong></td>
<td></td>
</tr>
<tr>
<td>Percentage of Minority Students(^2)</td>
<td>0.495</td>
</tr>
<tr>
<td>Average SES</td>
<td>0.822</td>
</tr>
<tr>
<td><strong>Peer Network Measures</strong></td>
<td></td>
</tr>
<tr>
<td>Homogeneity(^2)</td>
<td>0.145</td>
</tr>
<tr>
<td>Density(^2)</td>
<td>0.527</td>
</tr>
<tr>
<td><strong>Ethnic Origin</strong></td>
<td></td>
</tr>
<tr>
<td>Mexican</td>
<td>0.494</td>
</tr>
<tr>
<td>Cuban</td>
<td>0.068</td>
</tr>
<tr>
<td>Puerto-Rican</td>
<td>0.065</td>
</tr>
<tr>
<td>Other Hispanic</td>
<td>0.450</td>
</tr>
<tr>
<td><strong>SES</strong></td>
<td></td>
</tr>
<tr>
<td>Family Income(^2)</td>
<td>3.708</td>
</tr>
<tr>
<td><strong>Household Structure and Size</strong></td>
<td></td>
</tr>
<tr>
<td>Two-Parent Household</td>
<td>0.470</td>
</tr>
<tr>
<td>Single-Parent Household</td>
<td>0.324</td>
</tr>
<tr>
<td>Non-Parent Household</td>
<td>0.206</td>
</tr>
<tr>
<td>Large Household</td>
<td>0.466</td>
</tr>
<tr>
<td><strong>Family Social Capital</strong></td>
<td></td>
</tr>
<tr>
<td>Parents’ Limit Setting</td>
<td>0.633</td>
</tr>
<tr>
<td>Parents’ Supervision</td>
<td>4.009</td>
</tr>
<tr>
<td><strong>Individual-Level Control Variables</strong></td>
<td></td>
</tr>
<tr>
<td>Spanish Spoken at Home</td>
<td>0.869</td>
</tr>
<tr>
<td>Frequency of Extracurricular Activities</td>
<td>0.804</td>
</tr>
<tr>
<td>Age</td>
<td>16.164</td>
</tr>
<tr>
<td>Male</td>
<td>0.495</td>
</tr>
</tbody>
</table>

Note: 1. The total sample size is 3,888. 2. Percentage of minority students, peer network homogeneity, peer network density and family income were transformed by the Box-Cox method in order to satisfy the multilevel normality condition of HLM (see more on HLM in Raudenbush and Bryk 2002).
Table 3.2. Means and Standard Deviations of Some School-Level Variables across Schools with High, and Medium to Low Percentages of Latino Youth in Their School Bodies.

<table>
<thead>
<tr>
<th>School-Level Variable</th>
<th>Schools Where Concentration of Latinos:</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>High Mean</td>
<td>Std. Deviation</td>
<td>Medium to Low Mean</td>
</tr>
<tr>
<td><strong>Family SES, Structure and Social Capital</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Parents’ Education</td>
<td>4.973***</td>
<td>0.801</td>
<td>5.740***</td>
</tr>
<tr>
<td>Family Income</td>
<td>4.920***</td>
<td>0.504</td>
<td>5.378***</td>
</tr>
<tr>
<td>Proportion of Single-Parent Households</td>
<td>0.287*</td>
<td>0.084</td>
<td>0.248*</td>
</tr>
<tr>
<td>Proportion of Guardian Households</td>
<td>0.213**</td>
<td>0.048</td>
<td>0.188**</td>
</tr>
<tr>
<td>Proportion of Large Households</td>
<td>0.310***</td>
<td>0.097</td>
<td>0.187***</td>
</tr>
<tr>
<td>Parents’ Expectations</td>
<td>4.312</td>
<td>0.237</td>
<td>4.356</td>
</tr>
<tr>
<td>Parents’ Limit Setting</td>
<td>0.664</td>
<td>0.062</td>
<td>0.673</td>
</tr>
<tr>
<td>Parents’ Supervision</td>
<td>3.879</td>
<td>0.138</td>
<td>3.805</td>
</tr>
<tr>
<td><strong>Ecological Features</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Urban Location</td>
<td>0.433*</td>
<td>0.496</td>
<td>0.224*</td>
</tr>
<tr>
<td>Region: Midwest</td>
<td>0.035**</td>
<td>0.183</td>
<td>0.341**</td>
</tr>
<tr>
<td>Region: West</td>
<td>0.509*</td>
<td>0.500</td>
<td>0.113*</td>
</tr>
<tr>
<td>Region: South</td>
<td>0.296</td>
<td>0.457</td>
<td>0.407</td>
</tr>
<tr>
<td>Region: North East</td>
<td>0.160</td>
<td>0.366</td>
<td>0.138</td>
</tr>
<tr>
<td>Proportion of Linguistically Isolated Households</td>
<td>0.113***</td>
<td>0.122</td>
<td>0.011***</td>
</tr>
<tr>
<td>Proportion of Foreign-Born in Community</td>
<td>0.252*</td>
<td>0.181</td>
<td>0.032*</td>
</tr>
<tr>
<td><strong>Compositional Features and Class Size</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Public School</td>
<td>0.971</td>
<td>0.167</td>
<td>0.846</td>
</tr>
<tr>
<td>Percent Teachers: White</td>
<td>69.216*</td>
<td>22.697</td>
<td>82.689*</td>
</tr>
<tr>
<td>Percent Teachers at School 5 Years and over</td>
<td>61.224</td>
<td>19.772</td>
<td>63.689</td>
</tr>
<tr>
<td>Percent Students in English Ability Class</td>
<td>0.248</td>
<td>0.281</td>
<td>0.223</td>
</tr>
<tr>
<td>Percent Students: Minority</td>
<td>0.681**</td>
<td>0.231</td>
<td>0.323**</td>
</tr>
<tr>
<td>Average Class Size</td>
<td>30.149***</td>
<td>6.392</td>
<td>24.522***</td>
</tr>
</tbody>
</table>

***p<0.001; **p<0.01; *p<0.05 (t-test).
Table 3.3. Steps of Research.

<table>
<thead>
<tr>
<th>Chapter</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Dependent Variables – GPA and AHPVT</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Independent Variables</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>School Level</td>
<td>Percentage of Minority Students; Average School SES; Peer Network Homogeneity; Peer Network Density</td>
<td></td>
</tr>
<tr>
<td>Level</td>
<td>Average School SES</td>
<td></td>
</tr>
</tbody>
</table>
CHAPTER 4. SCHOOL COMPOSITION AND ACADEMIC ACHIEVEMENT.

In this chapter, I examine the effects of two dimensions of school context – racial and income composition – on academic achievement among Latino adolescents. I further examine how school composition effects may vary by generational status in the United States (e.g., first, second, third or higher generation). This is the first step in addressing my larger research question on the nature of the relationship between school context and Latino adolescents’ academic achievement. In particular, the issue that will be addressed is whether the relationship between school composition and achievement becomes or remains statistically significant if all other individual-level factors are controlled. In this chapter, I focus on two school-level predictors of academic achievement: percentage of minority students, and average school SES. I begin with a brief outline of the issues and my research hypotheses before describing my analytic strategy. I then discuss the results of the analyses and end with a brief overview of this chapter’s findings.

4.1. School Composition Effects.

Research on school composition and segregation consistently shows a correlation between the racial and socioeconomic composition of a child’s schoolmates and the child’s academic success (Cook et al. 1984; National Research Council 1989). Children who attend
low status, high-minority schools on average learn less than children who attend integrated schools. A portion of the relationship between school composition and learning can be attributed to the selection of children from certain family backgrounds into particular schools. But even after controlling for family background, the effects of school income composition remain strong (Orfield et al. 1997: 53). In addition, some effects of racial composition on learning remain net of family background and school-level SES (Bankston and Caldas 1996; Cook et al. 1984; Entwisle and Alexander 1992; Rumberger and Wilms 1992), particularly at high levels of minority concentration (Caldas and Bankston 1998).

School composition has been hypothesized to affect learning outcomes through at least two pathways: through normative processes that operate among students and through organizational or structural constraints that develop within school systems (Hallinan 1988). Both mechanisms garner support from the research literature and could potentially be operating simultaneously. The former derives from Coleman’s (1988) conception and application of social capital. The idea is that students establish a peer society within which attitudes related to schooling and achievement become normative expectations; at the same time, social networks develop that facilitate academic success. “Good schools” are those attended by “good students,” where academic achievement is valued and facilitated – even if not realized – by most students. Thus, schools with large proportions of high-SES students are likely to provide opportunities for all students to develop valuable social capital that may facilitate academic success. The presence of high-SES students, many of whom have access to resource-rich networks and possess achievement orientations on account of their family background and home environments (Conger et al. 1997; Dornbusch et al. 1987; Lareau 1989; Carbonaro 1998; Coleman 1988; Hofferth et al. 1999; Morgan and Sørensen 1999; McNeal,
may enable lower-SES students in the same school to access these same networks and acquire achievement orientations through friendship ties (Joyner and Kao 2000; Moody 2001).

It seems less plausible that high-minority concentration in schools would reduce achievement through normative pathways. As Orfield and Yun (1999: 17) point out, there is “nothing magic about sitting next to a white child,” and a number of studies suggest that the social class of schoolmates matters more than their race (Jenks 1972; Puma et al. 1997; Sui-Chu and Williams 1996). Nevertheless, it has been argued that minority children may bring to schools the negative attitudes and expectations that emerge from the social and economic disadvantages of growing up non-white in the United States (Bankston and Caldas 1996; Stanton-Salazar and Dornbusch 1995). In addition, segregated school environments may impede the formation of social capital because they limit the development of ties that could otherwise be built between majority and minority groups (Blau 1994). Integrated schools, on the other hand, may provide settings conducive for the development of inter-group relations, which can have positive and long-term effects on a variety of outcomes, such as college educational attainment and achievement (Crain and Mahard 1978; McPartland and Braddock 1981) and occupational achievement of minority students (Braddock and McPartland 1987).

Research that focuses on young children in elementary school shows little to no direct evidence for the normative processes hypothesis (Dreeben and Barr 1988; Hallinan 1988; Pallas et al. 1994). However, part of the reason may be that peer influences do not become strong until children reach adolescence. Other studies of adolescents suggest that students in higher SES schools are more likely to establish friendships with individuals having high educational aspirations (e.g., Stockard and Mayberry 1992) and to interact more with positive
adult role models (Kupersmidt et al. 1995). In addition, extensive research confirms the
common sense notion that connections and social networks are crucial to academic success
(e.g., Blum and Rinehart 1997; Kubitschek and Hallinan 1998; Schneider and Coleman 1993).
Another explanation for the lack of support for the normative processes idea is that pressure to
conform to group norms may be offset by students using peer group norms as a basis for
making judgments about their own ability to succeed (Felmlee and Eder 1983). That is, lower
class, minority students may “give up” more easily in the face of seemingly “unreachable”
norms and expectations for high academic achievement.

Another explanation of school composition effects relates to structural constraints that
develop as a byproduct of low-SES or high-minority concentration. For example, higher SES
schools are often found in communities that place a premium on quality education and are
likely to give extensive financial assistance to schools (e.g., Friedkin and Neocochea 1988).
School composition may also affect the organization of instruction within schools, that is, the
formation of instructional groups within classrooms (in primary schools) or tracks within
grades (secondary schools) (Dreeben and Barr 1988; Dreeben and Gamoran 1986; Oakes
1995; Spring 2000; Valencia 1997). Teachers in white middle-class schools tend to teach at a
higher level and cover more content than teachers in schools that serve minority and lower-
income students (Dreeben and Gamoran 1986; Mahard and Crain 1983). One explanation is
that teachers pace instruction to the class average. Teacher expectations, in turn, may be
influenced by racial and class-based stereotypes. Thus, blacks in middle-class white schools
may benefit because the class average is likely to be higher (Mahard and Crain 1983), or at
least, teachers’ expectations of what the children can learn are higher (Alexander, Entwisle,
and Thomson 1987; Fordham 1996; Steele and Aronson 1995; Coleman et al. 1966; Mahard and Crain 1983; Rist 1970).

4.2. Immigration and Generational Status.

Previous studies recognized the role of school racial composition as one of the determinants of academic outcomes for African-American students (e.g., Crain and Mahard 1978; Mahard and Crain 1982; Longshore and Prager 1985; McPartland and Braddock 1981). Theoretical developments and prior research about immigrant incorporation suggest that school composition effects may also be important for Latinos and children of immigrants. As discussed earlier, the dominant contemporary theory of assimilation, segmented assimilation theory, stresses the importance of context of reception, including school contexts, for shaping the incorporation patterns of immigrants (Bean and Stevens 2003; Portes and Rumbaut 2001; Portes and Zhou 1993). Support for this idea comes from research suggesting that some Hispanic sub-groups (e.g., Puerto Ricans, Mexicans) have been observed to develop “oppositional” cultures perhaps as a way to cope with racism and other barriers to upward mobility (e.g., Fernandez-Kelly and Schaufler 1996; Fernandez-Kelly 1995; Portes 1998; Portes and Zhou 1993). On the other hand, Ogbu’s (1974; 1991) research suggests that, unlike youth in “caste-like” minorities like African Americans, Native Americans, Puerto Ricans, and native-born Chicanos, minority youth from “voluntary” immigrant groups develop peer cultures that facilitate achievement, upward mobility, and educational assimilation. In either case, the peer-culture that emerges at school and in neighborhoods is viewed as influencing the achievement orientations (for good or ill) of children involved in those peer groups.
However, school context may be less important for foreign-born children than later-generation children. The maintenance of family ties may help some immigrant groups overcome some structural limitations, including disadvantages associated with attending an impoverished school (Gibson 1988; Waters 1999; Zhou and Bankston 1998; Bean and Stevens 2003). Conversely, the influences of families may be overwhelmed by those coming from high-poverty schools if parents are unable to effectively monitor their children, especially in cases in which the level of “closure” in the neighborhood is low (Zhou and Bankston 1998; Coleman 1988). That is, when immigrant families first arrive in the United States, children’s opportunities to develop friendships with those outside their ethnic group may be especially limited in part due to low English proficiency and cultural differences. But with time in the U.S., particularly as children learn English and become more acculturated, parental supervision may decline and adolescents may become more influenced by peers and, in general, by the schooling context.

