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Abstract

Policy interest in parental involvement in the U.S. has rapidly grown, necessitating a deeper understanding of how families and schools can partner to promote learning and reduce performance disparities in this country. Matching multidisciplinary theory with growth curve analyses of American children in the Early Childhood Longitudinal Study-Kindergarten Cohort, this study found that family-school engagement (in which school personnel and parents reached out to each other) and family-school symmetry (in which parents and teachers constructed parallel learning environments) were associated with greater reading gains during the primary grades. Socioeconomically disadvantaged children appeared more at risk from one-sided engagement, and their more advantaged peers appeared to benefit more from symmetry.

Keywords: Family-school connections, parental involvement, socioeconomic disparities, Early Childhood Longitudinal Study.

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Parental involvement in education has long been targeted by educational policy in the U.S., with the parental involvement provision of No Child Left Behind a prominent example. This tradition reflects the widely held public value that parents' participation in the educational process is crucial to the academic success of children (Coleman, 1988; Epstein, 2005). Yet, in reality, the payoff of involvement varies considerably by child age and school context (Crosnoe & Huston, 2007; Hill & Tyson, 2009; Mattingly et al., 2002; Thurston, 2005). The future prospects of many school reforms, therefore, depend on building a base of evidence about the situations and circumstances in which American parents' involvement matters. This study pursues this agenda. Integrating theoretical developments from psychology and sociology and empirical findings across disciplines, it approaches the education of American children at the intersection of their families and schools. In doing so, it focuses on socioeconomic disparities and views the transition into elementary school as a make or break period in these disparities.

The general aim of this study, therefore, is to identify connections between families and schools that facilitate learning—and buffer against socioeconomic disparities in learning—in the years following the transition into elementary school. This research will be conducted with data on children, families, and schools from the Early Childhood Longitudinal Study—Kindergarten Cohort (ECLS-K)*. Matching educational and developmental theory with longitudinal, nationally representative data in this way provides empirical evidence to inform a timely social policy.

Education, Inequality, and Parental Involvement

Public concern about American schools is on the rise (Hess, 2006). From the landmark A Nation at Risk report to media coverage of national and international high-stakes tests, this concern centers on the risks that the academic under-performance of American students poses to the future economic and social competitiveness of the U.S. It also touches on the likelihood that growing demographic disparities in academic progress forecast widening societal inequalities (National

Commission on Excellence in Education, 1983; Schmidt et al., 2001).

Consistently, discussions among parents, school administrators, and policymakers about remedying these problems have highlighted parental involvement in education—the collection of parents' efforts at home, at school, and in the community to manage their children's learning (Epstein, 1983; Hill, 2009; Pomerantz, Moorman, & Litwack, 2007). Certainly, ample evidence suggests that this focus is not misguided. Even controlling for selection and bidirectionality, students appear to do better in school when parents provide opportunities for intellectual and cognitive stimulation (e.g., doing art together), actively guide academic progress (e.g., assisting with course selection), and maintain a visible presence at schools (e.g., volunteering). Overall, rates of parental involvement are lower in historically disadvantaged populations, leading to arguments that facilitating involvement in these populations may reduce achievement gaps (Crosnoe & Huston, 2007; Entwisle, Alexander, & Olson, 1997; Raver, Gershoff, & Aber, 2007; Hill, 2001; Simpkins, Weiss, McCartney, Kreider, & Dearing, 2006).

The link between this evidence and policy brings up several issues. First, focusing on parents obscures the reality that the degree to which parental involvement "works" depends on how it is received by schools and lines up with school activities. In other words, the connection between families and schools should be the unit of analysis, not just families (Bryk & Schneider, 2003; Epstein et al., 2002). Second, parental involvement shows clear trends by child age and school level in both prevalence and impact, with involvement more normative, child trajectories more flexible, and demographic disparities more malleable early in elementary school than in other periods (Entwisle & Alexander, 2002; Hoover-Dempsey et al., 2005; Lee & Burkham, 2002; Pomerantz et al., 2007). Third, we have much to learn about differential impact. If efforts to facilitate parental involvement in historically disadvantaged populations are to reduce academic disparities, children in these populations would need to derive as much or more benefit from such involvement as their peers. Socioeconomic disadvantage is a good starting point for considering this issue because it severely undermines academic progress, underlies race/ethnic inequalities in education, and qualifies the effectiveness of parents' institutional behaviors (Dearing, McCartney, Weiss, Kreider, & Simpkins, 2004; Mayer, 1997; McLoyd,

1998). Thus, research can inform policies attempting to leverage parental involvement by situating children's academic progress at the meeting ground of home and school, with special attention to young socioeconomically disadvantaged children.

Theory on Families, Schools, and their Connections

Across disciplines, more interactive conceptions of parental involvement are taking hold (Coleman, 1988). A good example of this theoretical development in sociology is Epstein's articulation of family-school partnerships, which posits that the overlapping contribution of parents and school personnel to child learning needs to be coordinated to ensure that both contributions are maximized (Epstein et al., 2002). Similarly, in developmental psychology, ecological and systems perspectives that emphasize how children develop within a unique set of transactions among the major settings of their lives have been incorporated into models of parental involvement to reflect how its value is in part dependent on the school context (Eccles, 1994; Hoover-Dempsey & Sadler, 1997). Following these theoretical developments, children are expected to learn more when their family and school contexts work with and in support of each other in stable, regularized ways, and they are expected to have more problems when these contexts are in direct conflict with each other, contradict each other (knowingly or not), or are disconnected. In this view, what matters is not just resources or risks in any one context but also resources and risks in the connections between contexts (Epstein et al., 2002).

This ongoing reconceptualization of parental involvement is also relevant to educational inequality. Social and cultural capital models highlight how qualitative differences in family-school connections across socioeconomic strata drive academic disparities (Coleman, 1988). For example, Lareau has demonstrated that poor (especially poor minority) parents experience more disagreements, misunderstandings, and discontinuities with school personnel about the best ways to manage their children's education. Not only are parents from more advantaged backgrounds more likely to have coordinated,

respectful relations with school personnel, they are better able to capitalize on these relations to get their children ahead because of their greater stock of human capital and higher social standing (Lareau, 2004; Lareau & Horvat, 1999; Lareau, 1989). On the other hand, ecological and systems models often view family-school connections as compensatory. In other words, even if children from disadvantaged groups are less likely than their peers to have positive family-school connections, they will benefit more when they do because such connections will facilitate the flow of resources (e.g., inside information) to these children that may be unique for them but redundant for others. For example, the contextual systems perspective posits that an ongoing, respectful dialogue between parents and school personnel will do more to raise the achievement of children from at-risk groups (Christenson & Richardson, 2001; Pianta & Walsh, 1996). Thus, if parental involvement does promote learning overall, it may do so in ways that widen or narrow demographic disparities.

