Family-School Connectivity:

Barriers and Opportunities for Academic Achievement among Children of Immigrants

By

Jennifer E. Glick

Center for Population Dynamics
School of Social and Family Dynamics
Arizona State University

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Abstract: This paper examines the role of family-school connectivity on the academic trajectories of children of immigrants in US schools and asks the extent to which parental involvement in schools is more effective in some school settings than others. The analyses focus on non-Hispanic White, non-Hispanic Black and Mexican origin families in the United States whose children are in Kindergarten in 1999-2000 (ECLS-K). The analyses examine different domains of family-school connectivity including parents' activities and motivations for contacting the school as well as the extent to which schools reach out to parents from different linguistic backgrounds. These domains are used to predict children's progress over their elementary school years with multilevel growth models. Results suggest parental involvement is advantageous for children's success and is more beneficial when schools reach out to parents from different linguistic origins.

[1] Contact: Jennifer Glick, Center for Population Dynamics, School of Social and Family Dynamics, Arizona State University Box 3701 Tempe, AZ 85287, Jennifer.Glick@asu.edu. This research was supported by a grant from the American Educational Research Association which receives funds for its "AERA Grants Program" from the National Science Foundation and the National Center for Education Statistics of the Institute of Education Sciences (U.S. Department of Education) under NSF Grant #DRL-0634035. Opinions reflect those of the author and do not necessarily reflect those of the granting agencies.

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Jennifer E. Glick, Arizona State University

Introduction:

There is considerable concern among policy makers and in the research community that children of immigrants in the United States today face barriers to their academic progress that are not easily remedied by education policies per se. For example, children of immigrants are more likely than their peers to come from non-English homes where parents and caregivers have limited experience interacting with US institutions such as the school system. These children are more likely to come from low income homes and homes with lower stores of human capital in the form of parental education (Battle, 2002; Feliciano, 2006; Teachman, 2007). While these are indeed obstacles to educational achievement in many ways, other scholars note the high educational expectations immigrant parents often hold for their children (Fuligni, 1997; Kao and Tienda, 1995). Parental involvement in the home is also often high among immigrants (Glick and Hohmann-Marriott, 2007). Thus, educators face the challenge of tapping into the very real strengths of immigrant families while also reaching out to these families in the face of linguistic or structural barriers that could prevent high levels of parental involvement in children's schooling.

This paper follows on research that has elucidated the constraints, such as poverty and school segregation, as well as the benefits, such as highly motivated parents, that children of immigrants bring to the educational sphere (Crosnoe, 2006; Glick and Hohmann-Marriott, 2007). The combination of early school experiences and family background can have long lasting effects over the course of a child's schooling (Alexander, Entwisle and Horsey, 1997). Understanding how families from very different backgrounds interact with schools and teachers will help build successful collaborations between immigrant families and the schools their children attend. The focus here is on Mexican origin families and their non-Hispanic white and Black counterparts. Mexican origin families are particularly important as

they represent the largest immigrant group in the United States as well as a long established history with many individuals in the second, third and higher generations as well. Mexican origin children are the fastest growing group of children of immigrants in US schools. Crosnoe's earlier work with the ECLS-K dataset demonstrated the numerous disadvantages faced by Mexican origin children including high levels of poverty, non-English home environments and poorer health in childhood (Crosnoe, 2006). Further, theoretical concerns about the potential downward trajectories of some children of immigrants suggest a need to compare these children to their peers in other racial/ethnic groups. For this paper, children of Mexican origin immigrants are compared to their peers from non-immigrant Mexican origin families, non-Hispanic White families and non-Hispanic Black families.

Background:

Several dimensions of immigration may be associated with differences in the connections families make with their children's schools. Nativity of the parent(s) is only one factor that is associated with differences in school outcomes for children of immigrants. Children of immigrants are a diverse group with very different family backgrounds and immigration histories. Although some of these children are foreign born themselves, placing them in the first (or sometimes referred to as the 1.5) generation, most young children in immigrant families are the US born children of at least one foreign-born parent, referred to as second generation children. Regardless of whether they are in the 1.5 or second generation, these children may share the experience of being socialized in families with recent migration histories, non-English linguistic origins and limited exposure to schools in the United States.