4.3. Hypotheses.

H1: Given the findings of other researchers and the arguments proposed to address the issue of school racial composition and educational outcomes of adolescents (e.g., Bankston and Caldas 1996, Orfield and Yun 1999), I hypothesize that Latino adolescents will have lower academic achievement if attending schools with a high-percentage of minority enrollment.

H2: Since there is a similar achievement gap between schools with different socioeconomic composition, as there is between schools with different racial composition
(Bankston and Caldas 1996), the school-level disparity in academic performance is affected by average school-level SES. Specifically, I hypothesize that there is a positive association between school SES and academic achievement of an individual Latino students. That is to say that in low-SES schools academic achievement of Latino adolescents will be lower than in high-SES schools.

H3: I also hypothesize that the effects of school composition will differ by generational status. Furthermore, I believe that family social capital may help explain any association between Latino adolescents’ academic achievement and immigrant generational status. I expect this because as studies on educational assimilation note that foreign-born youths are more likely to depend a lot on family-based social capital while native adolescents are more influenced by school context (Waters, 1999; Zhou and Bankston 1998; Bean and Stevens 2003).

4.4. Results.

*Descriptive Findings.* Before testing specific hypotheses for the school composition effects on Hispanic adolescent achievement, the levels of achievement across schools with different levels of school-level SES and percentage of minority enrollment must be established. Using the 25th and 75th percentiles of the school-level SES and percentage of minority in Table 4.1 to classify schools as being low and high on the scale of the aforementioned measures represents a compromise between setting the cutoff points as high or as low as possible and providing sufficient sample size in each school group. As shown in Table 4.1, academic achievement of Latino adolescents is associated with school SES and
minority composition. Academic achievement, as expected, is higher in low-percent minority and high-SES schools. This finding illustrates the previously stated relationship between class and race as attributes of educational stratification. It should be noted, nevertheless, that the effects observed in Table 4.1 could possibly be explained by the selection of certain types of students into schools. For example, the choices that parents make regarding the schools their children attend influence the demographic compositions of students (see more about possible selection effects in Chapter 6).

**Multivariate Results.** Which school effects are more important – those of racial or ethnic composition or those of socioeconomic composition? Table 4.2 displays the results of HLM models of prediction of PVT and GPA. I first estimate the effects of school-level SES and percentage minority (Model 1). I then add individual- and family-level controls. The results show that the average school SES is a stronger predictor of both GPA and AHPVT than the percentage of minority students. In fact, in Model 3 that controls for all individual-level predictors, the absolute values of the regression coefficients of the average school SES (for both GPA and AHPVT) approximate those of the constant in the equation. Since the strength of a predictor can be judged by the absolute value of its regression coefficient the average school SES is one of the most important determinants of academic achievement. Moreover, this predictor alone explains more than half (54 and 57%, respectively) of the school-level variation of GPA and AHPVT. Noteworthy, school racial composition has little, if any, effect on GPA. This is equally true for Model 1, which does not account for the individual-level factors, and for Models 2 and 3, which do. In the case of AHPVT, however, the effect of school racial composition is negative in Model 1, but insignificant in Models 2 and 3. Thus average school SES figures as the only significant school-level predictor of both
GPA and AHPVT in Models 2 and 3. This means that for Latino adolescents attending schools with a higher concentration of students from low-SES families is associated with lower academic achievement while the level of minority enrollment does not matter.

Not only does it appear that only one school-level effect is significant while predicting GPA and AHPVT of an individual Latino student, it also seems that a considerable share of the variation in both measures of academic achievement is explained by individual-level factors. Indeed, for both GPA and AHPVT, Model 2 accounts for most of the individual-level effects and is a significant improvement over Model 1. This is evident from the model comparison tests in Table 4.2. It is important therefore, while keeping focus on school-level predictors of achievement, to control for individual-level factors because these explain a large share of total variation in GPA and AHPVT. For the most part, the individual-level effects from Model 3 of Table 4.2 are consistent with previous research and in the expected directions (see Chapter 2 for the detailed review of the literature). Nevertheless, my results on the ethnic origin and immigrant generational status do not agree with the theoretical literature on educational achievement. I found only one significant ethnic origin effect as Puerto-Rican adolescents consistently are more likely to have better AHPVT scores than adolescents from other ethnic groups, even after controlling for language proficiency and family social capital. Cuban-American adolescents, contrary to what is predicted by oppositional culture theory (e.g., Ogbu 1991; Fordham and Ogbu 1986), have no advantage in GPA and AHPVT over other Latino students. Likewise, immigrant generation status does not tend to have a significant effect on GPA. The sole exception is the first generation whose AHPVT scores in the full model (Model 3 of Table 4.2) are significantly lower than those of the natives. The other immigrant generations have no visible advantage or disadvantage in academic
achievement relative to each other and the native Latinos. These findings do not agree with any of assimilation paradigms reviewed (see Chapter 2 for the detailed description of assimilation paradigms)\textsuperscript{12}

The effects of family social capital in Model 3 of Table 4.2 operate in directions consistent with the findings of the prior research in that family social capital is strongly associated with higher achievement. Notably, Model 3, which includes family social capital effects, is a significant improvement over Model 2 whether in the case of GPA or AHPVT. Despite that, not all family social capital measures are equally important in predicting the GPA or AHPVT of an individual student. Parents’ expectations for further education are strongly associated with GPA and parents’ limit setting with AHPVT, while parents’ supervision is an important predictor of both GPA and AHPVT.

One of the important findings in Table 4.2 is that incorporating the family social capital variables in Model 3 did not substantially alter other family effects in Model 2, thus indicating that family predictors, including SES, are independent of the family social capital variables used in the analysis. Likewise, family social capital tended not to mediate generational status effects. One exception worthy mention is that the regression coefficient of the first immigrant generation on GPA declines substantially in Model 3 as compared to Model 2, suggesting that family social capital explains why the first generation—who tend to be more disadvantaged socioeconomically, did not differ from other generations on GPA in Models 1 and 2.

Among other individual-level effects in Table 4.2, several need to be mentioned. First, parents’ education and family income have strong positive effects on GPA and AHPVT.

\textsuperscript{12} One exception is perhaps some weaker version of the classic assimilation model, which predicts better outcomes by generation. This seems to the likely case when comparing first and later generations on AHPVT scores.
These effects hold constant in both Models 2 and 3. As said above, these effects are not reduced by the addition of family social capital variables. In contrast, the effects family structure and size are insignificant in all regression models. This implies that Latino adolescents in high-SES families are more advantaged in terms of academic achievement than Latino adolescents in low-SES families. Additionally, small and/or two-parent families do not appear to be more beneficial family arrangement for adolescent academic achievement than large and/or single-parent or non-parent families. Hence, family SES is much more important determinant of Latino adolescents’ academic achievement than family structure and size.

Second, Spanish spoken at home, which is an indicator of linguistic assimilation, has a strong negative effect on AHPVT in Models 2 and 3. This is particular interesting because immigrant generational status, another measure of assimilation, is controlled in these models. Thus, independent of generational status, Latino adolescents who speak Spanish at home are predicted to have lower AHPVT scores than those who speak English. In GPA models the effect of Spanish spoken at home is not significant, suggesting that grades are less influenced by English proficiency than AHPVT scores.

Third, as evident from Models 2 and 3 of Table 4.2, girls and/or older adolescents tend to have lower AHPVT scores than boys and/or younger adolescents. In particular, the positive regression coefficient for males in Model 2 becomes insignificant in Model 3, whereas the negative one of age is significant only in Model 3, but not in Models 2. This implies that males’ advantage over females disappears once family social capital is controlled, while older adolescents’ disadvantage emerges only after family social capital is controlled. Thus family social capital mediates not only the effect of first immigrant generation, which is explained above, but also those of age and gender. Finally, Latino adolescents who report to be frequently involved in extracurricular activities are shown
to have higher GPA and AHPVT. This finding is consistent with prior research (e.g., Blum and Reinhart 1997).

Since generational status is associated with school-level SES and school-level SES has such a strong effect on academic achievement, school socioeconomic composition may explain variations in achievement by generational status. To investigate this possibility I estimate a series of regression models, the first including only generational status and ethnic origin, the second adding school-level factors, and the third adding all other controls. As evidenced by the results presented in Table 4.3, the difference in GPA and AHPVT between immigrant generations does not change much after controlling for the school-level factors. The generational and ethnic effects — to the extent that they are present in Model 1 — do not change in the case of GPA and decline only slightly in the case of AHPVT between Models 1 and 2. Similarly, variation in achievement between Latino ethnic groups is not influenced by the effects of school composition. It should be noted here, though, that differences in GPA between immigrant generations as well as ethnic origin groups are not significant when individual-level factors are controlled for. The picture is similar in AHPVT regression models, though with two exceptions. First, the only generational group that has significantly lower AHPVT than native adolescents is the first (most recent) one. Second, Puerto-Ricans, on average, seem to have much better AHPVT scores than the rest of Latino adolescents, perhaps on the account of their better English skills plus familiarity with the US educational system. In any case, differences in characteristics of schools do not explain generational and ethnic differences in academic achievement.

I next investigate whether the effects of school SES are the same across generations. Table 4.4 explores the importance of meso-level interactions between school composition and
immigrant generation status. In view of the fact that exploratory analyses showed that the variation explained by the school factors is relatively small (11 and 12% of the total variation in GPA and AHPVT respectfully) and only the first generation has remarkably lower achievement than the native adolescents I collapsed 1.5, 2, and 2.5 generations into one category – “U.S. born children of immigrants” for the meso-level analyses. Figures 4.1-4.4 are presented here to illustrate the interaction effects as they are given in Table 4.4, Model 2.

The slopes of change in the two measures of academic achievement across immigrant generation status and school composition that contrasts schools with high, medium and low levels of SES and minority enrollment reveal multiplicity of outcomes (see Figures 4.1-4.4). As predicted, Figure 4.1 demonstrates that GPAs of the first generation and native Latinos are higher in high-SES schools, while GPA of the rest of immigrant generations is lower in these schools. In the case of AHPVT, all immigrant generations perform better in low-SES schools (Figure 4.2). It should be noted, however, that the regression coefficients of immigrant generation 1 and later generations on AHPVT are not significant (Table 4.4). Figure 4.3 shows that grades of the first immigrant generation are lower in high-percent minority schools. The negative slope of this generation contrasts with almost horizontal lines of other immigrant generations and natives. In Figure 4.4., observe that it is native Latinos, not immigrants, who have lower AHPVT scores in high-percent minority schools. Again, these effects are hardly interpretable because they are insignificant in Table 4.4. The explanation of dissimilarity in the paths of the immigrant generations and the natives most likely rests in the nature of AHPVT and GPA as measures of educational achievement. Some methodological

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13 25th and 75th percentiles of the distributions of the school-level variables were used to delineate schools with high, medium, and low percentages of minority students and SES.
aspects of AHPVT and GPA that pertain to differences by generational status will be discussed in the next section.

As it can be seen from Table 4.4, the regression coefficients of the interaction effects change upward when family social capital factors are added to the model (the slope of school SES becomes more positive for the first generation). On the contrary, significant negative change is evident in the interaction effects of school racial composition and the first immigrant generation after controlling for family social capital (the slope of school racial composition becomes more negative for the first generation). Thus when family-level social capital is controlled, the more negative influences of school composition and SES emerge. This may mean that differences in family-level social capital can alter or make up for the attendance in low-SES and high-percent minority schools for first generation students. The interaction effects of school composition and generational status have been found to be insignificant for AHPVT scores (see Table 4.4).

4.5. Overview.

The overall results of my analyses indicate that school socioeconomic composition is a more important predictor of Latino adolescents’ academic achievement than racial composition. Thus my findings lend considerable support to the research hypothesis H2, but not to the research hypothesis H1. That is to say, the schools that differ in terms of racial composition of student body appear to be similar with much of the difference accounted for by factors related to family SES and family-based social capital. On the other hand, far from being an individually determined phenomenon, even low-SES students perform better if they
are around schoolmates from the privileged socioeconomic backgrounds. My analyses took into account the potentially competing influences of sex, age, and extracurricular activities, as well as factors that have repeatedly been shown to influence academic performance, such as family structure and SES (Bankston and Caldas 1996, Vernez and Abrahamse 1996, Zhou 1997). The inclusion of extensive controls enhances the validity of my findings. For the most part, the effects of these control variables, if significant, were in the predicted directions. In particular, family SES, as measured by parents’ income and education, and frequency of involvement in extracurricular activities, were associated with higher GPA and AHPVT. At the same time, speaking Spanish at home, suggesting limited English proficiency, and being older, suggesting more frequent exposure to peer influence, is associated with lower AHPVT. The same effects turned out to be insignificant in case of GPA.

