Generational Patterns in Academic Performance: The Variable Effects of Attitudes and Social Capital

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Abstract

This paper used newly released data on tenth graders' performance and school and family lives to provide a current assessment of generational disparities in math and reading scores, and to evaluate the roles played by a broad range of predictors in creating the observed relative performance of immigrant, second- and third-generation students. At the bivariate level, both standardized math and reading scores improve as generation rises. Differences in math scores disappear in the presence of controls for background factors, particularly race/ethnicity. For reading, newly arrived immigrants retain a significant disadvantage in test scores, while controls for race/ethnicity eliminate and reverse the observed disadvantages exhibited by second-generation and early-arriving youths, respectively. Additional analyses indicate that all children of immigrants benefit from very high parental expectations, and that recently arrived immigrants have strong feelings of school attachment, which they manifest in pro-school behaviors. In contrast, third-plus generation students socialize more heavily and are relatively indifferent toward school, but have access to more and stronger forms of between-family social capital. These generational differences in attitudes and social capital, and their subsequent effects on generational disparities in academic performance, lend support to the immigrant optimism hypothesis.

Generational Patterns in Academic Performance:
The Variable Effects of Attitudes, Social Capital, and Peer Influences

INTRODUCTION

The resumption of high levels of immigration to the United States since the late 1960s has led to numerous studies examining the social and economic adaptation of new arrivals. Although much of this research has focused on adults, increasingly researchers have shifted their attention to the adaptation of immigrant youths. Because current immigrant flows are extremely diverse by race/ethnicity, the future social and economic attainments of immigrant youths will play a fundamental role in determining the well-being of ethnic communities (Portes and McLeod 1996) and in altering or reinforcing current patterns of racial/ethnic inequality.

The key arena in which to examine the adaptation of immigrant youths is educational achievement and attainment (Glick and White 2003; Zhou 1997). Studies of academic performance have, however, produced conflicting results concerning the effect of generational status. For example, relying on data from High School and Beyond (HSB), Glick and White (2004) found that tenth graders (in 1980) who arrived at a young age and those belonging to the second generation had lower standardized math scores than their third-generation peers, and that all immigrant youth scored lower on standardized reading tests. This relative disadvantage experienced by immigrant students is paralleled by a higher tendency to drop out of high school when compared to native-born youths (White and Kaufman 1997). That the disparities in performance narrowed in the presence of controls for group differences in composition (i.e., race/ethnicity, socioeconomic status, family structure, and language skills) provides support for expectations based on traditional assimilation theory, yet the persistence of significant differences raises questions concerning their likely origins.

In contrast, studies using data collected from eighth and tenth graders in the National Educational Longitudinal Survey (NELS88) have found different generational patterns in educational performance. For example, in the presence of controls for race/ethnicity, gender, parents' education, and family income, Kao and Tienda (1995) found that both first- and second-generation eighth graders in 1988 earned *higher* grades and

standardized math scores than did their third-generation peers, and second-generation youths out-performed those in the third generation on standardized reading tests. Glick and White (2004) report a similar finding with respect to standardized math scores while using a broader set of controls and Kao, Tienda, and Schneider (1996) found that eighth graders with a foreign-born mother had higher composite test scores than those with a U.S.-born mother. Therefore, although having immigrant parents was associated with adverse educational outcomes among high school students in the early 1980s (as evident in HSB), by the 1990s (as indicated by NELS88), being a child of immigrants proved beneficial for test scores.

One of the explanations offered for the pattern of superior performance among the children of immigrants is the "immigrant optimism" hypothesis (Kao and Tienda 1995). According to this argument, children of immigrants and immigrant children are more committed than the third-plus generation to the idea of education as a springboard for upward mobility, because of the shared experience of migration for a better life and frequent reminders of the sacrifices made by their parents (Fuligni 1997; Kao 1995, 2004; Suarez-Orozco and Suarez-Orozco 1995; Zhou and Bankston 1998). This optimism, moreover, may be strengthened by immersion within the immigrant or ethnic community, which shields youths from their third-plus-generation peers' relative indifference towards education and behaviors that detract from academic success (Portes 1997; Portes and Rumbaut 2001; Steinberg 1997). Second-generation youths are hypothesized to benefit most, as their superior English language skills (relative to foreign-born youths) enhance the potential for success generated by membership within the immigrant community. Thus, essential to the immigrant optimism hypothesis are generational differences in pro-school attitudes and access to positive forms of social capital.

To date, however, few if any studies using nationally representative data have examined the role played by both sets of these factors in generating generational differences in academic performance. The goal of this paper is to fill this gap by using newly released data from the base year of the Education Longitudinal Study of 2002 (ELS2002). As the most recent addition to the Department of Education's continuing effort to monitor the educational progress of the nation's high school students, ELS2002 follows NELS88 by about 12

years[1] and HSB by about 22 years, and provides comparable indicators of academic achievement. Thus, this paper provides a current assessment of generational differences in test scores – a particularly important endeavor given that the two earlier cohorts exhibited such different patterns – and takes advantage of the broader scope of variables included in ELS2002 (relative to HSB and NELS88) to provide a comprehensive investigation of the factors producing generational differences in test scores. Specifically, we examine the varying roles that attitudes and different forms of (and access to) social capital play in determining the relative performance of immigrant students. Moreover, because of the broad array of predictors available in ELS2002, the analyses here contribute to the larger literature on the predictors of educational performance, regardless of generational status.

BACKGROUND

Predictors of academic performance

Student's orientations and attitudes. The educational literature has long emphasized the influence that students' own attitudes have on educational outcomes, including academic performance (Fuligni 1997; Kao and Thompson 2003; Steinberg 1997). Of importance here is the extent to which students are engaged in the learning process. Academic engagement has both an emotional or affective component as well as a behavioral component (Johnson, Crosnoe, and Elder 2001; Steinberg 1997). In general, the behavior of academically engaged students is in compliance with the demands that schools make, such as completing whatever homework is assigned, limiting unnecessary absences, and arriving on time to class and school, and thus reflects participation in the schooling process. Emotionally, academically engaged students want to receive high grades, expend the effort necessary to do so, feel proud about their achievements, and can see a linkage between academic success and achieving their future goals (Steinberg 1997). These attitudes contribute to feelings of attachment to school, or a feeling that one is a valued member of the school community (Johnson,

[1] Students in NELS88 were in tenth grade in 1990.

Crosnoe, and Elder 2001). In contrast, academically disengaged students are uninterested in doing well and thus do not try very hard, tend to skip class or cut school altogether, have a generally negative attitude toward school, and avoid participation in school-based extracurricular activities (Johnson, Crosnoe, and Elder 2001; Steinberg 1997). Disengaged students, then, do not subscribe to the norms of the schooling process and withdraw from participation.

While the pro-school orientation that is associated with first- and second-generation students within the immigrant optimism framework suggests that these youths will be more engaged, on average, than native-born youths, the social distance that may come from being an immigrant or having immigrant parents may detract from these students' feelings of belonging to the school community. Such feelings of distance or isolation could hamper their relative performance. However, should teachers and other school personnel attribute positive characteristics to immigrant students (such as better behavior, greater effort, and greater compliance with authority [cf. Suarez-Orozco and Suarez-Orozco 1995]), and thus treat them more favorably than they do native-born students, immigrant and second-generation youths may perceive a more positive and nurturing school environment, which could enhance their performance. Indeed, Crosnoe (2004) finds that students' performance is positively linked to the strength of student-teacher bonds (see also Crosnoe, Erickson, and Dornbusch 2002). Thus, the greater emphasis on school as a way to achieve future success and on expending the effort to translate goals into reality may contribute to higher levels of performance among foreign-born and second-generation tenth graders. In contrast, the influence of attitudes toward the presence and type of social relationships within the school, including their own feelings of belonging, may have either a positive or negative effect, depending on the nature of generational-status differences in these attitudes.

Other psychosocial orientations have been argued to predispose immigrant and second-generation youth towards high levels of achievement. Included here are value frameworks that emphasize the importance of obligations to the family and the broader immigrant community (White and Glick 2000). Immigrant and second-generation youth may take on more responsibility for the family's and community's current and future well-being, which would drive them towards better performance than their native-born peers. One study that

examined the relevance of these orientations to generational differences in academic outcomes in HSB showed that while a family- or community-oriented focus was positively related to the likelihood of persistence in school, controlling for students' orientations on these dimensions did not eliminate the tendency for persistence in school to rise with generation (White and Glick 2000).

Social capital. Recent quantitative studies have attempted to evaluate the influence of social capital on students' outcomes. Social capital – namely, the resources that are available to people by virtue of their social ties to other people – is typically divided into two components: that which exists within the family, and that which derives from ties that family members have to other families, the community, and other social institutions (Hao and Bonstead-Bruns 1998; Kao and Thompson 2003; White and Glick 2000). Within-family social capital consists of the instrumental resources that parents can provide to reinforce their children's academic learning, such as their knowledge of subject matter and familiarity with the higher education system, as well as books, computers, and participation in cultural or learning activities outside of school (such as language classes, trips to museums, concerts, plays, and the ballet). However, the transmission of the knowledge and resources that make up the "capital" in social capital does not necessarily occur, but instead is contingent on the nature of the parent-child relationship. Emotional closeness between parents and children facilitates the transmission of social capital (and reinforces its integration within students' own behaviors and orientations) while distant relationships, characterized by a lack of involvement, can block its transmission (Crosnoe 2004; Crosnoe and Elder 2004; Kao 2004; Kao and Thompson 2003).

