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Examples follow:
Policy makers are especially concerned about persistently high dropout rates among U.S. Latinos, the largest minority population in the United States. This study used a national longitudinal database to show that the behavioral and social aspects of schooling are dynamically linked in the process of school completion and dropout among Mexican American and non-Latino white adolescents. In contrast to the tendency of academically disengaged students to develop street-oriented friendships, students who are involved in school tend to befriend others who also make schooling a priority. Thus, student engagement influences competing friendship networks in a manner that contributes to the completion of school. Furthermore, engagement behaviors and school-oriented friendship networks have the potential to reduce dropout rates. To their social and educational detriment, however, Mexican American students appear to be less engaged in unorganized academic endeavors and formally sponsored extracurricular activities than are white students. The results of this study support policies that combine targeted educational and social reforms to bolster school completion among Mexican origin youths.

Improving high school dropout and graduation rates continues to be a formidable educational challenge in the United States. Each year almost half a million students drop out of school (U.S. Census Bureau 2007: Table 7). An even greater number, approximately one-third of all students who enter high school in the ninth grade, fail to graduate four years later (Rumberger 2008; Swanson 2004). Graduation rates among underrepresented minority students—particularly Latinos and African Americans—are even lower (Alliance for Excellent Education 2007). Only slightly more than half of Latino and black students graduate from high school on time with a regular diploma (Kelly 2005). In many states, the difference between white and minority graduation rates is as much as 50 percentage points (Editorial Projects in Education 2007). Moreover, the gap in prosperity between high school graduates and dropouts has been increasing (U.S. Department of Education 2004: Indicator 14). Dropouts are twice as likely to be unem-
ployed, and for those who work, advancement is limited, the pay is low (the average high school dropout earns just 37 cents for every dollar earned by a high school graduate), and health insurance is not readily available (Rouse 2005; Steinberg, Johnson, and Pennington 2006). The fact that the population base of U.S. voters and workers will increasingly be made up of persons whose amount of education is significantly below the rest of the nation’s populace (Miller 1995; Policy Alert 2005) prefigures a future that will be characterized by vast economic and social inequity (Baumol, Blackman, and Wolff 1989; Friedman 2005; Hochschild and Scovronick 2003; Levin et al. 2007).

A large body of research has been undertaken to understand how and why students drop out of school. This research has identified numerous factors that contribute to students’ early departure from school, including the demographic characteristics of students and their families (Alexander, Entwisle, and Kabbani 2001; Hauser, Simmons, and Pager 2000), parenting practices (McNeal 1999; Teachman, Paasch, and Carver 1996), residential and educational mobility (Ream and Stanton-Salazar 2007; Rumberger and Larson 1998; Swanson and Schneider 1999), grade retention (Jimerson, Anderson, and Whipple 2002; Stearns et al. 2007), school performance and educational aspirations (Bridgeland, Dilulio, and Morison 2006; Rumberger 1987), and school and community characteristics (Rumberger 2004). Although research on school dropout is extensive, some aspects of the survey research literature remain understudied—particularly the social aspects of the process that causes young people to leave school before they obtain their high school diplomas (Ellenbogen and Chamberland 1997; Ryan 2000). By focusing specifically on friendship networks among adolescent youths, we investigated whether the educational proclivities and behaviors of students’ friends affect students’ own probability of completing school or dropping out.

Adolescence, especially during the early years, is a developmental period that is characterized simultaneously by increased peer orientation and gradual autonomy from family control (Hartup and Stevens 1997). Students who are at risk of early dropout from school may be especially susceptible to the influence of their peers (Giordano, Cernkovich, and Pugh 1986). Although several studies have linked deviant peer affiliations in early adolescence to subsequent maladaptive outcomes (Fuligni et al. 2001; Haynie and Osgood 2005), relatively few have examined the influence of same-age friends on dropout behavior. On the basis of those that have (Crosnoe and Needham 2004; Ellenbogen and Chamberland 1997; Stearns et al. 2007), there is still a need to consider diverse characteristics of adolescents’ peer networks—since “school-oriented” adolescents coexist, however tenuously, alongside their “street-oriented” counterparts (Flores-González 2002)—as competing predictors of school attainment (Farmer et al. 2003). In our study, we paid special attention to the way in which disparate and often-competing characteristics of adolescents’ friends influence students, specifically with regard to their ability to complete school on time.

It is our contention that the sway of divergent friendship networks merits further investigation as a proximal factor that contributes to educational attainment. Until now, there has been relatively little research on the process of dropping out, particularly with respect to the nature of the influence of friends. Dropping out is perhaps best viewed as a long-term process of disengagement and withdrawal from school that often begins in early elementary school (Ensminger and Slusarcick 1992; Garnier, Stein, and Jacobs 1997; Rumberger 1987). Students’ attachment to school (e.g., enjoyment of schooling) and engagement behaviors (e.g., study habits) in elementary and middle school may be stronger predictors of high school dropout rates than may school performance and attitudes (Alexander et al. 2001). Few studies, however, have examined whether students’ engagement behaviors and the complex social dynamics of adolescent friendship networks are linked together within the process of school completion and dropout. In our effort to address this gap in the literature, we concentrated on a nationally representative sample of youths to investigate the character-
istics of adolescent friendship networks to see whether these networks play a role in mediating the impact of student engagement on educational attainment.

Some research has suggested that the role of peers in the process of school completion and dropout may vary among racial/ethnic groups. Scholars have argued, for example, that nonimmigrant Latino and African American students are more likely to be exposed to an oppositional peer culture (Kuperminc et al. 2004) that discourages the adoption of attitudes and behaviors that promote academic achievement (Fryer and Torelli 2005) and attainment, since school success is perceived to be “white” and therefore reprehensible (Fordham and Ogbu 1986). Studies have also found that the availability of resources within peer networks and the educational utility of network-based resources may differ across various friendship profiles, which can lead to differences in educational performance among Mexican origin youths (Stanton-Salazar and Spina 2005), as well as between Mexican American youths and non-Latino white youths (Gibson, Gándara, and Koyama 2004; Ream 2003).

Building on such studies, we explored whether student engagement behaviors affect the influence of competing friendship networks (including school-oriented friends and friends who have dropped out of school among Mexican American and white adolescents) on educational attainment.

Mexican American students were the focus of our research for at least three reasons. First, 44 million Latinos now represent the largest minority group in the United States, nearly two-thirds of whom are of Mexican origin (Pew Hispanic Center 2006; U.S. Census Bureau 2003). Second, U.S. Latinos have the highest dropout rate of all the major racial/ethnic groups (U.S. Census Bureau 2005), and youths of Mexican descent are especially susceptible to not completing school (Valencia 2002). Third, previous studies have illuminated considerable differences in educational experiences and outcomes among Latinos (Aguirre and Martinez 2000; Portes and Rumbaut 2001; Valenzuela, 1999; Vernez and Mizell 2002) and hence have underscored the need to delineate with greater precision the educational dynamics within Latino subpopulations. Thus, in our study, we addressed the following research questions:

1. Are there significant differences at the group level that distinguish Mexican American adolescents from non-Latino white adolescents with regard to their engagement in unorganized academic and organized extracurricular activities?
2. Do the two groups, according to their own self-reports, differ by the prevalence of school-oriented friends and friends who have dropped out of school?
3. Do students’ engagement behaviors influence the friendship networks of adolescents?
4. Do disparate friendship networks (e.g., those that include school-oriented friends versus those that include school dropouts) predict school completion differently?
5. Do friendship networks mediate the impact of student engagement on educational attainment?

REVIEW OF THE LITERATURE

A number of theories have been advanced to explain how and why students drop out of school. What all such theories posit is that the dropout process is influenced by several factors, including students’ early and recent school performance, both educational and general attitudes, and level of academic engagement factored alongside other complementary or adverse social behaviors. What differentiates one theory from the next, apart from the emphasis on individual versus institutional factors, is the way in which it details how the various factors interact to shape the gradual withdrawal that culminates in dropout.