Surprisingly, immigrant generational status does not significantly influence Latino academic achievement in a linear progression. Only first generation immigrants have been shown to have much lower AHPVT scores than native-parentage adolescents. Conversely, this generation’s GPA was higher than that of third-generation adolescents, with much of the difference explained by family social capital. Thus the part of the hypothesis H3 that family social capital partially explains the association between Latino adolescents’ academic achievement and immigrant generational status was supported by my analyses. Furthermore, I also found support for the part of the hypothesis H3 that the effects of school socioeconomic and racial composition vary by generational status. Specifically, the first (most recent) immigrant generation of Latinos were shown to have much better grades in schools with low minority achievement. In contrast, no such effect was found for all other immigrant generations and native Latino adolescents. This finding is not consistent with other studies on
educational assimilation stating that foreign-born youths are less likely to be influenced by school context (Waters, 1999; Zhou and Bankston 1998; Bean and Stevens 2003). One possible explanation for the strong association between GPA and school racial composition for the first generation may relate to the fact that teachers’ expectations and grading practices vary in schools with different levels of minority achievement (Gamoran 2000; Knapp 1995). This explanation is very likely in view of the fact that no such association was found between AHPVT and school racial composition for the same generation.

To conclude, educational stratification by social class, but not race, is an important school context factor that influences academic achievement of Latino adolescents. Needless to say, minority and low-income enrollment are inexorably correlated with one another. This, and, more importantly, the little inter-school variation in academic achievement, are factors that influence the relative strength of the regression coefficients, as well as the distribution of total variance in academic achievement explained by each school-level predictor. However, much of the difference in academic achievement among schools could disappear or, to the contrary, be amplified after controlling for factors related to school-based social capital. The analyses that test the significance of school social capital will be completed in the chapter that follows. They may shed light on one of the mechanisms through which school racial composition may influence academic outcomes.
Table 4.1. Average GPA and AHPVT in Schools with High, Medium and Low School SES and Percentages of Minority Youth in Their School Bodies.

<table>
<thead>
<tr>
<th>School-Level Variable</th>
<th>GPA</th>
<th>AHPVT</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>School SES</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>High</td>
<td>2.69</td>
<td>100.48</td>
</tr>
<tr>
<td>Medium</td>
<td>2.63</td>
<td>93.62</td>
</tr>
<tr>
<td>Low</td>
<td>2.56</td>
<td>88.90</td>
</tr>
<tr>
<td><strong>Percentage Minority in School</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>High</td>
<td>2.59</td>
<td>89.84</td>
</tr>
<tr>
<td>Medium</td>
<td>2.61</td>
<td>95.16</td>
</tr>
<tr>
<td>Low</td>
<td>2.77</td>
<td>100.78</td>
</tr>
</tbody>
</table>
Table 4.2. HLM Regression Coefficients of School- and Individual-Level Predictors of GPA and AHPVT.

<table>
<thead>
<tr>
<th></th>
<th>GPA</th>
<th>AHPVT</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Models</td>
<td></td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td><strong>School-Level Factors</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Average SES</td>
<td>4.50 *</td>
<td>2.95 +</td>
</tr>
<tr>
<td>Percentage of Minority Students</td>
<td>0.02</td>
<td>0.06</td>
</tr>
<tr>
<td><strong>Ethnic Origin</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mexican a</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>Cuban a</td>
<td>0.15</td>
<td>0.10</td>
</tr>
<tr>
<td>Puerto-Rican a</td>
<td>-0.04</td>
<td>-0.03</td>
</tr>
<tr>
<td><strong>Immigrant Generation Status</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Generation 1 b</td>
<td>0.16 **</td>
<td>0.11 +</td>
</tr>
<tr>
<td>Generation 1.5 b</td>
<td>-0.09</td>
<td>-0.13 +</td>
</tr>
<tr>
<td>Generation 2 b</td>
<td>0.08 +</td>
<td>0.05</td>
</tr>
<tr>
<td>Generation 2.5 b</td>
<td>-0.11 *</td>
<td>-0.09 +</td>
</tr>
<tr>
<td><strong>Individual-Level Controls</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Spanish Spoken at Home c</td>
<td>0.03</td>
<td>0.04</td>
</tr>
<tr>
<td>Extracurricular Activities</td>
<td>0.08 ***</td>
<td>0.08 ***</td>
</tr>
<tr>
<td>Age</td>
<td>-0.02</td>
<td>-0.02</td>
</tr>
<tr>
<td>Male d</td>
<td>-0.07</td>
<td>-0.06</td>
</tr>
<tr>
<td><strong>SES</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Family Income</td>
<td>0.06 ***</td>
<td>0.07 ***</td>
</tr>
<tr>
<td>Parents’ Education</td>
<td>0.03 **</td>
<td>0.03 **</td>
</tr>
<tr>
<td><strong>Family Structure</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Single-Parent Household e</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>Non-Parent Household e</td>
<td>0.02</td>
<td>0.03</td>
</tr>
<tr>
<td>Large Household f</td>
<td>0.03</td>
<td>0.04</td>
</tr>
<tr>
<td><strong>Family Social Capital</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Parents’ Educational Expectations</td>
<td>0.09 **</td>
<td></td>
</tr>
<tr>
<td>Parents’ Limit Setting</td>
<td>0.03</td>
<td></td>
</tr>
<tr>
<td>Parents’ Supervision</td>
<td>0.09 ***</td>
<td></td>
</tr>
<tr>
<td><strong>Constant</strong></td>
<td>2.63 ***</td>
<td>2.61 ***</td>
</tr>
<tr>
<td>Model Comparison Test(df)</td>
<td>854(152)***</td>
<td>153(57)***</td>
</tr>
</tbody>
</table>

Note: Reference Categories: a – other Hispanic; b – generation 3+ (i.e., native-parentage adolescents); c – English spoken at home; d – female; e – two-parent household; f – household of up to four residents.

***p<0.001; **p<0.01; *p<0.05; + p<0.1.

The test is analogous to the nested F-test for OLS regression models. It is based on the difference between the deviance statistics (defined as -2 ln likelihood function value at convergence) of two models. In this case, it tests whether Model 2 is a significant improvement over Model 1, and Model 3 over Model 2. It has a chi-square distribution with degrees of freedom equal to the difference in the number of parameters estimated in the models. The model comparison test is not applicable for models that differ only in the number of level-2 factors or cross-level interactions. Therefore it was not conducted for some of the analyses.
Table 4.3. HLM Regression Coefficients of Immigrant Generational Status and Ethnic Origin with and without Individual- and School-Level Controls.

<table>
<thead>
<tr>
<th>Ethnic Origin</th>
<th>GPA</th>
<th>AHPVT</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Mexican a</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>Cuban a</td>
<td>0.22*</td>
<td>0.20 +</td>
</tr>
<tr>
<td>Puerto-Rican a</td>
<td>-0.02</td>
<td>-0.01</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Immigrant Generation Status</th>
<th>GPA</th>
<th>AHPVT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Generation 1 b</td>
<td>0.04</td>
<td>0.07</td>
</tr>
<tr>
<td>Generation 1.5 b</td>
<td>-0.07</td>
<td>-0.06</td>
</tr>
<tr>
<td>Generation 2 b</td>
<td>0.03</td>
<td>0.05</td>
</tr>
<tr>
<td>Generation 2.5 b</td>
<td>-0.16**</td>
<td>-0.16**</td>
</tr>
</tbody>
</table>

Model Comparison Test(df)

- **p<0.001; **p<0.01; *p<0.05;  p<0.1.

Note: 1. Dependent variables are GPA and AHPVT. 2. Regression coefficients of the control variables are not shown for the sake of the space. 3. Model 2 controls for the school-level factors and Model 3 controls for all individual- and school-level factors. 4. Reference Categories: a – other Hispanic; b – generation 3+ (i.e., native-parentage adolescents).
Table 4.4. HLM Regression Models of School Composition, Immigrant Generational Status and Its Interactions with Average SES and Percentage of Minority Students in School.

<table>
<thead>
<tr>
<th>Part A. Interaction Effects of Generational Status and Average SES</th>
<th>GPA</th>
<th>AHPVT</th>
<th>Models</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td><strong>School-Level Factors</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Average SES</td>
<td>3.37 +</td>
<td>2.91</td>
<td>113.45 **</td>
</tr>
<tr>
<td>Percentage of Minority Students</td>
<td>0.11</td>
<td>0.09</td>
<td>-5.95 +</td>
</tr>
<tr>
<td><strong>Immigrant Generation Status</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Generation 1 $^a$</td>
<td>0.16 *</td>
<td>0.14 *</td>
<td>-8.85 ***</td>
</tr>
<tr>
<td>Children of Immigrants $^a$</td>
<td>-0.03</td>
<td>-0.03</td>
<td>0.88</td>
</tr>
<tr>
<td><strong>Interactions of Immigrant Generation Status and Average SES</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Generation 1 and Average SES</td>
<td>2.63</td>
<td>4.89 *</td>
<td>-50.94</td>
</tr>
<tr>
<td>Children of Immigrants and Average SES</td>
<td>-5.06 *</td>
<td>-3.57 *</td>
<td>-51.37</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Part B. Interaction Effects of Generational Status and Percentage of Minority Students</th>
<th>GPA</th>
<th>AHPVT</th>
<th>Models</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td><strong>School-Level Factors</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Average SES</td>
<td>-0.49</td>
<td>2.52</td>
<td>98.81 **</td>
</tr>
<tr>
<td>Percentage of Minority Students</td>
<td>0.00</td>
<td>0.14</td>
<td>-7.30 *</td>
</tr>
<tr>
<td><strong>Immigrant Generation Status</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Generation 1 $^a$</td>
<td>0.28 ***</td>
<td>0.22 **</td>
<td>-9.12 ***</td>
</tr>
<tr>
<td>Children of Immigrants $^a$</td>
<td>-0.02</td>
<td>-0.04</td>
<td>0.59</td>
</tr>
<tr>
<td><strong>Interactions of Immigrant Generation Status and Percentage of Minority Students</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Generation 1 and Percentage of Minority Students</td>
<td>-0.60 **</td>
<td>-0.94 **</td>
<td>6.59</td>
</tr>
<tr>
<td>Children of Immigrants and Percentage of Minority Students</td>
<td>0.21</td>
<td>0.21</td>
<td>5.06</td>
</tr>
</tbody>
</table>

***p<0.001; **p<0.01; *p<0.05; +p<0.1.

Note: 1. Dependent variables are GPA and AHPVT. 2. Regression coefficients of the control variables are not shown for the sake of the space. 3. Model 1 controls for individual-level factors, except for family social capital (parents’ educational expectations, parents’ supervision, parents’ limit setting), and Model 2 controls for all individual-level factors. 4. Reference Category: a – generation 3+ (i.e., native-parentage adolescents).
Figure 4.1. Predicted Values of GPA by Immigrant Generational Status and Average School SES.

Figure 4.2. Predicted Values of AHPVT by Immigrant Generational Status and Average School SES.
Figure 4.3. Predicted Values of GPA by Immigrant Generational Status and Percentage of Minority Students in School.

Figure 4.4. Predicted Values of AHPVT by Immigrant Generational Status and Percentage of Minority Students in School.
CHAPTER 5. PEER NETWORKS AND ACADEMIC ACHIEVEMENT.

The analyses presented in the last chapter demonstrated that the socioeconomic composition of a school’s student body is an important predictor of Latino adolescents’ academic achievement. With the exception of the first generation whose GPA is negatively associated with school racial composition, Latino adolescents’ academic achievement, was not affected by the level of minority enrollment in the school. This may be due to the fact that my school-level measures are not precise enough to capture school composition effects. In order to resolve this problem, I advance my analyses in this chapter by examining the effects of peer networks on educational outcomes. Indeed, the most common explanation of how racial composition affects academic achievement is through peer effects (e.g., Coleman et al. 1966; Jencks and Mayer 1990). Specifically, racial composition determines students’ ability to make friends with students from other racial and ethnic groups. The possibility of frequent interracial contact in integrated schools, in turn, provides interracial information transfer. Thus the importance of heterogeneous peer networks in the school has been of particular interest to social scientists as one of the rationales for pursuing desegregated schools.

This chapter examines the importance of peer network factors such as network homogeneity and density on Latino students’ academic achievement while controlling for other school-related influences as well as individual and family factors such as SES. My main foci are: (1) Do Latino youth in schools with more racially or ethnically segregated networks
have worse academic achievement than Latino youth in schools where networks are less segregated? (2) Do Latino youth in schools with dense peer networks have better academic achievement than Latino youth in schools with sparse peer networks? Although previous research provides a record of attempts to examine the relationship between school social composition and educational outcomes, no prior work considered the possible effects friendships and networks formed in schools may have on academic achievement. Thus the question of whether school-based ethnic social capital – proxied by the network heterogeneity and density – can explain Latino adolescents’ academic achievement remains unanswered and will be addressed by the analyses that follow.