If parents have limited experience with US schools, they may be less involved in their children's schooling even if they hold optimistic views of the importance of schooling for their children. Positive parent interactions with teachers or other school personnel provide support for the student that may encourage school achievement (Lareau, 1989). For example, parental involvement in children's schooling enhances academic achievement and provides some explanation for group disparities in educational outcomes (Lee & Bowen, 2006; Hao & Bonstead-Bruns, 1998). Interactions of family and school may

serve as a key resource for young children in schools (Lareau & Horvat, 1999; Parcel & Dufur, 2001; Zellman & Waterman, 1998). Despite their high level of interest in involvement in their children's schooling, language barriers and unfamiliarity with US schools may also limit parental involvement in children's schooling (Coll et al., 2002; Crosnoe, 2006; Wong & Hughes, 2006).

It may be that parental involvement in schools is less effective in altering children's academic trajectories if parents are reluctant to challenge school personnel or face other barriers. In other words, immigrant parents may not only be less likely to interact at their children's schools but such interactions may be less associated with children's achievement for children of immigrant or minority parents when compared to the effects of parental involvement for non-Hispanic whites.

Other characteristics of immigrant families could be associated with the level of involvement or effectiveness of this involvement for children's academic outcomes. Home language environment is also salient for academic progress in the elementary years of schooling (Oller et al., 1997). Increasing children's English proficiency is a goal of many specialized programs. However, differences in home language environment may not only directly influence children's own linguistic development but are reflective of familial cultural environment and interaction ease with other social institutions including medical and educational professionals. Some comfort with English may be necessary to make interacting in schools both possible but also effective for parents (Coll et al., 2002). Therefore, it is vital that research consider not only the direct impact of a non-English home environment on individual children's achievement but the possibility that this impact is felt through lower parental involvement in schools with limited outreach to immigrant families.

Although there is considerable concern about the burden placed on schools faced with the challenge of teaching children with limited English proficiency, it is not clear if language background per se has a cumulative impact on children's academic achievement over time or the extent to which concentration of limited English proficient children in schools is associated with worse outcomes over time. Teacher and school characteristics are associated with academic success of minority children

(Alexander, Entwisle and Thompson, 1987; Lareau and Horvat, 1999; Suarez-Orozco and Suarez-Orozco, 2001). To assess the role of school and teachers on children of immigrants' academic progress, the analyses consider the extent to which schools reach out to families in their own home language in addition to English. The school outreach may impact children of non-immigrants as well as children of immigrants. If parents perceive the school is inclusive and attentive to the needs of families in the community, they may feel more welcome regardless of their own nativity.

Yet, when school characteristics are taken into account, immigrant youth appear less impacted by these than other students (Ryabov and Van Hook, 2007). It may be that immigrant children are 'protected' by their family social capital (Kao and Tienda, 1995). On the other hand, immigrant families may also be better able to interact and be supportive of children's school activities in those settings where more immigrants are concentrated even if this means the school has an overall profile of lower socioeconomic status. The primary contribution here, therefore, is to consider the interactions of family and school characteristics that may promote children's success in school. All of these characteristics are expected to influence parental involvement and children's academic progress. But, parental involvement is expected to be particularly effective in some settings such as those that reflect the family's characteristics (i.e. ethnicity of the staff or language used to communicate).

The guiding research questions here are: 1) Do Mexican immigrant families face more or fewer barriers to school involvement than their non-Hispanic white and Black counterparts?; and 2) Does parental involvement among Mexican immigrant parents translate into greater academic success for their children than for the other groups? The descriptive analyses will illustrate group differences in reported barriers to school involvement as reported by the parents. The multivariate analyses will address the extent to which children's academic test score trajectories are differentiated by child and family characteristics as shown by previous research. But these analyses go further to examine the extent to which family characteristics including parental nativity, home language background interact with parental

involvement so that some parents' involvement is more strongly associated with test score growth for their children than for majority white children.

Data and Methods :

These analyses rely on data from the Early Childhood Longitudinal Study-Kindergarten cohort. The repeated measures included in the ECLS-K data allow for consideration of children's progress over time while including both time fixed characteristics, like ethnicity, and time varying measures, like school composition. The analyses use four waves of data from the spring of kindergarten, first grade, third grade and fifth grade. The focus here is on two gaps: the gap in parental involvement in children's school by parental race/ethnicity/nativity and the achievement gap in mathematics by children of these parents. To keep the focus on the largest group of immigrants' children in the United States and consider the role of racial and ethnic minority status, the sample is restricted to those of Mexican or Black origins compared to non-Hispanic Whites. The final sample is designed to compare children by their mothers' nativity and ethnic origins. Thus, children of Mexican born mothers (n = 585) are compared to those with US born mothers of Mexican origin (n=363), non-Hispanic Black US born mothers (n = 810), non-Hispanic Black foreign born mothers (n= 65), non-Hispanic white foreign born mothers (n = 229) and non-Hispanic white US born mothers (n = 5,515).