Finn (1989), for example, reviewed two alternative models. His “frustration–self-esteem” model argues that the initial antecedent of withdrawal from school is early school failure. This early failure depreciates self-esteem, which, in turn, precipitates problem behaviors that further inhibit school performance and ultimately (by a fully circular pattern) takes a toll yet again on students’
self-esteem. According to this model, most students eventually quit school or are removed from school because of problematic behavior. In Finn’s second model—which he called the “participation-identification” model—withdrawal from school is anticipated by the lack of participation in school activities (both academic and extracurricular), which, in turn, leads to poor school performance and alienation from school. This model argues for an iterative behavioral and emotional component to the withdrawal process. According to both models, students’ engagement behaviors and attitudinal factors mutually influence one another and, in turn, influence students’ decisions to withdraw from school.

In a similar vein, Wehlage et al. (1989) proposed a model in which the phenomenon of dropping out is jointly influenced by two broad factors: students’ engagement in education and students’ social bonding. In this context, student engagement refers specifically to students’ feelings about both extrinsic rewards that are attached to schoolwork and intrinsic rewards that are derived through the curriculum and the manner in which educational activities are constructed. Social bonding refers to the social dimension that necessarily accompanies schooling, such that students who are tied to others who believe in the value and legitimacy of school will be less likely to drop out (Newmann, Wehlage, and Lamborn 1992). For both Finn and Wehlage, then, dropping out can best be viewed as a process of gradual withdrawal, which is influenced by students’ (1) individual behaviors (such as engagement in learning), (2) internal psychological dispositions and attitudes toward schooling (including educational aspirations), and (3) social involvement in the school community.

Although it is difficult to establish a chain of linear causality within the dynamic mix of students’ engagement behaviors, attitudes toward education, and social ties, some ethnographic research has indicated that social networks are constructed, at least in part, as a result of children’s participation in school-related activities (Horvat, Weininger, and Lareau 2003; MacLeod 1995). In high school, athletes tend to develop friendships with teammates and musically inclined students typically associate with others with similar talents and aesthetic interests, if for no other reason than the requisite time that teammates or band members must spend with one another (McNeal 1995). Thus, in our view, students’ involvement in academic and nonacademic activities, when conceptualized as behavioral precursors that influence the formation of friendships among adolescents, influence patterns of school completion or dropout. Links between students’ engagement and formation of friendships are especially important insofar as friendship groups exert considerable influence on adolescents’ academic and social behavior (Berndt 2002; Brown 1990; Sokatch 2006) through the exchange of information (Berndt 1999), modeling (Juvonen and Wentzel 1996), reinforcement of norms and values (Berndt and Keefe 1995; Brown, Clasen, and Eicher 1986), and even coercion (Graber, Brooks-Gunn, and Petersen 1996; Matsueda and Anderson 1998). Moreover, having high-achieving friends may increase one’s likelihood of completing high school (Kasen, Cohen, and Brook 1998) whereas having friends who have dropped out increases one’s chances of not completing high school (Carbonaro 1998; Rumberger and Thomas 2000).

**Student Engagement**

Although attachment to school and engagement with school are associated phenomena—since the student who feels attached to school is often the very student who participates in school activities (Johnson, Crosnoe, and Elder 2001)—the constructs can be effectively disentangled (Ryan 2000). As part of the effort to separate these two phenomena appropriately, our view of students’ engagement emphasizes students’ action-oriented participatory behaviors in relation to schooling as we examine how such behaviors affect grades and aspirations, adolescents’ friendship dynamics, and subsequent educational attainment. Since research has largely ignored the differential effects of participating in specific extracurricular activities—other than involvement in athletics (Marsh and
Kleitman 2002; Whitley 1999)—we further distinguish unorganized academic forms of student engagement. We differentiate, for example, between a student’s preparation for class and participation in school-organized extracurricular activities, including sports and the arts (Schreiber and Chambers 2002).

It should be said that the literature on student engagement has not offered a singularly consistent impression. Although some research has provided empirical support for the notion that various manifestations of student engagement affect school completion and dropout (Bryk and Thum 1989; Davalos, Chavez, and Guardiola 1999; Mahoney and Cairns 1997; Rumberger 2004), the link between students’ engagement behaviors and educational attainment, for instance, is still unclear. Furthermore, engagement in school-related activities is not as strongly predictive of students’ performance on empirical tests as by theory it ought to be (Holland and Andre 1987; Newmann et al. 1992). At the same time, other studies have suggested that adolescents’ friendship networks play a mediating role in determining the effects of students’ engagement on educational outcomes (Gilman, Meyers, and Perez 2004). In light of the not altogether consistent previous research, we pay special attention to whether unorganized yet school-affiliated activities and structured yet nonacademic engagement behaviors can be said to affect the link between friendship networks and academic outcomes, especially school completion and dropout.

Peer Social Capital

A growing body of research has considered the role of adolescents’ peer networks in school performance and students’ outcomes (Ream 2005; South and Haynie 2004; Stanton-Salazar and Spina 2005), including school completion and dropout (Croninger and Lee 2001; Teachman at al. 1996). Much of this work has been couched in the framework of social capital, since resources that can be found within peer networks, specifically within friendship networks, are often accumulated and exchanged in a manner that influences educational processes and subsequent outcomes (Crosnoe and Needham 2004; Matsueda and Anderson 1998). By social capital, then, we mean the aggregate of the actual or potential resources that are embedded in social networks that may be converted into other manifestations of capital, including material capital (Bourdieu 1986), human capital (Coleman 1988), and civic participation (Putnam 2000). The fungibility of the resources that are embedded within friendship networks into other kinds of capital (via social exchange) is a consistent focal point for those who have used the social capital postulate to explain how people are made more (or less) productive by social ties (Lin 2001; Noguera 2003; Portes 1998; Woolcock 1998).

It may go without saying that friends have the potential to improve one’s quality of life and, by implication, to enhance the quality of the broader community. In this sense, Durkheim’s emphasis on group life as an antidote to anomie and suicide is but one example of similar notions that are firmly rooted in the 19th-century classics of sociology (Portes 1998). Be that as it may, the social capital that is embedded in relationship networks does not always work to the academic benefit of those who tap it (Portes and Landolt 1996; Ream 2003). Even as some adolescents maintain friendships that foster achievement-related behaviors and subsequent academic success, others situate themselves within friendship networks in which antiestablishment behavior prevails. For every “leading crowd,” there is also a “rebellious crowd” (Coleman 1961; Willis 1977); where there are “jocks,” there are also “burnouts” (Eckert 1989; Flores-González 2002). So, while accomplishment and satisfaction with learning may drive some students to seek like-minded academically oriented friends, for at least some other students, the pursuit of less socially acceptable rewards appears to follow, as a matter of course, from their immersion in antischool social networks. The diverse and often-competing characteristics of students’ friends demand that researchers carefully assess the various kinds of resources that are tapped in friendship networks—resources that may, in turn, serve as divergent predictors of educational attainment. By juxtaposing students...
who were involved in school-oriented friendship networks with students who nominated dropouts among their group of friends, we considered different forms of social capital (McNeal 1999) as competing predictors of school completion and dropout (Farmer et al. 2003). Our results suggest that student engagement, apart from its impact on grades and aspirations, influences competing friendship networks in predictably obverse ways, at once promoting school-oriented friendships and at the same time impinging on students’ tendency to nominate those who drop out of school as friends. In short, the behavioral and social aspects of schooling are dynamically interlinked within the overall process of school completion or dropout.

**RESEARCH DESIGN**

Our study used data from the National Education Longitudinal Study of 1988 (NELS:88), a national longitudinal panel study of a cohort of approximately 25,000 eighth graders. These data are well suited for this investigation because they contain extensive information on Mexican American and non-Latino white students in the United States during the secondary school years between 1988 and 1992. Specifically, the NELS data include the following: (1) family background, including family composition and socioeconomic status (SES); (2) students’ engagement behaviors, (3) students’ grades and educational aspirations, (4) diverse characteristics of adolescents’ friendship networks, and (5) information on school completion and dropout. Moreover, the students were subsequently tracked, whether they remained in school or dropped out, as long as they continued to reside in the United States. Minority students were oversampled so as to increase their respective sample sizes and thus facilitate comparative analyses of different groups.

Drawing from the base-year panel of students who were in the 8th grade in 1988 and then resurveyed in 1990 and 1992 (N = 16,489), we included all students who were actually enrolled in school when the first follow-up questionnaire was administered in 1990 (N = 12,550). Among this diverse group of students, our final sample included 1,062 Mexican Americans and 8,504 whites not of Spanish-speaking origin. Our descriptive analyses included weighted values for all the valid responses for each variable. Although at least some follow-up (10th-grade) information is missing for a portion of students in the final sample, we were able to retain those students in the predictive analyses by using imputation techniques so as to make the sample larger and more plausibly representative of disadvantaged students who failed to answer all the questions in the survey.

