Educating the second generation: determinants of academic achievement among children of immigrants in the United States

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Abstract   *This article examines patterns of educational achievement among immigrant second-generation youths on the basis of a national sample of the American student population. Three hypotheses are tested in relation to the predicted effects of human capital, social capital, and modes of incorporation of immigrant groups. These effects are examined for the second generation in general and four of its principal national components on the basis of multivariate regressions and hierarchical modelling. The latter method allows an examination of the extent to which school contexts affect second-generation academic achievement and explains resilient inter-group differences. Results point to the strong influence of parental socioeconomic status and other human capital factors and to the significant, but much weaker, effects of social capital indicators. Controlling for this array of variables does not eliminate the effect of nationality differences, pointing to the resilient influence of modes of incorporation in the subsequent character of ethnic communities. Interaction effects between these various factors and school characteristics are examined. Implications of results for theory and future immigration policy are discussed.*

This article examines determinants of educational achievement in a rapidly growing segment of America's school population, namely the second generation spawned by mass immigration during the last three decades. The topic is important not only because of the size of the new second generation, but also because this group possesses certain strategic characteristics of interest for sociological theory.

Thirty years of sustained immigration following the passage of the 1965 Immigration Act have led to notable changes in the composition of the American population. Since most recent immigration comes from the Third World, the minority population has increased rapidly. For example, the proportion represented by the Asian-origin population doubled between 1980 and 1990 and the number of Latin-origin persons increased by 53 per cent to a total of 22.4 million (U.S. Bureau of the Census 1993). Not surprisingly, the origins of immigrants and their process of adaptation have gained increasing attention as topics of sociological research and have resulted in a number of major recent studies (Grasmuck and Pessar 1991; Light and Bonacich 1988; Massey et al. 1987; Portes and Bach 1985).

Much less attention has been paid to the children, despite their growing numbers. According to Fix and Passel (1991) and to Jensen and Chitose (1994), the size of today's second generation has already surpassed the previous record of 28 million, set by children of earlier European immigrants, prior to the year

2000. More importantly, the long-term prospects of the new ethnic groups created by contemporary immigration are likely to hinge on the second generation's success. Unlike adult immigrants, who can return to their countries of origin if unsuccessful, their children are US citizens and most are here to stay. Hence, their economic and social fate is bound to have a lasting influence on the character of the ethnic communities created by contemporary immigration. This includes their relative standing in the American ethnic hierarchy and the level of discrimination directed against them.

Because of the recency of contemporary immigration, most of today's second generation is still of school age and hence its key adaptation outcomes do not have to do with labour market performance, but with educational achievement (Hirschman 1994) The presence of second-generation students is highly visible and growing in the school districts of cities where the foreign population concentrates such as New York, Los Angeles, Chicago, San Francisco, and Miami. In the last-mentioned city, a majority of the school age population is currently of foreign origin; in California, more than one out of ten school-age students are foreign-born and over a third or 1.8 million speak a language other than English at home. That figure is even higher in Los Angeles, San Francisco, and San Diego (Rumbaut 1995: 29). The adaptation of this growing second generation to American schools and its performance in them thus provide key evidence about its long-term prospects for success or failure.

Theoretical framework

A number of analysts of contemporary immigration have focused on the entire foreign-born population seeking to establish its differences from the native-born or, in the case of the second generation, from Americans of native parentage (Borjas 1990; Cao and Tienda 1995; Vernez and Abrahamse 1996). These holistic analyses have yielded some interesting results, but have failed to cope with a fundamental aspect of today's immigration, namely its internal diversity (Portes and Rumbaut 1996). A study of the second generation taken as a single category obscures major differences between immigrant nationalities in social adaptation and educational success. To the contrary, a growing journalistic and academic literature has documented the impressive educational gains of certain foreign groups and the tendency of others to fall behind. Asian students, such as Chinese, Koreans, and Filipinos, have been held up as examples of successful school adaptation, while children of certain Latin minorities, such as Mexicans and Central Americans, are said to confront serious educational handicaps (Gibson 1989; Hirschman and Wong 1986; Matute-Bianchi 1991; Suarez-Orozco 1987; Zhou and Bankston 1998)

To the extent that educational performance is a strong predictor of future career mobility, differences among students of various nationalities point to potential inequalities in their eventual economic and social adaptation. Portes and Zhou (1992) have used the term 'segmented assimilation' to refer to what they see as major differences in the success opportunities of today's second generation. In their view, some of the newly hyphenated Americans are on course for a rapid process of upward assimilation, riding on the strength of family and community resources, while others have a high probability of undergoing 'downward assimilation' because of a compounded set of family and community disadvantages.

Waldinger and Perlmann (1998) caution, however, against the tendency to project present difficulties of some second-generation youths into the future and point for comparison to the eventual success of children of earlier European immigrants despite numerous social and economic barriers. Yet, the same authors also highlight the major differences in adaptation outcomes between Mexican-Americans and other foreign-origin children, noting the significant disadvantages of the Mexican group. In general, the central point is that the study of today's second generation cannot disregard its internal heterogeneity, for the latter indicate potential disparities in the adaptation success of different nationalities.

A major difficulty for such a study is that most existing data come classified in pan-ethnic categories, such as 'white', 'Hispanic', or 'Asian'. These categories are of limited use because it is impossible to determine from them who is an immigrant, a child of immigrants, or a native of foreign parentage. Not only are different generations mixed in unknown proportions, but these labels do not differentiate between individual nationalities. Hence, under the label 'Asian', we find Cambodian children, who have one of the highest levels of poverty and lowest levels of school performance, and Filipino children, who are in precisely the opposite situation. The same is true of 'Hispanic', a label that combines Mexican, Cuban, and other Latin nationalities.

As a result, it is impossible to tell what a 'Hispanic' or 'Asian' effect really means. The few sources of data that distinguish among generations and nationalities show major differences in the social and economic adaptation of adult immigrants and the school adaptation of their children. These data are restricted, however, to studies based on a few schools or a single city (Gibson 1989; Matute-Bianchi 1991; Zhou and Bankston 1998) and to only a few larger surveys (Hao 1994; Portes and MacLeod 1996; Rumbaut 1994)

Yet, the presence and size of nationality differences that these studies document lead us to ask whether there is something unique about different immigrant groups or whether, on the contrary, the observed differences are a spurious effect of other factors. A first possible explanation is that differences in academic performance reflect the human capital, in particular the education of their parents. According to this view, elaborated most systematically by economists of immigration, there is no great mystery in children's educational performance because they come from families with widely different human capital endowments (Borjas 1989, 1990; Vernez and Abrahamse 1996) Once these differences are controlled, the apparent national differences on education disappear.

