The Role of Out-of-School Factors in the Literacy Problem

Jane Waldfogel

Summary

When U.S. children enter school, their reading skills vary widely by their socioeconomic status, race and ethnicity, and immigrant status. Because these literacy gaps exist before children enter school, observes Jane Waldfogel, the disparities must arise from conditions outside of schools—from the children's families and communities. And the same out-of-school factors may continue to influence reading skills as children progress through school.

Waldfogel examines how specific out-of-school factors may contribute to literacy gaps at school entry and to the widening of the gaps for some groups thereafter. Some factors are important across groups. For instance, differences in parenting help explain black-white literacy gaps as well as gaps associated with socioeconomic status. Other factors differ by group. For instance, key influences on early literacy for immigrant children are the language spoken at home, parental proficiency in English, and whether a child participates in preschool.

What happens to early gaps in literacy during the school years also varies by group. Reading gaps for Hispanic children tend to close or stabilize after a few years, perhaps because of such out-of-school factors as strong families, less crime, or better peer group attitudes in Hispanic communities. But black-white gaps and gaps between children from socioeconomically disadvantaged and more advantaged families tend to widen during the school years. An important challenge for future research is to understand why that is the case.

Waldfogel concludes that addressing early literacy gaps, and later gaps, requires tailoring policy responses depending on which group is being targeted. But across all groups, one important conclusion holds. Although out-of-school factors contribute—sometimes in major ways—to literacy disparities, says Waldfogel, schools have a responsibility to try to close such gaps. Research on the out-of-school sources of literacy problems can support schools in this effort by helping practitioners and policy makers better understand which children are likely to encounter problems in literacy and why, as well as what schools and others can do to address those problems.

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American children enter school with substantial disparities in literacy skills, and for some groups of children the disparities widen as they progress in school. Particularly notable at school entry are gaps by socioeconomic status, race and ethnicity, and immigrant status. Because these gaps exist before school entry, the explanation for them must rest with conditions outside of schools—conditions, that is, in the children's families and communities. As children move through school, such out-of-school factors may continue to influence their progress in literacy, by affecting both learning gains during the school year and learning gains or losses during the summer, when they are not in school.

In this article, I consider the out-of-school factors that influence disparities in literacy at school entry and examine how those and other out-of-school factors may contribute to the widening of these gaps for some groups thereafter. Because the explanations for early gaps in literacy and for their subsequent evolution may vary depending on the particular group considered, I discuss specific at-risk groups separately.

What Is the Problem?

The literacy problem in the United States is not new. For decades researchers have documented gaps in literacy or literacy-related skills that appear even before children begin school and that in many instances widen thereafter.[1] In 1998 a committee convened by the National Academy of Sciences produced a landmark volume on *Preventing Reading Difficulties in Young Children*.[2] In that study, committee chair Catherine Snow and co-editors Susan Burns and Peg Griffin described the demographics of reading difficulties, noting that children from poor families, black and Hispanic children, and children attending urban schools were all at elevated risk of poor reading outcomes.

In their article in this issue Sean Reardon, Rachel Valentino, and Kenneth Shores take a look at disparities in literacy today and provide ample evidence that literacy gaps remain a problem in the United States. Consistent with earlier research, they document sizable gaps between students of high and low socioeconomic status; between black, Hispanic, and white students; and between children of immigrants and children of native-born parents.[3] The gaps are present at school entry and tend to widen during the school years for some groups (children of low socioeconomic status and black children) but not for others (Hispanic children).

Explaining Literacy Skill Gaps at School Entry and Their Evolution Thereafter

Early child development, including growth in early literacy, occurs in the context of tremendous developmental opportunities and risks. Over the past few decades, findings from neuroscience have illuminated the important role of early experiences and gene-environment interactions in shaping cognitive, social, and emotional development, and have pointed to the potentially toxic effects on development of early adverse experiences and stress.[4] The quality and nature of experiences in early childhood lay the groundwork for early literacy development and may also set the stage for potential problems. To the extent that some groups of children are more likely than their peers to experience challenging early environments and less-than-optimal early parenting, they are at risk for problems in literacy as well as in other domains.