**Dependent Variable**

In the study, we investigated the 1988 cohort of NELS 8th graders who, having persevered in school at least through 1990, nevertheless dropped out by the 12th grade (1992). Thus, we studied a particular subset of students who had not dropped out (or, at least, had not dropped out permanently) approximately two years after they had been 8th graders in 1988. To ascertain the impact of student engagement and friendship networks on school completion and dropout, our statistical models included the NELS 12th-grade measure of students’ dropout status (F2DOSTAT). In each wave of the NELS survey, the respondents indicated whether they (1) had completed high school by earning either a high school diploma or an alternative certificate, such as the general equivalency diploma (GED); (2) were currently enrolled in a regular school or an alternative school program; or (3) had dropped out of school (i.e., not finished school and were currently unenrolled). We retained this distinction between students who were enrolled in regular schools where they could earn a diploma and students who were enrolled in alternative programs where they could receive only a GED or alternative credential, considering those in the latter category as dropouts from regular schools, in part because GED holders generally have poorer economic prospects than do diploma holders (Murnane, Willett, and Boudett 1995; Rumberger and Lamb 2003).
Control Variables

Our models used a number of standard controls, since prior research suggested that controlling for variables—specifically, for those that have been found to influence the formation of friendships—reduces the probability of unmeasured selection processes (Heinlien and Shinn 2000), accounting for the influence of friends on educational outcomes (Hallinan and Teixeira 1987). Among the base-year family background variables, the NELS composite measure of SES (BYSES) reflects parental education, income, and occupation as measured in the first wave of the survey (1988). Students’ family composition (BYFCOMP) measures a range of family configurations, such as children living in two-parent households or with nonrelatives. We also included in the analyses the NELS base-year letter grades composite (BYGRADS) and measures from the first follow-up survey (1990), such as letter grades and educational aspirations. We used self-reported grades in mathematics (F1S39A), reading (F1S39B), history (F1S39C), and science (F1S39D) to create a 10th-grade performance composite (Chronbach’s alpha = .81 for both groups). Students’ self-reported reflections on their educational aspirations in the 10th grade is an ordinal measure of how far students think they will get in school (F1S49).

Measuring Students’ Engagement

To address a range of student engagement behaviors, we created the following composite measures of unorganized academic forms of engagement (homework and school preparation) as well as organized nonacademic engagement behaviors (athletic participation and arts participation):

- Homework activities: a two-item composite including student-reported time spent on homework in school (F1S36A1) and out of school (F1S36A2).
- School preparation: a three-item composite of students’ academic readiness according to students’ self-reports of their history of arriving at school with a pencil and paper (F1S40A), books (F1S40B), and completed homework assignments (F1S40C). Chronbach’s alpha = .72 and .68 for Mexican Americans and non-Latino whites, respectively.
- Athletic participation: a three-item composite of students’ self-reported participation in intramural and/or interscholastic sports activities, such as baseball/softball (F1S41AA), basketball (F1S41AB), and/or other team sports such as volleyball or hockey (F1S41AF).
- Arts participation: a two-item composite of students’ self-reported participation in a band, choir, or another music group (F1S41BA) or in school plays or musicals (F1S41BB).

Measuring Peer Social Capital

The research on social capital, particularly in the field of education, has suffered from a nearly one-dimensional focus on the potential for the resources inhering in social ties to produce individually and socially beneficial outcomes (Dika and Singh 2002). Yet it is an all-but-axiomatic notion that capital, regardless of its form (Bourdieu 1986), can be harnessed for both noble and ignoble endeavors (Portes 1998; Ream and Palardy forthcoming). Without this piece of the puzzle, something fundamental is missing from sociologists’ view of social capital and from our understanding of its real-life implications. Our study not only recalls the double-sided aspect of social capital but, by referring to the potential “downside” of social capital in a specific educational scenario, makes explicit its consequences for the lives of students. Indeed, the multidimensional social world of adolescents (Borman and Schneider 1998; Laursen 1993) is fertile ground for considering social capital in terms of its prospective “upside” and its largely overlooked “downside” (Portes and Landolt 1996).

With these considerations in mind, we searched NELS for variables that approximated direct peer-to-peer interaction, since by such variables we could measure social capital in terms of both quantity (i.e., the existence of a relationship) and quality (i.e., the nature of that relationship). Thus, we juxtaposed a five-item
latent construct, friends value education, with a single item, number of dropout friends. In this way, friends value education (Chronbach's alpha = .87 and .85 for Mexican Americans and non-Latino whites, respectively) represents students' perceptions of their friends as measured by the following questions: "Among the friends you hang out with, how important is it to attend class regularly (F1S70A), study (F1S70B), get good grades (F1S70D), finish high school (F1S70F), and continue education past high school (F1S70I)?" Number of dropout friends (F1S69) is based on students' single-item response to the following question: "Altogether, how many of your close friends have dropped out of school without graduating?"

Analytic Methods

We used structural equation modeling (SEM) techniques (Mplus statistical software, Version 3.14) to test associations between the variables in our models. There are several reasons for using SEM to conduct the path analyses. First, SEM can confirm measurement models in which multiple variables are hypothesized to reflect forms of peer social capital (SEM allows for estimating the associations between latent constructs free of measurement error). Moreover, SEM improves upon the predictive capacity of multiple regression by allowing for true multivariate estimation, including the estimation of direct and indirect effects. Third, by deploying SEM techniques, we were able to take advantage of the longitudinal nature of the NELS data by associating variables over time in a manner that is relational and not merely additive. Later, we discuss in greater detail the four-step process, facilitated by virtue of these SEM software capabilities, by which we investigated whether social capital mediates the impact of engagement behaviors on school completion or dropout. With regard to all our models, we controlled for family composition, SES, and base-year letter grades. Incorporating analytic weights to compensate for nonrandom sampling techniques and unequal selection probabilities and to allow for the extrapolation of the results to the represented target population, we used the following indices to test the appropriateness of the models: the Tucker-Lewis index (TLI), comparative-fit index (CFI), and root mean square error of approximation (RMSEA). Since there may be variability across racial/ethnic groups in the process of socialization that, in turn, may contribute to group-level differences in the accumulation of social capital and to its educational utility (Orr 1999; Ream 2005; Stanton-Salazar 1997), we analyzed a series of multigroup models using invariance tests. These findings are also addressed in the Results section.

RESULTS

We present our results in two main sections. In the first section, descriptive analyses of the weighted 8th- to 12th-grade panel data offer group-level comparisons of the background characteristics of Mexican American and non-Latino white students, including family composition, SES, and base-year grades. We also describe and compare 10th-grade student engagement behaviors, letter grades, and educational aspirations across the two groups and present group-level differences in the availability of certain forms of peer social capital. We then describe rates of 12th-grade school completion. We standardized composite variables on the entire weighted sample (N = 12,550) to allow easy mean comparisons based on a common metric. The categorical variable family composition is described in Table 1 as the percentage of students who reported living in two-parent families in the 8th grade, and the categorical variable dropout status is described as the percentage of students who were enrolled in the 10th grade but nonetheless dropped out of school by the spring of 12th grade.

Our second section is divided into two parts. In the first, we model student engagement as a socializing agent that affects the nature of the influence of friends on educational attainment. In the second we focus on adolescents' friendship networks, demonstrating their direct impact on educational attainment as well as the degree to which friends mediate the impact of student engagement on school dropout.

Descriptive Findings

Background Characteristics Although Mexican American students are slightly more
likely than their non-Latino white counterparts to live in two-parent households (71 percent versus 69 percent)—which are a significant deterrent to high school dropout (Coleman 1988; Rumberger 2004)—they are nevertheless confronted with pronounced disadvantages in resources, as evidenced by comparably low average SES (.78 SD below the average SES of non-Latino whites). This socioeconomic disadvantage has been corroborated by research that has similarly described Mexican American social demographics throughout the United States (Hayes-Bautista 2004; Portes and Rumbaut 2001; Valencia 2002). It may be partly attributable to schooling and employment-related challenges faced by immigrant parents (Trejo 1997), who constituted approximately one-third of the Mexican American parents who answered survey questions included in the NELS composite SES measure. The effects of adverse socioeconomic circumstances carry over into high school, where Mexican American students fall behind with respect to received letter grades (mean difference = .24 SD) and educational aspirations (mean difference = .30 SD) according to students’ self-reports during the spring of the 10th grade. Although some minority students maintain higher educational aspirations than do white students (Ainsworth-Darnell and Downey 1998; MacLeod 1995; Solorzano 1991), socioeconomic disadvantage has also been shown to diminish educational aspirations among U.S. Latino adolescents (Kao and Tienda 1998), as would also appear to be the case among 10th-grade enrollees, according to the NELS:88 sample of Mexican American adolescents. In light of these findings, the higher dropout rate after the spring of the 10th grade among Mexican Americans (19 percent) compared to non-Latino whites (10 percent) is not surprising.