5.1. Prior Research on Peer Networks.

When addressing the question of how school segregation impacts student outcomes the most plausible answer lies in the problem of social isolation that effectively cuts minority students off from the mainstream students. According to Hallinan (1982), the racial and socioeconomic composition of a student body determines the probability of interracial friendship formation by influencing the composition of friendship pools from which students draw. Overall, interracial friendship ties are considered by many researchers to be beneficial for minority students. The Coleman Report, coming from the normative approach, explained the benefits of school integration as the transmission of values, more specifically, the diffusion of socially acceptable patterns of behavior from the more privileged racial group to the less privileged that occurs through the interracial contact (Coleman et al. 1966; Gerard 1988). Other scholars stressed the importance of information transfer which is facilitated in
integrated environments (e.g., Chubb and Moe 1990). Still others (e.g., Hawley and Smylie 1988) argue that interracial friendships provide minorities with access to resources, means of self-presentation, and patterns of communication acceptable to the majority. Chubb and Moe (1990:109) consider peer friendships at the school to be a critical link between families and schools because “through their peers, students are influenced by the families of other students in a school.” The acquaintances and communications between students foster social capital because they make possible network connections among sets of individuals (Hallinan and Sørensen 1985; Harris, Duncan, and Boisjoly 2002; Kubitschek and Hallinan 1998; Morgan and Sørensen 1999). Implicit in the concept of “social capital” as it applies to adolescents is the impact of group membership (Becker 1962; Hofferth et al. 1999). Because adolescents spend many hours together, the peer group has been generally identified as one of the most important influences on individual achievement.

Peer group theory predicts that the prospects for adolescent school success will vary depending on the peer group with whom adolescents most often come into contact. The peer group is the context in which adolescents are exposed to others, including role models. It involves contemporaneous behavioral influences and is always reciprocal (Coleman et al. 1961; Coleman 1988; Schneider and Coleman 1993). Peer group influences are usually understood to produce some sort of imitative behavior facilitated by interdependences in information transmission (Berndt 1979; Savin-Williams and Berndt 1990). The extensive literature notes that a child’s peer group influences social and academic development and that these influences begin at the very start of formal education (Dishion, French, and Patterson 1995; Galambos, Barker, and Almeida 2003). Specifically, some academics argue that adolescent subcultures often challenge adult authority and students who are inclined to peer
pressures tend to fail academically (Berndt and Keefe 1995; Wentzel and Caldwell 1997). The assumption that adolescents begin to reject the values of their parents in order to follow their peers has led to an abundance of research focused on peer influence regarding antisocial behaviors such as smoking, drug use and sex (e.g., Bahr, Marcos and Maughan 1995; Diclemente 1991). Although a number of studies (e.g., Berndt and Keefe 1995; Epstein 1983; Steinberg et al. 1992) have examined peer influence on motivation towards academic achievement, researchers have continued to examine only the negative impact of peer influence, while placing little emphasis, if any, on the positive aspects of peer socialization. Considerable research, stemming from the theory of oppositional culture (Ogbu 1978, 1981), has examined cultural patterns penalizing academic achievement. The theory of oppositional culture describes a cultural pattern within the African-American and Latino communities whereby peers disparage academic achievement because it is perceived as “selling out” or “acting white” (Fordham and Ogbu, 1986; Ogbu, 1991). Minority peers, as Fordham and Ogbu (1986) observed, may in some situations view academic success as a threat to group solidarity and negatively sanction students who perform well. Involuntary minorities, such as Mexican-Americans and Puerto-Ricans (Ogbu 1978), tend to develop a collective oppositional culture, a frame of reference that actively rejects mainstream behaviors and also undermines academic achievement. In other words, children in this culture are often ostracized for conforming to the educational system., Steinberg et al. (1992) argue that, as a result, minority students receive less support for achievement from their peers of the same ethnic background, and consequently do not fare as well in school as white non-Hispanic students. Just as a link has been established between negative peer influence and academic outcomes (Berndt, Laychak and Park, 1990; Berndt and Keefe, 1995), a similar link may be
established between positive peer influence and academic outcomes (e.g., Epstein, 1983). There are examples of research that defy oppositional culture theory. Carter (2003), for example, reported that minority students rejected certain styles of speech, dress, and music as “acting white” but nonetheless valued behaviors conducive to academic success, such as studying hard, getting good grades, and making the honor roll.

In thinking about ways in which peers can impact the academic achievement of adolescents it is important to investigate the impact of positively oriented peer influences as related to academic achievement. One way to think about this issue is to examine the effects of ethnic social capital on adolescents’ academic outcomes. The notion of “ethnic social capital” was developed by Borjas (1992, 1995) and primarily applied to studies in the field of immigration and assimilation (e.g., Portes, 1998; Portes and Rumbaut 2001). Borjas (1995) locates ethnic social capital in the ethnic group and its networks. He hypothesizes that minority children can enjoy increased chances of economic success when they develop in social environments with larger amounts of ethnic capital. The ethnic groups and networks provide intergenerational transmissions of social and human capital, norms regarding educational attainment, educational and job information, and employment opportunities. Those ethnic groups that maintain strong ethnic solidarity and resist acculturation may provide better opportunities for their younger generation through the creation of ethnic social capital. Moreover, as Portes and Rumbaut (2001) pointed out, minority groups may have more opportunities to form and maintain informal social networks and relationships among themselves. Therefore ethnic networks tend to be more dense and homogenous than those in the white, non-Hispanic population (Wierzbicki 2004). Although network studies emphasize the advantages of networks that are open, of low density, and heterogeneous (i.e., Granovetter
1973), it is more likely that the ethnic social capital present in dense, homogeneous networks will lead to better educational outcomes (Zhou and Bankston 1998). Overall, ethnic social capital can be exceptionally important for Latino youth, particularly in the school context. However, this possibility was neglected by many scholars because co-racial and co-ethnic peer influences for Latino adolescents have been traditionally viewed as a liability, not an asset.

5.2. Hypotheses.

H1a: I hypothesize that Latino adolescents’ academic performance is influenced by peer network density and homogeneity, while keeping other things constant. H1b: In addition, I expect to see peer network effects differ by immigrant generational status and ethnic origin. According to the theory of oppositional culture (Ogbu 1978, 1981; Fordham and Ogbu 1986) the effect of co-racial and co-ethnic social ties on the academic achievement of involuntary minorities is negative. Moreover, the social capital theory (e.g., Granovetter 1973) posits that minority groups would benefit from heterogeneous, sparse networks. H1c: However, rooted in the theory of ethnic social capital (e.g., Borjas 1992, 1995), my hypothesis is that homogeneity and density of peer networks may positively affect academic achievement of Latino adolescents. H1d: In addition, I hypothesize that peer network density and homogeneity may help explain why, according to my earlier analyses, school racial composition has no effect on academic achievement. As discussed earlier, school racial composition can be operationalized as an indicator of both peer effects and school quality. Unlike school racial composition, peer network density and homogeneity are proximate
measures of peer effects. Therefore their effects may be stronger than that of school racial composition. H1e: I also expect to observe significant interactions between ethnic origin and ethnic social capital, measured in terms of heterogeneity and density of peer networks.

H2a: A number of studies mentioned family-based social capital as one of the most important developmental contexts that influence adolescent educational success (Dornbusch et al. 1987; Israel, Beaulieu, and Hartless 2001; Stevenson and Baker 1987). Particularly, close bonds between adolescents and their families and parenting behaviors associated with these bonds are commonly seen as the vital resource of family social capital (Laosa 1982; Schneider and Coleman 1993; Smith et al. 1992; Stanton-Salazar 1997). I hypothesize therefore that higher levels of parental educational expectations and other measures of family capital may have a positive association with Latino students’ academic achievement. H2b: In addition, I expect the family social capital effects and the school context effects, both compositional and network, to work in different directions. Thus I expect that family social capital will cushion the negative effects of school composition, such as attending low-SES or high-percent minority school. H2c: Similarly, I believe that controlling for family social capital will mediate the impact of peer network effects, if such are present. This is expected because prior research has shown that factors related to family social capital might offset negative influences of the school environment, including peer effects (e.g., Muller 1995; Steinberg et al. 1992; Zhou and Bankston 1988). Specifically, controlling for family social capital may amplify peer effects. The negative peer effects may not be apparent when family social capital is not controlled because positive family social capital offsets negative peer effects.
5.3. Analytic Strategy.

In this chapter I control for the racial and socioeconomic composition of the school student body. For this purpose I use the same variables as in the last chapter. The focal variables in this chapter are peer network measures – racial homogeneity and density. Both of these measures were constructed using the Add Health network file (see Chapter 3 for the description of these measures). Because network homogeneity and density are positively correlated across schools (correlation coefficient = 0.349), I conduct all the HLM analyses separately for each network measure. Thus, in order to minimize heteroscedasticity and in view of the relatively low variation at the school level, all regression models include three school-level predictors, namely average school SES, percentage of minority students, and one of the network measures (either homogeneity or density).

5.4. Results.

Below I present five sets of analyses. The first set is descriptive, where academic achievement in schools with different levels of peer network homogeneity and density are compared (Table 5.1). The second set of analyses explores the effects of school peer network characteristics on academic achievement with and without individual-level controls (Tables 5.2 and 5.3). The third set of analyses examines the question of possible mediating effects of peer network homogeneity and density on the relationship between school racial composition and academic achievement (Table 5.4). The fourth set of analyses determines whether family social capital helps explain any association between peer network measures and achievement.
(Tables 5.5 and 5.6). Finally, I explore some cross-level interactions of immigrant generational status, ethnic origin and peer network homogeneity and density (Tables 5.7 and 5.8).

The results in Table 5.1 suggest the likelihood of a positive association between academic achievement and homogeneity and density of student networks at the school level. Indeed, GPA and AHPVT tend to be higher in schools where peer networks are more dense and homogeneous. Subsequent analyses confirmed this assumption. Model 1 ("between-school model") of Table 5.2 shows the effects of school-level variables on GPA and AHPVT while allowing individual-level effects to vary randomly. At this stage of analysis, it is clear that school socioeconomic composition matters a lot for academic achievement. Not only does the average school SES have a significant impact on the academic achievement of an individual adolescent, but it clearly supercedes the effects of racial composition and network homogeneity. Whether in case of AHPVT or GPA, analysis of the variance structure showed that network homogeneity adds very little to the explanatory power of Model 1. It also appears that racial composition has a positive (but insignificant) effect on GPA but negative (and significant) effect on AHPVT. This is largely consistent with the Chapter 4’s findings. Model 2 adds all individual-level factors, except for measures of family social capital (parents’ expectations for further education, supervision, and limit setting). At this stage, the effect of homogeneity becomes significant at p<0.1 in the case of GPA and at p<0.05 in the case of AHPVT, while the effect of school SES was reduced. Thus Model 2 shows that the effect of network homogeneity is significantly strengthened with the addition of the individual-level controls while the socioeconomic composition effect seems to subside. It is worth noting that in case of AHPVT the effect of racial composition declines with the
addition of individual-level factors. Measures of family social capital are added in Model 3. This addition indicates different kinds of mediating effects on the relationship between peer network homogeneity and academic achievement. In case of GPA the effect of homogeneity is strengthened, while in case of AHPVT it diminishes and becomes insignificant. Family social capital therefore accounts for some of the variation in AHPVT that was explained before by peer network homogeneity. That is to say, the effect of family social capital extends beyond just the individual level; it explains some of the peer network influence on AHPVT.15

Thus, after controlling for family background and other individual and family characteristics, only one school-level factor was found to be equally important for both GPA and AHPVT. This factor is school socioeconomic composition. This conclusion further consolidates support of the Chapter 4 findings, namely that social class of schoolmates, rather than their race, matters for academic achievement of Latino adolescents. The second important school-level determinants of GPA and AHPVT, beside average school SES, are peer network homogeneity and school racial composition, respectively. Contrary to the Chapter 4 findings, school racial composition was found to be an important predictor of AHPVT.

Table 5.3 replicates the analyses shown in Table 5.2 with density replacing homogeneity as the school peer network measure. The results are very similar to those presented in Table 5.2. The comparison of Tables 5.2 and 5.3 reveals than network density is a stronger predictor of both GPA and AHPVT than network homogeneity. Not only is the effect of density of peer network clearly significant when all individual-level factors are controlled, but it is also more robust than that of school racial composition. It should also be noted from the analyses presented in Tables 5.2 and 5.3 that the effects of socioeconomic

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15 Further discussion of family social capital effects will follow.
composition and network homogeneity and density on GPA and AHPVT are all positive, suggestive of the fact that the association between these school-level measures and academic achievement is also positive (correlation analyses confirm this). In other words, the higher the SES of schoolmates and the more homogeneous and dense their peer networks, the higher the academic achievement of the student.