Integrating Viewpoints on Family-School Connections

Taking seriously this theoretical push to understand education at the intersection of home and school, the first goal of this study is two-fold. I will consider the degree to which various kinds of family-school connections predict rates of learning during the early years of elementary school and condition socioeconomic disparities in these rates, above and beyond the individual (e.g., pre-school enrollment), family (e.g., immigration status), school (e.g., sector), and demographic (e.g., race) characteristics that select children into different kinds of family-school connections and different learning trajectories. Two types of connections will be examined.

First, most theories of family-school connections focus on interactions between parents and school personnel, usually in the form of direct communication about goals, values, strategies, and progress that allows for a more informed, coordinated approach to structuring child learning. Such interaction should be a mutual exchange with a positive, collaborative tone (Epstein et al., 2002). In line with this conceptualization of family-school connections, engagement taps the degree of congruence between the attempts of parents to be involved in

activities at their children's schools and attempts of school personnel to keep parents informed and involved. Engagement takes three basic forms. In mutual engagement, each side reaches out to and shares with the other. In mutual disengagement, neither side does. In one-sided engagement, the efforts of one side to reach out to and share with the other are not reciprocated.

Second, social/cultural capital and ecological/systems models also recognize that families and schools connect in less explicitly transactional ways, as when parent-child interactions at home complement and supplement teacher-student interactions at the school to reinforce the formal learning process (Crosnoe, Leventhal, Wirth, Pierce, Pianta, & and the NICHD Early Child Care Network, 2009). Such parallel learning environments at home and school are more likely to occur and to work when children are young and the less complex nature of scholastic activities allows parents to more easily understand what is happening at school and provide related cognitive stimulation at home (Lareau, 2004; Pianta & Walsh, 1996). Thus, this study also considers symmetry, which taps the degree to which parent-child learning activities in the home mirror teacher-student learning activities in the classroom. Again, symmetry breaks down into three categories. In positive symmetry, frequent learning activities at home and in school mirror each other. In negative symmetry, enriched learning activities are rare at home and in school. In asymmetry, learning activities are frequent in one context but infrequent in the other.

The guiding hypothesis of this study is that children should learn more when their families and schools have mutually engaged, positively symmetrical connections, which facilitate the flow of academically-relevant information and support between home and school and provide children with multiple arenas for developing the same skills. Conversely, children should post lower rates of learning when their families and schools are mutually disengaged or negatively symmetrical (La Paro, Pianta, & Cox, 2000; Lareau, 1989; Magnuson et al., 2004; NICHD Early Child Care Research Network, 2002; Useem, 1992). The other family-school connection types will fall in between. Yet, asymmetry will likely provide more learning benefits than one-sided engagement because the former entails the potential

protection of an enriched family environment against a poor school environment (and vice versa). The latter, on the other hand, indicates unreciprocated efforts that are likely to engender alienation, frustration, and resentment (Bryk, Lee, & Holland, 1993; Crosnoe et al., 2009; Hamre & Pianta, 2005).

Moving beyond the "main effects", both types of family-school connections may be related to socioeconomic disparities in child learning. Recall that, depending on the theory, an argument can be made that family-school connections will matter more in socioeconomically advantaged populations or in disadvantaged ones. Adjudicating between these possibilities is important because the utility of family-school compacts and related policies to reduce disparities in academic outcomes depends in part on socioeconomic differences in the impact of family-school connections, not just in their prevalence. If socioeconomically disadvantaged children derive more, or at least the same, benefit from family-school connections, then efforts to equalize the prevalence of such connections has the potential to reduce socioeconomic disparities in academic outcomes. If, on the other hand, socioeconomically advantaged children derive more benefit, then equalizing the prevalence of such connections may not reduce socioeconomic disparities even if they raise the overall achievement level of socioeconomically disadvantaged children. A goal of this study, therefore, is to test these competing hypotheses.

Exploring these issues with national data builds on an already rich literature (for good overviews, see Davis-Kean & Eccles, 2005; Hill & Tyson, 2009; Pomerantz et al., 2007). By collapsing family and school processes into categories identifying a child's holistic learning environment, this study allows different combinations of oft-studied family and school variables to be examined, not just their independent effects (see Crosnoe et al., 2009 for another recent example of this approach). At the same time, by focusing on moderating pathways, this study provides an assessment of how much change in socioeconomic disparities might be expected to occur if family-school partnerships were evenly distributed across socioeconomic strata.

Methods

Data and Sample

Studying family-school connections and socioeconomic disparities in a national or cross-state perspective is important. Maximizing diversity (by race/ethnicity, geography, family structure, immigration status, etc.) within socioeconomic strata and increasing the number—and heterogeneity—of schools studied help to guard against the sampling biases and additivity violations (e.g., the potential for results to be inaccurate because of inadequate representation of some group or groups in the sample; see Frank, 2007) that can lead to inaccurate conclusions. Unfortunately, nationally representative data and large-scale community data sets typically do not allow for detailed measurement of family-school connections. ECLS-K is one compromise to these offsetting advantages and disadvantages. It has several limitations in measurement (detailed below), but these limitations are offset, at least in part, by the diversity within and across socioeconomic strata in the sample, the breadth of schools included, and the fact the present study is a preliminary analyses of both sides of family-school connections.

Collected by the National Center for Education Statistics (NCES), ECLS-K is a nationally representative study of American kindergartners. It was created through a multi-stage sampling frame—the selection of 100 primary sampling units (typically counties), 1000 public and private schools in these units, and 22,782 students in these schools. All students were in kindergarten at the first collection in the fall of 1998. Subsequent waves occurred in the spring of 1999, fall of 1999 (25% subsample), spring of 2000, spring of 2002, and spring of 2004. Data collection consisted of interviews with parents and school personnel and diagnostic tests for children (NCES, 2002). Given the theoretical focus of this study on the primary grades, ECLS-K data from kindergarten through third grade were used. Thus, the analytical sample consisted of 14,887 children who participated up through third grade. Longitudinal sampling weights were employed to account for differential attrition over time, and multiple imputation techniques were used to retain all cases in the analytical sample regardless of item-level missingness.

Measures

Early learning. As a core subject in the primary grades that is fundamental to learning in other subjects, reading served as the focal domain of early learning (Xue & Meisels, 2004). At each of the four fully sampled data points through third grade (fall of kindergarten and spring of kindergarten, first grade, and third grade), children took individually administered standardized tests that assessed their ability to, among other things, define words in context and evaluate passages of text. They took the first stage of the test and then, based on that performance, the low, medium, or high difficulty stage. Item Response Theory (IRT) allowed NCES to develop proficiency scores across test sequences. All scores were recalculated with the addition of each new wave of data (Reardon & Galindo, 2009). As explained below, these four test scores were modeled into achievement trajectories to serve as the outcomes in multivariate analyses.