**Student Engagement**

Mexican American high school students also appear to be somewhat less engaged in school-related activities than are non-Latino white high school students, although the differences are small. In the first place, significant differences in students’ self-reported time spent on homework in and out of school (a mean difference of .09 SD) or on preparation for school (a mean difference of .07 SD) suggest that Mexican American students are slightly less engaged than are non-Latino white students in informal academic activities that are not directly structured by schools (see Table 1). In addition, group-level differences emerge when it comes to participation in school-organized extracurricular activities, including intramural and interscholastic sports (a mean difference of .05 SD), as well as music groups and the dramatic arts (a mean difference of .08 SD). An emergent body of research has illuminated various reasons for comparably low levels of participation in out-of-classroom learning and extracurricular activities among Mexican origin youths (Gibson et al. 2004; Romo and Falbo 1996; Stanton-Salazar and Spina 2005). Most of these studies have pointed to social class constraints that impinge on the time and resources of low-income Mexican Americans, each of which is required for students’ active experiential learning beyond the classroom.

**Peer Social Capital**

There are at least two counts on which social capital theory has yet to be put to rigorous empirical evaluation. First, as we previously mentioned, measurement experts tend to overlook the social capital downside (Portes and Landolt 1996), specifically scenarios in which select forms of social capital seem predicative of less than socially desirable ends. Second, few studies have taken measure of whether available stocks of social capital vary among groups that are categorized by race/ethnicity (Fuller and Hannum 2002; Ream 2005; Stearns et al. 2007). In this section, we measure both the upside and potential downside of friendship networks according to their comparative availability across groups. Mean comparisons in Table 1 reveal shortfalls among Mexican origin youths in the availability of friends value education (a mean difference of .23 SD)—the latent construct depicting students’ assessment of the importance to their friends of (1) attending class regularly, (2) getting good grades, (3) studying, (4) finishing high school, and (5) continuing education past high school. It is also significant that Mexican Americans much more commonly report hav-
Table 1. Descriptions of Variables, Means, and Standard Deviations and Comparisons of Means in the Sample

<table>
<thead>
<tr>
<th>Description of Variables (NCES Variable Name)</th>
<th>Mean</th>
<th>SD</th>
<th>Mean</th>
<th>SD</th>
<th>Difference</th>
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<td><strong>Background Characteristics, Spring of 8th Grade</strong></td>
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<tr>
<td>Family composition categorical variable (1 = two-parent family, 0 = not two-parent family)</td>
<td>.71</td>
<td>.45</td>
<td>.69</td>
<td>.46</td>
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<td>Socioeconomic status (standardized NCES composite variable)</td>
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<td>.66</td>
<td>.03</td>
<td>.70</td>
<td>-.78**</td>
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<tr>
<td>Composite grades (standardized math, reading, science, and history grades composite)</td>
<td>-.31</td>
<td>.95</td>
<td>.00</td>
<td>1.00</td>
<td>-.31**</td>
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<td><strong>Student Engagement, Throughout the 10th Grade</strong></td>
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<td>Unorganized academic activities</td>
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<td>Homework activities (standardized composite variable)</td>
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<td>.78</td>
<td>-.01</td>
<td>.79</td>
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<tr>
<td>School preparation (standardized composite variable)</td>
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<td>.84</td>
<td>.01</td>
<td>.75</td>
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<td>Organized extracurricular activities</td>
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<td>Athletic participation (standardized composite variable)</td>
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<td>-.01</td>
<td>.75</td>
<td>-.05**</td>
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<td>.69</td>
<td>-.03</td>
<td>.83</td>
<td>-.08**</td>
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<tr>
<td>Composite grades (standardized math, reading, science, and history grades composite)</td>
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<td>.84</td>
<td>.01</td>
<td>.80</td>
<td>-.24**</td>
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<tr>
<td>Educational aspirations (standardized variable)</td>
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<td>1.01</td>
<td>.04</td>
<td>.92</td>
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<td><strong>Forms of Peer Social Capital, Spring of 10th Grade</strong></td>
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<tr>
<td>Friends value education (standardized five-item latent construct)</td>
<td>-.11</td>
<td>1.00</td>
<td>.12</td>
<td>1.00</td>
<td>-.23**</td>
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<tr>
<td>Number of dropout friends (standardized variable)</td>
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<td>1.17</td>
<td>-.06</td>
<td>.80</td>
<td>.45**</td>
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<td><strong>School Completion, Spring of 12th Grade</strong></td>
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<tr>
<td>Dropout status categorical variable, alternative student (1 = dropped out, 0 = did not drop out)</td>
<td>.19</td>
<td>.39</td>
<td>.10</td>
<td>.30</td>
<td>.09**</td>
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</table>

**p < .01.

Note: Mean difference = difference in mean (Mexican Americans versus non-Latino whites). Items that contribute to the composites are standardized to a mean of 0 and an SD of 1 and then averaged (so, the SES mean of -.75 SD indicates that Mexican American parents are .75 SD below the average of the entire base-year sample). Statistics weighted by f2pnlwt/mean f2pnlwt.
ing at least one friend who has dropped out of school (a mean difference of .45 SD).

Thus, in terms of the availability of peer social capital, Mexican origin youths may be doubly disadvantaged in that they appear to be undercapitalized on the social capital upside even as they seem to be overstocked on its downside. According to the series of structural models that follow, we pursue the notion that students’ engagement behaviors influence friendship networks, especially in relation to the learning orientation and educational perseverance of the friends with whom students hang out. We then consider whether students’ friends unleash convertible forms of social capital that not only have a direct impact on school completion or dropout, but mediate the impact of student engagement on school completion or dropout.

**Predictive Analyses**

Our predictive analyses bolster four general conclusions about links among student engagement, peer social capital, and educational attainment. First, engagement behaviors do indeed influence friendship networks. Second, they also tend to affect school completion and dropout. Third, competing friendship networks influence school dropout differently. Last, the impact of student engagement behaviors on school dropout is mediated by grades, aspirations, and friendship networks. In the sections that follow, we address these findings and bolster our conclusion that social capital mediates the impact of student engagement on school completion or dropout.

**Engagement Behaviors Influence Friendship Networks**

Competing friendship networks are clearly influenced by youths’ engagement behaviors, particularly by school preparation (see Figure 1).25 While unorganized academic activities (homework and school preparation) are positive predictors of school-oriented friendship networks, the same behavioral patterns tend to reduce adolescents’ propensity to identify with students who are dropouts. Organized engagement behaviors (participation in sports and the arts) also appear to influence the friendship trajectories, to various degrees, of both groups of students.

For non-Latino whites, a 1 SD increase in homework activities increases friends value education by .12 SD. The same parameter among Mexican origin youths is similar in magnitude (.08 SD), but statistically insignificant. For both groups, school preparation is a significant predictor of friends value education (.23 SD and .26 SD for non-Latino whites and Mexican Americans, respectively). And while homework activities slightly reduces whites’ propensity to nominate friends who are dropouts (-.05 SD), the same parameter is not statistically significant (-.06 SD) among Mexican origin youths. For both groups, however, better prepared students—in short, those who arrive at school with pencils, paper, and books (i.e., school preparation)—are somewhat less likely to hang out with dropouts (-.10 SD and -.11 SD for non-Latino whites and Mexican Americans, respectively).

With regard to organized sports and arts activities, we see similar inverse effects of students’ engagement on competing adolescent friendship networks. Athletic participation bolsters school-oriented friendships for both groups of students (.07 SD and .08 SD, respectively), but may not preclude Mexican origin youths from befriending dropouts (-.01 SD, p > .05)—although it seems to do so among non-Latino whites (-.07 SD). Students’ friendship networks are not strongly influenced by arts participation, although its association with friends value education is a significant .05 SD among non-Latino white adolescents. Hanging out with dropouts, however, is no less likely among the more artistically inclined than among those who are not.