Studies that have examined how within-family social capital influences educational outcomes have used a variety of measures, including proxies such as family structure and number of siblings (Teachman, Paasch, and Carver 1996; Glick and White 2003; White and Kaufman 1997), as well as indicators of parent-child interaction and communication and parental monitoring (Crosnoe 2004; Crosnoe and Elder 2004; Crosnoe, Erickson, and Dornbusch 2002; Hao and Bonstead-Bruns 1998; Ho and Willms 1996; Portes and McLeod 1999; White and Kaufman 1997). These studies have shown that levels of parent-child interaction and communication, which reflect closer ties between parents and children, are positively associated with

educational behaviors, including performance. Similarly, parental monitoring has beneficial influences on children's outcomes, likely by instilling a sense of self control and mastery in the child, and by demonstrating that parents are truly interested in their children's lives (Crosnoe, Erickson, and Dornbusch 2002). In contrast, parental absence and larger families – which may dilute the capital available to a given child – are negatively related to educational outcomes.

While this growing literature has provided insight as to the importance of within-family social capital for academic performance in general, far less is known about the extent to which immigrant and second-generation youths are relatively advantaged or disadvantaged in their access to, and quality of, within-family social capital (Kao 2004). On the one hand, the lower socioeconomic status of many immigrant families and limited educational attainment of immigrant parents suggests that such families have only limited stocks of school-related social capital. In addition, limited English-language skills and/or familiarity with the U.S. educational system could diminish the ability of highly educated immigrant parents to provide the kind of information, advice, and resources that could enhance their children's educational careers. However, should immigrant parents and their children enjoy stronger emotional bonds than native-born parents and their children, this closeness may provide the psychological security and support for children to navigate the schooling process independently (cf. Crosnoe and Elder 2004). The extent to which within-family social capital raises the performance of first- and second-generation youth relative to that of their native-born peers depends on the degree to which the quality and quantity of social capital varies by generation.

Most conceptions of social capital almost invariably cast it in a positive light (Kao 2004). However, social capital may also have negative consequences, should the information or resources being transmitted be inaccurate or harmful in some way. For example, the behavior of siblings could potentially have a negative effect on students' own academic performance should those siblings espouse anti-school attitudes and/or engage in behaviors that suggest that academic success is not the path to future achievements. One such behavior is dropping out. Not only might having a sibling who drops out of high school provide a model of – and thereby validate – this action, but being the second (or higher-order) child in a family to drop out may

entail fewer negative within-family consequences, such as parental disapproval, thereby lowering the perceived costs of dropping out. In other words, having a sibling who has already "blazed the trail" of dropping out may dissuade a student from exerting his/her maximum effort to remain in school, and thus lead to lower levels of performance. Because of generational differences in the prevalence of dropping out suggested by analyses of HSB (White and Kaufman 1997), it may be that immigrant and second-generation students are more likely (than native-born students) to have drop outs among their siblings, and thus may be more likely to under perform on standardized tests.

Of course, siblings can also be a source of positive social capital, as shown by Zhou and Bankston (1998) in their study of Vietnamese youths. In this community, siblings helped each other study, which enabled younger siblings to better learn new material while reinforcing the older siblings' earlier learning. In short, these findings demonstrate that siblings can be an important source of within-family social capital.

Because of long-standing data limitations, it is only recently that researchers have been able to empirically address the question of how between-family social capital influences educational outcomes. As indicated above, between-family social capital exists in the ties between family members and other families, schools, and other social institutions (White and Glick 2000). One example, derived from Coleman's (1988) seminal work, is intergenerational closure, or the extent to which parents know the parents of their children's friends. Being involved in this kind of network may lead to shared expectations for normative behaviors, as well as a shared responsibility for policing and correcting undesirable behaviors. These social ties may also be important conduits for information regarding the most effective teachers in the school, school policies or activities that children do not themselves communicate to their parents, and a variety of other resources that may enhance children's educational progress. Thus, with respect to its influence on academic outcomes, it may be that intergenerational closure among parents of youths in the *same school* may be more crucial than simply ties between parents of children who know each other, regardless of context. Indeed, Carbonaro (1998) found that the number of friends' parents known by the parent was positively related to math test scores in NELS88, until variables accounting for students' disengagement behavior were added to the model. This

finding prompted a call for better measures of intergenerational closure, and of the quality of interparental relationships, which we try to answer here.

The extent to which intergenerational closure differs in prevalence or quality by children's generational status is not clear. On the one hand, membership in the immigrant community may foster stronger ties between parents, given their shared experiences of migration and the ensuing processes of personal and family adjustment. However, immigrant parents' social ties may be disproportionately limited to other parents in their same position – i.e., distanced from school personnel because of language or cultural differences. Indeed, research has suggested that social capital varies in content as time in the United States increases. In general, because newly arrived immigrants' social ties are limited to those friends and family known in the origin village, the social capital available to them consists of ways to get settled (e.g., finding housing and jobs). As time goes on and immigrants begin to form ties with native-born individuals, the content of the social capital they can access shifts to ways to get ahead in this country; information about high-performing schools and teachers may be one aspect of this new type of social capital (Espinosa 1998; Massey 1986). Thus, immigrant parents may have strong ties to other parents, but these ties may be relatively bereft of the kinds of resources that can enhance children's educational progress and success. As a result, it may be that the extent of intergenerational closure declines as generation rises, but has little effect on the extent of disparities in academic performance.

Linkages between parents and the school are also important sources of social capital, as they act as direct conduits of important school-related information. They may also reflect shared obligations, as parents who are recognized as being involved in their children's school lives may receive greater attention and responsiveness from school personnel; these parents may be in the best position to "mobilize" school resources on behalf of their children. As indicated above, because immigrant parents may have different cultural orientations that frown upon active participation in the school, or feel isolated from the school and its representatives because of language differences, immigrant and second-generation youth may have less of this form of social capital than do their native-born peers.

Researchers have long noted the importance of peer influences for adolescent behavior (Kao 2001; Steinberg 1997), but friendship ties may also be a form of social capital to students (Crosnoe, Cavanaugh, and Elder 2003). Establishing a friendship with another student provides one with access to that friend's social capital. As a result, friendship ties that are rich in positive forms of social capital may make up for limited stocks of social capital, or a distant parent-child relationship, in the youth's own family (Crosnoe, Cavanaugh, and Elder 2003). With respect to the more-traditional view of peer influences, these kinds of effects reflect two processes. The first is selection, or the tendency for friendships to be homogamous (Crosnoe, Cavanaugh, and Elder 2003; Kao 2001). Because youths have a tendency to select as friends other youths with common interests or goals, at least part of the observed influence of friends' behaviors or attitudes reflects the family experiences that instilled these behaviors or attitudes in the child to begin with. The other process is the "true" influence, whereby friends (like siblings) serve as models of behaviors, and provide the opportunity and social pressure to engage in certain behaviors (Crosnoe, Erickson, and Dornbusch 2002). Kao (2001) demonstrates racial/ethnic variation in peers' attitudes in NELS88 that parallel disparities in educational outcomes, as well as the powerful influence that friends' behaviors and attitudes can have on students' performance. Specifically, having friends who have dropped out and who value socializing is negatively related to GPA, while having friends who place great importance on grades bears a positive relationship. The extent to which peer influences impact immigrant youths' performance and generational patterns of academic performance has received less attention to date. However, as was the case for sibling effects, because generational patterns of dropping out work to the disadvantage of the foreign born, these youths may be more exposed to the negative influence of friends. On the contrary, because indifference towards and commitment to school tends to decline as generation rises, the negative effects of friends may be felt more strongly by native-born tenth graders.

The links between families and between family members and social institutions like the school can easily be severed by residential mobility. That is, by moving to a new neighborhood and a new school, children are cut off from whatever ties existed for them in their old schools, and thus are no longer able to access whatever social capital inhered in those ties. Because immigrant youth have not only switched

neighborhoods and schools in this country but have crossed national borders, it is likely that they are more experienced with this type of structural break in social capital, when compared to second-generation and native-born youths, leading to relatively lower levels of performance.

In summary, although the immigrant optimism hypothesis has moved discussion of generational disparities in academic performance away from an almost exclusive focus on compositional factors, and towards recognition of the influence of both psychosocial orientations and varying stocks of social capital, little research using nationally representative data sets has incorporated measures to tease out these effects. In the analyses that follow, we begin to fill this gap. We do so first by exploring in a bivariate manner the extent to which orientations and social capital vary across generational groups, and then by using multivariate regression to evaluate if and how these differences contribute to the observed generational differences in test scores.

DATA AND METHODS

Data set

The analysis relies on data from the newly released base year of ELS2002, a multistage probability sample of 17,591 tenth graders (of whom 15,362 or 87% were interviewed) in 750 schools across the nation. Like its predecessors HSB and NELS88, ELS2002 includes information collected from students, their parents and teachers, and school administrators, and will continue to survey respondents biennially. All three surveys collect a wide range of data items from similar arenas of students' lives and school experiences, yet ELS2002 contains a variety of items previously unavailable (National Center for Education Statistics 2004, table H-3). After omitting cases with missing values, the final analytical data set consists of 9,162 cases.[2]

*Dependent variables***.** Analyses are performed to predict scores on math and reading assessments, and the standardized versions of theses assessments are used. While many studies using HSB and NELS88 data

[2] Several variables have extensive amounts of missing data (defined for this study as over 10 percent of all cases). For these variables (discussed below), cases with missing values were given a score of 0, and missing data dummies (coded 1 if the case had missing data for the substantive variable, 0 otherwise) were employed to take account of these cases.

have used standardized test scores to measure educational performance (e.g., Glick and White 2003; Kao and Tienda 1996), others have preferred to use self-reported grades (operationalized as GPA) (e.g., Kao 2001; Kao and Tienda 1996). Generally speaking, generational patterns on these two domains of outcomes are not necessarily similar, since GPAs include subjective assessments by teachers on such intangible behaviors as effort and classroom conduct, and school policies on grading may vary widely (see, for example, Rumbaut 1997). Standardized test scores have the advantage of being able to validly compare the performance of students from a wide variety of school environments, of influencing subsequent adult socioeconomic outcomes, and of being the current focus of public policy (Glick and White 2003).