Family socioeconomic status. First, parent reports of educational attainment were collapsed into a five point scale (1 = less than a high school degree, 2 = high school degree, 3 = some college experience, 4 = college graduate, 5 = postgraduate degree) after preliminary analyses indicated few differences between coding strategies (e.g., more degree categories, years of schooling). The maximum level in the family served as the measure. Second, parents reported their total annual family income, which was divided by the parent-reported household size to create a measure of per capita income in the family—again, differences were minimal when other strategies (e.g., an income to needs ratio) were employed. Table 1 presents descriptive statistics for the SES variables as well as all other non-achievement variables in the study. The average child in the sample had a parent with a high school degree and a per capita income in the family of about $12,600.

Family-school connections. To capture family-school engagement, which refers to the degree of interaction between parents and school personnel, I measured the extent to which parents participated in activities that required contact with school personnel and school personnel made contact with parents about academic issues. The first measure was the mean of six parent-reported items from the spring of kindergarten about whether they engaged in PTA functions, teacher

conferences, school fundraising, school volunteering, open house, or other school events in the past year and, if so, the frequency with which they did (α = .62). Parents reported low average participation (Table 1), but the overall distribution was fairly normal. The second measure was the mean of five parent-reported items from the same wave about how well (1 = not well at all, 2 = just OK, 3 = very well) schools provided them information about how their children were doing in school, what was age-appropriate for their children, when they could participate in school activities, the availability of workshops and materials for supporting learning, and the availability of services and programs for children outside the school (α = .70). This measure was also fairly normal in distribution, although it was shifted more to the high end of the scale than the first measure.

Table 1
Descriptive statistics for study variables (n = 14,887)

	M	*SD*	*%*
Focal Family and School Factors			
Parent education	2,96	1,17	---
Family per capita income/100	126,31	130,15	---
Parental participation at school	1,15	0,69	---
School contact with parents	2,45	0,46	---
Family reading activities	2,97	0,91	---
Whole language instruction in school	4,22	0,78	---
Child/Family Controls			
White	---	---	59,8
African-American	---	---	13,17
Latino/a	---	---	17,1
Asian-American	---	---	7,77
Other race/ethnicity	---	---	2,16
Immigrant family	---	---	17,71
Age (years)	6,23	0,37	---
Gender (female)	---	---	49,13
Pre-school enrollment	---	---	31,28
School Controls			
Sector (private)	---	---	22,02
Title I funding	---	---	60,49
Minority representation	34,54	33,5	---
South	---	---	32,93
Northeast	---	---	18,65
Midwest	---	---	25,86
West	---	---	22,56
Central city	---	---	38,81
City fringe	---	---	38,71
Rural/small town	---	---	22,48

Because of the theoretical interest in viewing the meeting point of both sides of family-school connections, the next step was to combine these variables to capture more holistically how cross-setting ecology of the sample children—in other words, knowing how each child was characterized by the meeting point or intersection of family and school processes rather than how he or she was characterized by each process respectively. To do so, I dichotomized each variable into low/high categories based on theoretically meaningful cutpoints. For the parent contact measure, the cutpoint was 2, which represented a parent who engaged in various school activities an average of two times per year, or, in other words, went beyond the minimal effort in the sample. This value was just slightly larger than one standard deviation above the sample mean. For the school contact measure, the cutpoint was 2.8, which represented a school that was viewed by parents as being good on the majority of the five dimensions of contact and information-sharing. This value was just slightly smaller than one standard deviation below the sample mean. These two binary variables were then cross-tabulated to capture all four possible combinations: mutual engagement (high on both variables), family one-sided engagement (high/low), school one-sided engagement (low/high), and mutually disengaged (low/low).

This measurement strategy had several limitations. The two constituent measures captured only the most formal, and perhaps rarest, family-school contact. At the same time, the school measure was based on parent reports. The only school administrator reports on school communication with families, however, were not specific to any one family but to all families of the student body in general. Thus, these measures, together, captured parents' estimates of their involvement at school and their perceptions of schools' outreach to them. Neither measure, however, was available in later data collections, so that trends in the engagement typology are unknown. Yet, both were measured after children took their initial reading test, which meant that the potential for children's cognitive skills and achievement to elicit different kinds of family-school engagement could be at least partially addressed in statistical models.

Finally, combining two measures into mutually exclusive categories raises concerns about loss of scale variation. Importantly, results were

not sensitive to different cutpoints (e.g., standard deviation units) for each of the measures. An alternative would be interactions between the family and school variables, the drawback being that exploring the interplay of family-school connections and family SES would have resulted in three-way interactions that are more unstable and difficult to interpret. Ancillary analyses revealed weaker results when attempting to capture both sides of family-school connections through interactions, suggesting the likelihood of non-linear effects better captured through categorical variables with meaningful cutpoints.

Table 2

Mean family SES by family-school engagement and symmetry

	Family Per Capita Income		Parent Education		
	M	*SD*	*M*	*SD*	*n*
Family-School Engagement					
Mutual engagement	162.09	169.27	3.34	1.14	1,770
One-sided engagement (family)	164.90	136.33	3.47	1.09	2,561
One-sided engagement (school)	103.84	112.16	2.62	1.12	3,509
Disengagement	114.55	119.58	2.85	1.15	7,047
Family-School Symmetry					
Positive symmetry	126.69	171.77	2.98	1.20	1,398
Asymmetry (family)	123.24	120.18	2.99	1.18	3,693
Asymmetry (school)	126.16	127.76	2.93	1.20	2,366
Negative symmetry	123.05	126.33	2.93	1.15	7,430

The same proxy strategy described above—family and school constructs measured separately and then combined—was followed to create measures of symmetry, which refers to the degree of similarity in learning activities at home and school. Working from basic measurement tenets of theory and following past ECLS-K convention (Crosnoe & Cooper, 2009; Hoover-Dempsey et al., 2005; Magnuson et al., 2004; Pianta & Walsh, 1996; Xue & Meisels, 2004), I created measures for the fall/spring of kindergarten.