If we took into account only the statistical significance of the various parameter estimates in Figure 1, we might conclude in cross-group analyses that while school preparation and athletic participation have a slight impact on friendship networks for both groups, homework activities and arts participation seem more influential in the formation of friendships among non-Latino whites. We used multiple groups analyses to investigate this possibility further, taking into account not only whether parameter estimates (i.e., path coefficients) are statistically significant in
one group but not in the other, but whether the magnitude of each matched parameter estimate differs significantly between the two groups. On this view, the magnitude of the associations between engagement behaviors and friendship networks does not appear to differ significantly between non-Latino whites and Mexican Americans. Group similarities seem more pronounced than do group differences when one considers links between engagement behaviors and the formation of friendship networks.

Engagement Behaviors Influence School Dropout The parameter estimates in Figure 2 show that in the absence of the friendship network variables measured in the 10th grade, engagement behaviors directly influence whether students drop out of school by the spring of the 12th grade. School preparation and athletic participation are significant predictors of dropout for both groups, and each of the academic and extracurricular engagement activities significantly reduces school dropout for non-Latino whites. A 1 SD increase in homework activities or in school preparation among non-Latino whites reduces school dropout by .09 SD and .08 SD, respectively. Although homework activities are not a significant predictor of dropout for

Figure 1. The Impact of Student Engagement on Friendship Networks

Note: Standardized parameter estimates for Mexican Americans are shown just above the estimates for non-Latino whites. The model controls for background characteristics (SES, family structure, and base-year grades, as well as first follow-up grades and educational aspirations) and estimates covariances among endogenous variables. These aspects are not central to our thesis, however, and are therefore omitted to improve the readability of the figure. Individual items that contribute to the latent construct (depicted as an oval) and all error terms and correlations are also excluded from the figure.

Mexican Americans, school preparation is a notable deterrent (−.17 SD) to school dropout. Organized sports and arts activities also tend to reduce the likelihood of school dropout, at least among more engaged students. Athletic participation is a significant negative predictor of dropping out of school for both groups (−.12 SD), while arts participation also reduces the likelihood of dropout among non-Latino whites (−.11 SD). Here again, multiple-groups analyses do not detect significant differences between Mexican Americans and non-Latino whites in the magnitude of associations between student engagement behaviors and school dropout in Figure 2. In general, links between student engagement behaviors and school dropout are similar for both groups.

Competing Friendship Networks Influence School Dropout Differently

From the start, we have attempted to model competing potentialities among adolescent friends—a notion reflected in the negative correlation between number of dropout friends and the latent construct, *friends value education* (see Appendix Table A2). But can it be effectively concluded that competing friendship networks affect school dropout differently? The parameter estimates in Figure 3 suggest as much. The number of dropout friends emerges as a robust predictor of school dropout for Mexican Americans (−.14 SD) as well as for non-Latino whites (−.15 SD). And while the relevant parameter estimate for Mexican Americans is not statistically significant, its negative direction (−.07 SD) suggests

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**Figure 2. The Impact of Student Engagement on School Dropout**

*Note:* Standardized parameter estimates for Mexican Americans are shown just above the estimates for non-Latino whites. The model controls for background characteristics (SES, family structure, and base-year grades) and estimates covariances among the endogenous measures of student engagement. These aspects are not central to our thesis, however, and are therefore omitted to improve the readability of the figure. All error terms and correlations are also excluded from the figure.

that friends value education reduces the likelihood of dropout for this group of students, just as it does for non-Latino whites (-.08 SD). Once again, multiple-groups analyses do not reveal group-level differences in the magnitude of these associations. Having at least one friend who is a dropout leads hangers-on to a similarly bleak educational destiny, while those whose friends value education are more likely to complete school on time. These findings add to a growing body of evidence that high-achieving friends increase a student's likelihood of completing school (Kasen et al. 1998), whereas having dropout friends increases one's chances of not completing high school (Carbonaro 1998; Rumberger and Thomas 2000).

**The Mediating Influence of Social Capital**

Four conditions must be satisfied to substantiate the notion that competing forms of social capital mediate the impact of student engagement on school completion or dropout. First, variation in levels of student engagement must significantly account for variations in social capital, per Figure 1. Second, variation in levels of student engagement must significantly account for variations in social capital, per Figure 1. Third, variation in levels of student engagement must significantly account for variations in social capital, per Figure 1. Fourth, variation in levels of student engagement must significantly account for variations in social capital, per Figure 1.

**Figure 3. The Impact of Friendship Networks on School Dropout**

Note: Standardized parameter estimates for Mexican Americans are shown just above the estimates for non-Latino whites. The model controls for background characteristics (SES, family structure, and base-year grades, as well as first follow-up grades and educational aspirations) and estimates covariances among endogenous variables. These aspects are not central to our thesis, however, and are therefore omitted to improve the readability of the figure. Individual items that contribute to the latent construct (depicted as an oval) and all error terms and correlations are also excluded from the figure.

in school dropout in the absence of the social capital mediators, per Figure 2. Third, variations in social capital must significantly account for variations in school dropout, per Figure 3. Last, when the impact of student engagement on social capital and the impact of social capital on dropout are controlled for, the previously significant association between students’ engagement and school dropout (see Figure 2) must be reduced, per the full model in Table 2—in the strongest case to insignificance (Baron and Kenny 1986; Shrout and Bolger 2002). For Mexican origin youths, for example, having dropout friends mediates the otherwise beneficial impact of unorganized academic forms of engagement (i.e., school preparation) on school completion by the following logic:

• Variations in levels of school preparation significantly account for variations in dropout friends (.11 SD), per Figure 1.

• Variations in levels of school preparation significantly account for variations in school dropout (.17 SD) in the absence of social capital mediators, per Figure 2.

• Variations in dropout friends significantly account for variations in school dropout (.14 SD), per Figure 3.

• When the impact of student engagement on social capital and the impact of social capital on dropout are controlled for, the previously significant association between school preparation and school dropout in Figure 2 (.17 SD) is reduced to insignificance (.07 SD, p > .05), per the full model in Table 2.

DISCUSSION

Nationwide increases in educational attainment, accompanied by global changes in the labor market, make the consequences of not completing high school increasingly problematic in the information age (Bridgeland et al. 2006). As the U.S. economy has shifted from producing goods to processing information, jobs for high school dropouts have largely disappeared (Rumberger and Lamb 2003). Although the stakes are particularly high among underrepresented minorities (Kelly 2005; National Research Council 2004), the importance of this issue goes beyond the presumed links between improved graduation rates and improved conditions among minorities (Darling-Hammond 2007). By some estimates, high school dropouts from the class of 2007 alone will cost the nation nearly $300 billion in lost productivity, including wages and taxes, over their lifetimes (Alliance for Excellent Education 2007). Clearly, the dropout dilemma encompasses the broader interests of all members of society.

While the mechanisms that govern the influence of friends on educational attainment are not altogether well understood, the results of this study suggest that behavioral and social aspects of schooling are linked in the process of school completion and dropout. More specifically, student engagement is a socializing agent that affects the nature of the influence of friends on educational attainment. Various engagement behaviors contribute to the formation of adolescents’ friendship networks, which arc toward educational attainment; the same behaviors detract from the likelihood that students will become susceptible to the social and behavioral influences of others who drop out of school. In this fashion, participation in unorganized academic and organized extracurricular activities gives evidence of a potential to shape adolescents’ social envi-
Table 2. Full Model

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Note: MA = Mexican American; W = non-Latino white. Effects marked with a period (.) are not estimated in the models. The parameters are presented in SD units. The exogenous variables are correlated in the models; student engagement composites are correlated in the models; letter grades, educational aspirations, and friendship network measures (friends value education and number of dropout friends) are correlated in the models. The models explain 36 percent and 33 percent of the variance in dropout among Mexican Americans and non-Latino whites, respectively. Fit indices: TLI = .97, CFI = .97, RMSEA = .03.

Student Engagement, Peer Social Capital, and School Dropout

environment in a manner that will lead to educational perseverance and high school completion.