There are several different ways to measure children's academic progress in school with the ECLS-K survey including teacher assessments of behavior and attention, direct math and reading tests or grades. To estimate children's academic trajectories, it is necessary to have repeated measures of academic performance with standardized scoring. The analyses presented here employ the math test scores repeatedly administered across waves. The scores are estimated with Item Response Theory (IRT) and converted to z-scores (Glick and Hohmann-Marriott, 2006; Glick and Bates, 2009). Multilevel growth curve regression models estimate children's growth in math scores as a function of time up to fifth grade accounting for time varying and fixed characteristic of children and the schools they attend (Raudenbush

& Bryk, 2002; Raudenbush, 2001). The models here include interactions with time to allow variation in the slope for growth. Interactions with time represent diverging achievement trajectories associated with each independent variable. Time is centered on the mean age of children in spring of kindergarten. The intercept in the models represents children's math scores at baseline. The analyses also account for missing data via multiple imputations.

The first table illustrates differences in children's scores (IRT scaled), presented as z-scores for ease of comparison, over time. Table 1 demonstrates the strong racial/ethnic and nativity differences in children's academic performance and includes both math and reading test scores although math scores are the focus of the current analysis. Non-Hispanic white children, with native and foreign born parents, have the highest initial scores and some increase in scores over time. Mexican origin children of native parents start out behind non-Hispanic whites but have strong increases in scores over time reducing this particular ethnic gap. Black children have even lower initial scores and their trajectory does not appear positive at the outset. Thus, there is a crossover in scores between Black children and Mexican origin children of immigrant parents. The children of Mexican immigrants improve in their math scores over time. By fifth grade, Black children have the lowest scores of all groups followed by the children of Mexican immigrants.

(Table 1 about here)

Independent variables in the analyses reflect child and family characteristics, both time fixed and time varying. Descriptive statistics from the weighted sample are presented in Table 2. Children's age and sex are included in all models. In addition, family structure in the kindergarten wave of the data is included as a series of dummy variables. Single parent, step-parent and other family forms are contrasted with two biological parent families. A single dummy variable is used to indicate homes in which a non-English language is the primary language used. Although somewhat correlated with mother's nativity, there is sufficient variation within nativity groups and sufficient theoretical motivation to include home language in the models. To capture human capital, mother's education is also taken from the kindergarten wave and measured in three categories: Less than high school, high school only, more than high school

(reference group). Family socioeconomic status (a scale of income, items owned, etc.) is included and allowed to vary across the four waves of the data.

(Table 2 about here)

There are many school-level measures available in the ECLS-K and several of these are repeatedly measured allowing analyses to consider changes in children's school environments over time. For the analyses presented here, two measures of the school are included. First, a dummy variable indicating attendance at a school receiving Title I funding is included to proxy high concentrations of children from low socioeconomic or immigrant or indigenous origins. This measure can be interpreted as a broad control for the status of the community in which the school is located because schools serving particularly low income or other populations with high service needs receive these funds. Approximately sixty-five percent of the schools in the sample receive these funds. A second measure of the school is the percent of the student body designated as limited English proficient (LEP). Previous research on the school segregation of immigrant children suggests such segregation has less impact on their academic performance than their native counterparts (Ryabov & Van Hook, 2007). Schools in this sample have relatively low proportion of children designated as LEP but there is considerable variation such that Mexican origin children attend schools with higher proportions of children with this designation when compared to the other groups in the sample.[2]

The analyses presented here employ multilevel growth curve models to predict children's academic trajectories over time controlling for the family, child and school characteristics. The goals for these models are to determine the extent to which parent-school involvement is associated with children's achievement trajectories and to consider whether this involvement is more effective for some groups than others. Here parental involvement is measured with three variables that are available in all four waves of the ECLS-K data: participation in the parent-teacher organization at the school, attendance at an open

[2] Cross sectional analyses also examined whether the child's teacher is of Hispanic origin. These results suggest some modest support for greater parental involvement when Hispanic origin children have Hispanic origin teachers. Unfortunately, the ethnicity of all of the children's teachers is not available and there is considerable missing data at the school-level so this measure is not included in the growth models presented here.

house event at the child's school and attendance at a parent-teacher conference during the school year. All analyses are weighted and adjusted for the clustered survey design through the use of the "survey" commands in SAS. Multiple imputations are used to deal with missing data and allow for analyses with a larger number of cases.