A second, and currently popular theory, emphasises the importance of social capital. In his first article on this concept, Coleman (1988) noted approvingly how Asian immigrant mothers bought two sets of school texts in order to help their children with their homework. In the same article, Coleman also emphasised the importance of 'closure' in a community for strengthening parental control and facilitating parental guidance. In places where parents know each other and share similar values, they can help monitor each other's children and reinforce a common normative stance. This form of social capital disappears in more anomic settings where parents are strangers to one another. The same point has been made in studies of individual immigrant communities, such as the Vietnamese, the Nicaraguan, and the Indian (Fernandez-Kelly and Schauffler 1994; Gibson 1997; Zhou and Bankston 1994).

Elsewhere in the social capital literature, McLanahan and Sandefur (1994), Parcel and Menaghan (1994) and Hao (1994) have shown the importance of families with both biological parents present for the academic and psychological profile of children. Two-parent families can also provide a form of 'closure' insofar as they reinforce a common normative outlook and double the monitoring capacity of adults over their children. These findings bear directly on the second generation because it is possible that observed disparities in school performance are due to differences in the proportion of families that remain together and in their number of ties with other families. Some Asian groups, such as Koreans and Vietnamese, are notable for their family solidarity and low propensity to marital break-ups (Zhou and Bankston 1994). These nationalities, plus certain Latin immigrants, like Cubans, tend to cluster in the same cities and maintain dense networks among themselves. Such differences in social capital represent a second possible explanation for observed differences among national groups: once social capital is taken into account, the original differences should whittle away.
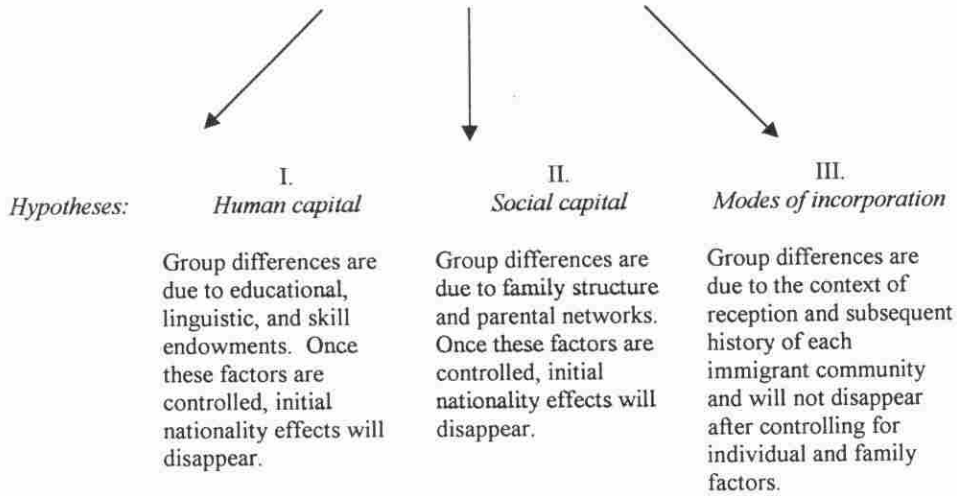
A third theory emphasises community differences that transcend the family and its immediate social context. According to this view, the modes of incorporation of immigrants have enduring effects in the patterns of adaptation of both adults and children. Different modes of incorporation, determined by governmental policy and public perceptions of different nationalities, interact with the cultural outlooks and aspirations of their members, producing diverse ethnic communities (Mahler 1995; Massey 1987; Portes and Rumbaut 1996). These communities subsequently condition the orientation toward the future of their members, their perception of what is achievable in American society, and their mutual solidarity. Such contextual effects transcend those of individual and family characteristics, influencing *all* members of a particular group.

For example, Mexicans, the largest single group in contemporary immigration, confront a social context marked by widespread discrimination and a hostile official reception. Because many Mexicans cross the border illegally, all Mexicans including those who are legal immigrants, are routinely subjected to harassment by immigration authorities and are the target of much nativist prejudice (Chavez 1988; Cornelius 1982). Pre-existing Mexican communities seldom compensate for these disadvantages because they are too poor to provide autonomous employment opportunities (Massey 1987; Roberts 1995).

Asian immigrants face a different set of circumstances. Korean immigrants, for example, are heirs to an entrepreneurial community created by a combination of high levels of human capital among earlier arrivals and a benevolent official reception. As legal immigrants and citizens of a staunch USA ally during the Cold War, South Koreans have not been subject to much governmental harassment. The emergence of vibrant Korean business enclaves in cities like Los Angeles, New York, and Chicago and the ethnic solidarity characterising them have insured employment opportunities for newcomers, even those lacking the education and resources of the first immigrants (Light and Bonacich 1988; Min 1988). As a result, Korean communities have a low poverty rate and a household income comparable to the native white population (U.S. Bureau of the Census 1993).

Children who are heirs to these different circumstances can be expected to benefit or suffer accordingly. The third perspective thus posits resilient community effects leading to a common pattern of advantage or disadvantage for

Common premise: *Significant differences in academic performance among children of various immigrant nationalities*

	I. *Human capital*	II. *Social capital*	III. *Modes of incorporation*
Hypotheses:	Group differences are due to educational, linguistic, and skill endowments. Once these factors are controlled, initial nationality effects will disappear.	Group differences are due to family structure and parental networks. Once these factors are controlled, initial nationality effects will disappear.	Group differences are due to the context of reception and subsequent history of each immigrant community and will not disappear after controlling for individual and family factors.

Figure 1. *Perspectives on educational achievement in the second generation*

members of a particular group. This hypothesis cannot be tested on the basis of individual differences because it specifies an effect common to all members of the group (Zhou 1997). Its best indicators are dummy variables representing each nationality and the expectation is that effects of these variables will remain significant after controlling for other individual and family factors. Furthermore, the direction of these effects should accord with what is known about the mode of incorporation of each immigrant group.

The three alternative predictions are summarised in Figure 1. All avoid the assumption of a homogenous second generation characterising earlier studies and posit instead heterogeneity of origins and educational achievement. Our first task is to establish the existence of these differences in our data and then to test each prediction on the basis of suitable indicators. Because of the importance of school contexts for adolescent youths, we also investigate the influence of school characteristics on second-generation performance and the extent to which it modifies the influence of other variables.

Data and method

The data for this analysis come from the National Educational Longitudinal Study (NELS). This was a national survey of eighth graders, mostly fourteen year-old students, interviewed in 1988 and followed subsequently at two-year intervals (Ingels et al. 1990). We make use of the base year data as it contains good measures of the necessary variables and a sufficient number of foreign-origin respondents to test the predictions summarised in Figure 1. Out of a total sample of 24,599, we selected respondents who had at least one foreign-born parent, numbering 3,439. To these, we added a probability sample of 2,500 individuals of native parentage representing the mainstream non-immigrant population. This allows us to test predicted effects on educational performance

within the second generation itself and also in relation to the native white majority.