Independent variables. The key independent variable in the analysis is generational status, which includes four categories. In the first category are "newly arrived" first-generation youths, namely, those tenth graders who were born abroad (of foreign-born parents) and who arrived in this country up to nine years preceding the survey. The second category consists of foreign-born youths who arrived 10 years or longer before the survey. In the third category are second generation (U.S.-born students with at least one foreign-born parent), and finally third-plus generation youths (i.e., U.S.-born students of U.S.-born parents) comprise the final category.[3] This categorization scheme thus accounts for length of exposure to the U.S. schooling system and the culture at large among the foreign born, and is consistent in spirit with strategies employed by other researchers (e.g., Glick and White 2003).

Race/ethnicity consists of four categories as well: non-Hispanic white, non-Hispanic black, Latino, and Asian. Non-Hispanic whites are used as the reference category in the multivariate analysis. Because of small cell sizes, students reporting more than one race are omitted from the analysis. Native American students are also omitted, as foreign birth is not an experience available to them. Unfortunately, with the public-use file currently available, it is not possible to identify individual national-origin groups; thus, despite the recognition that certain processes may operate differently for specific groups, the analysis is limited to broad pan-ethnic

[3] Following a long line of other researchers, students (and parents) born in Puerto Rico are treated as foreign born, since the process of migration to the mainland United States shares many features with the process of immigration.

categories. Along with race/ethnicity, the other key sociodemographic background variables used largely as controls are age, gender, family structure (measured by three dichotomies: two biological parents (the reference category); one biological parent or guardian; and "other" two "parent" structure [e.g., two guardians or one parent plus one guardian]), a composite measure of family socioeconomic status,[4] the urbanicity of the school (measured as suburban, urban, or rural), and academic program (college preparatory/academic, general, or vocational). While most studies examining immigrant youths' academic performance control for race/ethnicity, age, gender, socioeconomic status, and family structure, few if any add the additional background characteristics we do here. Consistent with findings from many other studies, we expect that test scores will be lower for black and Latino students, relative to white students; that students living with both biological parents will have the highest scores; and that socioeconomic status will bear a positive relationship to test scores. Age will likely bear a negative relationship to test scores, as older students may have experienced academic difficulties in the past, and that girls will have higher reading scores but boys will out-perform girls in math. With respect to the additional controls, we expect higher test scores among suburban students, students attending private schools, and those in academic/college preparatory tracks, relative to their counterparts in other categories.

The remaining independent variables fall into seven "blocks" of categories. First is the student's English language fluency, which we measure by taking the mean value on responses provided by students whose native language is not English to four items assessing the frequency with which the student speaks his/her language with his/her mother, father, siblings, and friends. Each item has four response categories measured on a Likert scale, where 1 equals "never," 2 "sometimes," 3 "about half the time," and 4 "always or most of the time." Students whose first language is English receive a score of 0. Three dichotomies are employed that differentiate students who speak only English from those who are English dominant and those who are dominant in their native language. Although it would be preferable to have a direct measure of

[4] This composite consists of mother's and father's education and occupation, and family income.

bilingual abilities, such a measure would need to be informed not only by students' speaking skills in *both* languages, but also by their writing skills. Such detailed items are not available in ELS2002. In general, we expect that students whose first language is English and who use English exclusively will have superior test scores than those who use a second language in addition to English.

The next block of variables consists of five dichotomous measures that capture both positive and negative aspects of students' academic histories. These are: whether the student had ever been in an advanced placement (AP) class; a bilingual or bicultural class; a remedial class for either math or reading; an English as a Second Language (ESL) class; and whether the student had ever been held back a grade. By accounting for past accomplishments or difficulties, these measures may isolate the "modeling" effect of siblings' and friends' behaviors (Crosnoe, Cavanaugh, and Elder 2003; Kao 2001), account for variation in standardized test scores, and, should they differ in prevalence across generational groups, account for some of the observed generational disparities in academic performance. The positive experience of having been in an AP class should be associated with higher test scores, while the remaining experiences should bear negative relationships with test scores.

Two blocks of social capital variables are used. One taps into between-family forms of social capital (the linkages between parents and schools, parents and other parents, students and friends, and residential mobility), while the other focuses on intra-familial forms, including aspects of the parent-child relationship, siblings' behaviors, and parental expectations for their child's eventual educational attainment.

Included among the measures of extra-familial social capital is one that counts the number of the student's *school* friends' parents known by the parent. Parents were asked to identify up to three friends of their children, and to identify whether each friend attends the same school as their child, whether the parent knows this friend, and whether the parent knows the friend's mother and/or father. This variable suffered from more than 10 percent of cases with missing data, necessitating that we code the missing-data cases 0 and include a missing data dummy (coded 1 if the case had missing data on the substantive variable, 0 otherwise) in the multivariate models to eliminate the influence of these cases. While most extant measures of

"intergenerational closure" (Coleman 1988) simply add up the number of parents of any friends known to the parent (e.g., Carbonaro 1998), should intergenerational closure carry the kind of positive effects (through shared value orientations, monitoring and disciplining responsibilities) for academic outcomes as postulated in the literature, then, as we discussed above, limiting the social networks involved in intergenerational closure to those families involved in the same school should heighten the effect. Thus, we expect that having parents who know more schools friends will be positively associated with test scores.

The second form of social capital that involves parents' relationships with other parents is a scale measuring the amount of interparental exchange of favors, advice, or parenting duties. Specifically, parents were asked how frequently over the past year the parent(s) of one of their child's friends: provided advice about teachers/courses at the tenth grader's school; did the parent a favor; received a favor from the parent; and supervised the tenth grader on an educational outing or trip. The four response options were never (coded 1), once or twice (coded 2), three or four times (coded 3), and more than four times (coded 4). The mean value of parents' responses was taken, and Cronbach's alpha was calculated to be .75 (for the analytical sample). Because this variable had more than 10 percent of cases with missing values, the missing data technique described above was employed in the multivariate models. By identifying parents engaged in deeper interparental ties, this variable should be positively related to students' test scores.

Like the case of parent-to-parent forms of social capital, we use two measures to tap into the links that parents have with the school. The first is a count of the number of school activities in which the parent or his/her partner spouse has participated, which is expected to bear a positive relationship to students' test scores. The activities listed are belonging to the parent-teacher organization, attending meetings of the parent-teacher organization, taking part in the activities of the parent-teacher organization, volunteering at the school, and belonging to another organization with the parents from the school. Because this variable also is affected by large numbers of cases with missing values, we utilized the missing data technique described above. Based on the analytical sample, the scale is highly reliable with an alpha of .71.

The second parent-to-school measure taps into the difficulties some parents, especially those who do not speak English fluently, have in communicating with school officials or participating in the learning process. Specifically, the parent was asked if s/he had ever had any difficulty in understanding the tenth grader's teacher, in making her/himself understood to the child's teachers, and in helping the tenth grader with his/her English homework. The number of times parents replied affirmatively was counted and the scale proved highly reliable with an alpha of .87. Because of missing data problems, the missing-data technique is used. Communication problems should act to block the parent's ability to access to key school-related information or resources, and thus should be negatively associated with test scores.

Although ELS2002 collects a wide variety of interesting measures of peer influences, potential multicollinearity (as assessed by tolerance statistics) limited us to one, namely, the presence of at least one friend who has dropped out. This measure is a dichotomy formed from students' reports, and required the use of the missing-data technique. We use information on the number of times (with a range of 0 to 5) the student has changed schools (apart from school changes due to promotions) reported by the parent to capture experiences with residential mobility. Students with more school changes as well as those with drop outs among their friends are expected to score lower on math and reading tests than their counterparts with greater school stability and no friendship ties to drop outs.

We use six measures of within-family social capital. The first consists of three dichotomies that differentiate students with no siblings from those with no dropouts among their siblings, and those with at least sibling who has already dropped out. Test scores should be lower for students with siblings who have dropped out.

The second measure of intrafamilial social capital taps into the extent of parent-child interaction and closeness, a key conduit of intrafamilial social capital (Crosnoe 2004). Like others (e.g., Hao and Bonstead-Bruns 1998), we focus on activities that can enhance students' educational performance, and take the mean value of parents' reports of how frequently over the past year they and their tenth grade son or daughter attended school activities together; worked together on homework or a school project; attended concerts, plays

or movies outside of school; attended sports events outside of school; and worked on a hobby or played sports. With response categories that increase in order of relative frequency,[5] higher values on this scale reflect higher levels of interaction. The scale has very high reliability (" = .73), and should be positively related to test scores. Problems with missing data again required the use of the missing-data technique.

Parent-child communication is measured as the mean value on parents' responses to six items: how frequently, over the past year, either s/he or her/his spouse partner provided advice to the tenth grader on selecting programs or courses at school; plans and preparations for college entrance exams; applying to college or other schools after high school; specific jobs the tenth grader might apply to after high school; world and community events; and anything that was bothering the tenth grader. Higher values indicate more frequent parent-child communication, which should enhance students' performance. [6] This variable also demonstrates very high reliability (" = .76), but problems with missing data required the use of the missing-data technique.

Parental monitoring is a key part of authoritative parenting, and thus bears a generally positive relationship to pro-social behaviors, like educational success (Steinberg 1997). We measure parental monitoring using items addressed to parents. Specifically, parents were asked how often they check that their tenth grader completed his/her homework; discuss with their child his/her report card; know where their tenth grader is when s/he is not at home or at school; and make and enforce curfews for school nights, and the mean value of their responses was calculated. Higher scores on the scale denote more frequent monitoring of students' activities,[7] and this variable exhibits a moderate degree of reliability (" = .43). Once again, the missing-data technique was employed to prevent the loss of numerous cases.