Descriptive analyses by race/ethnicity and nativity. Although the descriptive statistics presented in Table 2 are for the entire sample, examining these background characteristics by group confirm the disadvantaged backgrounds of many children of Mexican immigrants in US schools. The continued racial stratification in American society is also in evidence by the low socioeconomic status and high prevalence of single mother families among Black children when compared to both Mexican and non-Hispanic whites.

There is considerable variation in the levels of parental involvement in children's schooling over time. Parental participation at children's schools varies by race, ethnicity and nativity. Table 3 illustrates the levels of participation by race/ethnicity/nativity and over time. This involvement varies depending on the type of activity being compared. For example, parent participation in parent-teacher organizations is lower than the other measures of involvement. This is not surprising perhaps because the time commitment for this activity is greater than the other two measures of involvement. Attendance at school open house events and parent-teacher conferences are higher but also show variation by nativity.

(Table 3 about here)

Children of foreign born parents tend to have parents with lower levels of participation, especially in the earlier years of formal schooling. Thus, not only is there racial/ethnic/nativity variation at the outset but also a great deal of temporal variation in parental involvement. Immigrant parents report increased participation over time. There is certainly little evidence that immigrant parents become too discouraged to participate. Rather, the temporal pattern suggests increased comfort or interest in participating in children's schooling. However, while all groups increase participation between the kindergarten and first grade year, native Black parents drop off in participation in third grade. Mexican immigrant parents, on the other hand, evidence increases in participation. All groups show a leveling off in participation levels

by fifth grade, a finding consistent with previous research showing higher levels of parental involvement in the first few years of formal schooling.

The results in Table 3 suggest a fairly high level of parental involvement in children's schooling but it is clear that many parents are still not attending events or participating at their children's school even if they are engaged in other learning activities at home (Glick and Hohmann-Marriott, 2007). It is possible that some of the group variation in participation is due to perceived or structural barriers to their involvement. Immigrant parents are expected to face these barriers at higher levels than non-immigrant parents. There are several items in the ECLS-K that ask parents to report on reasons why the do not participate or attend events at their children's school. Parents are asked whether they did not feel welcome at the child's school, found that meetings were scheduled at an inconvenient time and/or found that written materials or meetings were not conducted in the home language. Obviously, this last item is of particular interest for schools serving large immigrant communities. However, for some immigrant parents this is not a problem either because the parents speak English, as is the case for many non-Hispanic white foreign born parents, or because the school provides bilingual materials, as is the case for some schools serving immigrant communities. Table 4 reports the frequency of all three of the reported barriers to participation across the waves of the ECLS-K data.

(Table 4 about here)

It seems likely that immigrant parents, who may have limited familiarity with U.S. schools, find the school to be an unwelcoming environment. While, few parents report that they feel unwelcome at their child's school, Mexican immigrant parents report a relatively higher level of discomfort when compared to the other groups. Native Blacks also report fairly high levels of discomfort. While this does not reflect a lack of familiarity with U.S. schools, it could reflect less trust of these formal institutions. The decrease in reports of discomfort by the last wave of the ECLS-K may not reflect a greater level with

comfort over time but a lack of consistency in the way the question was asked by the final wave of the data[3].

Although relatively few parents report feeling unwelcome at the school, comparatively more parents report that meeting times at the school are inconvenient. Parents with other young children at home or those who work outside the home are likely to face difficulties meeting at the school during regular hours. Schools may not offer alternative times. Other parents may be unwilling to ask for these non-standard meeting times. Either way, minority parents report that they face this particular barrier more than their non-Hispanic White counterparts. Language barriers, on the other hand, are more unique to immigrant parents. Mexican immigrant parents are far more likely to report this difficulty than any other group of parents. Overall, then, minority parents report more barriers to involvement in their children's schooling than non-Hispanic White parents. Although language barriers are unique to some groups, other barriers are present for Black and Mexican origin parents alike.