By convention, American-born children of immigrant parents and those who came here when very young are defined as 'second-generation', while those who arrived at an early age are labelled the '1.5 generation' (Rumbaut 1994). To examine the extent to which length of US residence affects educational achievement, we distinguish three categories: a) the second generation proper (native-born of foreign parentage); b) the early 1.5 generation (foreign-born brought at age 7 or earlier to the USA); c) the late 1.5 generation (foreign-born brought after age 7). Approximately 80 per cent of our second-generation sample belongs in the first category, and the rest is about evenly divided between the other two. The average age of the sample is 14.3 years and it is evenly divided by sex.

From available measures in the survey, we selected grade point average (GRADES) and a composite standardised index of reading and math test scores as indicators of the dependent variable, academic achievement. School grades were self-reported by respondents, while scores are based on a battery of objective tests, constructed by the Educational Testing Service and administered in the course of the interview. The NELS staff also constructed composite measures of parental education and socioeconomic status based on data from separate interviews with parents. We present preliminary results for both measures, but use exclusively the index of parental SES in multivariate regressions because of high collinearity between both variables. The parental SES index is a highly reliable measure combining education and occupational status of father and mother plus family income. It contains no missing data. The survey also includes indicators of hours dedicated daily to school homework and knowledge of English. The latter is constructed as a standardised average of self-reported ability to speak, understand, read, and write English.[1] Jointly these variables provide the necessary information for testing the first hypothesis.

Social capital is measured by three indicators that correspond directly to the previous theoretical discussion. Intact Family is defined as children with both biological parents present in the household. The variable reflects the emphasis placed by the literature on the value of unbroken families. Parental Networks is measured by an interval-level variable representing the number of parents of child's friends known to his/her parents. It is drawn from the NELS parental schedule and ranges from 0 (no friends' parents known) to 5 (five or more). The variable corresponds directly to Coleman's definition of 'closure' as a form of social capital.

The NELS data also contain an extensive battery of items addressing the frequency of parent–child interaction on school matters, parents' activities in school, and parental rules on homework. From these items, we constructed a 7-item unit-weighted index of parental involvement on child's education.[2] This is a more proximate indicator of social capital, corresponding to the actual efforts by parents to further their children's schooling. Jointly, the three selected indicators provide a good conceptual coverage of the concept of social capital and a suitable test for predictions derived from it. Measurement information on all variables included in the analysis are presented in Appendix B.

The NELS survey did not focus specifically on immigrant children and, for this reason, it contains sufficient data only on a limited number of nationalities. While the total second-generation sample is sizable, it is divided into many national groups yielding few cases for most. Fortunately, the sample is large

enough to yield sufficient cases for four important nationalities: Mexicans, Filipinos, Chinese, and Koreans. These also happen to be the four largest contributors to US immigration in recent years. For every year since 1965, Mexicans have been by far the largest immigrant group. For example, during the 1980s and 1990s, Mexican immigration exceeded the combined total for all of Europe. Filipinos ranked second, adding close to 650,000 newcomers during each decade. Combined immigration from China, Taiwan, and Hong Kong came third, adding close to half a million per decade. South Koreans ranked fourth with approximately 400,000 (U.S. Immigration and Naturalization Service 1997).

These groups are not only important numerically, but they also represent different contexts of reception and histories of settlement in the USA. We have already summarised the contrasting experiences of Mexicans and Koreans. Although earlier Chinese immigration bore many traits similar to the Mexican labour inflow, post-1965 immigrants from Taiwan, Hong Kong, and the People's Republic have been similar to Koreans in their relatively high levels of education and favourable contexts of reception, marked by the presence of strong entrepreneurial communities (Fong 1994; Zhou 1992). Filipinos represent an intermediate case, featuring a long-standing manual labour flow to Hawaii and California joined, since 1965, by an increasing number of professionals who have dispersed through multiple US cities. Unlike Koreans and Chinese, Filipinos have not formed concentrated ethnic communities anywhere, and they generally arrive speaking fluent English which contributes to their favourable reception[3] (Espiritu 1996; Wolf 1997). The differences in contexts of reception of these four immigrant groups provides an authoritative basis to test predictions about resilient community effects.

Results

Bivariate associations

Table 1 presents preliminary bivariate results bearing on the previous discussion. The table includes means for the two dependent variables and all predictors broken down by national origin. These results allow us to establish unambiguously that differences exist among children of various nationalities, thus confirming past findings and the study's basic premise. The three Asian groups significantly exceed the grade point average and test scores of the full sample, as well as those of the native parentage white group. Mexican-American children fall behind in both measures. The rest of the second generation, grouped in the 'Other' category falls close to the grand mean on each dependent variable.[4]

Breakdowns of parental SES, daily homework hours, and knowledge of English are also revealing. Based on these results alone, one would expect sharp differences in school performance among the four immigrant groups. Mexican parents' socioeconomic status and education are consistently below those of native white individuals, other immigrant parents, and the total sample. By contrast, Chinese, Filipino, and Korean parents have average educational levels that exceed those of all other groups. As past research predicts, these educational and status differences correspond to children's investment in school homework. These bivariate findings provide preliminary support for the human capital

Table 1. *Academic performance and its predictors by ethnic background*

Variable[1]	Chinese (N = 238)	Filipino (N = 218)	Korean (N = 152)	Mexican (N = 769)	Other second generation (N = 2,062)	Native white population (N = 2,485)	Total (N = 5,924)	Eta[2]
Grade point average	3.45	3.32	3.44	2.87	3.14	3.02	3.08	.14
Test scores average	57.10	52.87	58.76	44.91	52.17	52.61	51.81	.29
Parental education	3.44	3.84	3.98	1.86	3.37	3.30	3.18	.38
Parental socioeconomic status[3]	.09	.32	.43	−.92	.05	.11	.00	.41
Homework hours	4.79	4.29	4.70	3.87	4.29	4.20	4.23	.13
Knowledge of English[4]	4.56	4.85	4.86	4.65	4.84	4.99	4.87	.33
Biological parents present, %	84.45	80.73	81.58	73.86	71.77	69.13	72.03	.09
Friends' parents known,[5]	1.26	2.02	1.76	1.59	2.10	2.91	2.33	.30
Parental school involvement[6]	2.54	2.76	3.18	2.62	3.24	3.41	3.20	.15
Age, years	14.28	14.27	14.24	14.51	14.31	14.34	14.35	.12
Sex (female), %	48.74	44.50	48.03	54.23	50.19	50.95	50.71	.04
Foreign born, %[7]	13.87	17.89	9.21	3.77	8.20	0.0	4.79	.23

[1] See Appendix B for definition and measurement of variables.
[2] Coefficient of strength of association. All intergroup differences, except for sex, are significant at the .001 level.
[3] Composite standardised score. See Appendix B.
[4] Composite index score. See Appendix B.
[5] Absolute average number.
[6] Composite index score. See Appendix B.
[7] Respondents who are foreign-born with six years or less of US residence.

hypothesis, suggesting that it plays a large role in the observed ethnic group differences.