To identify specific factors that are associated with problems in early literacy, it is important to understand the process of literacy development. The article in this issue by Nell Duke and Meghan Block provides insights into this process, as does the already noted 1998 National Academy of Sciences volume, *Preventing Reading Difficulties in Young Children,* which emphasizes how early in childhood the foundation for literacy is laid and stresses parents' role in promoting early literacy.[5]

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Indeed, a key factor in early literacy is the role of parents. Parents create a home environment that may provide more or less support for early literacy, through the value they place on literacy and through their provision of books and other reading materials.[6] Parents' reading with their children—including "dialogic reading," in which parents engage children in talking about the books being read to them—is particularly important.[7] Other parent-child verbal interactions also make major contributions to vocabulary development, which is in turn associated with children's early literacy.[8] Children whose parents do not offer a home environment conducive to literacy development, do not read frequently with them, or have limited verbal interactions with them are at elevated risk of reading problems. Two other key factors in early literacy are the language spoken in a child's home and parental proficiency in English. When parents primarily speak a language other than English at home or are not proficient in English themselves, their children tend to have less exposure to English (unless they receive support for English outside the home or are enrolled in good bilingual education programs) and thus tend to be at higher risk of scoring poorly in early literacy, particularly if assessed in English.

Parents, and other out-of-school factors, affect literacy skills not only before children begin school but also afterward. During the school year, parents can support their children's learning by monitoring and helping with schoolwork and by being involved at school, as well as by enrolling their children in tutoring and enriching extracurricular activities. During the summer, parents can expose children to reading materials and other learning-related activities. Parents of low socioeconomic status are less likely to engage in such activities than are more-advantaged parents, and their children are less likely to have access to learning-related resources, in part because disadvantaged parents may place less value on such resources but also because they have less time and money to invest in them.[9] Such out-of-school factors differ not only by socioeconomic status but also by race and ethnicity and by immigrant status.[10] The links between the lower school achievement of many at-risk groups of children and these out-of-school factors imply that their poorer skills are not due entirely to differences in school quality or other in-school factors.[11]

How important are these factors in explaining early literacy gaps and the progression of later literacy gaps experienced by children of

low socioeconomic status, black and Hispanic children, and children of immigrants? In the sections that follow, I review research findings on both types of gaps for each of these groups. Where available, I draw in particular on studies that attempt to explain gaps by identifying what portion of the gap is accounted for by a particular set of factors. These studies use a decomposition methodology that breaks down the total gap into the portion associated with differences in specific explanatory factors. For a factor to matter in such a decomposition, the two groups for whom the gap is being analyzed must differ on that factor and the factor must have an effect on the outcome in question; if so, that factor contributes to the gap, and the importance of its contribution to the total gap can be calculated. Although such estimates cannot show that a particular factor has a *causal* influence on the gap, they can provide *descriptive* evidence as to how much of the gap might be explained by that factor.

Gaps Associated with Socioeconomic Status

Family socioeconomic status is strongly correlated both with early literacy (and other academic outcomes) and literacy later in the school years.[12] Socioeconomic status comprises several elements, such as family income, parents' educational attainment, and parents' occupation. Some studies use a composite measure reflecting several of these elements, while others focus on one element (often, family income) as an index of socioeconomic status.

Studies focusing on socioeconomic status-related gaps in literacy have identified several explanations for the poorer early literacy of disadvantaged children. Recent studies single out parenting as the most important explanation. Valerie Lee and David Burkam analyzed differences in early reading and other school outcomes associated with a composite measure of socioeconomic status, using data from the initial wave of the Early Childhood Longitudinal Study, Kindergarten Cohort (ECLS-K), which assessed children who started kindergarten in the fall of 1998.[13] Lee and Burkam documented large socioeconomic status-related gaps in early literacy (and other outcomes) and then tried to explain the gaps using the decomposition approach described above. They found that several factors related to low socioeconomic status (differences related to race and ethnicity, families' educational expectations, use of child care, and reading, computer use, and television use in the home) helped explain some but not all of the links between low socioeconomic status and early literacy gaps.

In a later analysis, using data on four-year-olds from the Early Childhood Longitudinal Study, Birth Cohort, a large, nationally representative study that followed children born in 2001 to school entry, Elizabeth Washbrook and I compared the early literacy (and other outcomes) of children from families in the bottom fifth of the family income distribution with those of children from families in the middle fifth.[14] In this cohort, low-income children scored at the 34th percentile in early literacy, while middle-income children scored at the 47th percentile, a 13-point gap. Examining a wide range of explanations for the gap in our decomposition analysis, we found that the single most important explanation for the poorer literacy scores of the low-income children was parenting. We considered two distinct parenting constructs. The first, parenting style, included measures of maternal sensitivity and responsiveness, knowledge of infant development, spanking, and rules. The second parenting construct, home

learning environment, included cognitively stimulating activities and items in the home, participation in classes and library visits, and use of computer and television in the home. Differences between low- and middle-income families on these parenting constructs accounted for 42 percent of the literacy gap between low-income and middle-income children (with each of the two constructs contributing about half that amount). Next in importance were family demographics and parental education, which together accounted for 33 percent of the gap. Differences in child care, maternal health and health-related behaviors, and child health together accounted for a further 5 percent, leaving about 20 percent of the total gap unexplained.[15]