Models 2 and 3 of Tables 5.2 and 5.3 further demonstrate the effects of the individual-level variables when controlling for the school-level measures. Both GPA and AHPVT are strongly influenced by family SES and family social capital but not by family structure. As expected, parents’ SES as well as close bonds between adolescents and their families and instrumental parenting behaviors (e.g., parents’ supervision) related to these bonds are associated with higher achievement. Among family capital measures, higher parents’ educational expectations and supervision are equally indicative of better grades and AHPVT scores. For AHPVT, parent’s limit setting matters more than the two other family social capital measures, while for GPA it does not. With the school-level variables controlled, a significant positive association between academic achievement and frequency of involvement in extracurricular activities is obvious. The difference in academic achievement between the first immigrant generation and the rest of Latino adolescents is also noticeable. Specifically, GPA of the first-generation youth is higher than that of the third generation (reference group), but their AHPVT scores are significantly lower. At the same time, the second-and-half generation of Latino youth is predicted to have lower GPA than the third generation. Notably, the effects of all individual-level variables are consistent with those found in Chapter 4. The consistency of results is suggestive of the relative independence of individual-level influences on academic achievement from peer network factors. Above all, family SES and frequency of
involvement in extracurricular activities positively influence both GPA and AHPVT. This holds true regardless of whether and which school-level factors are controlled. Thus, adolescents from low-SES families compared to children from high-SES families are more likely to have lower levels of academic achievement. The effects of ethnic origin are insignificant, with the exception of Puerto Ricans who generally have higher AHPVT scores. In all probability, Puerto-Ricans outperform other Latino adolescents because of superior English experience. The evidence that Spanish spoken at home is strongly associated with lower GPA and AHPVT supports this explanation. Additionally, being older and/or female are both associated with lower AHPVT. Among family social capital measures, parents’ supervision and parents’ educational expectations are strongly associated with better grades. In the case of AHPVT, these factors are parents’ limit setting and parents’ educational expectations. Again, consistent with my earlier findings, the effects of all family social capital measures are positive. This suggests that Latino adolescents in families with higher levels of social capital tend to attain better educational results.

Table 5.4 tests for mediating effects of peer network homogeneity and density on the relationship between school racial composition and academic achievement. All regression models control for the individual-level effects. Model 1 of Table 5.4 is identical to Model 3 of Table 4.2 in Chapter 4. Model 2 adds in peer network homogeneity and Model 3 peer network density. In the case of GPA, the addition of each of the peer network variables causes the effects of socioeconomic composition to increase. The regression models analyzing the school-effects on AHPVT demonstrate a significant change of both of the school composition effects. With the inclusion of peer network density in Model 2, the effect of percentage minority on AHPVT declines significantly, while that of school SES increases. A similar
change in the racial composition effects occurs with the addition of peer network homogeneity in Model 3. The school SES effect, however, is virtually the same in Models 1 and 3. In sum, the school composition effects increase significantly if peer network homogeneity and density are controlled. This is a clear suppression effect. It indicates that low-SES and high-percent minority schools tend to have peer networks that partially adjust for the negative effect of school composition. Conversely, peer networks in high-SES and low-percent minority schools are not likely to benefit students in the same way.

Tables 5.5 and 5.6 test whether school-level factors help explain any association between ethnic origin, immigrant generation and academic achievement. The analyses shown in these tables are the same with the following exception. Table 5.5 includes peer network homogeneity among the school-level predictors of GPA and AHPVT while Table 5.6 includes peer network density. For parsimony the regression coefficients of the control variables are not shown. Model 1 in both tables does not control for school-level factors, while Model 2 does. Models 3 of Table 5.5 and Table 5.2 are identical because they include all individual- and school-level factors (and network homogeneity among them). The same is true about Models 3 of Tables 5.6 and 5.3 with the exception that density is included as a school-level factor. These tables indicate that school-level factors have little, if any, mediating effects on academic achievement. The one noteworthy exception is the mediating effect of network density on the relationship between immigrant generation and academic achievement. Once peer network density is controlled, the regression coefficients of all generations on GPA, except the first one, decline. In the case of AHPVT, however, the regression coefficients of these generations become insignificant. This finding suggests that first-generation Latino youth is disadvantaged with respect to their network density. It also highlights the need for
further investigation of cross-level interactions of the first immigrant generation and peer network factors. Therefore further analyses will follow.

Table 5.7 introduces cross-level interactions between the school-level peer network measures and individual-level dummy variables of immigrant generational status. Model 1 does not control for family social capital, while Model 2 does. The difference in regression coefficients of the interaction terms induced by the introduction of family social capital measures is modest at most. In the case of network density the interactions are not significant and the mediating effect of family social capital, if any, is minimal. In the case of network homogeneity, however, the interaction effect of the first generation on both GPA and AHPVT is significant. Moreover, the addition of family social capital increases the difference in academic achievement between the first and later generations of Latino adolescents. Above all, the results from the cross-level interaction reveal the positive impact of network homogeneity on the academic achievement of the first-generation Latinos. This impact is significant apart from the generally positive influence of network homogeneity on the academic achievement of all Latino students. In other words, the interactions show that the first-generation adolescents are more likely to have better outcomes in schools with more homogeneous peer networks than other generations of Latino students. Figures 5.1 and 5.2 demonstrate these findings graphically. As can be seen from Figure 5.1, the predicted GPA of the first generation is remarkably different from the predicted GPA of all other Latino adolescents, which is evident from the signs and angle of slopes (with the first-generation youth having a much steeper slope). The implication is that the first-generation Latino youth are expected to have better grades in schools with more homogeneous peer networks than native Latinos. This finding contradicts the tenets of social capital theory that heterogeneous,
sparse networks are crucial for educational success (e.g., Granovetter 1973; Burt and Minor 2003). The difference of Figure 5.2’s predicted values between the first generation and the native Latinos is notable because the first-generation Latinos have much lower AHPVT than the native Latinos, although the slope angles are roughly the same. The negative slope of 1.5 and higher immigrant generations in Figure 5.2 is not interpretable because its regression coefficient is not significant. Figure 5.1 demonstrates that interaction effects can sometimes reverse the main effects. Specifically, the advantage in GPA of the first generation over all other generations and native Latinos becomes visible only in schools with more homogeneous student networks. However, the predicted GPA values of the first generation and all other Latinos in schools with heterogeneous networks are approximately the same. In contrast to Figure 5.1, Figure 5.2 indicates that the main effect of the first immigrant generation status is not surpassed by that of its interaction with network homogeneity. The first-generation Latino youth’s predicted AHPVT scores in schools with more homogeneous peer networks are lower than those of other generations and native Latinos. This finding is important because the regression coefficient of the first generation and network homogeneity is the only significant cross-level interaction effect on AHPVT. This means that, regardless of differences by immigrant generational status, all Latino adolescents are likely to benefit from homogeneous networks.

The interaction effects of ethnic origin and peer network homogeneity and density are examined, respectively, in Parts A and B of Table 5.8. As in Table 5.7, Model 1 of Table 5.8 includes all individual-level effects, except those of family social capital measures, and Model 2 includes all individual-level effects (not shown therein for the sake of space). The effects of peer network homogeneity, ethnic origin and their interactions on GPA are all insignificant
The only significant school-level effect on GPA is average school SES. Interestingly, this effect notably increases in Model 2 after adding family social capital measures. The very same picture is observable in Part A of Table 5.7. The amplification of the school socioeconomic composition effect in the presence of family social capital is a suppression effect. Put differently, the school socioeconomic composition effect is muted if the influence of family social capital is not accounted for. The suppression effect can also be construed in the way that students in low-SES schools are advantaged in terms of their family social capital. This advantage compensates for the negative effect of attending a low-SES school on grades and AHPVT. In all probability, parents in low-SES schools tend to supervise and monitor their children more than parents in high-SES schools. Perhaps parents in low-SES schools are anxious about the fact that their children are likely to be less effectively supervised in the school. Indeed, low-SES schools as well as high-percent minority schools have been repeatedly referred to as those lacking effective means of social control (e.g., Bridge et al. 1979; Stockard and Mayberry 1992).

The key finding of Table 5.8 is that adolescents of Cuban origin are significantly more likely that other Latino students to have better AHPVT scores in schools with more homogeneous and dense networks. This finding is of particular importance because Cubans are voluntary minorities unlike Mexicans and Puerto-Ricans and therefore, according to the oppositional culture theory (Ogbu 1978), are predicted to attain higher grades than other Latino adolescents. Nevertheless, my prior analyses (see Chapter 4) revealed that Cuban-American students are not doing better in school than other Latinos. Furthermore, it turns out that both the predicted GPA and AHPVT values of Cuban-American adolescents are much higher in schools with dense peer networks. Figures 5.3, 5.4 and 5.5 demonstrate the
significant interactions between ethnic origin and peer network variables graphically. The slopes of change in GPA and in particular in AHPVT for adolescents of Cuban origin are always positive and significantly steeper than those of the other Latino groups. Thus peer network homogeneity and density are strongly and positively associated with academic achievement of Cuban-American adolescents.

5.5. Overview.

This chapter assessed the relative importance of social capital of peer networks as a predictor of Latino youth’s academic achievement. The findings contradict the commonly held assumptions about the peer network influence on Latino achievement (see, for example, Bankston and Caldas 2002 on socioeconomic segregation and Ogbu 1974; 1991 on peer effects). As hypothesized (H1), dense, homogenous networks are advantageous to Latino adolescents. Both AHPVT scores and grades of Latino adolescents were found to be significantly higher in schools with more homogeneous and dense peer networks. Thus, contrary to the tenets of the theory of oppositional culture (e.g., Ogbu 1974, 1991) and social capital theory (e.g., Granovetter 1973; Burt and Minor 2003), the homogeneous and dense networks do not harm the academic achievement of Mexican-American and Puerto-Rican adolescents. The analyses of school social capital by ethnic origin revealed that Cuban-American adolescents are much more likely than other Latino students to benefit from homogeneous and dense peer networks. Additionally, the analyses by immigrant generational status demonstrated that all generations of Latino youth have better academic performance in schools with higher peer network homogeneity and density. The first-generation youth are
especially advantaged in schools with more homogeneous networks. Looking at the mediating effects of peer networks, I found that controlling for school social capital amplifies the school composition effect. Specifically, students in low-SES and high-percent minority schools are more likely to benefit from peer networks than students in high-SES and low-percent minority schools. That is to say that peer network homogeneity and density are more strongly correlated with academic success if the school-level percentages of minority and low-SES students are higher. This finding does not agree with other studies within the social capital theory framework (e.g., Lin 1990; Montgomery 1992), but is largely consistent with the social reproduction theory (e.g., Braddock and McPartland 1987; Roseigno 1998; Wilson 1987).

The regression results also lend considerable support to the research hypothesis H2 that family social capital mediates school effects on academic achievement. Not only are the factors related to family social capital strongly associated with achievement, but they also compensate for the negative impact of school composition. This implies that school composition effects are more pronounced once the family social capital factors are controlled. In the case of low-SES schools, for example, parental protective behaviors (i.e., supervision, limit setting) are an important educational asset that is used effectively to counterbalance the effect of attending a low-quality school.
Table 5.1. Average GPA and AHPVT in Schools with High, Medium and Low Levels of Homogeneity and Density of Peer Networks.

<table>
<thead>
<tr>
<th>School-Level Variable</th>
<th>GPA</th>
<th>AHPVT</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Peer Network Homogeneity</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>High</td>
<td>2.83</td>
<td>91.79</td>
</tr>
<tr>
<td>Medium</td>
<td>2.81</td>
<td>89.13</td>
</tr>
<tr>
<td>Low</td>
<td>2.61</td>
<td>88.68</td>
</tr>
<tr>
<td><strong>Peer Network Density</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>High</td>
<td>2.77</td>
<td>93.81</td>
</tr>
<tr>
<td>Medium</td>
<td>2.60</td>
<td>93.05</td>
</tr>
<tr>
<td>Low</td>
<td>2.45</td>
<td>91.11</td>
</tr>
</tbody>
</table>
Table 5.2. HLM Regression Models of Network Homogeneity and other School- and Individual-Level Predictors of GPA and AHPVT.

<table>
<thead>
<tr>
<th></th>
<th>GPA</th>
<th>AHPVT</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td><strong>School-Level Factors</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Average SES</td>
<td>5.04 *</td>
<td>3.62 *</td>
</tr>
<tr>
<td>Percentage of Minority Students</td>
<td>0.14</td>
<td>0.28</td>
</tr>
<tr>
<td>Network Homogeneity</td>
<td>0.13</td>
<td>0.26 +</td>
</tr>
<tr>
<td><strong>Ethnic Origin</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mexican a</td>
<td>0.01</td>
<td>0.01</td>
</tr>
<tr>
<td>Cuban a</td>
<td>0.16</td>
<td>0.11</td>
</tr>
<tr>
<td>Puerto-Rican a</td>
<td>-0.03</td>
<td>-0.01</td>
</tr>
<tr>
<td><strong>Immigrant Generation Status</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Generation 1 b</td>
<td>0.16 **</td>
<td>0.12 *</td>
</tr>
<tr>
<td>Generation 1.5 b</td>
<td>-0.08</td>
<td>-0.12 +</td>
</tr>
<tr>
<td>Generation 2 b</td>
<td>0.09 +</td>
<td>0.06</td>
</tr>
<tr>
<td>Generation 2.5 b</td>
<td>-0.12 *</td>
<td>-0.10 *</td>
</tr>
<tr>
<td><strong>Individual-Level Controls</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Spanish Spoken at Home c</td>
<td>0.03</td>
<td>0.04</td>
</tr>
<tr>
<td>Extracurricular Activities</td>
<td>0.08 ***</td>
<td>0.07 ***</td>
</tr>
<tr>
<td>Age</td>
<td>-0.02</td>
<td>-0.02</td>
</tr>
<tr>
<td>Male d</td>
<td>-0.06</td>
<td>-0.05</td>
</tr>
<tr>
<td><strong>SES</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Family Income</td>
<td>0.06 ***</td>
<td>0.07 ***</td>
</tr>
<tr>
<td>Parents’ Education</td>
<td>0.02 **</td>
<td>0.02 **</td>
</tr>
<tr>
<td><strong>Family Structure</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Single-Parent Household e</td>
<td>0.00</td>
<td>0.01</td>
</tr>
<tr>
<td>Non-Parent Household e</td>
<td>0.01</td>
<td>0.03</td>
</tr>
<tr>
<td>Large Household f</td>
<td>0.03</td>
<td>0.05</td>
</tr>
<tr>
<td><strong>Family Social Capital</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Parents’ Educational Expectations</td>
<td>0.10 ***</td>
<td></td>
</tr>
<tr>
<td>Parents’ Limit Setting</td>
<td>0.02</td>
<td></td>
</tr>
<tr>
<td>Parents’ Supervision</td>
<td>0.09 ***</td>
<td></td>
</tr>
<tr>
<td><strong>Constant</strong></td>
<td>2.64 ***</td>
<td>2.63 ***</td>
</tr>
<tr>
<td><strong>Model Comparison Test(df)</strong></td>
<td>707(175)</td>
<td>142(54)</td>
</tr>
</tbody>
</table>

***p<0.001; **p<0.01; *p<0.05; +p<0.1.

Note: Reference Categories: a – other Hispanic; b – generation 3+ (i.e., native-parentage adolescents); c – English spoken at home; d – female; e – two-parent household; f – household of up to four residents.
Table 5.3. HLM Regression Models of Network Density, Other School- and Individual-Level Predictors of GPA and AHPVT.