The first measure, parents' reading activity at home, was a single parent report in the fall of kindergarten about how often (1 = never, 2 = 1/2 times per week, 3 = 3-6 times per week, 4 = everyday) they read with their children at home. Although a relatively simple measure, reading time has been strongly linked to family SES as well as race/ethnicity (Raikes et al., 2006). Few children (< 5%) had values of

one on this scale, with the remainder spread out roughly evenly across the four other categories. The second measure, teachers' reading activity in the classroom with children, was the mean of 17 teacher reports in the spring of kindergarten about how often (0 = never, 1 = once or month or less, 2 = 2 or 3 times a month, 4 = 1 or 2 times a week, 5 = 3 or 4 times a week, 5 = daily) they engaged in aspects of whole language reading instruction in the classroom, including having the child read aloud, compose stories, practice vocabulary, choose books for reading, and retell read stories ($\alpha = .86$). Univariate statistics indicated a wide range of values in the bottom tertile of the sample (e.g., 1-4), a very tight range of about half a point in the middle tertile, and a slightly wider distribution of a point and a half in the top tertile.

Again, these variables were dichotomized and cross-classified to create a set of dummy variables (see Table 2). The categorization scheme was straightforward for the first measure but more complicated for the second. To pick a meaningful cutpoint for parent-child reading, I separated children whose parents read with them almost every day (3 or 4) from all other children. The nature of the teacher-student scale did not allow for the identification of a meaningful cutpoint, and so the sample was split into low and high groups at one standard deviation above the sample mean. After cross-classification, the resulting set of dummy variables included positive symmetry (high on both family and school variables), asymmetry/family (high/low), asymmetry/school (low/high), and negative symmetry (low on both). The same categories and sensitivity tests discussed for the family-school engagement typology also apply here.

Controls. As already stated, one of the key advantages of ECLS-K for this kind of research is the diversity it offers within socioeconomic strata. To that end, this study also took into account possible social and demographic variability within and across strata that might also related to family-school connections and reading scores. Control measures included gender (1 = female), age (in years), race/ethnicity (dummy variables for White, African-American, Latino/a, Asian-American, Other), immigration status (1 = at least one foreign-born parent), and pre-school enrollment (1= enrolled in an education-focused child care center in the year before kindergarten, 0 = no such enrollment). Four factors were eventually dropped because they had no impact on the

focal results: 1) family structure (1 = two married biological parents, 0 = other family form), 2) days that elapsed between the date on which the first child in the sample took the reading assessment during that data collection period and the date on which the target child was assessed, 3) days that elapsed between a child's first day of school that year and their reading assessment date, and 4) whether the child changed schools after kindergarten.

To account for variability in the school and community contexts of students and teachers, this study controlled for five school-level factors. Sector (1 = private, 0 = public) and Title I funding (1 = Title I recipient, 0 = non-recipient) were binary measures reported by school administrators. Minority representation (percentage, in whole numbers, of non-White students in school) was a continuous variable reported by administrators. The remaining two were sets of dummy variables based on administrator reports: region (dummy variables for West, Midwest, Northeast, South) and urbanicity (large city, city fringe/small city, small town/rural).

Plan of Analyses

The first step of the analyses was to estimate trajectories of reading achievement from the fall of kindergarten through the spring of third grade with growth curve modeling. Here, the time-specific reading test scores represented Level 1, and the study child, in whom the multiple test scores were nested, represented Level 2. This growth curve could then be characterized by an intercept (the average starting point of the trajectory in the fall of kindergarten) and a slope (the average rare of change through the spring of third grade). The slope was captured by a linear time variable with values corresponding to each semester-grade in between fall of kindergarten (0) and spring of third grade (8), including the semester-grades in which data collection occurred (e.g., spring of first grade) and those in which it did not (e.g., fall of second grade). The growth curve could also be characterized by a quadratic term (the average slowdown/acceleration of the rate of change from time point to time point), which was captured by the square of the linear time variable.

The second step was to gauge the magnitude of socioeconomic disparities in these reading trajectories. To do so, I entered the parent education and family income measures into the growth curve models as predictors, before and after full set of controls. The main effects of the SES measures captured their observed effects on the intercept, and their interactions with the time and time^2 measures captured their observed effects on the slope and quadratic.

For the third step, the family-school engagement and symmetry dummy variables were added, separately, to the model as main effects and as interactions with the time and time^2 factors. Results gauged differences in reading trajectories among children with different kinds of family-school connections.

Finally, in the fourth step, interactions between the two family SES indicators (parent education, per capita income) and the two sets of family-school dummy variables (engagement, symmetry) were added to the model—two-way interactions to gauge their relation to the intercept, three-way interactions with time and time2 to gauge their relation to the slope and quadratic. This final step estimated the degree to which family SES moderated associations between family-school connections and reading trajectories.

These models were estimated with the mixed procedure in SAS (see Singer, 1998). This procedure allowed for a third level to be modeled, that of the school, which was necessary given that the ECLS-K sampling frame was nested within schools. In order to avoid the bias introduced by listwise deletion, the MI procedure in SAS was used to estimate values for all missing items. In this procedure, five different plausible fully imputed data sets were created based on information from all available variables, the models were estimated for the five data sets, and then the results from all five analyses were averaged together (Allison, 2001).

Results

Family-School Connections and Socioeconomic Status

Referring back to Table 2, the likelihood that children were in family-school connections high in parental involvement at school—mutual

engagement, one-sided engagement weighted towards the family—tended to rise along with family SES, as defined by parent education and per capita family income. Children with one-sided engagement weighted towards schools were particularly low on the two SES indicators. This pattern reflects the well-documented tendency for high SES parents to be more visible in their children's schools, but it could also indicate the possibility that schools serving high SES populations may need to take less active measures to keep the parents of their students tied into the school (Lareau, 2004, 1989). The SES pattern was similar for family-school symmetry, but only when considering parent education. More educated parents tended to have positively symmetrical connections with their children's schools or at least family-weighted asymmetrical connections. No clear pattern emerged for family income.

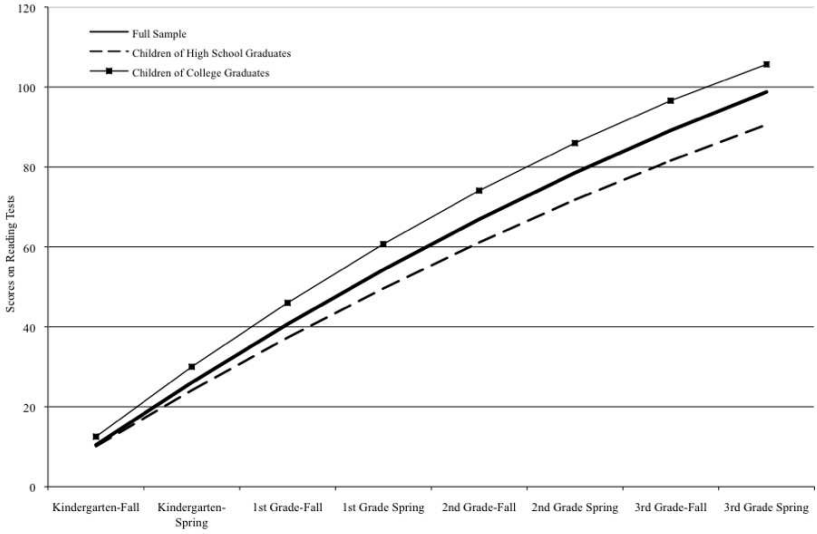
In general, therefore, children from more privileged backgrounds tended to experience more engaged and symmetrical connections between home and school, and, for the most part, they were unlikely to be in situations in which the efforts of their schools were not matched or supported by their parents. How these patterns relate to actual learning and achievement is a question to answer with multivariate analyses.