Studies have also examined the evolution of socioeconomic gaps in literacy as children move through school.[16] In a recent study, Katherine Magnuson, Elizabeth Washbrook, and I examined the trajectory of such gaps in reading (and math) scores from kindergarten to eighth grade, using data from the ECLS-K for children who were in kindergarten in 1998.[17] The gaps between children with parents with low, medium, and high levels of education held relatively constant between fall and spring of kindergarten but widened thereafter. In particular, children with highly educated parents pulled away from the others over time, while children with the least educated parents lost ground. Detailed regression results indicated that children of the highly educated parents scored 10 points higher on reading than children of the least educated parents at age five, with this gap increasing significantly to 37 points by age fourteen. By age fourteen, in fact, children with the least educated parents had mean reading scores that were about the same as the scores of nine-year-olds with highly educated parents. Results for socioeconomic status defined by family income, rather than by parental education, were similar.[18]

That gaps in reading remain steady or even narrow a bit in the first year or two of school but then widen thereafter has implications for identifying out-of-school explanations for the gap after school entry. Any such explanations would have to involve factors that are not influential during the first few years of school but become important thereafter. Examples might include more complex learning items or activities, such as a computer in the home, or perhaps peer and community influences that would be expected to increase in importance as children age.

The widening socioeconomic status gaps in literacy may also result at least in part from differences in learning during the summer months, when children typically are not enrolled in school. The U.S. education system is distinctive in its long summer vacations, during which children from families of higher socioeconomic status are more likely than their less advantaged peers to attend summer camps, participate in family travel, or benefit from other learning and enrichment activities. Researchers have thus hypothesized that children from disadvantaged families will experience a relative "summer learning loss," and empirical studies have generally tended to support this hypothesis.[19] A 1996 meta-analysis of thirteen studies found that low-income students in elementary and middle school lost ground in reading over the summer months both in absolute terms and relative to their higher-income peers (who actually improved their word recognition skills over the summer).[20] More recent studies, using data from the ECLS-K, provide new evidence on summer learning loss between kindergarten and first

grade.[21] As noted, socioeconomic status-related gaps in reading tend to narrow between kindergarten and first grade, suggesting that early school experiences are equalizing, but analyses focused on the summer between the spring of kindergarten and fall of first grade find that they widen. This research thus confirms the important role of summer learning loss in contributing to socioeconomic status-related gaps in literacy.

Racial and Ethnic Gaps

Gaps in early literacy (and other academic outcomes) between black and white children have been widely documented and studied. Black-white gaps in literacy are already large at school entry, and the gaps roughly double over the school years, although estimates vary depending on the specific data set and measures used.[22] Explanations for these gaps, and for their evolution during the school years, are less clear. Particularly difficult is disentangling the relative role of differences in socioeconomic status and other factors associated with race and ethnicity.

A recent issue of the *Future of Children* on "School Readiness: Closing Racial and Ethnic Gaps," edited by Cecilia Rouse, Jeanne Brooks-Gunn, and Sara McLanahan, analyzed a variety of possible explanations for these disparities and concluded that as much as half of the black-white gap in school readiness in literacy (and other academic outcomes) could be explained by differences in parenting.[23] In their article in that issue, Jeanne Brooks-Gunn and Lisa Markman documented striking racial differences in parenting: in particular, on average, black parents talked less to their children, were less likely to read to them daily, and had fewer reading materials in their homes, all of which would be expected to result in poorer literacy among the children.[24] Another important explanation, which Janet Currie estimated might account for up to one-quarter of the black-white gap in early school readiness, involved racial differences in maternal and child health and health-related behaviors (including maternal depression and breast feeding).[25] Katherine Magnuson and I, reviewing differentials in the quality and type of early childhood education and care that black and white children receive, estimated that improving the quality of Head Start, the federal early childhood education program for low-income children that enrolls many black children, could close up to 10 percent of black-white gaps in school readiness.[26]