Turning to indicators of family social capital, the picture becomes less clear. The proportion of Mexican-origin children with both parents present exceeds that of native white individuals and of the rest of the second-generation sample. At the same time, the three Asian nationalities are in a category apart, with over 80 per cent of children living with both biological parents. The strength of family ties among these groups may be an important determinant of their high levels of academic performance. This is not the case, however, with our other indicators of social capital. Chinese, Korean, and Filipino parents are among the *least* likely to know parents of their children's friends. Closure of parental networks is actually highest among native white individuals. Similarly, white parents have the highest level of involvement on their children's education. These results partially contradict Coleman's (1988) portrait of tight parental networks in Asian communities and common journalistic descriptions of these parents as exceptionally involved in their children's activities. School success among Asian children does not appear due to tight parental control or school participation.

Multivariate effects

The next step consists of entering the two indicators of academic performance in multivariate regressions with all predictors. Results, presented in Table 2, are for the entire sample including the four target nationalities, the rest of the second generation, and the native white group. Similar regressions (not shown) were run with the sample limited to the second generation (all foreign parentage respondents) and to the target nationalities plus the native white group only. Results are quite similar to those reported herein.

The first columns in both panels of Table 2 present effects of dummy variables representing each immigrant nationality. Native white students are the reference category. The second columns add parental status, related predictors, and demographic traits. The final column in each panel presents the effects of family social capital.

The table makes apparent the very powerful effect of parental socioeconomic status on educational achievement followed by those of knowledge of English and homework habits. This trio of effects is highly robust, remaining positive and significant across multiple model specifications and sample variations. Results also show that foreign-born children do significantly better than the native-born, although this effect is consistent only for foreign-born youths with longer experience in the USA. After controlling for this array of predictors, the negative effects on grades associated with Mexican origin disappears and the positive influence of Asian ethnicities are greatly reduced, indicating that much of the initial differences among second-generation nationalities is due to family SES, work effort, and English ability. These results clearly support the human capital hypothesis.

Yet, despite the reduction, strong positive effects continue to be associated with Korean and Chinese origins on both achievement indicators and the negative Mexican effect on test scores, although substantially reduced, also remains significant. Since this dependent variable represents the more objective indicator of academic performance (grades were self-reported), results can be interpreted as supporting the third hypothesis of resilient community effects.

Table 2. Ordinary least squares regression of measures of academic performance on all predictors

Variable[1]	School grades			Composite test scores		
	I	II	III	I	II	III
National origin						
Chinese	.437 (6.6)[2]	.363 (5.3)	.401 (5.8)	4.5 (6.7)	4.54 (7.5)	5.03 (8.2)
Filipino	.306 (4.4)	.188 (2.7)	.214 (3.1)	0.37 n.s.	−0.85 n.s.	−0.54 n.s.
Korean	.421 (5.1)	.241 (2.9)	.267 (3.2)	6.15 (7.4)	3.71 (5.1)	4.07 (5.5)
Mexican	−.149 (3.7)	.082 n.s.	.081 n.s.	−7.70 (18.7)	−1.09 (2.8)	−0.98 (2.5)
Other second generation[3]	.122 (4.2)	.076 (2.4)	.088 (2.8)	−0.27 n.s.	−0.09 n.s.	0.08 n.s.
Demographic traits						
Age		−.091 (4.1)	−.081 (3.7)		−2.54 (12.9)	−2.47 (12.6)
Sex (female)		.069 (2.7)	.065 (2.6)		−0.12 n.s.	−0.16 n.s.
Foreign-born, 6 years or less in USA		.237 (3.7)	.270 (4.2)		−0.28 n.s.	0.04 n.s.
Foreign-born, more than 6 years		.182 (4.8)	.193 (5.0)		0.91 (2.7)	1.05 (3.1)
Human capital						
Parental socioeconomic status		.180 (10.6)	.148 (8.3)		5.07 (33.5)	4.79 (30.2)
Knowledge of English		.222 (4.5)	.205 (4.5)		3.05 (7.5)	2.88 (7.1)
Homework hours		.069 (8.0)	.062 (7.2)		1.02 (13.3)	0.97 (12.5)
Social capital						
Biological parents present			.072 (2.5)			0.27 n.s.
Friends' parents known			.020 (2.6)			0.30 (4.2)
Parental school involvement			.031 (4.2)			0.20 (3.1)
R	.142	.270	.280	.289	.580	.583
R^2	.020	.072	.078	.083	.337	.340
N = 5,881						

[1] See Appendix B for variable measurement.
[2] B-coefficients; t-ratios in parentheses.
[3] Native-parentage white individuals comprise the omitted category.

This conclusion is not altered by the introduction of social capital measures. As the last panel of Table 2 shows, closure of parental networks has a reliable, but small effect on both dependent variables. Each additional parent known to the student's parents increases test scores by just a third of a point. The same is the case with parental school involvement, where each unit of the 7-point scale increases scores by only a quarter of a point.

The effect of intact family is even weaker, having the smallest relative effect on grades and failing to reach statistical significance on test scores. Hence, contrary to the extensive literature on family social capital, children of immigrants who live in less traditional family arrangements do not seem to experience any significant academic disadvantage relative to those with both biological parents present. Overall, these results provide only limited support to the hypothesis on effects of social capital. Though five of the six relevant coefficients are reliable, they are substantively small and do not reduce at all the original national differences.

The proposition of resilient community effects receives support not only from the nationality coefficients, but also from their direction. Positive figures linked to Chinese and Korean origin, and negative ones associated with a Mexican background are consistent with what is known about the modes of incorporation and subsequent settlement patterns of these groups. The fact that the Filipino effect on test scores disappears when controlling for human capital is also in line with the argument, because Filipino families are by far the most dispersed and, hence, the less subject to strong group influences.

The NELS data allow us one final attempt to clarify the nature of these group differences on achievement. Next to families, schools are the most important institutional contexts for the young. The relative success of different immigrant groups to find a niche in American society will surely influence the types of schools to which they send their children and that, in turn, may explain the persistent nationality differences. This interpretation does not contradict the hypothesis of modes of incorporation, but fleshes it out by suggesting the actual path through which common group experiences translate into actual achievement.

Contextual effects

The first step in exploring the role of school contexts consists of establishing whether differences really exist between national groups in this dimension. Table 3 presents the relevant data. The table shows, first, the concentration of all immigrant groups in urban areas, as opposed to native-parentage white individuals who tend to cluster in suburban schools. Significant national differences then begin to emerge. Only 6 per cent of Mexican-Americans attend private schools, as opposed to 15 per cent of Asian students and 30 per cent of the rest of the second generation. Mexican-American students mostly attend state schools where half of their peers are also minorities; by contrast, Chinese, Filipino, and Korean students go to schools where 75 per cent or more of their peers are from the native white group.