Socioeconomic Disparities in Reading Trajectories

Results from the unconditional growth curve model (not shown in a table), which included no predictors other than the time variables, revealed the basic shape of the reading trajectory over time in the sample. As expected, children's scores on reading tests increased as they moved through the primary grades. The b coefficients for the intercept (10.44, $p < .001$) and the slope (16.12, $p < .001$) indicated that, on average, children scored fairly low on the reading test in the fall of kindergarten but picked up about 16 points on the test every semester through the end of third grade. This average rate of change from semester to semester, however, declined slightly with each semester, as indicated by the small negative b coefficient for the quadratic (-.50, $p < .001$) in the unconditional model. As an illustration, multiplying the intercept, slope, and quadratic coefficients by each semester-grade value[1] revealed that the estimated average

point increase between the fall and spring of first grade was 13.6 but that the estimated average point increase between the fall and spring of third grade was 9.6. In other words, reading test scores demonstrated diminishing gains over time. This average pattern in the sample is depicted by the solid black line in Figure 1.

Figure 1. Trajectories of Reading Achievement in Primary Grades



The conditional models presented in Table 3 included the SES factors and the child/family and school controls as predictors of the reading growth curve. According to Model 1, parent education was positively associated with the intercept and slope and negatively associated with the quadratic. Per capita family income demonstrated the same pattern, except that the association with the intercept was not statistically significant.

Table 3
Results from growth curve models of reading test scores (n = 14,887)

	B (SE) for Model 1			*B (SE)* for Model 2		
	I	S	Q	I	S	Q
Growth Curve Parameters						
Intercept	7.44*** (.52)	---	---	-12.28* (4.42)	---	---
Time	---	12.02*** (.25)	---	---	5.14** (1.83)	---
Time^2	---	---	-.23*** (.03)	---	---	-.79*** (.18)
Family SES						
Per capita income/100	.10 (.10)	.38*** (.09)	-.02* (.01)	.30* (.16)	.25* (.10)	-.01 (.01)
Parent education	.84*** (.18)	1.28*** (.10)	-.09*** (.01)	.65*** (.20)	1.17*** (.10)	-.08*** (.01)
Child/Family Controls						
African-American	---	---	---	.37 (.63)	-1.37*** (.32)	.09** (.03)
Latino/a	---	---	---	-2.44*** (.65)	.20 (.31)	-.03 (.03)
Asian-American	---	---	---	2.18 (1.32)	.42 (.70)	-.09 (.07)
Other race/ethnicity	---	---	---	1.71 (1.33)	-2.54*** (.67)	.20** (.07)
Immigrant family	---	---	---	-1.07 (.65)	.41 (.32)	-.04 (.03)
Gender (female)	---	---	---	.20 (.37)	1.40*** (.18)	-.12*** (.02)
Age	---	---	---	3.27*** (.61)	1.15*** (.28)	-.16*** (.03)
Pre-school enrollment	---	---	---	1.19** (.42)	.79*** (.21)	-.08*** (.02)
School Controls						
Sector (private)	---	---	---	1.34 (.68)	.38 (.30)	-.06* (.03)
Title I	---	---	---	-.90 (.53)	-.32 (.23)	.02 (.03)
Minority representation	---	---	---	-.01 (.01)	.00 (.00)	.00 (.00)
Northeast	---	---	---	1.68* (.63)	-1.74*** (.29)	.16*** (.03)
Midwest	---	---	---	.51 (.56)	-1.13*** (.24)	.12*** (.03)
West	---	---	---	-1.47* (.63)	.60* (.28)	-.05 (.03)
City fringe	---	---	---	-.10 (.53)	.35 (.22)	-.04 (.02)
Rural/small town	---	---	---	-.59 (.68)	-.14 (.35)	.00 (.04)

* p < .05. ** p < .01. *** p < .001.
Δ2ll (Model 2 vs. Model 1) = -1,715.04
Note: Coefficients in slope (S) column represent interactions between covariate and time factor. Coefficients in quadratic (Q) column represent interactions between covariates and time^2 factor. White is reference for race/ethnicity dummy variables (South for region, central city for urbanicity).

As an illustration, Figure 1 also presents the average reading trajectories for two subsets of the full sample: the children of college graduates (line marked by black boxes) and the children of high school graduates (checkered line). The former started off elementary school with slightly higher test scores than the latter and had larger test score gains across the primary years. The general incremental decrease in the magnitude of these gains from semester to semester seen in the full sample, however, was slightly more pronounced for the children of college graduates. The net result was a divergence in reading trajectories by parent education that could have been larger. Differences in reading trajectories by per capita family income looked similar, except that income-related differences in the starting point were quite small.

After adding the full set of control variables in Model 2, the coefficients for parent education were attenuated to some degree, at least for the intercept and slope. Interestingly, the income coefficient for the intercept grew larger and became statistically significant, but the income coefficient for the quadratic decreased and became non-significant. The child/family controls did more to predict the various growth curve parameters than the school controls, with race/ethnicity, gender, age, and pre-school enrollment especially important.

Family-School Connections and Reading Trajectories

To test the general hypothesis about associations between family-school connections and reading achievement, the dummy variables for family-school engagement and family-school symmetry were added, respectively, to the growth curve model (see Table 4). Recall that the family-school dummy variables were measured with information collected primarily after the fall of kindergarten. Consequently, I will focus on the associations of family-school engagement and symmetry with the slope and quadratic of the reading growth curve—in other words, how change in reading test scores after some starting point vary in relation to family-school connections.