Family closeness and bonding may also be promoted by routine joint activities, such as sharing meals together. Thus we include information from a question that asked parents how many days per week they share

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[5] The response options were never (coded 1), rarely (coded 2), sometimes (coded 3), and frequently (coded 4).

[6] The three response options were never, sometimes, and often, coded 1, 2, and 3, respectively.

[7] The four Likert-type response options were never, seldom, usually, and always, coded 1, 2, 3, and 4, respectively.

at least one meal with their tenth graders. Response options ranged from none to seven. Our final measure of intrafamilial social capital is parental expectations for their tenth grader's educational attainment. This variable is operationalized as three dichotomies that differentiate students whose parents expect them to complete less than a college degree, from those whose parents expect them to finish college, and those whose parents expect them to achieve an advanced post-baccalaureate degree. Generally speaking, sharing meals with parents should be positively related to test score, as should the level of parents' expectations.

The final three blocks of variables tap into students' attitudes and orientations, as well as their extracurricular activities. In terms of the former, we include measures of students' future orientations, and well as their attitudes about the environment prevailing in their schools. An exploratory factor analysis performed on 14 items which students rated in importance revealed three distinct constructs of future orientations: one towards the community (created from items "helping other people in my community," "living close to parents and relatives," and "working to correct social and economic inequalities"), one towards having a family (created from items "finding the right person to marry and having a happy family life," "having strong friendships," "being able to give my children better opportunities than I had," and "having children"), and occupational success (created from items "being successful in my line of work," "being able to find steady work," "becoming an expert in my field of work," and "getting a good education"). For each scale, the mean was calculated based on the three response options of not important (coded 1), somewhat important (coded 2) and very important (coded 3), and so higher values on the scale reflect stronger orientations. Previous work (White and Glick 2000) demonstrated a positive relationship between family and community orientations and test scores, while students who are oriented toward their future socioeconomic success are also expected to have higher test scores than those who are less committed to future success. The three scales varied in terms of reliability, but all demonstrated moderate to high levels (for community orientation, **"** = .54; for family orientation, **"** = .66; and for occupational success orientation **"** = .68).

Students' attitudes concerning their school environments are measured by four constructs, which were identified from an exploratory factor analysis performed on a question asking students the extent, to which

they agree or disagree with 19 items describing their school (the four response options were strongly agree, agree, disagree, and strongly disagree, coded 1 through 4 in that order). The first construct reflects the belief that students and teachers have acrimonious relationships, and is created as the mean value from the following items: "students get along well with teachers," "the teaching is good," "teachers get along well with students," and "when I work hard on schoolwork, my teachers praise my effort." The alpha for this construct is .73. The third construct taps into beliefs that the student feels part of the school community is measured as the mean value on responses to two items ("in class I often feel put down by my teachers" and "in class I often feel put down by students), and has an alpha of .56. As discussed above, students who perceive positive student-teacher relationships, and those who feel a part of the community should have higher test scores than those who disagree with these notions.

With the last two school attitudes we take a cue from research that demonstrates a beneficial influence of household organization (Crosnoe, Erickson, and Dornbusch 2002) and extend the idea of organization to the school environment. That is, schools that are perceived as being free of disruption and having a consistent set of rules likely also have a stronger set of common norms about behavior and work effort, resulting in higher overall test scores than schools with higher levels of disorganization. Insofar as these perceptions vary across groups of students, they may contribute to variation in test scores. To tap into the concept of school organization, we use two constructs. One reflects the extent to which students feel that the rules in their schools are not uniform, and was created as the mean value on the following items: "everyone knows what the school rules are," "the school rules are fair," "the punishment for breaking school rules is the same no matter who you are," "the school rules are strictly enforced," and "if a school rule is broken the students know what kind of punishment will follow." The alpha for this construct is .68. The other indicates students' feelings that their school is an organized place that facilitates learning. This construct is created by taking the mean on responses to the items: "other students often disrupt class," "disruptions by other students get in the way of my learning," and "misbehaving students often get away with it," and has an alpha of .59. We expect that students

perceiving their schools to have a clear set of rules and to have organized environments conducive to learning will have higher test scores.

With respect to student engagement in school and learning, we use six overall measures, two reflecting the affective component of engagement, and four reflecting the behavioral component (Steinberg 1997; Kirkpatrick, Crosnoe, and Elder 2001). The first affective component is the relative importance students assign to their grades. We operationalize this in three dichotomies (derived from a single ELS2002 question) that differentiate students who say that grades are very important from those who say that grades are important and those who say that grades are not very important. The other measure of affect is created from items identified through an exploratory factor analysis performed on nine items asking students why they go to school. To each of these nine items students were to indicate their relative agreement (with four response options of strongly agree to strongly disagree, coded 1 to 4 respectively). The construct we use here reflects feelings of school attachment, and is created from the items: "I go to school because I have nothing better to do," I go to school because it's a place to meet my friends," and "I go to school because I play on a team or belong to a club." This construct has only a moderate level of reliability as demonstrated in its alpha of .37. Students who place more importance on grades and those who are more attached to school should have higher test scores than their counterparts.

The first of our four behavioral measures taps students' lack of preparedness for class, and is the mean value on responses to a question on how frequently students go to class without three items: a pen/pencil and paper; books; and completed homework. Higher scores reflect less preparedness,[8] and this construct is highly reliable (" = .79). An exploratory factor analyses performed on a question asking students how frequently seven things happened to them in the first semester of the school year identified the second and third behavioral measures. One reflects truancy, class cutting, and being late for school, all behaviors (when exhibited frequently) that indicate a weak attachment to school. The other reflects disciplinary problems,

[8] The four response categories of never, seldom, often, and usually are coded 1 to 4, respectively.

namely, getting in trouble for not following school rules, being put on in-school suspension, and being transferred to another school for disciplinary reasons. Created as the mean value from the five response categories (never, 1 or 2 times, 3 to 6 times, 7 to 9 times, and 10 times or more, coded 1 to 5 respectively), the school absence and disciplinary problems measures have similar levels of reliability (" = .59 and .61, respectively), and high scores on both scales reflect more behavioral problems. The final behavioral measure of academic engagement is the number of hours, inside and outside of school, which students spend on homework. While the number of homework hours should be positively related to test scores, lower levels of preparedness and more behavioral problems should be associated with lower test scores.

The final block of independent variables involves measures of students' extracurricular activities. The first is a simple dummy variable that indicates whether the student worked at a job at all during the 2001-2002 school year. The remaining three are constructs indicated by an exploratory factor analysis of responses to a question asking how often the student spends time outside of school on eight activities. The first construct includes activities that can enhance academic skills, namely, hobbies, community service, and taking music, art, dance, or language classes. The second includes activities of a purely social nature, such as visiting with friends at a hangout, driving or riding around, and talking with friends on the telephone. The third combines sports lessons with playing non-school sports. In terms of internal reliability, the first construct, that identifying engagement in enriching activities, has an alpha of .39, the sports activities measure has an alpha of .45, and the socializing measure has an alpha of .61. Higher scores reflect more time commitment to the activity. [9] Frequency of participation in hobbies should be positively associated with test scores, as these hobbies may enhance or reinforce learning. In contrast, an emphasis on socializing outside of school should be negatively associated with test scores (cf. Kao 2001), as should a strong commitment to sports. In general, the literature on the effect of working has produced mixed findings (cite), suggesting that hypotheses for the effect of this variable are unclear.

[9] The four possible response options (never or rarely, less than once a week, once or twice a week, and every day or almost every day) are coded 1 to 4.

Methods

The analysis consists of hierarchical regressions predicting students' scores on standardized math and reading tests as a function of generational status, background variables, between- and within-family social capital, students' orientations and attitudes, attitudinal and behavioral forms of academic engagement, and extracurricular activities. Clearly, the cross-sectional nature of the data means that the true causal ordering may work in the opposite direction to the one hypothesized. For example, scoring poorly on standardized tests may lead to school disengagement behaviors such as cutting classes, rather than the other way around. However, because we use a broad range of predictors, including academic history, we feel that the potential time-ordering problems are not too serious. Additional regressions, which enter each block of variables separately in addition to generational status and background characteristics, are used to assess the specific effect each block has on the direction and significance of generational differences in math and reading scores. All analyses use sampling weights scaled down to maintain unweighted cell sizes.

RESULTS

Table 1 presents descriptive statistics on both the dependent variables and the independent variables. Group differences were assessed using the Tukey post-hoc test in ANOVA. On both measures of performance, newly arrived tenth graders have lower scores than immigrants who arrived at the youngest ages, second-generation tenth graders, and those from the third-plus generation. In addition, third-plus generation students score higher than both their second-generation peers and immigrant students who arrived 10 or more years before the survey. By demonstrating that math scores rise as generation increases, these bivariate results are more similar to those found in HSB than to those in NELS88.

[Table 1 about here]

With respect to the background variables, students with immigrant parents are less likely than third-plus generation students to be white or black, but more likely to be Latino and Asian. While there are no generational differences for gender, newly arrived immigrants tend to be older than all other generational

groups, and third-plus generation students enjoy higher levels of family socioeconomic status and are more likely to attend both rural and suburban schools than their immigrant and second-generation peers. Not surprisingly, immigrant students, regardless of time since arrival, have inferior English-language skills than do their U.S.-born counterparts, but only newly arrived immigrants are significantly more likely to have been in an ESL or a remedial class.

Turning to forms of between-family social capital, the parents of third-plus generation students know the most parents of their children's school friends, while the parents of newly arrived immigrant students know the fewest. The parents of third-plus generation students are also more deeply involved in reciprocal exchange with other parents, are most heavily involved in school activities, and have the fewest problems in communicating with the school. In contrast, foreign birth is associated, not surprisingly, with more school changes.