Simple regression models predicting parental involvement at the children's schools at third grade (not presented here) suggest that these self-reported barriers to involvement at school are predictive of lower levels of actual involvement. For example, consistent with concerns about schools' outreach to language minority communities, children whose parents report problems participating at school because the meetings are conducted in English also demonstrate lower levels of parental attendance at open house events by third grade. This is perhaps unsurprising but does suggest that language barriers to school participation serve as one mechanism through which home language environment and nativity may be influence children's overall academic performance.

Multivariate Analyses. The next step is to determine the extent to which these observed variations in parental involvement help explain differential academic trajectories *and* the extent to which parental involvement is differentially effective in altering academic success across the

[3] Although still the same basic wording by the fifth grade wave, there is a slightly different skip pattern that leaves a large group of parents for whom the question is deemed 'not applicable'.

racial/ethnic/nativity groups included here. The results of the growth curve analyses predicting performance on math tests over time are presented in Table 5.

(Table 5 about here)

The results in model 1 are consistent with previous research showing children's initial scores are associated with child, family background and maternal characteristics (Crosnoe, 2006; Glick & Hohmann-Marriott, 2007). For example, children who were older in kindergarten tend to score higher while boys' scores are lower than girls' scores. Children from lower socioeconomic backgrounds tend to have lower scores than their peers. Children from homes in which English is not the primary language score lower initially than their peers from English only backgrounds. And, children whose mothers have less than a high school education also perform less well on the test than children whose mothers have at least a high school education. Finally, model 1 demonstrates that the controls do not completely explain racial and ethnic variation in academic performance. The children of Black, US born mothers and those of Mexican foreign born mothers have lower scores than children of non-Hispanic White native mothers.

Interactions in the models demonstrate the extent to which family and background characteristics impact children's performance over time. In model 1, family structure and mother's education have cumulative influences such that children whose mother's have less than a high school education see lower improvement or even a decrease in their academic performance over time relative to other children. Further, a significant interaction is observed for children of Mexican foreign born mothers so that the positive trajectory observed in the descriptive analysis persists despite controls for lower family socioeconomic status and home language environment. For Black children, this positive trajectory was not observed in the descriptive data but does emerge in the multivariate analyses suggesting these children would experience even greater improvement in their performance if not for the lower socioeconomic status background of the children's families.

Model 2 adds the school characteristics to the model. School environment is associated with children's academic performance. Children in the schools receiving Title 1 funds do not perform as well initially as their counterparts in other schools. The proportion of the students in the school designated as

limited English proficient is not associated with the initial scores but the interaction with time in the model suggests that the trajectories for children in schools with a greater proportion of LEP students are negative (or not as positive) relative to children in schools with lower proportions of LEP students. The positive trajectory for children of Mexican immigrant parents becomes even stronger when controls for school context are included in the models. In other words, these children experience greater improvement in their academic performance compared to non-Hispanic whites net of the schools they attend.

The final model adds the measures of parental school involvement to the analyses. Preliminary models including these measures without other controls (not shown here) suggested variation in scores associated with involvement. In particular, there appeared to be an initial advantage for children whose parents reported attending open house events. However, in the growth models, these measures are not significantly associated with initial academic performance in the presence of the other independent variables in the model. The interaction with time does suggest a decreased advantage associated with attendance at open house events over time. Thus, the higher scores for children whose parents have high levels of school involvement are accounted for by the higher socioeconomic backgrounds of these families and this initial advantage is lessened over time. There is little change in the coefficients for race/ethnicity/nativity between models 2 and 3.

Family and school characteristics are clearly associated with children's academic performance and help explain some of the race/ethnic and nativity differences observed. Parental involvement in schools is also associated with children's academic performance but this effect is strongly correlated with the educational and economic capital of the parents and does not remain significant when these measures are included in the multivariate analyses. But the question remains as to whether parental involvement is equally effective for children across groups. Based on the considerable barriers to participation reported by minority and immigrant parents, it seems likely that those minority and immigrant parents who do overcome these perceived barriers and become involved in their children's schooling may be particularly effective at translating that involvement into positive outcomes over time. Alternatively, barriers to school involvement may extend to the ability of parents to effectively advocate for their children. In this case the

effect of participation will be negative for minority parents relative to non-Hispanic whites. The same may be the case if parents from non-English backgrounds find they are less able to communicate with school staff or take advantage of information presented at open houses or meetings to help their children. To investigate these possibilities, the next analyses add interactions to the model (i.e. interactions terms added to the main effects of model 3 from Table 5). The significant interaction terms are presented in Table 6.