Table 4
Family-school engagement and family-school symmetry results from growth curve models of reading test scores (n = 14,887)

	B (SE) for Engagement Model			*B (SE)* for Symmetry Model		
	I	S	Q	I	S	Q
Growth Curve Parameters						
Intercept	-12.34*			-12.07*		
	(4.29)	---	---	(4.19)	---	---
Time		5.08**			4.61**	
	---	(1.80)	---	---	(1.75)	---
Time^2			.80***			-.85***
	---	---	(.18)	---	---	(.18)
Family-School Engagement						
Mutual engagement	.27	.87*	-.10*			
	(.93)	(.39)	(.04)	---	---	---
One-sided (family)	-.56	.45	-.03			
	(.63)	(.32)	(.03)	---	---	---
One-sided (school)	-.10	.18	.03			
	(.92)	(.37)	(.04)	---	---	---
Family-School Symmetry						
Positive symmetry				1.09	.72*	-.11*
	---	---	---	(.79)	(.32)	(.04)
Asymmetry (family)				-.31	.96***	-.12***
	---	---	---	(.53)	(.24)	(.03)
Asymmetry (school)				-.39	.47	-.06
	---	---	---	(1.07)	(.51)	(.06)

* p < .05. ** p < .01. *** p < .001.
Δ2ll (vs. model with SES and controls) = -22.7 (engagement), -76.3 (symmetry)
Note: Coefficients in slope (S) column represent interactions between covariate and time factor. Coefficients in quadratic (Q) column represent interactions between covariates and time2 factor. All models controlled for parent education, family income, race/ethnicity, immigrant family, gender, age, pre-school enrollment, school factors (sector, Title 1, minority representation), region, and urbanicity. Disengagement was reference for family-school engagement dummy variables (negative symmetry for family-school symmetry dummy variables).

Beginning with family-school engagement, children with mutually engaged family-school connections had higher rates of change than their peers in the mutually disengaged category (the reference) but also larger corrections to the rate of change from semester to semester (b = .87, p < .05 for slope, -.10, p < .05 for quadratic). Basically, children with mutually engaged connections posted reading test score gains about one point bigger than children with mutually disengaged connections in the first several semesters of elementary school, but, by the end of the primary grades, the latter group of children were posting slightly larger gains from semester to semester than the former. As a

result, the absolute test score advantage between children with mutually engaged families and schools over children with mutually disengaged families and schools peaked at almost two points in second grade before falling to about one point by the end of third grade. As a reference for assessing the magnitude of effects, the maximum difference between the children of college graduates and high school graduates was over 10 points, and the maximum difference between children with per capita family incomes one standard deviation below the mean and one standard deviation above the mean was 3.5 points.

Re-estimating the model with each category of family-school engagement as the reference revealed the same basic difference between children with mutually engaged families and schools and children with one-sided engagement weighted towards schools. Children with one-sided engagement weighted towards families fell between these two poles.

Turning to family-school symmetry, children with positively symmetrical and family-weighted asymmetrical connections had greater test score gains from semester to semester (slope $b = .72$, $p < .05$ for positive symmetry, $-.96$, $p < .001$ for family-weighted asymmetrical) than children with negatively symmetrical family-school connections (the reference). They also demonstrated more pronounced corrections to these semester-to-semester gains (quadratic $b = -.11$, $p < .05$ for positive symmetry, $-.12$, $p < .001$ for family-weighted asymmetry).

These results were similar to the engagement pattern described above. Children with positively symmetrical and family-weighted asymmetrical connections posted larger test score gains from semester to semester than children with negatively symmetrical family-school connections early in the primary grades, but that the latter group posted larger test score gains from semester to semester than the two former groups at the end of the primary grades. Again, the absolute test score advantage between these two poles peaked in second grade—at about 2.5 points, compared to 2 for engagement, over 10 for parent education, and 3.5 for income—and then declined slightly over the next year. Rotating the reference category indicated a basic split between positive symmetry and family-weighted asymmetry on one hand and school-weighted asymmetry and negative symmetry on the other.

Family-School Connections, SES, and Reading Trajectories

Up to this point, the results have indicated that children who experienced more engaged and symmetrical family-school connections tended to have the most positive reading trajectories in the primary grades. Of the two sides of the family-school connections, however, families appeared more important. These results are relevant to efforts to promote family-school connections in order to enhance learning. Importantly, both family SES and the more positive family-school connections appeared to make the most difference to reading trajectories early in elementary school. They gave an initial boost that faded over time. How these trends relate to each other is an important consideration in the assessment of whether promoting family-school connections may be useful for reducing socioeconomic disparities.

To explore this issue, I added a full set of family SES x family-school connections interactions to both the engagement and symmetry models. Table 5 presents the results for family-school engagement. School-weighted engagement interacted with parent education and the time factor ($b = -.56$, $p < .05$) and time2 factor ($b = .07$, $p < .05$)—essentially, the interaction of this kind of family-school connection and parent education was associated with differences in the slope and quadratic components of the growth curve.

To interpret these interactions, I calculated the predicted test scores at each time point for four groups of children—all possible combinations of school-weighted engagement, mutual disengagement, college-educated parents, and high school graduate parents while holding all other variables in the model to their sample means—and then graphed these values to determine the shape of the average growth curve in each of the four groups. I summarize what these graphs revealed here. Among children with parents who had high school degrees, those with school-weighted engagement started elementary school with slightly lower reading test scores than children with mutually disengaged family-school connections. They then pulled ahead in first and second grade before falling behind again in third grade. They had an initial advantage in semester-to-semester test gains that faded by the end of the primary grades. Among children with parents who had college degrees, however, those with school-

weighted engagement started off elementary school with slightly higher reading test scores than children with mutually disengaged family-school connections but then fell behind fairly quickly and stayed there. Thus, in the absence of parental participation at school, having schools initiate contact with parents only appeared to be positive for children with less educated parents in the first couple of years of school. No significant interactions were found for per capita family income.

Table 5
Selected results from growth curve models of reading test scores, by family-school engagement and parent education (n = 14,887)

	B (SE)		
	I	S	Q
Growth Curve Parameters			
Intercept	-12.67**		
	(4.50)	---	---
Time		4.87*	
	---	(1.86)	---
Time^2			.83***
	---	---	(.19)
Family SES			
Parent education	.75**	1.24***	-.09***
	(.25)	(.14)	(.01)
Family-School Engagement			
Mutual engagement	.42	1.58	.18
	(3.84)	(1.51)	(.15)
One-sided (family)	2.61	-.78	.09
	(1.79)	(.92)	(.10)
One-sided (school)	-1.29	1.64	.21*
	(1.91)	(.88)	(.08)
Partnership x SES			
Mutual x parent ed.	-.22	.23	.02
	(1.03)	(.44)	(.04)
One-sided (family) x parent ed.	-.95	.35	-.02
	(.50)	(.25)	(.03)
One-sided (school) x parent ed.	.47	-.56*	.07*
	(.56)	(.26)	(.03)

* p < .05. ** p < .01. *** p < .001.
Δ2ll (vs. model with SES, controls, and family-school connections) = -3.57
Note: Coefficients in slope (S) column represent interactions between covariate and time factor. Coefficients in quadratic (Q) column represent interactions between covariates and time2 factor. All models controlled for family income, race/ethnicity, immigrant family, gender, age, pre-school enrollment, school factors (sector, Title 1, minority representation), region, and urbanicity. Disengagement was reference for family-school engagement dummy variables.