Third-plus generation students also have more interaction and communication with their parents, and are subjected to higher levels of parental monitoring than are first- and second-generation students, but the most newly arrived students share more meals per week than do second- and third-plus-generation students. The potential for the immigrant optimism hypothesis is evident in the finding that all immigrant parents are less likely than U.S.-born parents to expect their child to attain less than a college degree, and more likely to expect an advanced degree for their child. Similarly, all children of immigrant parents are more likely to be community oriented in their outlooks than are third-plus generation students.

The descriptive statistics suggest that newly arrived immigrant tenth graders attend the most organized schools (in terms of the consistency of rules) and perceive better relationships between students and teachers than do any other students. These students are also more likely than their U.S.-born peers to feel respected and a part of the school community, while early arriving immigrants are less likely than second- and third-plus-generation youths to perceive disruptions in their school environments. Relative to all other generational groups, newly arrived immigrants are least likely to cut class or spend their extracurricular hours socializing with friends, least likely to have worked, but spend more time on homework and place the greatest importance

on grades. In contrast to this picture of the "good student" for the typical newly arrived immigrant student, this group is more likely than the third-plus generation to be unprepared for class and to exhibit attitudes reflecting detachment from school.

In summary, immigrant tenth graders who have only recently arrived in this country score significantly lower on both math and reading tests than do members of any other generational group, while the average scores achieved by the third-plus generation exceed those exhibited by the first and second generation. Generational-status variation on a number of key background characteristics (such as race/ethnicity, age, socioeconomic status, and school location) and English-language skills suggests that disparities in test scores will diminish in size, disappear altogether, or switch direction once these factors are controlled, as has been demonstrated in previous research. Similar outcomes are likely when the influence of the immigrant disadvantage on key indicators of between- and within-family social capital is removed. Yet differences between the generational groups on other potentially influential variables, such as parental expectations, academic engagement and extracurricular activities suggest that once these factors are controlled, the relative disadvantage exhibited by newly arrived immigrants, in particular, may *deepen*. In other words, the test scores observed for this group would be even lower if newly arrived immigrant students shared, for example, the negative attitudes and behaviors, and the emphasis on socializing, exhibited by native-born students. To evaluate this possibility, as well as the contribution of the total set of independent variables towards generational disparities in test scores, we must move to the multivariate results.

Generational differences in standardized math scores

The results of the hierarchical regression analyses are presented in Tables 2 (for math) and 3 (for reading). Looking first at Table 2, the results for model I indicate that controlling for the full range of background variables eliminates the statistical advantage that third-plus generation students exhibited relative to all other generational groups at the bivariate level. Additional models entering each background variable singly, moreover, revealed that the factor accounting for the observed underperformance of second-generation and immigrant youth who arrived at very young ages is race/ethnicity (results not shown but are available

upon request from the authors). Relative to model I, adding English language ability (Table 2, model II), however, uncovers a marginally significant advantage for immigrant students who arrived at the youngest ages. This model is most similar to those revealing different generational patterns for NELS88 and HSB (Glick and White 2003). Thus, in comparison to these earlier cohorts, the only generational differences in math test scores in the presence of compositional factors is a marginally significant advantage for immigrant students who arrived at least 10 years earlier.

This advantage, though, is short lived. When the next block of variables reflecting academic history is entered (Table 2, model III), the effect associated with being an early-arriving immigrant disappears for good in the hierarchical models. However, when blocks of variables are entered individually along with generation and background (results not shown), this marginally significant advantage reappears in the companion models to models IV and VI. Additional replications of the "block" version of model IV, in which variables are entered singly and in pairs (results not shown) indicate that the forms of between-family social capital that matter most for early-arriving immigrant tenth graders are the number of school friends' parents known by the parent, and the number of school changes. This finding lends evidence to the notion that shifting between many schools severs important social ties. Yet that this effect appears only for early-arriving immigrants suggests that, for immigrant students, it is mainly shifts *within* the U.S. school system and their effects on social capital that matter.

Additional versions of the block model associated with model VI indicates that the orientations and attitudes that suppress the math achievement scores for first-generation students who arrived at the youngest ages are an orientation toward the community and the perception that the school is an organized environment that facilitates learning. In this case, the fact that early-arriving immigrants attend schools that feature more disruptions than the school attended by the third-plus generation understates their observed levels of math achievement; once this variable is eliminated, the scores of early-arriving immigrants rise above those achieved by the third-plus generation. Acting to partly counterbalance the beneficial consequences of controlling for perceived school environment is the removal of community orientation. The unexpected

negative effect of this variable (Table 2, model VI) and the fact that immigrants who arrived at young ages are more likely that the third-plus generation to hold such an orientation combine to *reduce* the math scores of early-arriving immigrants.

The block models reveal other processes creating generational differences in math scores. For example, a large and highly significant negative effect emerges for newly arrived first-generation students in the companion models for models V, VII, and VIII (results not shown). Additional models estimated with each aspect of within-family social capital entered singly reveals that the unexpected *negative* association linking parental monitoring and parent-child activities with math test scores (Table 2, model V) is suppressing the achievements of the third-plus generation, who experience these within-family interactions to the highest degree. That parent-child interaction and communication and parental monitoring all bear negative relationships to math tests scores suggests that parents may be engaging in these behaviors in response to their children under performing in math. In contrast, the strong positive effect of parental expectations (Table 2, model V) helps to prop up what would otherwise be lower scores of newly arrived immigrants; once this variable is eliminated, the test scores for this generational group plummet. The importance of positive parental expectations is further underscored by the finding that once controlled (both individually and with all other forms of within-family social capital), the test scores of *all* immigrant and second-generation youths fall to significantly lower levels than those of the third-plus generation.

[Table 2 about here]

A similar story emerges for the companion model to model VII, when the academic engagement variables are entered along with only generation and background characteristics. Additional models (not shown) indicate that the expected positive effects of getting to school and class on time, effort expended on homework, keeping out of disciplinary trouble, and the importance students place on their grades -- which all work to the advantage of recently arrived immigrant students -- appear to keep their scores relatively higher. Once the influence of these variables is removed, the math test scores of newly arrived immigrant students fall below those achieved by the third-plus generation. Similarly, additional runs indicate that the significantly

lower test scores for recently arrived first-generation students in the presence of controls for out-of-school activities (revealed in the block version of model VIII) derives entirely from the effect of socializing with friends. In other words, it appears that the more pervasive socializing of third-plus generation students takes a toll on their math scores, or, equivalently, that the abstention from extensive socializing outside of school by newly arrived first-generation students artificially raises their performance levels. Once the negative effect of frequent socializing is removed, the math scores of newly arrived immigrant students emerge as significantly lower than those of the third-plus generation, even in the presence of controls for a broad range of compositional factors.

Thus, although the hierarchical models suggest that generational status is not, on the whole, a key predictor of test math scores, additional models lend insight into how various attitudes, orientations, forms of social capital, and out-of-school activities – all of which vary in prevalence across generational groups – contribute to the relative performance of immigrant, second-, and third-plus generation students. In particular, children of immigrants benefit uniformly from their parents' high expectations, while the test scores of the third-plus generation suffer from heavier socializing and indifference – especially behaviorally – to education more generally. These effects all speak to the validity of the immigrant optimism hypothesis.

Generational differences in standardized reading scores

Turning to the results for reading test scores in Table 3, we see a different story. Although a significant disadvantage remains for newly arrived first-generation students in the presence of controls for the full range of background characteristics, the deficit observed at the bivariate level for second-generation youth disappears, and that observed for first-generation youth here for at least 10 years reverses and becomes a significant advantage. Thus, compositional factors explain the entire difference between second- and third-generation youth, and appear to suppress the achievement levels of immigrants with at least 10 years experience in this country; once these variables are removed, this latter generational group emerges with superior levels of performance. Moreover, as was the case with math scores, the compositional factor that accounts for the observed underperformance of the second generation is race/ethnicity. Overall, the pattern of

generational effects uncovered here for reading scores differs from that observed in NELS88 and HSB, where preschool immigrants and second-generation youths had higher reading scores, and all immigrants had lower reading scores, respectively.

[Table 3 about here]

Adding controls for English-language skills in model II has the expected effect of diminishing the disadvantage experienced by newly arrived first-generation students, and enhancing the gap separating the scores of immigrant students who have been here for at least 10 years and their lower-performing third-generation peers. Adding controls for academic history in model III reduces the size of the coefficients associated with membership in the immigrant generation, while adding measures of between-family social capital (Table 3, model IV) *eliminates* the statistical disadvantage experienced by newly arrived first-generation tenth graders. The inclusion of measures of within-family social capital in model V, however, returns the negative coefficient for newly arrived first-generation youth to statistical significance, and eliminates the advantage in reading test scores exhibited by other immigrant students. Notably, in ancillary models where blocks of variables were entered individually along with generation and background (not shown), controlling for within-family social capital dramatically widened the deficit for newly arrived first-generation youth, and caused the effect of being in the second generation to become large, negative, and statistically significant. As above, then, removing the benefits of between-family social capital disproportionately enjoyed by the third-plus generation, along with the benefits of high parental expectations (enjoyed by immigrant youth) reduces the reading scores of immigrant students while raising the scores of the third-plus generation.

Adding students' orientations and school attitudes accounts for some of the deficit in reading scores among newly arrived first-generation youth, and returns the positive effect associated with being an immigrant with longer duration to statistical significance (Table 3, model VII). As above, a key mechanism here appears is the higher degree of disorganization in the schools attended by immigrant students who arrived at the youngest ages. While removing these differences tends to bring the reading scores of the third-plus generation

closer to those of first-generation students, the negative effect of being community oriented – an orientation espoused by immigrant tenth graders – prevents differences in school environments to completely account for generational disparities in reading scores. The differences separating the third-plus generation from the two immigrant groups grow a bit in size and significance in model VII, when measures of academic engagement are included. As above, the removal of the score-enhancing effects of class preparedness, avoiding disciplinary trouble, placing a strong emphasis on receiving good grades, and spending more hours on homework operate to bring down the scores of immigrant students while raising those of the third-plus generation. Finally, in model VIII, the negative effect of being in the second generation returns to (marginal) significance with the inclusion of extracurricular activities. Once again, it appears that when the tendency for third-plus generation students to spend much of their time with friends while out of school is removed, their reading scores rise.