The proportion of children eligible for the federally subsidised lunch programme is a standard indicator of the average socioeconomic status of a school. Native-parentage white pupils attend schools where less than 10 per cent of students are eligible. The same is true of Filipino-Americans and, for Korean-

Table 3. *School characteristics by national origin*

Group[1]	N	Urban school %	Private school %	Minority students in school[2] %	Students eligible for subsidised lunch programme %	Net nationality effects controlling for school context[3]	
						GPA	Test scores
Chinese	238	44.1	14.7	26.1	11.4	.395***	6.04***
Filipino	218	39.4	20.6	22.0	8.4	.195**	1.02
Korean	152	34.9	16.4	15.6	6.9	.370***	6.23***
Mexican	769	41.2	5.9	49.6	26.2	−.126**	−4.08***
Other second generation	2,062	40.4	29.8	16.8	8.8	—[4]	—[4]
White of native parentage	2,485	23.5	24.2	6.3	8.2	—[4]	—[4]
R²						.023	.172

[1] Foreign parentage except where indicated.
[2] Students classified as black, Hispanic, or Asian by the respective school system.
[3] Controlling for school characteristics listed in prior columns. The total nationality effect on both dependent variables is given by coefficients in Column I of Table 2.
[4] Used as reference category.

Americans, the figure is still lower. Children of Mexican immigrants, in contrast, attend schools where more than 25 per cent of their peers are entitled to free lunch because of low family income.

These figures are in line with the known history and situation of each immigrant group and suggest that differences in the social environment of schools can be the prime explanation for differences in achievement. Preliminary evidence in the last column of Table 3 does not support this expectation, however. Effects of Chinese, Korean, and Mexican national origin fail to disappear after controlling for school factors and even the Filipino effect remains significant on school grades.

Yet, a rigorous test of school contextual effects cannot be conducted in an OLS framework because the cluster design of the sample violates the assumption of independence of cases and homoscedasticity of residual variances. Students sampled in the same school are not independent and OLS estimates of contextual effects are, at best, inefficient (Bryk and Raudenbush 1992). For this reason, we turn to Hierarchical Linear Models (HLM) where individual-level slopes are modelled as outcomes of second-level regressions, with school characteristics as predictors. The procedure provides statistically robust estimation of contextual effects on the dependent variables plus analysis of how school factors interact with individual and family predictors.

The individual or student-level equation is:

(I) $S_{ij} = \beta_{oj} + \Sigma \; \beta_{1j} (X_{ij}) + \varepsilon_{ij}$

Where:

S_{ij} = score of student i in school j.
β_{oj} = average test score in school j.
β_{ij} = regression coefficients associated with each predictor.
X_{ij} = a vector of individual and family predictors.
ε_{ij} = a residual term with expected mean 0 and normal variance σ.

The contextual or school-level equation is:

(II) $\beta_{nj} = \Phi_{n0} + \Sigma \, \Phi_{nj} \, (\gamma_{nj}) + \mu_{nj}$

Where:

$\beta_{nj} = n$ intercept or slope in school j.
$\Phi_{n0} =$ the grand mean intercept or slope for all schools.
$\Phi_{nj} =$ regression coefficients associated with each school predictor.
$\gamma_{nj} =$ a vector of school predictors.
$\mu_{nj} =$ residual between-school variance.

This analysis focuses on the extent to which school contexts directly affect student performance and modify the effects of individual-level predictors. In particular, we are interested in whether schools mediate group differences on achievement. In the interest of parsimony, we limit the analysis to test scores which is the most objective indicator of performance (grades were self-reported) and the one where effects of national background are most evident. By centering all predictors on their respective means, the intercepts in equation I represent the average score of students in each school and the intercept in II is the grand mean for the entire sample.

Schools, not individuals, are the units of analysis and eligible schools are those with a sufficient number of Mexican or Asian students to allow model estimation. In this instance, merging Chinese and Korean origin students is justified by their similarity of individual and family characteristics and comparable positive effects on the dependent variable. There are 79 schools in the NELS sample with a sufficient number of Mexican cases and 33 with sufficient Asian cases for analysis. Ethnic coefficients are included as outcomes in the respective sub-sample of schools, with students from other backgrounds as the reference category.

The HLM routine first computes OLS coefficients for equation I and then adjusts them for within-school reliability. The resulting empirical Bayes [EB] coefficients are entered as outcomes in second-level regressions. To avoid clutter, we do not model sociodemographic factors shown in the previous analysis, but retain them as controls when computing equation I. Tables 4-A and 4-B present the results. Since the number of overlaps across sub-samples (schools with both Mexican and Asian students) is small, the parallel results are interpretable as quasi-independent replications of second-level coefficients. The first panel of each table presents a random coefficients model, where intercepts and slopes are modelled as outcomes of their respective grand mean plus residual variance. This preliminary analysis is necessary to establish whether enough variance exists to justify further investigation. It also provides the baseline for an R^2 analog by comparing residual variances after computation of the full model.

The analyses of variance in the first panel of Tables 4-A and 4-B show wide dispersion of test scores from one school to another, as indicated by the high chi square value for the residual variance of the intercepts, β_{0j}. The corresponding chi square values for the slopes indicate that effects of parental SES and Mexican origin also show significant variation, lending themselves to further analysis. There is little variation, however, around the grand mean of other predictors. In particular, English knowledge and hours of homework have strong, positive, and invariant effects in both model estimations. Each unit in our knowledge of English measure, for example, increases test scores by about 3.25 points in the

Table 4-A. *Hierarchical linear models of predictors of achievement scores in schools with sufficient Mexican-origin students*[1]

	β_{oj} (Mean score)	β_{1j} (Parental SES)	β_{2j} (English knowledge)	β_{3j} (Homework hours)	β_{4j} (Friends' parents known)	β_{5j} (Parental school involvement)	β_{6j} (Mexican origin)
I. Analysis of variance:							
Φ_{no} (Intercepts)	48.268	2.926	3.254	.849	.289	.243	−1.697
t-ratio	83.04	9.23	7.22	6.78	2.34	2.38	3.22
	(.001)[2]	(.001)	(.001)	(.001)	(.02)	(.02)	(.01)
μ_{nj} (Residual variance)	27.551	1.865	—[3]	—[3]	.220	.580	8.322
Null hypothesis chi square:							
$\mu_{nj} = 0$	754.73	96.779	—	—	75.30	33.04	130.14
	(.001)	(.07)	(<.10)	(<.10)	(>.50)	(>.50)	(.001)
Reliabilities	.92	.18			.14	.15	.32
II. Contextual predictors:							
Φ_{no} (Intercepts)	48.256	2.949	—[4]	—[4]	—[4]	—[4]	−1.708
t-ratio	115.27	10.35					3.37
	(.001)	(.001)					(.001)
Φ_{n1} (School SES)[5]	.630	.305					−.225
t-ratio	2.69	1.94					.77
	(.01)	(.06)					(n.s).
Φ_{n2} (Minority students)	−1.969	−.628					.753
t-ratio	5.19	2.42					1.58
	(.001)	(.02)					(.10)
Φ_{n3} (Private school)	4.378	−2.650					−4.450
t-ratio	2.21	2.00					1.81
	(.03)	(.05)					(.07)
$\mu_{nj/nm}$ (Residual variance)	13.072	.155					6.041
per cent explained variance	52.55	91.69					27.41
Null hypothesis chi square:							
$\mu_{nj}/\sigma_{nm} = 0$	501.30	86.72					118.40
	(.001)	(.17)					(.001)
N = 79							