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As noted, a challenge in explaining black-white gaps in literacy is sorting out the role played by differences in socioeconomic status. Black children are much more likely than white children to grow up in poverty, with single parents, and with parents who are poorly educated. In their article in the *Future of Children* issue on school readiness, Greg Duncan and Katherine Magnuson estimated that such circumstances might account for as much as half of the early black-white test score gaps, in line with earlier estimates by Valerie Lee and David Burkam, but they cautioned that their estimate was likely to be too

high to the extent that socioeconomic status is correlated with other important factors, such as parenting, health, and child care.[27] Rouse, Brooks-Gunn, and McLanahan concluded that although the varying estimates offered by contributors to the volume cannot simply be added up because the factors involved are likely to overlap and interact, nevertheless most of the black-white gap in early literacy can be accounted for by differences in parenting, health and health-related behaviors, early childhood education, and socioeconomic status, consistent with recent estimates by Roland Fryer and Steve Levitt of gaps in reading (and math) in the ECLS-K.[28]

Although more work remains to be done in understanding the reasons for the black-white gap in early literacy, the evidence suggests that parenting is very important—just as it is in explaining socioeconomic literacy gaps. Health and health-related behaviors and early childhood education also likely play a role. As noted, separating the contributions of socioeconomic status from those of other factors remains challenging, because socioeconomic status and race are correlated.

As with socioeconomic literacy gaps, the black-white gaps in early literacy tend to widen during the school years, so that black children lag even further behind their white peers as they move through school. Because other articles in this issue consider the role of schools themselves in widening or narrowing gaps in later literacy, I review only the research findings regarding the role of out-of-school factors.

Potentially consequential out-of-school explanations for later black-white literacy gaps include differences in parent characteristics and home environments, youth behavior and attitudes, and community attributes such as crime. Hypothesizing that changes over time may help shed light on how best to explain the gaps, several analysts have evaluated the competing explanations by comparing trend data from periods when black-white gaps for school-age children and youth were narrowing to data from periods when gaps were stagnant or widening.[29] Meredith Phillips, analyzing an extensive set of youth behaviors, such as reading for pleasure, doing homework, and watching television, and parent behaviors, such as limiting television use, found no strong correlation between differential trends in these behaviors for black and white youth and trends in black-white test score gaps.[30] Research by Ron Ferguson, however, suggests that differences in youth culture may help explain not only some of the differential trends in black-white test scores over time but also test score differences at a specific time.[31] In particular, Ferguson has argued that the rise of hip-hop culture and rap music coincided with, and may help explain, a relative decline in black youth reading scores.[32]

As noted, research shows that differential summer learning loss helps to account for some of the lower reading achievement of children of low socioeconomic status. Evidence on summer learning loss and black-white reading disparities has been less clear. Studies using the ECLS-K data between kindergarten and first grade have tended to find that reading gaps between black and white children—unlike gaps by socioeconomic status—do *not* widen during that summer.[33]

Fewer studies have examined gaps in early literacy for Hispanic children, although research in this area is growing rapidly. Because substantial portions of Hispanic children are immigrants or children of

immigrants, I review research on Hispanic children in general as well as studies focused specifically on nonimmigrant Hispanic children in this section. I discuss research on immigrant children and children of immigrants in a separate section below.

The *Future of Children* issue on racial and ethnic gaps in school readiness considered Hispanic-white gaps as well as black-white gaps and found different explanations for them. Although parenting and socioeconomic status were important in explaining both, other contributing factors differed. In particular, Katherine Magnuson and I estimated that equalizing access to center-based preschool, in which Hispanic children are significantly underenrolled, could close as much as 26 percent of the Hispanic-white gaps, with improvements in Head Start closing another 4–8 percent. The role of early childhood education and care, we concluded, was much more important in explaining Hispanic-white gaps in school readiness than in explaining black-white gaps.

Another important difference between black-white gaps and Hispanic-white gaps in literacy (and other academic outcomes) is their trajectory after school entry. Although black-white gaps widen after school entry, Hispanic-white gaps tend either to narrow or to hold stable during the school years.[34] As Sean Reardon and Claudia Galindo have pointed out, that discrepancy suggests that the sources of the gaps during the school years must be different for the two groups.[35] One possibility, they say, is that black youth, but not Hispanic youth, go on to attend poorer-quality schools, an experience that widens the gap. A second possibility is that conditions associated with black youths' parents and their home environments lower both school readiness and subsequent achievement, while Hispanic youths' initially poor school readiness may have more to do with issues involving language, which are remedied in their first few years of school (as discussed further below).