Yet, the results of this study show that Mexican origin youths are somewhat less engaged in school-related activities than are white youths (although these results are modest, even perhaps more suggestive than definitive). Accumulative resource disadvantage not only exacerbates low average grades and educational aspirations, but may deter Mexican origin youths from engaging in school-related activities that facilitate access to educationally beneficial forms of social capital and diminish vulnerability to street-oriented friendship networks. Low-income Mexican American adolescents may be less able to participate in homework and other unorganized academic endeavors outside school because many are obligated to hold after-school jobs or are required to care for siblings while their parents are working (Spina 2000). Enrollment fees may also discourage economically disadvantaged students from participating in extracurricular activities, as well as sports, music, drama, and dance programs (Rothstein 2004). And to the degree that parents’ time (e.g., for the provision of transportation to and from practice) is a prerequisite to participation, working-class minority students may simply lack family resources that could otherwise facilitate their eligibility (Chin and Phillips 2004). Finally, low-income Mexican American students are more likely than are middle-class white students to attend less affluent schools with fewer extracurricular activities—although the evidence suggests that these differences are not large (Gibson et al. 2004; O’Brien and Rolleson 1995). So, while some research has suggested that student engagement may benefit socioeconomically disadvantaged students (those who are perhaps the least well served by the traditional educational curriculum) as much or more than advantaged students (Mahoney and Cairns 1997; Marsh and Kleitman 2002), deficits in resources make it less likely that working-class Mexican origin students will engage in and take advantage of school-related activities.

Although this study has shown that student engagement has a direct affect on the company that students keep and on whether students complete school on time, murky causal processes leave engagement behaviors less strongly connected to students’ academic performance than theory predicts (Newmann et al. 1992). In this light, we also investigated competing friendship networks as potential mediating factors by which student engagement influences whether students complete school. Our study has shown that even after SES, letter grades, and other background factors are controlled for, engagement behaviors are significant and positive predictors of school-oriented friendship networks and school completion for Mexican American and non-Latino white adolescents. And these same engagement behaviors tend to reduce the degree to which adolescents identify with students who are dropouts and/or drop out of school themselves. Our findings correspond to those of other studies that found that adolescents who participate in extracurricular activities are more integrated into school, tend to be friends with those who share their same activity profiles, and typically avoid problem behavior (Eccles and Barber 1999; Romo and Falbo 1996). Alternatively, disengaged youths who are more likely to associate with friends who drop out are less likely to graduate from high school (Fergusson and Horwood 1998). It seems that engagement behaviors influence adolescents’ friendships networks and that friends act, for better and for worse, as prototypes for subsequent processes that influence educational attainment and school dropout.

By facilitating resource-rich, school-oriented friendship networks and discouraging entrapment in the social capital downside, student engagement serves both an important social function and an important educational function. What should be done, then, to foster students’ participation in out-of-classroom learning activities? Given that family SES bolsters students’ engagement opportunities and school organizational practices influence the social mixing patterns of students through extracurricular activities (Quiroz, Gonzalez, and Frank 1996), a two-pronged policy approach may be in order.
First, economic reforms that address deficits in working-class families’ income and assets may accompany more direct school reform efforts to fortify links among SES, students’ engagement, beneficial friendship networks, and the completion of school. Broad economic indicators suggest, however, that market forces and domestic social policy have been marching, for some time, in the opposite direction. In recent years, low-income Latino families have seen their incomes grow far less than those of middle- and upper-income families (Congressional Budget Office 2003). With child poverty rates for Latinos more than twice as high as those for non-Latino whites (U.S. Department of Education 2006), it is no wonder that we found significant group-level differences in engagement behaviors (let alone achievement trajectories) that put Mexican origin youths at a disadvantage. Without a renewed commitment to reforms that are designed to reverse the trend toward the growing inequality of resources across social classes, the lack of sufficient family resources will continue to dissuade low-income minority adolescents from the very engagement behaviors that lead to the development of positive social networks and the achievement of subsequent success in school.

Although this study has shown that engagement in extracurricular activities tends to orient students toward the social capital upside, the resegregating of America’s schools (Frankenberg, Lee, and Orfield 2003; Orfield and Lee 2007) jeopardizes the possibility of “bridging” social opportunities for even the most engaged students. So while disadvantaged minorities may have the most to gain—both socially and educationally—by taking part in healthy student engagement behaviors, any return on such engagement is proscribed in advance by the degree to which lower-class and working-class students are immersed in low-SES urban school districts where the pool of eligible friends is commonly limited to others who are similarly distressed or alienated from school (Kuperminc et al. 2004; Stanton-Salazar and Spina 2005). Extracurricular activities and after-school programs, however, afford administrators the opportunity to enhance mixing opportunities that involve students from all walks of life working for collective ends (Moody 2001). Such activities structure opportunities for students to meet other students in and around schools and should therefore not fall victim to tight educational budgets or more narrowly defined educational reform agendas. In short, it is by design that broad educational policy on segregation and the organization of individual schools—both amenable to policy manipulation—ineffectiveness who hangs out with whom on campus (Conchas 2006).

Social competition for school and street-oriented allegiance can be especially intense among disadvantaged minorities in racially segregated, low-SES urban school districts. Yet more engaged students appear to rise above the fray, taking critical steps toward the upside social capital scenario of finding friends who value education. The disengaged, however, are particularly susceptible to disaffected adolescent ideologies and orientations that can accelerate the formation of antischolastic identities and behaviors that lead them to drop out of school. Insofar as Mexican origin youths stand to gain by taking part in student engagement behaviors, their doing so may require the unique ability to surmount the very obstacles—underresourced highly segregated families, schools, and communities—that lead to disengagement in the first place.

NOTES

1. On the West Coast, the metacategorical term Latino is generally preferred to Hispanic—the latter adopted in the 1970s and first used in the 1980 U.S. census (Bean and Tienda 1987).

2. Complex adolescent relationship networks are commonly differentiated along a sort of quality continuum. Diffuse peer crowds can be distinguished from subgroups of more cohesive peer cliques (Brown 1990), and friendship networks may be further categorized on the basis of levels of intimacy and trust shared between, say, best friends (Berndt 2002). Parsons’ (1963) conceptualization of the influence process and focus on the importance of a relationship of solidarity
in increasing the vulnerability to influence directs attention toward friendships as critical sources of peer influence (Hallinan and Williams 1990).

3. The term racial/ethnic refers to the major racial and ethnic groups in the United States—namely, Latinos/Hispanics, African Americans, Asian Americans, Native Americans, and non-Latino whites. Race is a problematic categorization, however, fraught with ethical and philosophical tensions that have been set forth in deliberations in philosophy and cultural studies about the ontological status of race (Appiah 1992; Loury 2002).

4. Yet other research has shown that African American students report that their friends consider academic success at least and sometimes more important than do white students (Ainsworth-Darnell and Downey 1998; MacLeod 1995). There may be a difference, however, between abstract notions of the value of schooling and concrete class- and race-specific experiences regarding its payoff. This distinction may partly explain the paradox of disproportionately high dropout rates among minorities alongside their often positive attitudes toward education (Mickelson 1990). It should also be noted that the avoidance of acting white, when misunderstood as a central feature of specific minority cultures, belies the diversity of political and cultural perspectives in these groups (Carter 2006).

5. We ran our predictive models both ways—with student engagement behaviors preceding friendship networks and, alternatively, with friendship networks preceding engagement behaviors (National Research Council 2004). Both models fit the data equally well. Rather than either/or, the answer to this endogeneity question is perhaps more aptly described as both/and, that is, what adolescents do predicts who they know, and who they know predicts what they do.

6. Forms of social capital conjure notions of the strength and diversity of social networks, including the depth of a relationship and levels of commitment; the range of one’s social “portfolio” across socioeconomic, racial/ethnic, and generational borders; and the informal domains (e.g., family, peer) or more formal domains (e.g., school, community) in which relationships are made manifest (McNeal 1999).

7. We limited our consideration of social capital to the peer domain, focusing on the resources that inhere in informal friendship networks, as opposed to, say, more formal student-teacher relationships within the school.

8. The data commingle immigrants with their second-, third-, and later-generation counterparts. Note, however, that the base-year cohort excluded about 5 percent of the 8th-grade population who were deemed ineligible to participate as a consequence of insufficient English language proficiency or an assessable handicap. A sample of students from this “base year ineligible” population was added back into the NELS cohort in 1990, but these students were excluded from our study because they lacked data from the base year (1988). The panel weights were computed to account for the stratified sampling techniques, which involved oversampling certain populations of schools and students, as well as for survey nonresponse rates (for a discussion of the procedures for computing sample weights, see Ingels et al. 1994).