Table 6 presents the symmetry results. Family-weighted asymmetry interacted with per capita income and the time factor ($b = .61$, $p < .05$) and time2 factor ($b = -.06$, $p < .05$). Again, these three-way interactions can be thought of as indicating differences in the slope and quadratic components of the growth curve according to different combinations of family-school symmetry and family income. For interpretation, I followed the same procedure described above.

Among children from families with incomes one standard deviation below the sample mean, those with family-weighted asymmetrical connections started elementary school with slightly higher reading test scores than children with negatively symmetrical family-school connections but then lost that test score advantage by second grade because they had a lower overall rate of test score gains and a larger correction to these gains. Among children from families with incomes one standard deviation above the mean, those with family-weighted asymmetrical connections started elementary school at about the same level as children with negatively symmetrical connections but then pulled ahead because they had a greater rate of test score gains over time. The absolute test score advantage of the former over the latter peaked in second grade. Thus, in the absence of strong reading activities at school, having parents engage in reading activities at home with children appeared to be positive for children with higher-income parents, especially in the first couple of years of school.

Furthermore, positive symmetry interacted with parent education and time ($b = .54$, $p < .05$) and time2 ($b = -.06$, $p < .05$). Among children with parents who had high school degrees, those with positively symmetrical family-school connections started elementary school with slightly higher test scores than children with negatively symmetrical connections and then added to this advantage from semester to semester, with a peak advantage in second grade. This same pattern held, but in a more pronounced form, for children with college-educated parents. Thus, having both parents and teachers engaging in reading activities appeared to be a positive for all children, but especially for those whose parents had higher-level degrees.

Table 6
Selected results from growth curve models of reading test scores, by family-school symmetry and family SES (n = 14,887)

	B (SE) for Model 1			*B (SE)* for Model 2		
	I	S	Q	I	S	Q
Growth Curve Parameters						
Intercept	-12.00*			-11.73*		
	(4.23)	---	---	(4.12)	---	---
Time		4.66*			4.88**	
	---	(1.77)	---	---	(1.75)	---
Time^2			-.85***			.82***
	---	---	(.18)	---	---	(.18)
Family SES						
Per capita income/100	.24	.18	.01	.30	.26*	-.02
	(.25)	(.13)	(.13)	(.16)	(.10)	(.01)
Parent education	.69***	1.14***	-.08***	.54	1.08***	-.07***
	(.20)	(.10)	(.01)	(.31)	(.04)	(.01)
Family-School Symmetry						
Positive symmetry	.31	1.03*	-.13*	.73	-.77	.06
	(.78)	(.44)	(.05)	(1.66)	(.87)	(.09)
Asymmetry (family)	.10	.26	-.05	-1.83	.84	-.09
	(.66)	(.35)	(.03)	(1.27)	(.63)	(.08)
Asymmetry (school)	-.28	.40	-.06	-.05	.16	-.03
	(1.35)	(.63)	(.07)	(3.14)	(1.65)	(.17)
Symmetry x SES						
Positive symmetry x income	.67	.27	.02			
	(.73)	(.42)	(.04)	---	---	---
Asymmetry (family) x income	.34	.61*	-.06*			
	(.35)	(.26)	(.02)	---	---	---
Asymmetry (school) x income	.07	.06	.00			
	(.50)	(.31)	(.04)	---	---	---
Positive symmetry x parent ed.				.14	.54*	-.06*
	---	---	---	(.50)	(.27)	(.03)
Asymmetry (family) x parent ed.				.53	.05	-.01
	---	---	---	(.41)	(.21)	(.03)
Asymmetry (school) x parent ed.				-.11	.12	.01
	---	---	---	(.79)	(.44)	(.04)

* p < .05. ** p < .01. *** p < .001.
Δ2ll (vs. model with SES, controls, and family-school connections) = 1.4 (parent education model), 70 (income model)
Note: Coefficients in slope (S) column represent interactions between covariate and time factor. Coefficients in quadratic (Q) column represent interactions between covariates and time^2 factor. All models control for race/ethnicity, immigrant family, gender, age, pre-school enrollment, school factors (sector, Title 1, minority representation), region, and urbanicity. Negative symmetry was reference for family-school symmetry dummy variables.

Conclusions

In the last decade, three major topics of policy discussion and activity in the U.S. (and elsewhere) have been the role of early education as a critical intervention point (Heckman, 2006), socioeconomic disparities in learning and achievement (Rothstein, 2004), and family-school compacts (Epstein, 2005). This study linked these three topics by drawing on a multidisciplinary body of developmental and educational theory to consider how family-school connections were related to early learning trajectories across socioeconomic strata in the U.S.

Generally, American children posted greater gains in reading over time when their parents were involved at schools in which school personnel actively drew in parents than when neither parents nor school personnel reached out to each other. Similarly, they posted greater gains when parents constructed stimulating environments at home that paralleled classrooms than when they received less stimulation at home or school. These patterns are not altogether surprising. After all, children who have resources in, or experience exchanges of resources across, two settings would be expected to do better than children drawing learning resources from neither setting or who have no exchange of resources between the two. More interesting questions concern what happens to children for whom only one setting is providing or trying to exchange learning resources. Do such children look more like those with two more resourced and transactional settings in their lives or more like those with no such settings? If only one setting has resources or is attempting to exchange resources, which setting is most important?

Providing partial answers to these questions, analyses revealed that children who had engaged parents and/or cognitively stimulating home environments but who did not attend schools with high levels or family contact or classroom reading (the family-weighted categories) looked more like the children with resources at home and school or resource exchanges between the two. On the other hand, children who did not have engaged parents or cognitively stimulating home environments but who did attend schools with high levels or family contact and/or higher-order reading activities in the classroom (the school-weighted categories) looked more like the children without resources at home or school or no exchange between the two.

From both a theoretical and policy perspective, how these main effects of family-school connections relate to family SES is an important consideration. In general, children with more educated, higher-income parents gained reading skills at a higher rate over the primary grades than children with less educated, lower-income parents. The former children also tended to have more mutually engaged and positively symmetrical family-school connections.