Thus, while differences in compositional factors tend to statistically equalize the math scores of immigrant and second-generation tenth graders, relative to the scores of the third-plus generation, these controls do not fully account for the strikingly lower reading scores of newly arrived immigrant students. Compositional factors, however, do explain the observed difference in reading achievement between the two groups of U.S.-born youths, and dramatically suppress what would otherwise be the superior performance of immigrant youth with at least 10 years experience in this country. The math and reading scores of newly arrived immigrant students, however, would be even lower if they did not manifest the various attitudes and behaviors of the "good student," while the achievements of the third-plus generation would be higher if they did not socialize as frequently outside of school and were more attached to school, among other things.

Effects of background, attitudes, social capital, and out-of-school activities on math and reading scores

Looking briefly at the results for the other covariates, compared to whites, blacks and Latinos consistent under perform on math and reading tests, while Asians do significantly better in math and achieve reading test scores that are statistically indistinguishable from those of whites. Family socioeconomic exhibits the expected positive association with test scores throughout each model specification, as does living with two

biological parents, and being in the academic/college-preparatory track. Other consistent effects on math and reading achievement include English-language fluency (positive); experience in AP and bilingual/bicultural classes (positive); experience in remedial and ESL classes (negative); having been held back a grade (negative); positive school attitudes and high parental expectations (positive), and having a busy social life (negative).

As expected, males score significantly higher than females in math, and age bears a negative association. With respect to reading scores, males exhibit the expected deficit in scores up until model V, when measures of within-family social capital are entered (the significance of being male also drops out in the "block" regressions that include only within-family social capital; results not shown). Because the measures of parental monitoring and parent-child interaction have negative relationships with reading scores, and thus may reflect parents' responses to underperformance, it may be that some of these parental behaviors are aimed specifically at trying to raise their sons' reading/English performance. Age loses significance as a predictor of reading scores in model IV when measures of between-family social capital are added. In this instance, the large and significant negative effect of having friends who are dropouts accounts for the negative effect of age. That is, what looks like a peer influence may reflect the fact that tenth graders who are already overage for their grade are likely to have more drop outs among their friends than are students who are on track for their age.

With respect to student orientations, being oriented towards the broader community acts to reduce math and reading scores in every model specification. This finding stands in contrast to the positive effect on school persistence reported by White and Glick (2000) for students in NELS88. In contrast, being emotionally and behaviorally engaged in school had consistent positive effects on math and reading scores, although the scale of school attachment was significant only in predicting math scores. Because of the cross-sectional nature of the data it is possible that higher achievement leads to higher levels of engagement, rather than the hypothesized effect of engagement on performance. Yet because we controlled for previous academic history, we feel confident that the "true" direction of causation runs from engagement to performance.

With respect to social capital, measures of the between-family variety were consistently better predictors of math than reading scores than were measures of within-family social capital. In particular, the number of school friends' parents known to the parent positively influenced math scores until the measures of academic engagement were included in the model. Carbonaro (1998) found a similar result for students in NELS88. This result may reflect the fact that parents of disengaged students are more proactive in getting to know other school parents in an effort to solve their children's academic problems. Engagement in reciprocal exchanges with other parents positively influences math scores in every model specification, but does not significantly affect reading scores. This supports, at least in part, the notion that the quality of interparental ties is what matters for children's educational outcomes, and represents a key contribution of this study. Having a parent who has problems communicating with school officials does not appear to be a formidable barrier to tenth graders' performance. Having friends who have dropped out significantly depresses both math and reading scores, reflecting the salience of peer influences.[10] Finally, experiencing more school changes adversely impacts math achievement, consistent with the broader literature documenting the detrimental effects of residential and school mobility for educational outcomes (Portes and Rumbaut 2001; Pribesh and Downey 1999; Swanson and Schneider 1999).

While the effects of the measures for between-family social capital generally supported expectations derived from the broader literature, the measures of parent-child interaction (which focused on school-related activities) and parental monitoring both exhibited negative relationships with math and reading test scores. As we discuss above, it may be that these effects reflect parental responses to a pattern of underperformance by their children. While parents of under performing adolescents may invest more time and effort in helping to improve their children's performance, it may also be that parents of low performers over-report their interactions with and monitoring of their children, to distance themselves (in the eyes of the interviewer and

[10] Although it is possible that this effect reflects homogamy in friendships, the fact that we use controls for prior performance points instead to an interpretation of peer influence (Crosnoe, Cavanaugh, and Elder 2003; Kao 2001).

their own eyes) from their children's underachievement. It might also be the case that the interactions and monitoring reported by parents could reflect negative attention, which could ultimately add to their children's academic troubles. This interpretation is in line with the presence of controls for prior performance, and also underscores the importance of remembering that not all parent-child interactions are positive from the adolescent's perspective.[11]

Finally, sharing more meals together has positive effects on reading scores only, but loses significance in model VIII, when students' out-of-school activities are entered into the model. The generally positive effect of this variable is consistent with the notion that sharing routine activities helps to draw parents and children together, and that meal times are when family members share their experiences and seek counsel. Because sharing meals significantly influences only reading scores, it may be that mealtime discussion promotes verbal but not math skills, along with any benefit derived from closer family relationships.

DISCUSSION

This paper used newly released data on tenth graders' performance and school and family lives to provide a current assessment of generational disparities in math and reading scores, and to evaluate the roles played by a broad range of predictors in creating the observed relative performance of immigrant, second- and third-generation students. The key contribution of this study was in its incorporation of numerous measures of students' attitudes and orientations along with multiple measures of between- and within-family social capital to assess the validity of the immigrant optimism hypothesis. In general, we found that generational status did not appear to be a key predictor of standardized math test scores in the presence of multiple covariates of academic achievement, especially background characteristics. Yet even in the presence of differences in

[11] Our original intent was to include the parallel measures derived from students' own reports, given the importance of tapping into how students perceive their parents' actions, rather than parent-based measures. However, the measures created from students' reports exhibited low levels of tolerance, indicating high levels of multicollinearity. To avoid losing the concepts, we resorted to using measures created from parents' reports.

compositional factors long recognized to influence generational patterns of achievement (such as race/ethnicity, socioeconomic status, and family structure) without the influence of very high parental expectations and strong feelings and manifestations of school attachment, recently arrived immigrant students would be scoring at levels significantly below those of their third-plus generation peers. In addition, the emphasis placed on socializing outside of school and the general indifference toward education that the third-plus generation exhibits suppresses what would otherwise be far higher levels of math achievement.

With respect to standardized reading scores, we found that in general, newly arrived first-generation students scored significantly below their third-plus generation peers at both the bivariate level and in the presence of numerous controls for other predictors of performance, while the scores registered by immigrant students who arrived at the youngest ages are superior to those of the third-plus generation once other factors are controlled for. The disadvantage of recently arrived students, however, is moderated by strong school attachment, limited socializing during out-of-school hours, and high parental expectations. Overall, the consistency of these effects of key attitudes, behaviors, and social capital across the two outcomes lends considerable support to the immigrant optimism hypothesis.

In essence, what our results and the immigrant optimism hypothesis generally indicate is that immigrant children and children of immigrants benefit from a number of very positive attributes which, by enhancing academic performance, facilitates their adaptation to American society. Our results, based on a broader range of covariates than used in prior research, demonstrated that these beneficial influences are tempered or even counterbalanced by less-favorable circumstances, particularly in the realm of between-family social capital. For example, we found that in terms of math scores, third-plus generation students (relative to the other generational groups) benefit from stronger interparental ties, especially those reflecting reciprocal exchange. These same forms of between-family social capital operate to widen the gap separating the recently arrived from the third-plus generation in terms of reading scores. Thus, important predictors of academic performance exhibit very different generational patterns: as generation rises, the prevalence of beneficial attitudes wanes while the prevalence of important social ties increases. These results point to the need for

programs that encourage schools and other parents to reach out to immigrant parents to create and feed the kinds of ties that benefit the performance of the third-plus generation, and programs that instill in the third-plus generation the kinds of beliefs, attitudes, and behaviors that help to drive many immigrant students toward academic success.

Our findings that generational patterns of attitudes, behaviors, and social capital tend to counterbalance each other in predicting disparities in academic performance also lend support to the variety of theories concerning immigrant adolescent adaptation. Clearly, the growth in the number and quality of social ties as generation rises is consistent with even the most traditional view of assimilation theory. In contrast, the decline over generation of important pro-school attitudes and behaviors points to the potential benefits of retaining strong ties to the immigrant community, as described in the "accommodation without assimilation" perspective. Yet the persistence of a disadvantage in reading scores for newly arrived immigrant youth and the significantly superior performance of their earlier-arriving peers net of the full range of controls leaves unanswered the question of what accounts for these divergent levels of performance. Additional research is needed to uncover these factors.

Our findings also contribute to the broader literature on academic performance, by replicating many previously reported findings and adding new insights. With respect to the latter, our findings that forms of between-family social capital are more consistent in their predictive power than are the forms of within-family social capital suggests the greater importance of the various ties that link family members to other individuals, families, and social institutions. Moreover, the importance of interparental exchange (although admittedly only as a predictor of math scores) underscores the relative importance of the quality (versus the quantity) of ties. Having parents who are obligated to other parents through the exchange of favors and parenting duties translates into superior math performance for tenth graders. While theory suggests that this effect derives from shared norms and responsibilities, our operationalization of interparental exchange cannot identify the true mechanism at work.