<table>
<thead>
<tr>
<th>Models</th>
<th>GPA</th>
<th>AHPVT</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td><strong>School-Level Factors</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Average SES</td>
<td>5.42 *</td>
<td>2.51 *</td>
</tr>
<tr>
<td>Percentage of Minority Students</td>
<td>0.12</td>
<td>0.48 *</td>
</tr>
<tr>
<td>Network Density</td>
<td>0.46</td>
<td>0.86 **</td>
</tr>
<tr>
<td><strong>Ethnic Origin</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mexican a</td>
<td>-0.02</td>
<td>0.02</td>
</tr>
<tr>
<td>Cuban a</td>
<td>0.03</td>
<td>0.05</td>
</tr>
<tr>
<td>Puerto-Rican a</td>
<td>0.05</td>
<td>0.08</td>
</tr>
<tr>
<td><strong>Immigrant Generation Status</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Generation 1 b</td>
<td>0.29 **</td>
<td>0.22 *</td>
</tr>
<tr>
<td>Generation 1.5 b</td>
<td>-0.13</td>
<td>-0.10</td>
</tr>
<tr>
<td>Generation 2 b</td>
<td>0.08 +</td>
<td>0.06</td>
</tr>
<tr>
<td>Generation 2.5 b</td>
<td>-0.11 *</td>
<td>-0.08 +</td>
</tr>
<tr>
<td><strong>Individual-Level Controls</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Spanish Spoken at Home c</td>
<td>-0.11</td>
<td>-0.09</td>
</tr>
<tr>
<td>Extracurricular Activities</td>
<td>0.08 ***</td>
<td>0.07 ***</td>
</tr>
<tr>
<td>Age</td>
<td>-0.01</td>
<td>-0.02</td>
</tr>
<tr>
<td>Male d</td>
<td>0.06</td>
<td>0.06</td>
</tr>
<tr>
<td><strong>SES</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Family Income</td>
<td>0.07 ***</td>
<td>0.08 ***</td>
</tr>
<tr>
<td>Parents’ Education</td>
<td>0.03 ***</td>
<td>0.02 *</td>
</tr>
<tr>
<td><strong>Family Structure</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Single-Parent Household e</td>
<td>0.04</td>
<td>0.02</td>
</tr>
<tr>
<td>Non-Parent Household e</td>
<td>-0.02</td>
<td>-0.00</td>
</tr>
<tr>
<td>Large Household f</td>
<td>0.02</td>
<td>0.02</td>
</tr>
<tr>
<td><strong>Family Social Capital</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Parents’ Educational Expectations</td>
<td>0.08 ***</td>
<td></td>
</tr>
<tr>
<td>Parents’ Limit Setting</td>
<td>0.08</td>
<td></td>
</tr>
<tr>
<td>Parents’ Supervision</td>
<td>0.06 *</td>
<td></td>
</tr>
<tr>
<td>Constant</td>
<td>2.64 ***</td>
<td>2.57 ***</td>
</tr>
<tr>
<td><strong>Model Comparison Test(df)</strong></td>
<td>1,011(175) **</td>
<td>183(54) **</td>
</tr>
</tbody>
</table>

Note: Reference Categories: a – other Hispanic; b – generation 3+ (i.e., native-parentage adolescents); c – English spoken at home; d – female; e – two-parent household; f – household of up to four residents.
Table 5.4. HLM Regression Models of School-Level Predictors of GPA and AHPVT.

<table>
<thead>
<tr>
<th>School-Level Factors</th>
<th>GPA</th>
<th>AHPVT</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Models 1</td>
<td>Models 2</td>
</tr>
<tr>
<td>Average SES</td>
<td>2.40</td>
<td>3.62 *</td>
</tr>
<tr>
<td>Percentage of Minority Students</td>
<td>0.03</td>
<td>0.28</td>
</tr>
<tr>
<td>Network Density</td>
<td></td>
<td>0.33 *</td>
</tr>
<tr>
<td>Network Homogeneity</td>
<td>0.26 +</td>
<td></td>
</tr>
</tbody>
</table>

***p<0.001; **p<0.01; *p<0.05; + p<0.1.

Note: 1. Dependent variables are GPA and AHPVT. 2. All models control for all individual-level measures regression coefficients of which are not shown for the sake of the space.

Table 5.5. HLM Regression Models of Immigrant Generational Status and Ethnic Origin with and without Individual- and School-Level Controls (Including Peer Network Homogeneity).

<table>
<thead>
<tr>
<th>Ethnic Origin</th>
<th>GPA</th>
<th>AHPVT</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Models 1</td>
<td>Models 2</td>
</tr>
<tr>
<td>Mexican a</td>
<td>0.00</td>
<td>0.01</td>
</tr>
<tr>
<td>Cuban a</td>
<td>0.22 *</td>
<td>0.21 +</td>
</tr>
<tr>
<td>Puerto-Rican a</td>
<td>-0.02</td>
<td>-0.01</td>
</tr>
<tr>
<td>Immigrant Generation Status</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Generation 1 b</td>
<td>0.04</td>
<td>0.07</td>
</tr>
<tr>
<td>Generation 1.5 b</td>
<td>-0.07</td>
<td>-0.06</td>
</tr>
<tr>
<td>Generation 2 b</td>
<td>0.03</td>
<td>0.05</td>
</tr>
<tr>
<td>Generation 2.5 b</td>
<td>-0.16 **</td>
<td>-0.17 **</td>
</tr>
</tbody>
</table>

**Model Comparison Test(df)**

<table>
<thead>
<tr>
<th>GPA</th>
<th>AHPVT</th>
</tr>
</thead>
<tbody>
<tr>
<td>623(199) ***</td>
<td>958(199) ***</td>
</tr>
</tbody>
</table>

***p<0.001; **p<0.01; *p<0.05; + p<0.1.

Note: 1. Dependent variables are GPA and AHPVT. 2. Regression coefficients of the control variables are not shown for the sake of the space. 3. Model 2 controls for the school-level factors and Model 3 controls for all individual- and school-level factors. 4. Reference Categories: a – other Hispanic; b – generation 3+ (i.e., native-parentage adolescents).
Table 5.6. HLM Regression Models of Immigrant Generational Status and Ethnic Origin with and without Individual- and School-Level Controls (Including Peer Network Density).

<table>
<thead>
<tr>
<th>Ethnic Origin</th>
<th>GPA</th>
<th>Models</th>
<th>AHPVT</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>1</th>
<th>2</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mexican a</td>
<td>0.00</td>
<td>-0.03</td>
<td>0.02</td>
<td>-0.72</td>
<td>-1.04</td>
<td>0.79</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cuban a</td>
<td>0.22 *</td>
<td>0.21 +</td>
<td>0.05</td>
<td>2.04</td>
<td>2.84</td>
<td>1.02</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Puerto-Rican a</td>
<td>-0.02</td>
<td>0.06</td>
<td>0.08</td>
<td>2.62 *</td>
<td>3.10 *</td>
<td>2.82 **</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Immigrant Generation Status</td>
<td>GPA</td>
<td>Models</td>
<td>AHPVT</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Generation 1 b</td>
<td>0.04</td>
<td>0.06</td>
<td>0.22 *</td>
<td>-13.39 ***</td>
<td>-12.41 ***</td>
<td>-8.54 ***</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Generation 1.5 b</td>
<td>-0.07</td>
<td>-0.22 *</td>
<td>-0.10</td>
<td>-4.81 **</td>
<td>-3.86</td>
<td>1.13</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Generation 2 b</td>
<td>0.03</td>
<td>-0.04</td>
<td>0.06</td>
<td>-3.46 ***</td>
<td>-2.51 +</td>
<td>0.72</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Generation 2.5 b</td>
<td>-0.16 **</td>
<td>-0.18 *</td>
<td>-0.08 +</td>
<td>1.61</td>
<td>-0.66</td>
<td>0.23</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Model Comparison Test(df)</td>
<td>827(199) ***</td>
<td>1,147(199) ***</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

***p<0.001; **p<0.01; *p<0.05; + p<0.1.

Note: 1. Dependent variables are GPA and AHPVT. 2. Regression coefficients of the control variables are not shown for the sake of the space. 3. Model 2 controls for the school-level factors and Model 3 controls for all individual- and school-level factors. 4. Reference Categories: a – other Hispanic; b – generation 3+ (i.e., native-parentage adolescents).
Table 5.7. HLM Regression Models of School-Level Factors, Immigrant Generational Status and Its Interactions with Homogeneity and Density of Peer Network.

| Table 5.7. HLM Regression Models of School-Level Factors, Immigrant Generational Status and Its Interactions with Homogeneity and Density of Peer Network. |
|---|---|---|---|---|
| **Part A. Interaction Effects of Generational Status and Peer Network Homogeneity** | GPA | AHPVT |
| **School-Level Factors** | | | | |
| Average SES | 3.23 + | 3.52 * | 80.42 ** | 70.81 *** |
| Percentage of Minority Students | 0.28 | 0.34 | -10.87 * | -10.72 * |
| Network Homogeneity | 0.24 | 0.35 * | 4.02 | 3.22 |
| **Immigrant Generation Status** | | | | |
| Generation 1 a | 0.26 ** | 0.29 ** | -9.31 *** | -8.65 *** |
| Children of Immigrants a | -0.02 | -0.01 | 1.71 * | 1.00 |
| **Interactions of Immigrant Generation Status and Peer Network Homogeneity** | | | | |
| Generation 1 and Network Homogeneity | 0.47 * | 0.78 * | 0.25 | 2.07 * |
| Children of Immigrants and Network Homogeneity | 0.05 | 0.06 | -4.60 | -5.54 + |
| **Part B. Interaction Effects of Generational Status and Peer Network Density** | | | | |
| **School-Level Factors** | | | | |
| Average SES | 2.26 | 4.10 * | 150.87 ** | 132.10 ** |
| Percentage of Minority Students | 0.45 + | 0.24 | -9.77 * | -12.12 ** |
| Network Density | 0.63 + | 0.14 | 18.21 ** | 17.51 ** |
| **Immigrant Generation Status** | | | | |
| Generation 1 a | 0.41 *** | 0.38 ** | -8.10 *** | -7.71 *** |
| Children of Immigrants a | 0.01 | -0.02 | -1.75 * | -1.27 + |
| **Interactions of Immigrant Generation Status and Peer Network Density** | | | | |
| Generation 1 and Network Density | 0.69 | 1.07 + | -4.29 | -4.44 |
| Children of Immigrants and Network Density | 0.23 | 0.05 | 2.14 | 2.57 |

***p<0.001; **p<0.01; *p<0.05; +p<0.1.

Note: 1. Dependent variables are GPA and AHPVT. Regression coefficients of the control variables are not shown for the sake of the space. 2. Model 1 controls for individual-level factors, except for family social capital (parents’ educational expectations, parents’ supervision, parents’ limit setting), and Model 2 controls for all individual-level factors. 3. Reference Category: a – generation 3+ (i.e., native-parentage adolescents).
Table 5.8. HLM Regression Models of School-Level Factors, Ethnic Origin and Its Interactions with Homogeneity and Density of Peer Network.

<table>
<thead>
<tr>
<th>Part A. Interaction Effects of Ethnic Origin and Peer Network Homogeneity</th>
<th>GPA</th>
<th>AHPVT</th>
<th>Models</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td><strong>School-Level Factors</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Average SES</td>
<td>2.96</td>
<td>4.89 *</td>
<td>131.03 **</td>
</tr>
<tr>
<td>Percentage of Minority Students</td>
<td>0.27</td>
<td>0.30</td>
<td>-11.33 *</td>
</tr>
<tr>
<td>Peer Network Homogeneity</td>
<td>0.13</td>
<td>0.14</td>
<td>9.08 **</td>
</tr>
<tr>
<td><strong>Ethnic Origin</strong></td>
<td></td>
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***p<0.001; **p<0.01; *p<0.05;  p<0.1.