9. To illustrate, 5 percent and 2 percent of Mexican Americans and non-Latino whites, respectively, were missing data on homework in school (F1S36A1), and 11 percent and 3 percent of each respective group were missing data on whether they had a friend who dropped out of school by the 10th grade (F1S69).

10. The Mplus software used in the predictive analyses confronts missing data with estimation by full information maximum likelihood (FIML) instead of relying on ad hoc methods like listwise or pairwise deletion or mean imputation. Unlike many other imputation methods, FIML estimation uses all the information from the observed data, estimating a coefficient for the relationship between variables (the missing data are built directly into the estimation method), as opposed to imputing a value for an otherwise-observed variable.

11. The majority of students in the NELS cohort who did not complete school dropped out after the first follow-up survey in 1990 (McMillen and Kaufman 1996).
12. Although some researchers have expressed concern that letter grades are affected by biases in teachers' attitudes, as well as the quality of schools, grades are an important outcome because students and parents regularly monitor students' performances via grades. Moreover, educators argue that grades are a better predictor of students' progress than are scores on achievement tests because grades also represent teachers' assessments of students' work habits, ambition, problem-solving processes, and adaptability to the learning environment (Blau, Moller, and Jones 2004; Dornbusch et al., 1987; Farkas 2003).

13. Items that contribute to the composites are standardized to a mean of 0 and a standard deviation of 1 and then averaged. We present alpha scores only for the constructs that are intended to form a scale. Alphas are derived from descriptive correlational analyses (as opposed to Mplus measurement models). See Appendix Table A1 for descriptions of items and factor loadings for the 10th-grade composite measures of letter grades and student engagement, as well as the latent construct, friends value education (the measurement component of the structural models). See Appendix Table A2 for correlations among all the variables in the analyses.

14. Here, we acknowledge that adolescents lack complete knowledge about what their friends think and do. Furthermore, perceived reports may consist of students' projections of their own values onto others—a bias that has been targeted as a weakness of research on peer dynamics (Kandel 1996). Nevertheless, the use of students' perceptions of their peers is often justified by the reasoning that what adolescents think their friends do is more influential than what their friends actually do (Bauman and Ennett 1996; Ryan 2000).

15. Although F1569 provides information on the actual number of a student's friends who have dropped out of school, it does not indicate the proportion of a particular student's friends who dropped out.

16. We used the path analytic strengths of SEM to test a mediator type of model (as opposed to a moderator-interaction model). In this case, the hypothesized mediator function of social capital represents the generative mechanism through which the focal independent variables—engagement behaviors— influence school completion or dropout. For a trenchant explanation of the ways in which mediators and moderators differ, see Baron and Kenny (1986).

17. Other covariates (e.g., gender, educational mobility, and private school attendance) may also work to condition the influence of engagement and friends on school completion (Swanson and Schneider 1999). As one reviewer pointed out, having repeated a grade also elevates the risk of dropping out (Entwistle, Alexander, and Olson 2004; Jimerson et al. 2002). In fact, retained students (who are typically old for their grade), compared to students who are continuously promoted, are much more likely to leave school early (Stearns et al., 2007), overwhelmingly by age 16 according to one report (Roderick 1994).

The results of logistic regressions among our subset of students who had not dropped out early (were still enrolled in school when the NELS first follow-up survey was administered in 1990) show that while having “ever been held back in school” more than doubles the odds (2.38, p < .01) that students who persevere through the 10th grade will nevertheless drop out by the 12th grade, retention in grade hardly influences the links among student engagement, friendship networks, and 12th-grade dropout that were the focus of our study. Illustratively, a one-unit increase in the number of dropout friends doubles the odds of 12th-grade dropout (2.04, p < .01); the odds increase only slightly (to 2.08, p < .01) when retention is accounted for. And while friends value education reduces the odds of dropping out by .93 (p < .10), the odds are reduced by .04 to .89 (p < .01) when retention is included in the model. Retention also bears inconsequentially on links between engagement behaviors and 12th-grade dropout; athletic participation reduces the odds of dropping out by .89 and then by .88 when retention is accounted for, arts participation (.80 compared to .82), homework activities (.93 and .93), and
school preparation (.91 and .92). These findings resemble the obverse of the results of another study of dropout; Stearns et al. (2007) found that neither engagement behaviors nor various forms of parental social capital explain away links between retention and dropping out among Latino and white adolescents in the NELS data set.

18. TLI and CFI are practical-fit indices that are designed to address issues of sample size; values of .9 and above indicate reasonable model fit. RMSEA is sensitive to the number of estimated parameters, acting as a barometer in estimating model parsimony. RMSEA values of .08 or less indicate reasonable model fit (Browne and Cudeck 1993).

19. This technique indicates whether a fixed unit change in exogenous variables in our models corresponds to a statistically similar change of an endogenous variable or variables independent of whether the respondent was Mexican American or non-Latino white.

20. With regard to time-order sequencing of the variables in the models, the two constructed measures of organized extracurricular activities (sports and the arts) ask adolescents to reflect on their experiences throughout the 10th grade (e.g., F1S41BA: “In this school year I have participated in school band, orchestra. . . .”). And homework items like F1S36A1 ask the student, “Overall, about how much time do you spend on homework each week in school?” Items contributing to the measures of friendship network take stock of students’ perceptions of their friends at the time the survey was actually administered (in the spring of 1990 when the respondents were near the end of the 10th grade).

21. Research has consistently found that parental SES is strongly associated with achievement for students from all racial and ethnic backgrounds (Entwisle and Alexander 1995; Guo and Harris 2000; Kao and Thompson 2003; Lee 2002; Roscigno 2000). Given the described disparities in SES, the gap in average 8th-grade letter grades (.31 SD) is not entirely surprising.

22. Although there are no set standards for interpreting differences between group means, Cohen (1988:25–27) suggested that differences of .2 are small, differences of .5 are medium, and differences of .8 are large. 23. Data from a 2002 survey of 10th graders corroborated the pattern that we observed—Latinos are less likely than whites to participate in sports and other school-sponsored activities (Ingels et al. 2005). Similar findings emerged from the field (Stanton-Salazar and Spina 2005); Latino adolescents’ home and family-related responsibilities often precluded their participation in extracurricular activities (Romo and Falbo 1996).

24. Language barriers may also pose particular obstacles to engagement for immigrants and the children of immigrants, who together constitute the majority of Mexican Americans in the United States (Pew Hispanic Center 2006). Because most Latino immigrant parents do not speak English, many adolescent children of immigrants must shoulder the time and energy-consuming responsibility of brokering decisions with English-speaking agents on behalf of their entire families (Valdes 2003). The child as a cultural broker facilitates daily cross-cultural transactions between parents and the English-speaking mainstream, such as filling out applications for employment, disputing credit card charges, and dealing with schools or the legal system (Buriel et al, 1998). The demands of such adultlike responsibilities may leave little time for homework and participation in extracurricular activities, however.

25. The parameter estimates are standardized, enabling the within-group comparison of the magnitude of the effect of each path-linking variable in the structural model. In multivariate analyses, Cohen (1988: 413–14) suggested that standardized parameter estimates of .13 are small, .36 are medium, and .51 are large.

26. Here, we also note—and this finding, too, corroborates prior research evidence (Rumberger 2004)—that letter grades and educational aspirations, as measured in the spring of the 10th grade, are pronounced and significant predictors of school dropout among Mexican Americans (-.27 SD and -.29 SD, respectively), per Table 2. For whites, the relevant parameters are also noteworthy (-.23 SD and -.16 SD). Thus, it appears that beyond the mediating potential of competing forms
of peer social capital, school completion is also conditioned by students’ grades and aspirations (both of which are strongly influenced by prior grades and SES).

27. See Rothstein (2004) for recommended economic and social reforms that are geared toward forging a more effective and meritocratic system of education.

28. Sixteen- to 24 year olds in the highest quartile of family income are approximately seven times as likely to have completed high school as are 16- to 24 year olds whose family income falls in the lowest quartile (Snyder, Dillow, and Hoffman 2007).