[1] Controlling for age, sex, and foreign origin. The respective coefficients are omitted to avoid clutter.
[2] Significance level in parentheses.
[3] Between-group variance near zero. Coefficient fixed to allow model estimation.
[4] Coefficient not modelled because of insufficient between-group variance.
[5] Measured as the reflected percentage of students eligible for subsidised federal lunch programme.

Table 4-B. *Hierarchical linear models of predictors of achievement scores in schools with sufficient Asian-origin students*[1]

	β_{0j} (Mean score)	β_{1j} (Parental SES)	β_{2j} (English knowledge)	β_{3j} (Homework hours)	β_{4j} (Friends' parents known)	β_{5j} (Parental school involvement)	β_{6j} (Asian origin)
1. Analysis of variance:							
M_{no} (Intercepts)	48.275	3.134	3.442	.809	.335	.312	5.736
t-ratio	82.98	10.68	7.67	6.46	2.70	2.90	7.88
	(.001)[2]	(.001)	(.001)	(.001)	(.01)	(.01)	(.001)
μ_{nj} (Residual variance)	27.561	1.241	—[3]	—[3]	.225	—[3]	2.155
Null hypothesis chi square:							
$\mu_{nj} = 0$	612.12	48.85	—	—	33.97		27.167
	(.001)	(.03)	(>.50)	(>.50)	(.37)		(>.50)
Reliabilities	.93	0.18	<.10	<.10	.15		<.10
II. Contextual predictors:							
Φ_{no} (Intercepts)	48.261	3.128	—[4]	—[4]	—[4]	—[4]	—[4]
t-ratio	115.21	11.37					
	(.001)	(.001)					
Φ_{n1} (School SES)[5]	.631	.314					
t-ratio	2.70	2.09					
	(.01)	(.04)					
Φ_{n2} (Minority students)	−1.961	−.576					
t-ratio	5.17	2.31					
	(.001)	(.02)					
Φ_{n3} (Private school)	4.383	−1.251					
t-ratio	2.22	1.01					
	(.03)	(n. s.)[4]					
μ_{nj}/Φ_{nm} (Residual variance)	13.071	.274					
Per cent explained variance:	52.57	77.92					
Null hypothesis chi square:							
$\mu_{nj}/\Phi_{nm} = 0$	345.86	43.27					
	(.001)	(.04)					
N = 33							

[1] Controlling for age, sex, and foreign origin. The respective coefficients are omitted.
[2] Significance level in parentheses.
[3] Between-group variance near zero. Coefficient fixed to allow model estimation.
[4] Measured as the reflected percentage of students eligible for subsidised lunch.

typical school, with negligible variation around this value.[5] The substantive interpretation of this finding is that effects of these human capital predictors are both robust and impervious to school differences. Effects of social capital, as indexed by our indicators of parental networks and parental school involvement, are both positive, but their substantive contributions are small. Each additional parent known, for example, increases test scores by about a third of a point in the average school. These effects are also invariant in most estimations and are not modelled further. Based on these findings, only the intercepts and the coefficients corresponding to national effects and parental SES are taken to the next analytic level.

Although the Asian coefficient was initially allowed to vary, our final estimation of effects indicates that it also displays little variation about its mean, Φ_{60} (Table 4-B). In the average school, Asian (Chinese/Korean) origin exercises a strong positive effect, increasing scores by 5.7 points. Since less than 20 per cent of Chinese and Korean students attend private schools (see Table 3) and many attend institutions with a substantial minority population, this invariant effect is not attributable to their concentration in elite schools. Instead, the effect is interpretable as evidence of the resilient influence of Asian backgrounds, untamed by differences in school socioeconomic or ethnic composition.

The bottom panels of Tables 4-A and 4B present results of regressing level-I coefficients on school predictors. The model does an acceptable job in accounting for school differences in average performance, explaining 52 per cent of the variance in both estimations. The contextual intercept, Φ_{00}, indicates the mean test score in the typical school (48.2). The coefficient Φ_{01} shows that higher SES schools produce higher average scores. Similarly, Φ_{02} indicates that minority schools lead to a significant disadvantage. The contextual effect of private schools, Φ_{03}, is both positive and reliable. Jointly, these results tell us that high status, non-minority, and private institutions greatly improve academic achievement among second-generation youths, regardless of their individual and family characteristics. This result parallels those from prior research, based on national samples (Coleman et al. 1982; Raudenbush and Bryk 1986).

It is scarcely surprising that a privileged school context improves academic performance. More interesting is how these school characteristics impinge on effects of parental status and a disadvantaged ethnicity. The coefficient Φ_{10} represents the effect of parental SES in the typical school. As already seen, this effect is both positive and strong. In addition, however, average school SES leads to a steeper slope, as shown by Φ_{11}. This indicates that students from higher-status families perform even better when they attend schools where their peers come from similar backgrounds. On the contrary, the presence of a large minority student population flattens the parental SES slope, as shown by Φ_{12}. The compounded effect of a privileged school environment is portrayed graphically in Figure 2, which presents regressions of test scores on parental SES in high SES and mostly white vs. low SES and mostly minority schools. The steeper slope in the first type of schools shows how these institutions reinforce rather than neutralise individual ethnic and status inequalities. The opposite situation obtains, of course, for students forced to attend low SES and minority schools.