Note: 1. Dependent variables are GPA and AHPVT. 2. Regression coefficients of the control variables are not shown for the sake of the space. 3. Model 1 controls for individual-level factors, except for family social capital (parents’ educational expectations, parents’ supervision, parents’ limit setting), and Model 2 controls for all individual-level factors. 4. Reference Category: a – other Hispanic.
Figure 5.1. Predicted Values of GPA by Immigrant Generational Status and Network Homogeneity.

Figure 5.2. Predicted Values of AHPVT by Immigrant Generational Status and Network Homogeneity.
Figure 5.3. Predicted Values of AHPVT by Ethnic Origin and Network Homogeneity.

Figure 5.4. Predicted Values of GPA by Ethnic Origin and Network Density.
Figure 5.5. Predicted Values of AHPVT by Ethnic Origin and Network Density.
CHAPTER 6. DISCUSSION.

The main objective of this study was to determine if the academic achievement of Latino adolescents of immigrant parents is influenced by the racial composition of their schools. Two questions were addressed. The first is what is the association between Latino adolescents’ academic achievement and school composition and the second is what is the association between the academic achievement of Latino students and school social capital. In this chapter, I briefly outline this study’s main findings and limitations. I also discuss possible paths for the future research, and address some implications of my findings.

6.1. Findings.

Main Findings. Much of the research on academic achievement finds that, minority students in low-minority schools learn more than their counterparts in high-percent minority schools (e.g., Coleman et al. 1966; Bankston and Caldas 1996). The most important finding of this study, however, is that school racial composition has little, if any, effect on academic achievement among Latino adolescents, but school socioeconomic composition does. The difference in academic outcomes for Latino adolescents attending schools with varying levels of minority student concentration is not significant. I also observed that the effects of school composition differ by immigrant generational status. The native-parentage Latinos (third-or-higher generation), as expected, have lower AHPVT scores in low-SES and high-percent minority schools. I find that, even after controlling for the effects of individual and family characteristics, those native-parentage Latinos who attend schools with students who come
from a mix of socio-economic backgrounds outperform their counterparts who attend schools that have higher concentrations of students from low-income families. The same is also true for the first generation of Latinos but only in the case of GPA. On the other hand, all immigrant generations have better AHPVT scores in schools with high concentrations of minority and low-SES children. In the case of GPA, all immigrant generations, except the first, outperform native-parentage adolescents in low-SES schools. In my view, these findings may be explained by the effective ethnic resilience mechanisms and ethnic social capital present in immigrant networks (see Ogbu 1981; Bankston, Caldas, and Zhou 1997; Borjas 1992). As the later generations of immigrants gradually become accepted by the main social institutions, the need for ethnic social networks as the source of social capital diminishes (Alba and Nee 2003; Portes and Rumbaut 1996, 2001; White and Kaufman 1997). Therefore, as generations replace each other the protective influence of ethnic social capital dissipate which results in the observed underachievement of native Latinos in low-quality schools.

As it can be seen from my analyses, the comparison of the average academic achievement across immigrant generational status reveals a completely different picture depending on whether GPA or AHPVT was used as the dependent variable. The first (most recent) generation of immigrant Latinos have significantly lower AHPVT than the other immigrant generations and native-parentage Latino students in the Add Health sample, after controlling for all other factors. Why does not the same apply to the analysis GPA? Why do the two measures of academic performance sketch out diametrically opposite outcomes for the first generation and what sets this generation apart from other immigrant generations? In order to answer this question, one must look into the intricate methodological aspects of the standardized scores and grades as they capture different aspects of academic performance.
Because AHPVT has a certain linguistic bias the most recent arrivals with limited English proficiency have a hard time getting high scores. Indeed, the most recent Latino immigrants came to the U.S. without any preparatory skills and experience the most difficulty navigating the U.S. school system. At the same time, their perseverance and inputs in the field of learning pay off as they get better grades than the rest of their classmates. Perhaps due to highly effective ethnic resilience mechanisms and the protective quality of ethnic cultural norms instilled by their parents, this generation turns out to have better AHPVT scores in low-quality schools (if both racial and socioeconomic composition are used to define school quality). Grades, on the other hand, are strongly influenced by school policies, tracking, and teachers’ expectations and attitudes (Gamoran 1987; Knapp et al. 1995; Oakes 1985). Since the information on all these factors is not available in the Add Health questionnaire it was impossible to control for them in this study. Therefore, it is hard to determine to what degree the GPA advantage that the first generation has over other immigrant and native Latinos can be explained by other school factors. It is even more difficult to say whether the immigrant generations, other than the first one, are either better off or worse off academically relative to each other because their effects are insignificant in the majority of the regression models. The pattern of straight-line educational assimilation seems to be somewhat valid if AHPVT is considered as a measure of academic performance, for the average AHPVT scores rise more or less steadily from the first generation to the last. In case of GPA, however, this pattern does not even approach what would be predicted by classic assimilation theory.

In an attempt to further investigate school peer effects, I hypothesized that school social capital, measured as homogeneity and density of the school peer network, partially

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16 Note that some other measures that have been commonly conceptualized to define school quality (school and class size, etc.) are not controlled for the reason of their high correlation with school composition.
accounts for some of the school-level variation in academic achievement unexplained by school racial composition. My analyses revealed that both school peer network homogeneity and density are strongly associated with better grades and higher AHPVT scores among Latino adolescents. This finding does not concur with either the “strength of the weak ties” hypothesis (Granovetter 1973), or with other studies that supported this hypothesis (e.g., Fernandez-Kelly 1995; Montgomery 1992). My analyses of school social capital by ethnic origin revealed that all Latinos, including Puerto-Ricans and Mexican Americans, have higher academic achievement in schools with more homogeneous and dense peer networks. Once again, this is not consistent with the tenets of the opposition culture theory (Ogbu 1974, 1991; Fordham and Ogbu 1986). I also found that Cuban-American adolescents are much more likely to benefit from homogeneous and dense peer networks than other Latino adolescents. This may be due to ethnic social capital accumulated by Cuban American community. The presence of strong ethnic social capital that may be used to the Cuban-American educational advantage is well documented (e.g., Bean and Stevens 2003; Borjas 1995; Silva 1985). Overall, my findings contradict the commonly held assumptions about the peer network influence on Latino achievement. Nevertheless, the most recent studies, generally framed within the segmented assimilation paradigm, (e.g., Zhou and Bankston 1998; Suarez-Orozco and Suarez-Orozco 1995; Stanton-Salazar and Dornbusch 1996) also highlight the importance of dense, homogeneous networks for the educational outcomes of some minority groups. According to the segmented assimilation framework immigrants tend to rely more on ethnic social capital and, therefore, have denser and more homogeneous networks (e.g., Portes and Rumbaut 2001; Zhou 1997).
Furthermore, I found that once peer network homogeneity and density are controlled, the effect of school socioeconomic composition increases. This finding leads to the conclusion that Latino youth are more advantaged in terms of school social capital in low-SES schools than in high-SES schools. Put differently, the positive effect of school social capital counter-balances the negative effect of attending a low-SES school. At the same time, my analyses of school social capital demonstrated that the adverse peer influences in school erode some of the advantage in academic achievement that the most recent immigrant generation has over native youth. This finding generally confirmed the hypothesized model, which highlighted the various ways in which school networks may influence adolescent academic achievement. In particular, along the lines of the immigrant assimilation literature (Stanton-Salazar 1997; Stanton-Salazar and Dornbusch 1996; Ogbu 1981; Zhou 1997) I expected that, for academic and non-academic purposes alike, native youth rely on peer networks more heavily than immigrant youth. Accordingly, I found that native Latino youth are more advantaged in terms of school social capital than immigrant Latino youth.

Numerous empirical studies identify family as a pivotal social institution for immigrant youth, their source of social protection and support (see Portes and MacLeod 1996; Ogbu 1981; Rumbaut 1999; Wojtkiewicz and Donato 1995). The educational assimilation literature (Alba and Nee 1997; August and Hakuta 1997; Kao 1995; Vernez and Abrahamse 1996), in general, and studies done within the segmented assimilation paradigm (e.g., Portes and Zhou 1993; Zhou 1997; Zhou and Bankston 1998), in particular, stress the importance of family social capital as a crucial educational resource for immigrant adolescents. As expected, I observed that among Latino adolescents, regardless of their immigrant generational status and ethnicity, high levels of family social capital, measured as parents’ supervision, limit
setting and expectations, contribute to Latino adolescents’ educational progress. Additionally, family influences, according to the results of my analyses, mediate the impact of immigrant generation. More importantly, I also found that family social capital and school composition effects work in different directions. Thus the positive family social capital effects offset the negative effects of school composition, such as attending a low-SES school. This is largely in agreement with prior research showing that factors related to family social capital compensate for negative influences of the school environment, including peer effects (e.g., Muller 1995; Steinberg et al. 1992; Zhou and Bankston 1988).

*Other Findings.* According to numerous studies (e.g., Bridge et al. 1979; Conger et al. 1997; McLoyd 1998) SES explains much, if not most, of the disparities in academic achievement. The most plausible explanation is that socially, educationally and economically advantaged parents foster a higher level of achievement in their children (Conger et al. 1997; McLoyd 1998; Portes and MacLeod 1996). The regression results confirm that parents’ income and education, indeed, have consistently positive impacts on academic achievement. Among other family factors, only parent’s supervision has a comparable effect. The family structure influences are either not significant or inconsistent with regard to the examined measures of academic achievement. Also, I did not find significant variation in achievement by Latino ethnic origin. With respect to the AHPVT, only students of Puerto-Rican origin, in all likelihood due to their advanced English skills and cultural orientation, were found to have higher scores than other Latino adolescents.
6.2. Limitations.

Although this study advances research knowledge on the importance of school context of educational assimilation of Latino immigrant youth, there are several limitations that are worth mentioning. One limitation is that this dissertation is confined only to cross-sectional analyses. Although a measure of GPA can be calculated from Wave 2 data, AHPVT is not obtainable in Waves 2 and 3 of the Add Health. Moreover, no measure of academic achievement is available in the Wave 3 data. Similarly, the peer network variables can be obtained only from the Wave 1 data. The assumption that peer network density and homogeneity as measured in Wave 1 remain unchanged during the Add Health study period cannot be supported by theory which states that peer networks are always dynamic (McQuillan 1998; Narayan 1999; Stanton-Salazar and Dornbusch 1996). Similarly, the four generations of youth I use for comparison purposes were not obtained from longitudinal data. Access to data that follow immigrant families longitudinally (akin to the PSID) would improve the quality of analysis. The data where second and second-and-half generations are actually the children of the original group of immigrant youth, and the third-generation is the grandchildren of the original group would be ideal. However, such data are not available.

A second limitation is the inability to test pathways, other than peer effects, that might affect any association between school racial composition and Latino youth’s academic outcomes. Above all, this limitation relates to the fact that the Add Health does not collect data about internal organization of schools, tracking, teachers’ expectations and grading patterns. Nor does it provide any information on the amount of financial assistance to

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17 This is likely to be explained by the following. The Wave 3 data extend the study period into young adulthood (the majority of respondents who were adolescents at Wave 1 are age 19-25 at Wave 3) and many respondents do not continue with their studies beyond high school.
Therefore, this dissertation cannot verify whether a hypothetical association between school racial composition and educational achievement is explained, at least partially, by school quality.

A third limitation refers to the sample selection. The sample used in this dissertation is based on the Add Health In-Home Sample which includes only adolescents who are currently enrolled in school. In other words, those adolescents who dropped out of school, never went to school, or else not in school for the last academic year did not participate in the study. This presents methodological difficulty that surpasses the capabilities of the Add Health survey design. This limitation is important because those children who are currently enrolled in school undoubtedly are at educational advantage over those who are not in school. If this dissertation’s sample included all Hispanic adolescents, regardless of their school enrollment status, the results, particularly as they reflect variations in achievement by generational status and ethnic origin, could be different. Despite of the compulsory attendance laws some children of immigrants, particularly Mexicans, never go to school in the U.S. and many more are school dropouts (Kao and Tienda 1995; Kaufman et al. 2001; Pallafox et al. 1994; Portes and Bach 1985; Rumbaut 1999; Wojtkiewicz and Donato 1995; Zhou and Bankston 1998a).

A fourth limitation is that my measures of school social capital were constructed using only peer reports. Other important aspects of school social capital present in student-teacher interactions were not considered. As previously established, positive relationships with other adults, including teachers, are one of the important sources of social capital for adolescents (Crosnoe, Cavanagh, and Elder 2003; Parcel and Dufur 2001; Stockard and Mayberry 1992).

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18 The relationship between the level of financial resources provided to the school and school effectiveness is a focus of the on-going debate. Although a classic report by a research team headed by James Coleman (1966) did not find a direct association between per student expenditures and academic achievement, other studies that followed did (Hedges et al. 1994; Wenglinsky 1997).
The Add Health measures of student-teacher relationships, unfortunately, are limited to a few questions from the student in-home questionnaire about their attitudes of teachers towards them. These questions somewhat capture the self-perceived discrimination from teachers but not the nature or frequency of contact between teachers and students in school. Moreover, the Add Health does not ask any questions to teachers about their attitudes towards students. Nor does it provide any record that may connect teachers’ and students’ responses (apart from the administrator questionnaire which is not particularly useful in this instance).

A fifth limitation relates to my measures of family social capital. Although I consider my use of three measures of family social capital to be representative of parent-child relationships within the home, other measures of family social capital not examined here may have greater effects on the association between school context and academic outcomes. Examples of other measures of family process are parental rules, discipline, investment, and monitoring. By the same token, the measures I employed here may have greater influence on the association between school and other academic outcomes not examined here, such as dropping out of school.