(Table 6 about here)

The first test is designed to indicate whether parental involvement is less effective for children from non-English backgrounds. The results demonstrate that the effect of parental involvement is actually more positive for children who come from non-English homes. In other words, when parents from these households overcome barriers to become involved in children's schooling, their children's math scores are higher than originally estimated. The effect may be modest but it should be recalled that this model also includes measures for family educational and economic capital as well as school characteristics. This suggests that policies advocating bilingual outreach to parents to encourage their school participation may well pay off in the form of reduced ethnic achievement gaps.

(Table 6 about here)

The results of the second set of interactions, comparing the effect of parental attendance at an open house for children from different race/ethnic and nativity backgrounds, also suggest some differential benefits to this attendance. In particular, Black children are less advantaged by this parental involvement than non-Hispanic white children. But there is no difference in the effectiveness of parental involvement for Mexican origin children, regardless of parental nativity, and non-Hispanic whites. In other words, the differential effectiveness of parental involvement exacerbates racial achievement gaps. This is consistent with ethnographic work showing minority parents face many hurdles to effective advocacy in their children's school (Lareau & Horvat, 1999).

Discussion:

The results presented here are consistent with previous research demonstrating a persistent achievement gap between non-Hispanic white children and their minority counterparts. Children of Mexican immigrants are also initially disadvantaged but they appear to be more likely to reduce the achievement gap with whites than are non-Hispanic Blacks. The descriptive analyses also point to differences in the perceived barriers to parental-school involvement among Black and Mexican origin parents when compared to non-Hispanic Whites. Schools are not perceived as welcoming or accommodating to these parents' involvement.

The multivariate analyses also demonstrate that minority youth are particularly disadvantaged by low socioeconomic status. The trajectories for Black and Mexican origin children would be higher if not for the lower incomes and low maternal education relative to their majority peers. However, for children of Mexican immigrants, some of the achievement gap is reduced over time once these background characteristics are controlled. The models also support previous research suggesting concentration in certain schools is associated with widening achievement gaps. Concentration of limited English proficient students in the school provides an increase in the gap in math test scores over time. For children of Mexican immigrant parents, the gap in achievement is even further reduced (i.e. the interaction with time is even more positive) once controls for school characteristics are included in the model. Thus, children of Mexican immigrants and Black children appear to be particularly disadvantaged by their school context when explaining the divergence in trajectories across groups of children.

The descriptive analyses clearly demonstrate a higher level of frustration and discouragement in school participation among minority and immigrant parents when compared to the native non-Hispanic white counterparts. And, the multivariate analyses suggest some differential effects in involvement on children's outcomes. For parents from non-English backgrounds, overcoming these barriers to participation and attending events at the school is positively associated with gains in children's achievement. The positive interaction of language background and parental attendance at open house events suggests school outreach to non-native English speakers could be particularly effective. This

supports calls for increased outreach by schools to immigrant communities by providing bilingual materials or bilingual staff to encourage parents and allow them to become more familiar with the expectations of US schools.

Yet, the interactions of school involvement and race/ethnicity offer a more pessimistic view. When parents do become involved in their children's schooling, the results suggest Black children do not achieve the same level of benefit from that involvement as their non-Hispanic white counterparts. Further research is needed to understand how actual interactions with schools can be effective for children's achievement but also to help schools lower the barriers to parental involvement throughout children's school years. Once again, however, results point to a persistence of racial and ethnic disparities in school quality, openness and effective parent communication. If children in immigrant families are disadvantaged in US schools, the results here and in previous analyses suggest these disadvantages are based more heavily on the structural divisions in American society than nativity alone. Parental involvement in schools is not only correlated with family educational and economic capital but this involvement is likely to be more effective for influencing children's achievement among majority parents (non-Hispanic whites) than minority parents.