Enrolment in private schools has, on the contrary, a seemingly equalising effect. This is shown by the corresponding coefficient in both model estimations which flattens the parental SES effect. This finding agrees with those reported by other authors concerning the attenuated influence of individual status in private
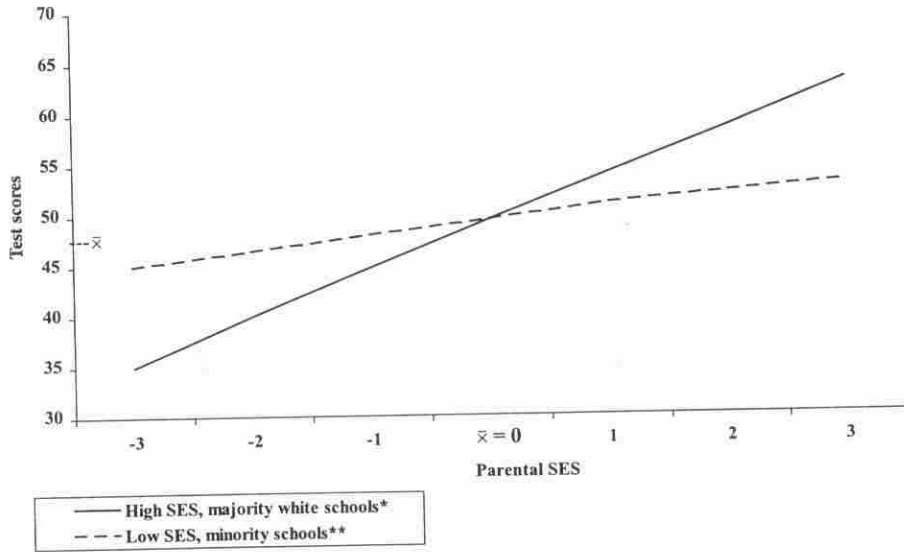
Figure 2. *Effects of parental SES on test scores in two types of schools (NELS 1988)*

schools (Coleman et al. 1982; Bryk and Raudenbush 1992). These institutions appear to simultaneously improve test scores and reduce family inequalities among their students. The debate whether this represents a genuine educational effect or is a result of self-selection by the more motivated parents into private schools continues to the present.

HLM results confirm the significant drop in academic achievement associated with a Mexican background, as indicated by coefficient Φ_{60} (Table 4-A). The model does not satisfactorily account, in this case, for between-school variance. However, two school-level predictors reach significance at the .10 level. These coefficients, Φ_{62} and Φ_{63}, are of opposite signs but their substantive meaning is the same. In essence, they show that Mexican students do *worse* relative to their peers in majority white and private schools. The handicaps associated with a disadvantaged ethnic origin become seemingly clearer in these more competitive academic environments. Since both effects are estimated relative to students in the same school, they are counterbalanced by the overall higher performance of all students in elite institutions. In other words, Mexican-American students can do significantly worse than their peers in private, majority white schools, but their test scores are still superior to those of their co-ethnics in minority public schools. These paradoxical but important contextual effects are illustrated in Figure 3.

The last row of Table 4-A shows that the contextual model explains over 50 per cent of between-school variance in test scores and over 90 per cent in the effect of parental SES, but it accounts for less than 30 per cent of differences in the Mexican ethnic effect. Put differently, average school status and ethnic composition do not satisfactorily explain why Mexican-American students do worse in some schools than in others. When taken together with the invariant
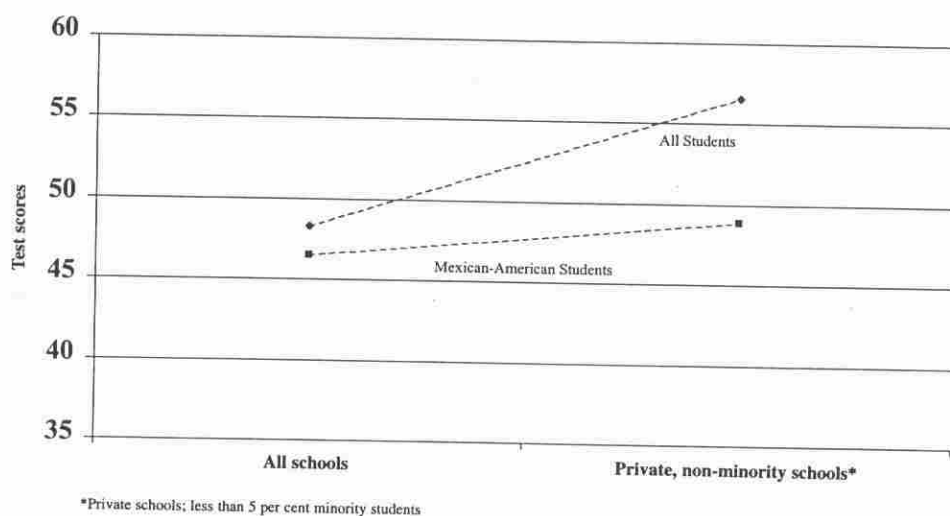
*Private schools; less than 5 per cent minority students

Figure 3. *Academic performance of Mexican-American and other students by school type*

Asian coefficient in Table 4-B, this result lends support to the conclusion that school characteristics do not account for differences in academic performance among immigrant nationalities. This conclusion, adumbrated by earlier OLS results, is fully corroborated in this analysis.

Hence, we reach the end of our analysis finding that neither human or social capital, nor even the schools that children attend, explain the resilient national differences in educational outcomes. The origins of such differences must be sought in factors of a broader, collective scope. There is room for speculation concerning what these factors are, including the unique cultural make-up of particular immigrant groups. The available data cannot persuasively separate these potential influences from those of contexts of reception. However, we believe that the overlap between the observed nationality differences and the known modes of incorporation of each group, plus additional data on the problematic character of culturalist explanations of these differences, offer tentative support for the third hypothesis. We return to this point next.

Conclusion

Sustained immigration during the last 30 years has had profound consequences for the ethnic structure and patterns of inequality in American society. To a considerable extent, this influence is linked to the settlement experience and economic performance of adult immigrants. More importantly for the future, however, will be the course followed by their children – American citizens and full participants in the society and culture. The data examined in this article offer a number of insights about this new second generation. They confirm, first of all, past results that adaptation outcomes are not uniform: some children are doing much better than others. These differences are due, in part, to family socio-economic status and, in this respect, children of immigrants are no different from their native-parentage peers. One's own family status and that of other children in the same school directly influence academic performance and tend to reinforce each other.

The data allow us to test currently popular ideas about the effects of social capital. We find a positive association between indicators of social capital and children's academic performance, but one of these effects disappears when controlling for other factors and the others, though reliable, are quite small. Based on these results, it appears that the significance attributed by the recent literature to intact families, closure of parental networks, and parental involvement in school may be exaggerated, at least as far as second-generation youths are concerned. Parents' status, children's study habits, and knowledge of English are far stronger determinants of educational success.

The main story in these results is, however, the wide gap in achievement between the four largest immigrant nationalities arriving during the last decade. The initial handicap or advantage associated with specific national origins does not disappear after statistically removing the effects of human capital and social capital. Further, students of Chinese/Korean origin appear impervious to potential handicaps in the schools they attend: they perform as well, relative to their peers, whether they attend high-status schools or poorer schools with large minority populations. The handicaps associated with a Mexican background do vary widely and become more apparent in the competitive environments associated with elite schools. This result again highlights the vulnerability of children raised under such conditions of disadvantage. Yet school contexts do not fully account for the negative Mexican effect, again pointing toward durable inter-ethnic differences of a broader scope.