A sixth limitation is my inability to differentiate between refugees and other immigrants in the Add Health sample. As the experiences of refugees are likely to be very different from those of voluntary immigrants, examining them as a separate group could contribute to a better understanding of the adaptation experience. Their reactions to being in a new country and the effects of the assimilation process may be very distinct from those of voluntary immigrants.
6.3. Critical Issues.

*Does Selection into Schools Matter?*

One of the explanations that have been advanced to explain differences in academic achievement between schools is selection effects. The argument is that students attending predominantly white, high- and middle-class schools have better academic outcomes because they are self-selected into residential areas with higher proportions of white, high- and middle-class population, or, put another way, school segregation not residential segregation is what matters (e.g., Evans, Oates, and Schwab 1992; Clotfelter 2001; Rivkin 1994). According to this argument, virtually all of racial segregation that currently exists in public schools results from the residential decisions of households among school districts, and not from insufficient effort to integrate schools within districts. In addition to residential choices, school segregation is determined by district attendance patterns. The degree to which ethnic groups concentrate in different districts limits the extent to which school district policies can reduce overall school segregation (Rivkin 1994).

The main problem with the selection argument is that it is very difficult to test in studies such as mine. The characteristics of students and their families prior to their current place of residence that are important in determining the influence of selection are often unavailable. Such characteristics include SES, race-ethnicity and immigrant status at the time immigrant families arrive in the U.S. As the database used in my analyses does not contain such retrospective information, I cannot adequately test the selection argument. However, there are several reasons to believe that selection does not have a large effect on my results.

One reason that my results may not be highly influenced by selection is that they are based on an adolescent sample. It has been argued that selection is less of an issue for children
because they do not generally make the decision to where to live (Borjas 1995; Saporito and Lareau 1999).\(^{19}\) Decisions about place of residence are usually made by their adult relatives without input from children. As children do not directly make residential decisions, they are not self-selecting out of a population. However, the counter argument can be made that children may be affected because much research has shown that child outcomes are influenced by parental background characteristics such as education, income, and well-being (Duncan et al. 1998). Thus, if adults who decide to migrate are more advantaged with regard to education and socioeconomic status then their children are also likely to be advantaged and so any decline in children’s educational achievement after the move may simply be a regression to the mean, that is, the children behave more normally (Gans 1992, 1997). I argue that although child outcomes and parental characteristics are linked, any effects of selection will be less salient for children than for the parents themselves. Although I cannot adjust for parent and household characteristics prior to the current place of residence, I can and do adjust for current characteristics.

Another reason that selection effects may be minimized is that many adolescents in the sample never changed their place of residence. It should be noted that the first generation immigrants are less than 14% of the sample.\(^{20}\) The share of recent domestic migrants (those whose families moved into the house or apartment building where they now live when their children were of the school age) is larger – about 30%. However, it is impossible to say

\(^{19}\) The argument that that the issue of selection may be less salient for children is applicable to international movements as well to domestic ones. Therefore, it was not mentioned in the next section on whether selection into immigrant status affects educational achievement of children.

\(^{20}\) The relatively high proportion of recent immigrants among Latino adolescents than among non-Hispanic whites (3%) raises the importance of selection into immigrant status which is an issue in itself and is examined below.
whether these domestic migrations occurred within the same school district or not. Using Wave 2 data, I calculated the percentage of movements in Latino families between census tracts among all movements that occurred between Wave 1 and Wave 2. It was 12.8%. Thus the majority of internal moves were short-distance ones within the same census tract. Unfortunately, the same figure is unobtainable for Wave 1 data because corresponding questions were not provided in the Wave 1 questionnaire. Nevertheless, assuming that the ratio of short-distance to long-distance moves is relatively stable over time, the combined share of international and internal long-distance moves among all recent movements should not be more than 20%.

Therefore the issue of selection into place of residence does not affect the majority of Latino adolescents in the sample.

*Does Selection into Immigrant Generation Matter?*

An alternative explanation for the educational (dis)advantage frequently found among the foreign-born is selectivity (Landale et al. 1999; Hernandez and Charney 1998; Coll and Magnuson 1997). This perspective argues that the foreign-born may be better educated because individuals who have reached a higher level of educational attainment may be more likely to immigrate to the United States than those who have not. Thus, rather than advantages of culture and social support, immigrants are self-selected from among the better educated population in their native countries and, after immigration, they simply retain their relatively high level of education (Landale et al. 1999; Hernandez and Charney 1998). In my sample, however, the level of parental education among the first-generation immigrants is only 2.9% higher than among native-parentage adolescents. Therefore, the argument proposed to

\[21\] For the purposes of this study I define *recent movement* as a movement that occurred to Latino families after the time when their children reached the school age.
emphasize the importance of selection based on the educational level is not supported by the data used in this dissertation.

In addition to selection due to education, immigrants could also be self-selected from among the more affluent, highly motivated, highly skilled and other segments that may provide them with an advantage upon immigrating to the U.S. This selection issue has highlighted the importance of the context of exit to the adjustment of immigrants (Portes and Rumbaut 1996, 2001). The characteristics of the country of origin and the immigrants’ reasons for leaving may determine the educational status of immigrants upon arrival to the U.S. and their later adjustment. This dissertation controls for the country of origin and therefore eliminates the selection bias nested in it. Despite the possible influences of selection on immigration adaptation, few studies can properly control for it. This general lack of proper controls is mainly due to the limitations of the data. Few national databases collect the types of data needed by immigration researchers on country of origin and immigration status, and few have the sample size necessary for sound conclusions on more than a few countries (Hernandez and Charney 1998).

6.4. Suggestions for Future Research.

This study examined the association between Latino adolescents’ academic achievement, school composition and social capital. There are several avenues for further research in this area. One area for future research is to further explain the association between school racial composition and academic outcomes. I anticipated that school racial composition would have a large effect on achievement; however, it did not. This may not
mean that racial composition has no effect on academic achievement, but rather that this effect may be suppressed by other factors related to school quality. Because school racial composition is confounded with so many school quality measures, such as teacher qualifications, or school funding, it is difficult to operationalize its effects on academic outcomes. Without recognizing the complexity of the effect of school racial composition on students, researchers and policymakers are likely to make decisions using largely fallacious and outdated assumptions.

Therefore, other arguments posited as explanations for the school racial composition effect should be examined. An example of one such explanation is the extensive array of school characteristics related to school facilities and curriculum (e.g., public vs. private, school size, and facilities available) and teachers’ characteristics (e.g., years of experience and level of education). Another argument relates to the influence of school social capital, including the effects of peer groups and student-teacher relationships. The individuals with whom Latino youth socialize while in school, the value they place on such relationships, and the influence that their peers and teachers have on them are questions that may yield informative answers. Although this dissertation examines the structural components of peer networks, such as their density and homogeneity, due to the methodological difficulties described earlier, it does not examine the effects of peer support and motivation. To fully understand the complexity of peer relationships among adolescents, researchers ought to approach the study of peer group dynamics by considering the normative aspects of the adolescent peer group. Similarly, as a factor related to adolescent academic achievement, the normative aspect of the relationships between teachers and students should receive more attention. Therefore a survey with a more detailed questionnaire than that of the Add Health,
containing separate sections devoted to peer groups, teacher-student interactions, and school
normative climate, would be helpful. Although there are difficulties in the operationalization
of variables to test the school social capital effect, attempts should be made to overcome these
difficulties. A third issue worth examining is the family-school linkages. Families and schools
are not independent contexts. Recognizing and exploring the overlap between the two is an
important step in advancing knowledge about adolescent education. A fourth possible focus is
the influence of residential segregation. Indeed, some studies claim that the racial composition
of a school is merely a reflection of the racial diversity within a school district (e.g., Clotfelter
2001; Rivkin 1994). In particular, to what extent does the neighborhood composition effect
interfere with the school composition effect is yet to be determined. Studies that give greater
emphasis to neighborhood effects are generally warranted. Such research requires more
complex analyses than those employed here. However, they could test the same arguments
proposed in this dissertation at the neighborhood level.

Another important area that warrants further research is an examination of the school
composition effect on post-secondary education. No study has yet examined the degree to
which the social and academic environment experienced in high school influences academic
achievement in college. Again measuring school effects is complex, but it is worthwhile to
make serious attempts as valuable insights may be gained. A similar avenue for further
research is to study the relationship between school composition and life-long academic
attainment. This path requires longitudinal data with a relatively large time span and a
complex methodology.

The results of this study demonstrate that it is sometimes difficult to make sweeping
generalizations about the effects of ethnic origin and immigrant generation. This is especially
so for researchers who are trying to explain educational differences between various generations of immigrants or large ethnic groups. What may account for differences in one group may not be a very good predictor for another group. Thus, studies that use national databases but focus on a smaller number of groups may offer more answers than large-scale studies that treat the effects of generational status as fixed across national-origin groups.

Further studies in the area of the educational assimilation of Latino youth would be greatly improved by a national longitudinal survey devoted to the school context of assimilation. The national databases that currently exist fail to provide information on important characteristics such as tracking, ability groups, and prior educational achievement. A database that samples students soon after their school admission would allow for the gathering of such information and would greatly improve the ability of researchers to examine academic achievement as well as attainment. Such knowledge would also assist in public policy as knowledge on the educational assimilation of Latinos are generally lacking. Of course, such a large-scale study would be ambitious, but an important start could be made by including more questions about school context in existing national longitudinal databases.

6.5. Implications of Findings.

The findings of this study have two very important implications. One implication is that policies aimed at improving Latino students’ academic performance by merely rearranging the racial mix through desegregation are simplistic and inadequate means of providing Latino children with equal educational opportunities. Findings that Latino adolescents’ educational outcomes are independent of school racial composition imply that
efforts to promote social diversity by changing school racial composition may fail to keep up with the demand of better education for Latinos. This implication is particularly emphasized by the fact that peer network effects exceed those of racial composition. While school characteristics account for a small amount of the variation in academic achievement, the social capital present in peer networks, as well as family social capital were found to be powerful resources for Latino adolescents’ educational progress. The implication is that investments in family and peer-group relations are far more productive than those limited only to school racial composition. Furthermore, consistent with the Blau’s relative group size theory (Blau 1977; Blau 1994; Blau et al. 1982; South and Messner 1986), my findings accentuate the importance of homophily in the Latino adolescents’ peer networks. The more homogeneous and denser a peer network, the better the academic results of Latino students. Therefore, in view of the fact that adolescents in general are homophilic (Joyner and Kao 2000; Kubitschek and Hallinan 1998; Moody 2001), it is very unlikely that a policy aimed at increasing school racial diversity would have any effect on the peer group composition and therefore on Latino achievement.

A second and possibly the most important implication points to the benefits of socioeconomic diversity in school enrollments. Native Latino students are significantly more likely to have better academic outcomes in middle-and-upper-class schools. Thus the remedy of economic segregation could be an effective approach to raise native Latino adolescents’ academic achievement. I side with Kahlenberg (2001) who, in order to realize the equal opportunity ideal through socioeconomic integration, advocates redrawing some district lines and changing school attendance patterns. To adopt this approach, some children

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22 This policy may be effective only for native-parentage Latinos and not for those who are immigrants themselves or have immigrant parents. See Chapter 4 for the discussion on the effects of immigrant generation and school composition.
from low-SES districts could be reassigned to better-off surrounding districts, and some poor children could be bussed to middle-class schools within districts. The policy would likely embrace magnet school programs in the formerly low-SES districts to attract children from neighboring districts into those schools. Kahlneberg (2001) considers socioeconomic integration as a less expensive alternative to the controversial compensatory education programs and publicly funded private school vouchers. Importantly, the purpose of socioeconomic integration, unlike that of racial desegregation, is not to achieve social diversity, but rather to alleviate the concentration of poor students in one school district.

6.6. Conclusion.

Although there is a long history of “separate and unequal” education in American public schools which is closely associated with the racial make-up of schools, it is poverty segregation that severely impedes Latino academic achievement. When a student body is composed of large number of poor students (regardless of their race or ethnicity), this factor alone has a significant negative influence on student achievement. Since disadvantaged adolescents are expected to learn more when they attend school with middle-class peers, the benefits of socio-economic diversity in public school enrollments are obvious. Socioeconomic integration, of course, does not guarantee the presence of a curriculum that recognizes diversity, fair treatment of all groups of students, or deep and positive interactions between different racial or ethnic groups – all important factors that contribute to positive educational outcomes associated with diversity. It does, however, create a situation within which such
interactions may occur, depending on many factors within the school and among the groups of students.

To conclude, one of the most effective ways to increase academic performance and lower drop-out rates of native Latino adolescents is to place them in an environment with other children who want to gain educational skills and whose families encourage them to learn. Indeed, other studies find that class matters more than race when considering the effects of desegregation (e.g., Bankston and Caldas, 2002; Orfield and Yun, 1999). In the present day, it is an issue of civil rights advocacy to accentuate that class integration matters more in raising academic achievement of Latinos than their racial integration. This issue is not just about the “equal opportunity” in education, it is about the future and promise of social integration of the nation’s largest and still growing minority group. The agenda is not new but controversial from the legal point of view. As Orfield and Yun (1999:13) put it: “The Fourteenth Amendment and the civil rights laws prohibit unequal treatment of racial minorities in public institutions, but they provide little, if any, protection against unequal treatment of the poor.”
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