There are some limitations to the analyses presented here that suggest a need to continue research. For example, the perceived barriers to school involvement reported by the parents are also correlated with parental involvement (i.e. parents who perceive more barriers are less likely to be involved in children's schooling). Thus, the analyses could not use both of the measures to predict growth models. The measures suggest a selection approach could be useful but current statistical packages do not offer such two stage or selection modeling approaches within multi-level growth models. Another limitation is the lack of consistency in measures of school and classroom environments over the waves of the ECLS-K dataset. Although teacher ethnicity is available, not all of the children's teachers are included so it is not possible to determine the ethnicity of all of the children's teachers or whether parents have the opportunity to interact with teachers from their own ethnicity even if not assigned to their child. Considerable missing data at the school level, for example, precluded including a measure of staff ethnicity in the models.

Additional work with the data may provide some useful proxies for the ethnic and linguistic compatibility between school personnel and children's families.

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Table 1. Children's math and reading test scores (z scores) over time, non-Hispanic White, Black and Mexican origin only.

	Kindergarten	First Grade	Third Grade	Fifth Grade
Math Scores				
White native born	-0.012	0.052	0.075	0.072
White foreign born	0.059	-0.006	0.085	0.060
Black native born	-0.690	-0.649	-0.794	-0.877
Mexican native born	-0.299	-0.171	-0.105	-0.082
Mexican foreign born	-0.941	-0.632	-0.674	-0.620
Reading Scores				
White native born	0.051	0.033	0.065	0.056
White foreign born	0.084	-0.011	0.144	0.043
Black native born	-0.391	-0.439	-0.602	-0.745
Mexican native born	-0.011	-0.113	-0.248	-0.148
Mexican foreign born	-0.552	-0.631	-0.824	-0.832

Source: ECLS-K, Kindergarten-Fifth Grade

Table 2. Descriptive Statistics, ECLS-K Sample
non-Hispanic White, Black and Mexican origin only.

	Mean	Std. Dev.
Child and Family Background[1]		
Child's Age	6.17	0.51
Male	51.4%	
Family SES	3.04	0.04
Home language is non-English	9.07%	
Family structure		
Two Parents	64.6%	
Step Family	22.4%	
Single Parent	8.7%	
Other Family	4.3%	
Mother's Characteristics		
Less than High School Education	13.3%	
High School Education	35.3%	
More than High School	51.4%	
School Characteristics[2]		
School Receives Title I funds	65.6%	
Percent of School LEP	6.90%	

Source: ECLS-K, Kindergarten-Fifth Grade,
non-Hispanic White, Black and Mexican origin (n = 7,567)

Notes: [1] Child and Family Background Variables from Kindergarten Wave

[2] School Characteristics Averaged across all four waves

Table 3. Parental Involvement in school over time,
non-Hispanic White, Black and Mexican origin only.

	Kindergarten	First Grade	Third Grade	Fifth Grade
Participates in Parent-Teacher Organization				
White native born	34.3%	42.5%	39.8%	37.8%
White foreign born	34.2%	43.1%	57.2%	45.9%
Black native born	32.8%	49.4%	49.3%	46.6%
Mexican native born	28.4%	38.1%	36.6%	41.0%
Mexican foreign born	37.0%	45.3%	56.1%	49.2%
Attends Open House				
White native born	80.3%	83.3%	86.2%	84.1%
White foreign born	69.9%	83.6%	90.8%	90.2%
Black native born	69.4%	71.7%	68.2%	58.6%
Mexican native born	71.4%	81.0%	88.7%	83.2%
Mexican foreign born	55.9%	67.2%	75.6%	72.0%
Attends Parent-Teacher Conference				
White native born	88.3%	91.2%	91.6%	90.6%
White foreign born	79.4%	90.9%	89.9%	90.3%
Black native born	80.8%	86.1%	76.5%	71.0%
Mexican native born	86.7%	89.3%	94.8%	85.5%
Mexican foreign born	79.1%	85.6%	91.0%	87.5%

Source: ECLS-K, Kindergarten-Fifth Grade

Table 4. Parent reports of barriers to school involvement in school over time, non-Hispanic White, Black and Mexican origin only.