Although the generational patterns in standardized math and reading scores differ from those present in HSB and NELS88, the effects exhibited by most covariates are similar to the findings reported by the broader education literature. In particular, among the findings we replicate is the persistent underachievement of black and Latino students, relative to white students. These gaps appear in every model specification, and are only marginally moderated by the addition of controls. Of at least equal importance, race/ethnicity was the key compositional factor explaining the lower performance of early-arriving immigrant and second-generation students in math, and the lower performance of second-generation students in reading. This effect of race/ethnicity was not evident in analyses of HSB and NELS88 (Glick and White 2003), suggesting that at least part of the reason why generational patterns differ for ELS2002 relative to those evident in these earlier cohorts may be due to the role this variable plays in predicting educational outcomes, and/or in the shifting racial/ethnic composition of the second generation in particular. The persistence of racial/ethnic disparities in performance, net of a very broad range of factors, and the role of race/ethnicity in eliminating generational differences in academic performance points to the continuing need to identify and redress the causes of persistent underachievement by minority students.

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Table 1: Descriptive characteristics of tenth graders by generation, 2002

Characteristic	Generation			
	First, here 0-9 years	First, here 10+ years	Second	Third plus
Outcomes				
Standardized math score (mean)	47.76[a,b,c]	50.55[c]	50.15[c]	52.10
Standardized reading score (mean)	45.78[a,b,c]	50.73[c]	49.67[c]	52.16
Race/ethnicity				
White	20.72[b,c]	22.14[c]	27.40[c]	80.41
Black	8.34[c]	5.65[c]	8.24[c]	13.04
Latino	51.95[c]	49.80[c]	50.44[c]	6.06
Asian	18.98[a,b,c]	22.41[b,c]	13.92[c]	0.48
Male	43.28	47.81	49.93	48.92
Age	16.23[a,b,c]	16.11[b]	16.03[c]	16.11
Composite family SES	-0.33[b,c]	-0.21[c]	-0.14[c]	0.13
Family structure				
Two biological parents	58.72	64.94	64.48[c]	59.94
One parent/guardian	21.54	22.99	21.20	22.19
One parent & guardian, or two guardians	19.74	12.07[c]	14.32[c]	17.86
School urbanicity				
Suburban	44.20[b,c]	49.01[c]	52.20[c]	51.86
Urban	46.29[b,c]	41.70	37.72	24.39
Rural	9.51[c]	9.29[c]	10.07[c]	23.75
School program				
Academic	49.04	52.31	52.71	52.88
General	37.93	35.76	35.03	37.88
Vocational	13.03	11.93	12.26[c]	9.24
English language skills				
English only	13.80[a,b,c]	31.57[b,c]	59.39[c]	98.60
English dominant	19.62[a,c]	29.74[b,c]	19.41[c]	1.12
Native language dominant	66.58[a,b,c]	38.69[b,c]	21.20[c]	0.28
Academic history				
Ever in:				
AP class	15.68	20.60	18.90	18.57
Bilingual/bicultural class	35.13[b]	29.91	27.05	30.07
Math/reading remedial class	15.42[b,c]	10.16	7.64[c]	10.43
ESL class	46.61[a,b,c]	6.00	7.33[c]	5.06
Ever held back	8.00	9.00	10.00	11.00
Social capital				
Between-family				
# school friends' parents known to parent (mean)*	1.23[a,b,c]	1.52[c]	1.63[c]	1.92
Interparental exchange (mean)*	1.69[c]	1.71[c]	1.79[c]	1.96
# school activities attended by parent (mean)*	1.11[c]	1.23[c]	1.39[c]	1.72
# problems parent has in communicating with school (mean)*	0.97[a,b,c]	0.66[b,c]	0.43[c]	0.00
At least one friend has dropped out *	16.84	20.52	17.92	16.67
# schools attended	1.78[b,c]	1.62[b,c]	1.21	1.15

Continued

Table 1: Descriptive characteristics of tenth graders by generation, 2002 (percentages except where noted)

Characteristic	Generation			
	First, here 0-9 years	First, here 10+ years	Second	Third plus
Within-Family				
Parent-child interaction* (mean)	2.58[b,c]	2.65[c]	2.75[c]	2.93
Parent-child communication* (mean)	2.13[b,c]	2.16[b,c]	2.24[c]	2.33
Parental monitoring* (mean)	3.30[a,b,c]	3.44[b,c]	3.52[c]	3.61
Days/week eat at least one meal together (mean)	5.78[b,c]	5.54[c]	5.47[c]	5.27
No siblings	6.45	8.48[b]	3.46[c]	5.70
At least one sibling has dropped out	11.77	13.09	13.37	11.66
No siblings have dropped out	79.95	75.77[b]	81.74	80.22
Parental expectations				
Less than college graduation	6.11[b,c]	12.71[c]	16.23[c]	27.42
College graduation	46.52	42.92	41.53	44.52
Advanced degree	47.37[c]	44.37[c]	42.25[c]	28.06
Student orientation & attitudes				
Future orientation				
Community oriented (mean)	2.38[a,b,c]	2.18[c]	2.17[c]	2.06
Family oriented (mean)	2.65	2.65	2.66	2.67
Occupational success oriented (mean)	2.80	2.83	2.83[c]	2.80
School attitudes				
Rules are not uniform, predictable	2.04[a,b,c]	2.26	2.26	2.28
Students & teachers have bad relationships	2.01[a,b,c]	2.17	2.17	2.18
Feels respected, part of community	3.02[b,c]	3.05	3.13	3.12
School is organized, free of disruption	2.29	2.21[b,c]	2.31[c]	2.37
Academic engagement				
Unprepared for class (mean)	1.95[c]	1.99[b,c]	1.87[c]	1.81
School attachment (mean)	2.67[a,b,c]	2.82	2.77	2.77
Cuts class, school, was late (mean)	1.83[a,b,c]	2.12[c]	2.04[c]	1.97
Disciplinary trouble (mean)	1.06	1.10	1.08	1.08
# hours/week spent on homework (mean)	12.06[a,b,c]	10.25	10.57	10.43
Importance of grades				
Very important	72.59[a,b,c]	55.07	56.36[c]	49.52
Important	23.06[a,b,c]	34.50	34.13	36.27
Not very important	4.35[c]	10.43	9.51[c]	14.21
Activities outside of school				
Hobbies, classes, community service (mean)	1.67[a]	1.81	1.74	1.76
Socializing (mean)	2.40[a,b,c]	2.76[c]	2.74[c]	3.02
Sports (mean)	1.77	1.83	1.80	1.86
Worked 2001-2002 academic year*	24.98[c]	30.22[c]	27.95[c]	42.15
Minimum N	196	268	848	4,978

Note: All figures are percentages except where noted. Statistical significance is assessed with Tukey post-hoc tests.

[a] Significantly different from first generation, here 10+ years, at at least p. .10.

[b] Significantly different from second generation, at at least p. .10.

[c] Significantly different from third-plus generation, at at least p. .10.

* Based on cases with valid values only.

Table 2: Results of hierarchical multiple regression models predicting tenth graders' standardized math scores, 2002 (unstandardized coefficients; N = 9,162)

Predictor	Model I	Model II	Model III	Model IV	Model V	Model VI	Model VII	Model VIII
Generation (vs. third-plus)								
First, here 0-9 years	-0.755	-0.540	0.138	0.369	-0.903	-0.560	-0.743	-0.819
First, here 10+ years	0.647	0.943†	0.348	0.506	-0.216	-0.027	0.076	0.055
Second	0.020	0.181	0.014	0.068	-0.552†	-0.423	-0.447	-0.503†
Race/ethnicity (vs. white)								
Black	-6.043***	-6.038***	-5.546***	-5.469***	-6.156***	-5.878***	-5.528***	-5.447***
Latino	-3.843***	-3.705***	-3.594***	-3.481***	-3.479***	-3.442***	-3.283***	-3.315***
Asian	1.421**	1.687***	1.963**	1.996***	1.409**	1.525***	1.443**	1.423**
Male	1.981***	1.978***	2.151***	2.141***	2.593***	2.340***	2.613***	2.573***
Age	-2.646***	-2.645***	-1.036***	-0.959***	-0.719***	-0.770***	-0.720***	-0.679***
Composite family SES	3.877***	3.863***	3.262***	3.183***	2.477***	2.382***	2.317***	2.269***
Family structure (vs. two biological parents)								
One parent/guardian	-1.036***	-1.042***	-0.847***	-0.726***	-0.882***	-0.909***	-0.813***	-0.798***
Other two parents/guardians	-1.577***	-1.587***	-1.220***	-0.967***	-0.734***	-0.727***	-0.645**	-0.622***
School urbanicity (vs. suburban)								
Urban	-0.261	-0.264	-0.338†	-0.251	-0.397*	-0.380*	-0.407*	-0.398*
Rural	-0.506*	-0.521*	-0.224	-0.265	-0.155	-0.167	-0.216	-0.222
School program (vs. academic)								
General	-3.554***	-3.559***	-2.925***	-2.840***	-2.027***	-1.926***	-1.703***	-1.668***
Vocational	-3.951***	-3.951***	-3.048***	-2.927***	-1.903**	-1.875***	-1.677***	-1.689***
English language skills (vs. English only)								
English dominant		-1.267**	-0.799†	-0.708	-1.289**	-1.263**	-1.292**	-1.374***
Native language dominant		-0.152	0.214	0.315	-0.640	-0.458	-0.567	-0.709
Academic history								
Ever in:								
AP class			3.331***	3.273***	2.712***	2.667***	2.505***	2.517***
Bilingual/bicultural class			2.896***	2.857***	2.429***	2.348***	2.232***	2.209***
Math/reading remedial class			-2.935***	-2.925***	-2.738***	-2.627***	-2.496***	-2.454***
ESL class			-3.660***	-3.722***	-3.306***	-2.997***	-2.995***	-2.927***
Ever held back			-4.265***	-4.135***	-3.476***	-3.267***	-3.072***	-3.090***