29. Of course, even if schools were increasingly integrated across race and class, five decades of experience since the Supreme Court’s unanimous decision in *Brown v. Board of Education* (1954) remind us that formal integration is a necessary but not a sufficient condition for substantive integration, as evidenced by the commonality of class and racial segregation even in “integrated” schools (Epstein 1985; Mitchell and Mitchell 2005). Friendship segregation is lower, however, in schools with integrated extracurricular programs. Moody (2001) reported that a 1 SD increase in exposure to extracurricular activities decreases racial segregation by about one-third of 1 SD.

30. Having suggested the wisdom of structural reforms that are designed to improve the socioeconomic prospects of disadvantaged minorities and of educational reforms that lead from formal to more substantive social integration within schools, we also want to address some caveats and to recognize the potential limitations of our research. First, students in the NELS sample attended high school more than a decade ago; subsequent reform efforts and educational adaptations have since altered both students’ schooling experiences and the educational policy climate. In addition, to the degree that self-selection influences the demographics of student engagement, the NELS data are not amenable to true experimental research, by the standard of which students would be randomly assigned to different types of extracurricular activities. Last, we acknowledge and support the notion that policy solutions are most wisely undertaken in the context of a cumulative body of findings, rather than in response to the results of any single study (McDonnell 2000).
### Table A1. Descriptions of Composite and Latent Variables and Standardized Factor Loadings

<table>
<thead>
<tr>
<th>NELS:88 Descriptions of Variables</th>
<th>Mexican Americans (N = 1,062)</th>
<th>Non-Latino Whites (N = 8,504)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>SD</td>
</tr>
<tr>
<td><strong>Grades</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>F1 letter grades: 8-point ordinal scale (1 = mostly A’s, 2 = half A’s and half B’s . . . 8 = mostly below D)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mathematics grades</td>
<td>4.99</td>
<td>1.90</td>
</tr>
<tr>
<td>Reading grades</td>
<td>4.53</td>
<td>1.86</td>
</tr>
<tr>
<td>History grades</td>
<td>4.72</td>
<td>2.09</td>
</tr>
<tr>
<td>Science grades</td>
<td>4.72</td>
<td>1.97</td>
</tr>
<tr>
<td><strong>Student Engagement</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Homework activities: 8-point ordinal scale (0 = none, 1 = 1 hour or less, 2 = 2–3 hours . . . 7 = more than 15 hours)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Time spent on homework each week in school</td>
<td>1.97</td>
<td>1.61</td>
</tr>
<tr>
<td>Time spent on homework each week out of school</td>
<td>2.26</td>
<td>1.55</td>
</tr>
<tr>
<td>School preparation: 4-point ordinal scale (1 = never, 2 = seldom, 3 = often, 4 = usually)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>How often do you go to class with pencil and paper?</td>
<td>3.28</td>
<td>.77</td>
</tr>
<tr>
<td>How often do you go to class with books?</td>
<td>3.38</td>
<td>.79</td>
</tr>
<tr>
<td>How often do you go to class with homework done?</td>
<td>2.94</td>
<td>.77</td>
</tr>
<tr>
<td>Athletic participation: 5-point ordinal scale (1 = did not participate, 2 = intramural sports, 3 = junior varsity team, 4 = varsity team, 5 = captain/co-captain)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Participated in baseball/softball in this school year</td>
<td>2.26</td>
<td>.79</td>
</tr>
<tr>
<td>Participated in basketball in this school year</td>
<td>2.29</td>
<td>.76</td>
</tr>
<tr>
<td>Participated in other sport in this school year</td>
<td>2.17</td>
<td>.71</td>
</tr>
</tbody>
</table>
## APPENDIX CONTINUED

Table A1. Descriptions of Composite and Latent Variables and Standardized Factor Loadings

<table>
<thead>
<tr>
<th>NELS:88 Descriptions of Variables</th>
<th>Mexican Americans (N = 1,062)</th>
<th>Non-Latino Whites (N = 8,504)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>SD</td>
</tr>
<tr>
<td><strong>Arts participation:</strong> 4-point ordinal scale (1 = school does not offer, 2 = did not participate, 3 = participated, 4 = participated as officer)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Participated in school band, orchestra, chorus, choir, or other music group in this school year</td>
<td>2.13</td>
<td>.41</td>
</tr>
<tr>
<td>Participated in school play or musical in this school year</td>
<td>2.06</td>
<td>.36</td>
</tr>
<tr>
<td><strong>Social capital</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Friends value education: 3-point ordinal scale (1 = not important, 2 = somewhat important, 3 = very important)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Among the friends you hang out with, how important is it to attend class regularly?</td>
<td>2.43</td>
<td>.61</td>
</tr>
<tr>
<td>study?</td>
<td>2.25</td>
<td>.61</td>
</tr>
<tr>
<td>get good grades?</td>
<td>2.43</td>
<td>.60</td>
</tr>
<tr>
<td>finish high school?</td>
<td>2.70</td>
<td>.53</td>
</tr>
<tr>
<td>continue education past high school?</td>
<td>2.36</td>
<td>.67</td>
</tr>
</tbody>
</table>

Note: F2 panel data of students who were enrolled in school in the 10th grade (N = 12,550). Mean letter grades for 10th-grade Mexican Americans are higher than for white 10th graders, since grades are measured on an 8-point ordinal scale, where 1 = mostly A’s, 2 = half A’s and half B’s . . . 8 = mostly below D. Statistics weighted by f2pnlwt/mean f2pnlwt.
Table A2. Correlations for Variables Used in the Analyses

<table>
<thead>
<tr>
<th>Variables</th>
<th>(1)</th>
<th>(2)</th>
<th>(3)</th>
<th>(4)</th>
<th>(5)</th>
<th>(6)</th>
<th>(7)</th>
<th>(8)</th>
<th>(9)</th>
<th>(10)</th>
<th>(11)</th>
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</thead>
<tbody>
<tr>
<td>(1) Family composition</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
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<tr>
<td>(2) SES</td>
<td>.22**</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(3) BY letter grades</td>
<td>.16**</td>
<td>.28**</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>(4) Homework activities</td>
<td>.08**</td>
<td>.16**</td>
<td>.24**</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(5) School preparation</td>
<td>.06**</td>
<td>.04**</td>
<td>.19**</td>
<td>.16**</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(6) Athletic participation</td>
<td>.03**</td>
<td>.04**</td>
<td>.08**</td>
<td>.06**</td>
<td>.03**</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(7) Arts participation</td>
<td>.01</td>
<td>.04**</td>
<td>.13**</td>
<td>.08**</td>
<td>.04**</td>
<td>.11**</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(8) F1 letter grades</td>
<td>.14**</td>
<td>.24**</td>
<td>.61**</td>
<td>.26**</td>
<td>.25**</td>
<td>.09**</td>
<td>.09**</td>
<td>1</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>(9) Educational aspirations</td>
<td>.10**</td>
<td>.38**</td>
<td>.44**</td>
<td>.23**</td>
<td>.17**</td>
<td>.10**</td>
<td>.11**</td>
<td>.48**</td>
<td>1</td>
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<td></td>
</tr>
<tr>
<td>(10) Friends value education</td>
<td>.02*</td>
<td>.09**</td>
<td>.19**</td>
<td>.17**</td>
<td>.26**</td>
<td>.10**</td>
<td>.11**</td>
<td>.26**</td>
<td>.29**</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>(11) Number of dropout friends</td>
<td>-.12**</td>
<td>-.23**</td>
<td>-.23**</td>
<td>-.13**</td>
<td>-.15**</td>
<td>-.07**</td>
<td>-.03**</td>
<td>-.24**</td>
<td>-.27**</td>
<td>-.22**</td>
<td>1</td>
</tr>
<tr>
<td>(12) School dropout</td>
<td>-.14**</td>
<td>-.19**</td>
<td>-.24**</td>
<td>-.11**</td>
<td>-.12**</td>
<td>-.06**</td>
<td>-.08**</td>
<td>-.27**</td>
<td>-.28**</td>
<td>-.14**</td>
<td>.23**</td>
</tr>
</tbody>
</table>

**p < .01, *p < .05.

Note: F2 panel data of all students who were enrolled in school in the 10th grade (N = 12,550). Statistics weighted by f2pnlwt/mean f2pnlwt.
REFERENCES


Stearns, Elizabeth, Stephanie Moller, Judith Blau, and
Student Engagement, Peer Social Capital, and School Dropout


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