	Kindergarten	First Grade	Third Grade	Fifth Grade
Parent doesn't feel welcome at child's school				
White native born	3.6%	4.3%	5.3%	3.8%
White foreign born	5.0%	3.9%	7.1%	4.7%
Black native born	10.5%	6.2%	7.4%	9.2%
Mexican native born	7.8%	2.7%	8.4%	2.6%
Mexican foreign born	8.1%	12.8%	10.7%	4.8%
Meetings at child's school are at a bad time				
White native born	32.2%	35.2%	28.2%	27.6%
White foreign born	29.8%	32.8%	26.0%	30.8%
Black native born	49.2%	50.7%	48.1%	44.9%
Mexican native born	47.5%	46.1%	34.5%	37.8%
Mexican foreign born	50.2%	34.7%	38.1%	32.6%
School does not send materials in native language				
White native born	1.2%	0.4%	0.0%	0.0%
White foreign born	2.8%	3.8%	2.4%	4.3%
Black native born	2.4%	1.1%	0.0%	0.0%
Mexican native born	2.8%	2.5%	1.0%	1.8%
Mexican foreign born	19.8%	19.3%	11.0%	10.4%

Source: ECLS-K, Kindergarten-Fifth Grade

Table 5. Multilevel growth curve models of children's math test scores,
ECLS-K Kindergarten-Fifth grade, non-Hispanic White, Black and Mexican origin only.

	Model 1	Model 2	Model 3
Child and Family Background[1]			
Child's Age	0.42 *	0.46 *	0.53 *
Male	0.13 *	0.13 *	0.13 *
x Time	0.04	0.04	0.04
Family SES	0.06 *	0.06 *	0.06 *
x Time	-0.01	-0.02	-0.01
Home language is non-English	-0.16	-0.13	-0.14
x Time	-0.05	-0.01	-0.02
Family structure (versus two biological parents)			
Step Family	-0.30 *	-0.30 *	-0.30 *
x Time	-0.18	-0.18	-0.19 a
Single Parent	-0.26 *	-0.25 *	-0.25 *
x Time	-0.15 a	-0.14 a	-0.15 a
Other Family	-0.41 *	-0.41 *	-0.41 *
x Time	-0.25	-0.25	-0.26
Mother's Characteristics			
Less than High School Education	-0.72 *	-0.71 *	-0.71 *
x Time	-0.23 *	-0.21 a	-0.23 *
High School Education	-0.28 *	-0.27 *	-0.28 *
x Time	-0.04	-0.04	-0.05
Mother's Race/ethnicity/nativity (versus White native born)			
White foreign born	0.03	0.03	0.03
x Time	0.00	0.00	0.00
Black native born	-0.45 *	-0.44 *	-0.45 *
x Time	0.24 *	0.25 *	0.25 *
Black foreign born	-0.15	-0.15	-0.14
x Time	0.27	0.28	0.29
Mexican native born	-0.12	-0.10	-0.10
x Time	0.04	0.08	0.08
Mexican foreign born	0.03	0.04	0.04
x Time	0.39 *	0.48 *	0.49 *

Table 5 (continued). Multilevel growth curve models of children's math test scores,

	Model 1	Model 2	Model 3
School and Teacher Characteristics[2]			
School Receives Title I funds		-0.06 *	-0.06 *
x Time		-0.04	-0.06
Percent of School LEP		-0.11	-0.10
x Time		-0.01 *	-0.01 *
Parent-School Involvement			
Participates in Parent-Teacher Organization			0.02
x Time			-0.03
Attends Open House			0.02
x Time			-0.06 [a]
Attends Parent-Teacher Conference			-0.02
x Time			-0.01
Intercept	0.22	0.26	0.26

Source: ECLS-K, Kindergarten-Third Grade. Whites, Blacks and Mexican origin only

* $p < .05$; [a] $p < .10$

Table 6. Interaction terms from multilevel growth curve models of children's math test scores, ECLS-K Kindergarten-Fifth grade, non-Hispanic White, Black and Mexican origin only.

Model 1: Home language use and Attendance at Open House	
Home language is non-English	-0.17
Parent Attends Open House	0.01
Non-English x Open House	0.05 [a]
Model 2: Mother's Race/ethnicity/nativity and Attendance at Open House	
Mother's Race/ethnicity/nativity (versus White native born)	
Open House	0.03 [a]
White foreign born	0.01
x Open House	0.02
Black native born	-0.38 [***]
x Open House	-0.09 [*]
Black foreign born	-0.23
x Open House	0.12
Mexican native born	-0.09
x Open House	-0.01
Mexican foreign born	0.05
x Open House	-0.01

Source: ECLS-K, Kindergarten-Third Grade. Whites, Blacks and Mexican origin only

[*] $p < .05$; [a] $p < .10$