Gaps for Children of Immigrants

The literacy skills of children of immigrants vary widely at school entry, with some groups (for example, children of Asian parents) tending to perform significantly better than children of native-born parents while others (for example, children of Latin American parents) tend to perform significantly worse.[36] Differences in socioeconomic resources between immigrant families and native-born families explain a portion, but not all, of these early advantages or disadvantages.[37] More important explanations are the language spoken in the home and parental English language proficiency, which account for a large portion of the differences in early literacy, particularly when (as is most commonly the case) children are assessed in English only.

In a recent study of children entering kindergarten, Wen-Jui Han, RaeHyuck Lee, and I used data from the Early Childhood Longitudinal Study, Birth Cohort, to explore the relative importance of family resources, such as parental income and education as well as language, and aspects of family process, such as parenting as well as parental employment and child care usage, in explaining differences in early reading (and other dimensions of school readiness) between children of immigrants and children of native-born parents.[38] Focusing on children of Mexican immigrants, who tend to have below-average early reading scores, and children of Chinese immigrants, who tend to have above-average scores, the study found that having fewer socioeconomic resources explained some but not all of the lower scores

of children of Mexican immigrants. More important was the lack of English proficiency among parents and their tendency to speak Spanish at home. For children of Chinese immigrants, having greater socioeconomic resources was one factor in their higher early reading scores, while using Chinese at home was a factor in their lower scores, but even after controlling for both, children of Chinese immigrants still had higher scores, suggesting that some other factors were at work. The study also found notable differences in family process between children of immigrants and children of native-born parents. For example, consistent with earlier research, Han, Lee, and I found that children of Mexican parents were much less likely than other children to be enrolled in school- or center-based child care.[39] The lower likelihood of children of Mexican parents being enrolled in child care, however, played only a small role in explaining their lower early reading scores. Robert Crosnoe reached a similar conclusion in his analysis of early math scores using data from the ECLS-K.[40] Findings from studies like these suggest that although enrolling children of immigrants in school- or center-based child care preschool programs would improve their early reading, it probably would not close the gaps between them and the children of native-born parents.[41]

That a lack of exposure to the English language is so important in explaining the poorer early literacy skills among children of immigrants raises the possibility that their initial deficits in literacy might be relatively short-lived and might diminish over time as they learn English in school. In fact, a fair amount of evidence suggests that this is the case. Analyses of the academic trajectories of children of immigrants find that, to a large extent, initial gaps at school entry begin to close as the children move through school, although these patterns vary by immigrant group.[42] A study by Wen-Jui Han that followed children in the ECLS-K from kindergarten to third grade found that children of Latin American parents made more rapid gains in reading (and math) than other groups, thus narrowing the gaps in test scores between them and other groups over time.[43] Sean Reardon and Claudia Galindo, also using ECLS-K, found that gaps in reading between children of Latin American parents and other groups narrowed rapidly in kindergarten and first grade but were then stable to fifth grade.[44] Both these studies suggest that in-school factors, in particular language instruction, are effective at narrowing literacy gaps for children of immigrants who start school with below-average literacy skills and that out-of-school factors (such as low levels of socioeconomic resources) do not seem to play a major role in hindering the academic progress of children of immigrants once they are in school.

Discussion and Policy Implications

As Reardon, Valentino, and Shores make clear in their article in this issue, the United States does not have one literacy problem but rather several different problems. Gaps in early literacy, for example, vary depending on the group considered. Similarly, the factors underlying those early gaps vary, as do the ways those gaps evolve as children move through school. Solutions to literacy problems, therefore, will need to be tailored depending on which group is being targeted.

For children from socioeconomically disadvantaged homes, the evidence is quite strong that differences in parenting are important in explaining early literacy problems, and thus that parenting programs that promote reading and other literacy-related activities in the home in early childhood may help

boost literacy. The same seems true for black and Hispanic children, for whom evidence likewise strongly suggests that parenting differences are consequential for early childhood literacy. Although the evidence on the effectiveness of parenting interventions has been mixed, several recent experimental evaluations have shown that interventions can increase the time parents spend reading to their children and improve other aspects of parenting, leading to better child outcomes, including literacy skills.[45] Differences in parental education also play a role, suggesting that public investments in education would pay off not just in the labor market but also in improved home environments and school achievement for children.