Continued

Table 2: Results of hierarchical multiple regression models predicting tenth graders' standardized math scores, 2002 (unstandardized coefficients; N = 9,162) continued

Predictor	Model I	Model II	Model III	Model IV	Model V	Model VI	Model VII	Model VIII
Social capital								
Between-Family								
Number of school friends' parents known by parent[a]				0.215*	0.147†	0.144†	0.127	0.184*
Interparental exchange[a]				0.295*	0.333**	0.314**	0.311**	0.341**
# school activities attended by parent(s)[a]				-0.087	-0.057	-0.059	-0.056	-0.068
# problems parent has in communicating with school[a]				-0.015	-0.309†	-0.280	-0.193	-0.193
At least one friend has dropped out				-1.376***	-1.021***	-0.923***	-0.592**	-0.550*
# schools attended				-0.144*	-0.148***	-0.125*	-0.108*	-0.133*
Within-Family								
Parent-child interaction[a]					-0.523***	-0.499***	-0.592***	-0.556***
Parent-child communication[a]					-0.356†	-0.350	-0.281	-0.355†
Parental monitoring[a]					-1.628***	-1.501***	-1.476***	-1.451***
Days/week eat at least one meal together					0.017	0.030	0.019	0.006
Sibling behavior (vs. no siblings)								
At least one sibling dropped out					-0.121	-0.037	0.081	0.079
No siblings have dropped out					0.325	0.346	0.391	0.388
Parental expectations (vs. advanced degree)								
Less than college graduation					-6.211***	-6.007***	-5.583***	-5.487***
College graduation					-2.547***	-2.521***	-2.356***	-2.297***
Student orientation & attitudes								
Future orientation								
Community oriented						-2.006***	-2.160***	-2.185***
Family oriented						0.298	0.204	0.395†
Occupational success oriented						0.614*	0.222	0.195
School attitudes								
Rules are not uniform, predictable						1.068***	1.288***	1.304***
Students & teachers have bad relationships						-1.690***	-1.387***	-1.317***
Feels respected, part of community						0.453**	0.461***	0.510***
School is organized, free of disruption						0.518***	0.583***	0.601***

Continued

Table 2: Results of hierarchical multiple regression models predicting tenth graders' standardized math scores, 2002 (unstandardized coefficients; N = 9,162) continued

Predictor	Model I	Model II	Model III	Model IV	Model V	Model VI	Model VII	Model VIII
Academic engagement								
Unprepared for class							-0.459***	-0.442***
School attachment							0.449***	0.526***
Cuts class, cuts school, was late							-0.178	-0.030
Disciplinary trouble							-2.037***	-2.007***
Total # hours/week spent on homework							0.073***	0.072***
Importance of grades (vs. very important)								
Important							-1.007***	-0.981***
Not very important							-0.397	-0.399
Activities outside of school								
Hobbies, classes, comm. service								0.298*
Socializing								-0.651***
Sports								-0.049
Worked 2001-2002 academic year[a]								0.195
Intercept	96.675***	96.672***	69.639***	67.822***	74.352***	74.750***	75.616***	74.934***
Adj. R^2	.313	.313	.384	.388	.435	.450	.463	.466

† p. .10; * p. .05; ** p. .01; *** p. .001.

[a] Cases with missing values are coded 0, and a missing data dummy (coded 1 if value on the substantive variable is missing, 0 otherwise) is included (results not shown).

Table 3: Results of hierarchical multiple regression models predicting tenth graders' standardized reading scores, 2002 (unstandardized coefficients; N = 9,162)

Predictor	Model I	Model II	Model III	Model IV	Model V	Model VI	Model VII	Model VIII
Generation (vs. third-plus)								
First, here 0-9 years	-2.793***	-1.501*	-0.777***	-0.768	-1.980***	-1.593**	-1.761**	-1.916***
First, here 10+ years	1.136*	2.035***	1.420**	1.429**	0.764	0.963†	1.072*	1.039*
Second	-0.243	0.187	0.032	0.036	-0.530†	-0.390	-0.423	-0.526†
Race/ethnicity (vs. white)								
Black	-4.989***	-5.020***	-4.497***	-4.488***	-5.093***	-4.853***	-4.534***	-4.424***
Latino	-3.521***	-3.100***	-2.982***	-2.897***	-2.877***	-2.844***	-2.654***	-2.743***
Asian	-0.815	-0.410	-0.123	-0.185	-0.788	-0.648	-0.709	-0.829†
Male	-0.643***	-0.655***	-0.500**	-0.541***	-0.120	-0.397*	-0.140	-0.085
Age	-1.925***	-1.894***	-0.331†	-0.240	-0.017	-0.055	-0.010	0.078
Composite family SES	3.919***	3.835***	3.255***	3.171***	2.529***	2.445***	2.405***	2.352***
Family structure (vs. two biological parents)								
One parent/guardian	-0.983***	-1.026***	-0.830***	-0.804***	-0.948***	-0.995***	-0.900**	-0.886***
Other two parents/guardians	-1.331***	-1.390***	-1.029***	-0.968***	-0.739***	-0.731***	-0.675**	-0.635**
School urbanicity (vs. suburban)								
Urban	0.259	0.287	0.219	0.236	0.093	0.101	0.084	0.102
Rural	-0.292	-0.321	-0.031	-0.050	0.057	0.041	-0.066	-0.037
School program (vs. academic)								
General	-3.169***	-3.182***	-2.540***	-2.497***	-1.756***	-1.617***	-1.435***	-1.388***
Vocational	-3.990***	-3.979***	-3.047***	-2.988***	-2.064***	-2.033***	-1.875***	-1.903***
English language skills (vs. English only)								
English dominant		-1.567***	-1.064*	-0.978*	-1.489***	-1.432***	-1.456***	-1.556***
Native language dominant		-1.999***	-1.593***	-1.459**	-2.360***	-2.121***	-2.132***	-2.314***
Academic history								
Ever in:								
AP class			3.099***	3.065***	2.537***	2.478***	2.360***	2.385***
Bilingual/bicultural class			3.412***	3.391***	3.001***	2.910***	2.805***	2.785***
Math/reading remedial class			-2.535***	-2.523***	-2.350***	-2.218***	-2.068***	-1.983***
ESL class			-3.979***	-3.991***	-3.545***	-3.200***	-3.176***	-3.034***
Ever held back			-4.045***	-4.085***	-3.514***	-3.257***	-3.057***	-3.115***

Continued

Table 3: Results of hierarchical multiple regression models predicting tenth graders' standardized reading scores, 2002 (unstandardized coefficients; N = 9,162) continued

Predictor	Model I	Model II	Model III	Model IV	Model V	Model VI	Model VII	Model VIII
Social capital								
Between-Family								
# of school friends'parents known by parent[a]				0.017	-0.025	-0.021	-0.027	0.087
Interparental exchange[a]				0.090	0.130	0.125	0.125	0.187
# school activities attended by parent(s)[a]				-0.067	-0.019	-0.013	-0.015	-0.034
# problems parent has in communicating with school[a]				-0.083	-0.368*	-0.345†	-0.270	-0.276
At least one friend has dropped out				-1.547***	-1.247***	-1.031***	-0.691**	-0.608**
# times changed schools				0.026	0.015	0.037	0.060	0.040
Within-Family								
Parent-child interaction[a]					-0.865***	-0.851***	-0.943***	-0.796***
Parent-child communication[a]					0.166	0.162	0.266	0.116
Parental monitoring[a]					-1.497***	-1.353***	-1.311***	-1.302***
Days/week eat at least one meal together					0.088†	0.106*	0.094*	0.64
Sibling behavior (vs. no siblings)								
At least one sibling dropped out					-0.773*	-0.698†	-0.590	-0.583
No siblings have dropped out					-0.251	-0.233	-0.213	-0.186
Parental expectations (vs. advanced degree)								
Less than college graduation					-5.650***	-5.550***	-5.926*	-4.807***
College graduation					-2.466***	-5.330***	-4.956***	-2.154***
Student orientation & attitudes								
Future orientation								
Community oriented						-2.482***	-2.613***	-2.610***
Family oriented						-0.102	-0.113	0.217
Occupational success oriented						1.420***	0.993***	0.964**
School attitudes								
Rules are not uniform, predictable						0.569**	0.770***	0.811***
Students & teachers have bad relationships						-1.530***	-1.230***	-1.111***
Feels respected, part of community						0.746***	0.750***	0.855***
School is organized, free of disruption						0.396**	0.445**	0.478***

Continued

Table 3: Results of hierarchical multiple regression models predicting tenth graders' standardized reading scores, 2002 (unstandardized coefficients; N = 9,162) continued

Predictor	Model I	Model II	Model III	Model IV	Model V	Model VI	Model VII	Model VIII
Academic engagement								
Unprepared for class							-0.592***	-0.559***
School attachment							0.054	0.225
Cuts class, cuts school, was late							-0.142	0.131
Disciplinary trouble							-2.422***	-2.394***
Total # hours/week spent on homework							0.064***	0.063***
Importance of grades (vs. very important)								
Important							-0.385*	-0.350†
Not very Important							-0.203	-0.243
Activities outside of school								
Hobbies, classes, comm. service								0.580***
Socializing								-1.081***
Sports								-0.465***
Worked 2001-2002 academic year[a]								0.157
Intercept	85.891***	85.426***	58.973***	57.583***	63.625***	63.636***	66.022***	64.555***
Adj. R^2	.259	.260	.332	.335	.376	.395	.406	.416

† p. .10; * p. .05; ** p. .01; *** p. .001.

[a] Cases with missing values are coded 0, and a missing data dummy (coded 1 if value on the substantive variable is missing, 0 otherwise) is included (results not shown).