SES differences in family-school connections, however, did little to explain the SES differences in reading trajectories. Instead, the story was less about mediation and more about moderation—with some socioeconomic variation detected in the link between family-school connections and children's reading trajectories. First, having schools initiate contact with uninvolved parents (school-weighted engagement) was associated with greater reading gains only for the children of less educated parents. This pattern potentially reflects a buffering process, in which school actions can make up some of the disadvantage faced by children of less educated parents by facilitating the flow of school-related information (about protocols, practices, norms, expectations) to those parents. Second, having parents engage in reading activities at home without higher-order reading instruction at school (family-weighted asymmetry) was associated with lower reading gains for the children of less educated parents and higher reading gains for their peers with more educated parents. Third, having parents engage in reading activities at home in tandem with higher-order reading instruction at school (positive symmetry) was associated with greater reading gains for all children, but especially those with better educated parents. These latter two patterns suggest a process of cumulative advantage, possibly due to the corresponding SES differences in parents' own literacy.

One consistent theme that emerged from these results concerned timing. Family-school connections tended to matter most to reading trajectories and socioeconomic disparities in reading trajectories up through second grade. Possibly, these patterns reflect a measurement issue. Recall that family-school engagement could only be measured in kindergarten. Thus, what appeared to be diminishing returns may instead be the result of increasing time lags between predictor and outcome. First grade measures of family-school symmetry were avai-

lable, however, and adding them as controls did not change the overall pattern of symmetry results, a check that boosts confidence that the observed timing effect was not solely due to measurement. Another explanation is that, in general, the normative acceleration of reading trajectories in the sample peaked in second grade, which was also the maximum point of socioeconomic divergence in reading trajectories. Consequently, the kindergarten through second grade period may have been a critical window in which reading trajectories (and disparities in trajectories) were more malleable. Certainly, a great deal of theory and research suggests that early childhood and the transition to elementary school is a time in which human capital investments and educational interventions will bring the greatest long-term returns (Heckman, 2006; Entwisle, Alexander, & Olson, 2005). If so, the timing effect for family-school connections observed in this study could indicate that efforts to build family-school connections may bring greater payoff when focused on the earliest stages of schooling.

Of course, when advocating a reconceptualization of parental involvement into family-school connections, the degree of added value is important to assess. Does looking at parental involvement in tandem with school contact/instruction tell us anything different than if parental involvement had been studied alone? Admittedly, the overall differences are not striking. For both kinds of family-school connections, the clearest demarcation was between children who had parents who participated in school and read with them at home and children whose parents did not engage in these behaviors. Still, several important added insights were gained. When looking at family-school engagement, children did better when their parents participated in schools that reached out to their parents than when their parents' participation was not reciprocated by the school. Thus, the connection mattered. At the same time, although one-sided school-weighted engagement did not appear to boost achievement for most children above and beyond having neither parent nor school personnel engaged, it did do so for the children of less educated parents. In this case, school actions provided an observed benefit even in the absence of a strong parental presence at school. Although not large in magnitude, these differences by family-school engagement were similar to income differences.

Overall, the investigation of family-school symmetry did not add much value when compared to looking at parental reading activities alone. Children who read with their parents did better than their peers regardless of what was going on in the classroom. The one exception was low-income children, who had more problematic reading trajectories when their parents were reading with them at home but they were not engaged in higher-order reading activities at school. Perhaps their parents were reading to them more because they were having problems at school or because they did not appreciate what was being taught at school. Alternatively, perhaps these parents had the motivation to read to their children but not the information and knowledge that they needed to make up for what was lacking in school. Again, the connection between home and school mattered more than the family activity.

These conclusions, however, should be viewed as preliminary—as the bases for future research—for several reasons, primarily concerning the limitations of using extant data sources to study direct and indirect transactions between home and school rather than the actions of one or the other. These limitations need to be corrected in order for the preliminary conclusions of this study to be thoroughly vetted.

One concern is measurement, which is often a major disadvantage of national data collections that offsets some of their advantages in generalizability and sampling diversity. Ideally, ECLS-K would have included school reports of school outreach to the study children's families, so that parent reports would not have been used to measure both sides of family-school engagement. At the same time, the interests of this study would have been better served by repeated measures of school activities. Finally, the field needs to develop new ways of capturing school-based parental involvement besides the standard types of items contained in national studies like ECLS-K—need to be considered. Parents can be proactively involved at schools in other ways too, such as by keeping up with lesson plans, accessing school services for children and themselves, or working with Parental Information and Resource Centers, or PIRCs (U.S. Department of Education, 2007). These efforts need to be given more weight in data collection.

Another concern is that, despite the use of terms suggesting otherwise (e.g., effects, risks), this study could not establish causality. Schools and families play off each other, and child traits elicit responses from both (Thurston, 2005). Absent experimental designs, such threats to causal inference cannot be completely resolved. Still, steps can be taken to address this problem. Longitudinal frameworks are a good start. One promising avenue is the identification of school policies that vary somewhat randomly across states (e.g., implementation of PIRCs) and could be attached to ECLS-K for use as an instrumental variable (Gennetian, Magnuson, & Morris, 2008). Another is the coupling of propensity score techniques to rule out observable confounds with robustness indices to quantify the potential impact of unobservable confounds on the causal inference (Frank, 2000). As for other limitations of the study, more needs to be done to tease apart how socioeconomic stratification and racial inequality are intertwined in American education, and more multi-dimensional treatments of learning (e.g., earned grades vs. test scores, reading vs. math) need to be leveraged.

If, once these limitations are corrected and extensions are executed, the findings of this study hold up consistently, then the family-school connections reconceptualization of parental involvement might inform educational policy in the U.S. and other countries in targeted ways. In general, building two-way lines of communication between home and school—through regular meetings, mailings, web technology, and other means—could be an important step for the goal of raising achievement rates overall. Because the observed benefit of such two-way engagement did not differ by family SES but the prevalence of having such engagement did, these efforts might also contribute to the goal of reducing academic disparities. Also for the goal of addressing disparities, having schools amp up their communication strategies for lower SES parents who have not been visible at school might be valuable, and so too would be providing a venue for lower SES but highly home-involved parents to voice their concerns about their children's reading activities at school, request changes in these activities, or gain insights about how to use their home reading time to complement what is going on in school. In all cases, opening up lines of communication is key.

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Notes

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[1] To capture the full shape of the growth curve, a value was given to each semester-grade regardless of whether a test was taken (or data were collected) during that semester-grade; thus, for the slope, or time, 1 = kindergarten-fall, 2 = kindergarten-spring, 3 = first grade-fall, 4 = first grade-spring, 5 = second grade-fall, 6 = second grade-spring, 7 = third grade-fall, 8 = third grade-spring (0, 14, 9, 16, 25, 36, 49, 64 for the quadratic, or time^2).

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