A ready explanation for these differences is the cultural make-up that different immigrant groups bring along and that influences both their home environment and the socialisation of their young. Hence, for example, Chinese and Korean children are reared in a cultural environment heavily influenced by Confucianism and its ethical principles (Hirschman and Wong 1986). This blanket explanation runs immediately into a number of problems, including the fact that the majority of Chinese and Korean immigrants are not Confucians and that a significant majority are actually Christians. In addition, other Asian immigrants also coming from areas influenced by Confucianism have different and less successful trajectories and their children perform less well in school (Rumbaut 1994; Rumbaut and Ima 1988). Further, past research among Latin-origin students also indicate wide differences in school adaptation, with children of Cuban and Central American refugees exhibiting higher levels of academic performance that vie with those of achievement-oriented Asian minorities (Portes and MacLeod 1996; Suarez-Orozco 1996). A common Latin/Catholic heritage does not seem to lead to a uniform pattern of disadvantage.

Our results appear to fit better the notion of different modes of incorporation affecting subsequent patterns of settlement and the eventual character of the ethnic communities within which children grow up. Other recent studies have come to similar conclusions. Most of this literature consists of ethnographies of immigrant communities in various cities. Academic success or failure of second-generation youths emerge from these studies as a seeming self-fulfilling prophecy, based on the contexts of reception and settlement history of the parents (Fernandez-Kelly and Schauffler 1994; Smith-Heffner 1999; Waters 1994; Zhou and Bankston 1998). Parents who are members of well-received and successful groups exude self-confidence and assume that their children's college education is not a dream, but a *fait accompli*. In contrast, immigrant parents struggling with poverty and the cumulative consequences of a negative context of reception

despair at exercising control over their children and fear that, instead of following the academic route to success, they will drop out and join the drug culture (Suarez-Orozco 1996). These results add context and meaning to our findings.

From all this empirical evidence, it seems clear that not only parental education or social networks, but the entire weight of experiences of an immigrant group plays a key role in its children's education. What individual immigrants bring along in the way of human and social capital is important, but so is the structural context that receives them and sets them in their course. Governmental hostility and nativist discrimination against certain groups do society a poor service to the extent that these groups remain and settle under such conditions of disadvantage. Their vulnerability carries across generations and reproduces educational and social handicaps among their young. These handicaps may lead, as a self-fulfilling prophecy, to the very pathologies of which the earlier immigrants were groundlessly accused. As American society continues to add large numbers of immigrants, the patterns of incorporation of today's arrivals will play a decisive role in the future ethnic make-up of the country and the extent to which newcomers will help neutralise or, on the contrary, exacerbate present inequalities and conflicts among its ethnic groups.

Acknowledgements

Notes

1 Past studies have shown that self-reports are actually reliable and valid indicators of language knowledge. The indicators used in this analysis are the same employed by the U.S. Bureau of the Census to measure English language competence. See Fishman (1969), Fishman and Terry (1969), and Portes and Rumbaut (1996).

2 Item components of this Index and item-to-total correlations are presented in Appendix A. While the α coefficient indicates only modest internal consistency, the pattern of intercorrelations is consistently in the predicted direction and the content of items closely corresponds to the meaning of the variable of interest. Changes in the composition of the Index do not substantively alter the results reported in the following tables.

3 For most of the first half of the twentieth century, the Philippine Islands were an American protectorate. The diffusion of the English language and American customs among the population makes Filipino immigrants far more knowledgeable about US culture than those from most countries. See Espiritu (1996).

4 The averages for this residual category are the result of cancelling out of wide differences in performance among students from smaller nationalities. These differences (not shown) also support the premise of heterogeneity in educational adaptation outcomes.

5 This figure is not the same as that reported for individual-level regressions because the sample and model specifications differ. As explained in the text, the school samples on which these models are estimated were restricted in order to obtain sufficient number of students from the target nationalities.

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Appendix A: Index of parental educational involvement

Item	Item-to-total correlation
1. Student frequently discusses school programmes with parents	.34
2. Student frequently discusses school activities with parents	.33
3. Student frequently discusses things studied in class with parents	.35
4. Parents regularly attend school meetings	.33
5. Parents regularly speak to teachers or counselors	.21
6. Parents have visited student's classes	.22
7. Parents frequently check student's homework	.21
Internal consistency: $\alpha = .56$	

Appendix B: Measurement characteristics of variables used in the analysis

Name	Measurement	Range
Individual variables:		
Age	Self-reported birth year. Total sample missing data: 1.8 per cent	13 or less to 16 or more
Family composition	Report of household arrangements drawn from student questionnaire data. Total sample missing data: 1.4 per cent	0 = Either biological parent absent 1 = Both biological parents present
Foreign origin	Composite of parent's report of child's birthplace and, if foreign-born, length of US residence	0 = US-born 1 = Foreign-born with 6 years or more in USA 2 = Foreign-born with less than 6 years in USA
Grade point average	Student self-report of grades in English, mathematics, science, and social studies. All non-missing responses weighted equally. Total sample missing data: 1.2 per cent	0.5 to 4.0 (highest)
Homework hours	Self-reported number of hours spent in school homework per week. Total sample missing data: 6.8 per cent	1 = None to 8 = 21 hours or more
Knowledge of English	Unit weighted composite of student self-reported ability to read, write, speak, and understand English. Native English speakers coded 5 in all items. Total sample missing data: 0.7 per cent	1 = Not at all to 5 = Very well
Parental networks	Sum of reported parental knowledge of parents of child's five closest friends. Average missing data per friend: 0.5 per cent	0 = No parents known to 5 = Five parents known
Parental school involvement	Unit-weighted index of self-reported parental interactions with student on school matters and participation in school activities.	0 = None or infrequent to 7 = Very frequent

Parental education	Highest level of education reached by either parent. Data drawn from parent and student questionnaires. Total sample missing data: 2.0 per cent.	1 = High school to 6 = Ph. D., M. D. or equivalent
Parental socioeconomic status	Standardised average composite of father's and mother's education and occupational status (SEI scores) plus family income. All non-missing items weighted equally. Index computed with at least one missing item. Total sample missing data: 0.0 per cent	− 2.97 to 2.56 (highest)
Sex	Total sample missing data: 0.0 per cent	Males = 0 Females = 1
Test scores	Standardised composite of math and reading scores from objective tests administered to students in 1988. Total sample missing data: 3.7 per cent	25.45 to 70.98 (highest)
Contextual variables:		
Average school SES	Obverse of percentage of students eligible for receiving free school lunches, collapsed into seven categories. Missing data of less than 5 per cent recoded to sample mean.	0 = Over 76 per cent eligible to 7 = None eligible (high)
Per cent minority students	Percentage of black, Hispanic, and Asian/Pacific Islander students in school, collapsed into seven categories. Missing data of less than 5 per cent recoded to sample mean.	0 = None to 7 = 91 per cent or more
School type	All private schools collapsed into single category. No missing data.	0 = State school 1 = Private school

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