For children of immigrants, language seems to be the dominant influence in early literacy problems. Encouragingly, many of these children, even if lagging initially in literacy, seem to catch up quite quickly once they start school.[46] So the policy solutions here may have more to do with ensuring both that such children receive high-quality language and literacy instruction when they start school and that they are not penalized for any early problems in literacy. In addition, Hispanic children and children of immigrants could particularly benefit from expanded access to quality preschool programs (such as universal prekindergarten), which have been shown to improve school achievement, with particularly large benefits for at-risk groups.[47]

Analysts have made less progress in understanding out-of-school factors in later literacy. What the research to date suggests, however, is that whatever role such factors play is neither simple nor constant across groups. Early literacy problems for some groups (such as black youth) worsen over time, while for other groups (such as Hispanic youth) literacy gaps narrow during the school years, and for yet others (such as disadvantaged children) the evolution of the gaps displays both some convergence and widening. To the extent that initial literacy problems and their sources differ, it is perhaps not surprising that their subsequent evolution varies as well. A major task for future research will be to pin down the out-of-school factors associated with later literacy problems for specific groups and to identify appropriate solutions.

Despite these myriad variations, it is still possible to draw some general conclusions about policies to address widening gaps in later literacy. For instance, a growing body of evidence suggests that interventions to address summer learning loss can help keep disadvantaged students from losing ground, or even help them make gains, in literacy during the summer months. A 2000 meta-analysis of thirteen studies and a 2011 review of thirteen later studies found that summer programs can raise student achievement.[48] Many school districts have made learning gains through summer school programs (whether mandatory or voluntary).[49] And several recent experimental studies have found that home-based summer programs that provide books to children have led to reading gains for certain at-risk groups, such as low-income children or black children, although not for English Language Learners.[50]

It is important to stress that the negative influence of out-of-school factors on literacy progress during the school years need not be addressed solely, or even primarily, through out-of-school programs. As ample evidence shows, many disadvantaged children attend schools whose literacy-related resources and experiences are so poor as to amplify the negative influence of out-of-school disadvantages

that at-risk children face.[51] Teachers can and should work to provide the experiences and skills that socioeconomically disadvantaged and other at-risk children are not receiving at home. Recent studies provide some evidence about the types of practices that make teachers more effective in helping disadvantaged children keep up with their better-off peers in reading.[52]

That out-of-school factors contribute—sometimes in major ways—to literacy gaps, does not relieve schools of the responsibility to try to close such gaps. Rather, research on the out-of-school sources of literacy problems can help practitioners and policy makers better understand which children are likely to encounter problems in literacy and why, as well as what schools and others can do to address those problems so that all children in this country attain the literacy skills they will need to succeed in today's economy and society.

Endnotes

1. See, for example, James Samuel Coleman and others, *Equality of Educational Opportunity* (Washington: U.S. Office of Education, National Center for Educational Statistics, 1966).

2. Catherine E. Snow, M. Susan Burns, and Peg Griffin, eds., *Preventing Reading Difficulties in Young Children* (Washington: National Academies Press, 1998). See also Nell Duke and Meghan Block, "Improving Literacy in the Primary Grades," *Future of Children* 22, no. 2 (2012).

3. Sean F. Reardon, Rachel A. Valentino, and Kenneth A. Shores, "Patterns of Literacy among U.S. Students," *Future of Children* 22, no. 2 (2012). The authors also examine some other gaps (for example, gender gaps) besides those focused on here.

4. See, for example, Charles Nelson and Margaret Sheridan, "Lessons from Neuroscience Research for Understanding Causal Links between Family and Neighborhood Characteristics and Educational Outcomes," in *Whither Opportunity? Rising Inequality, Schools, and Children's Life Chances*, edited by Greg Duncan and Richard Murnane (New York: Russell Sage Foundation, 2011).

5. Nell Duke and Meghan Block, "Improving Reading in the Primary Grades," *Future of Children* 22, no. 2, 2012; Snow, Burns, and Griffin, eds., *Preventing Reading Difficulties in Young Children* (see note 2).

6. See, for example, Eileen Rodriguez and Catherine Tamis-LeMonda, "Trajectories of the Home Learning Environment Across the First Five Years: Associations with Children's Vocabulary and Literacy Skills at Prekindergarten," *Child Development* 82, no. 4 (2011): 1058–75; Eileen Rodriguez and others, "The Formative Role of Home Literacy Experiences across the First Three Years of Life in Children from Low-Income Families," *Journal of Applied Developmental Psychology* 30 (2009): 677–94.

7. See, for example, Grover Whitehurst and others, "A Picture Book Reading Intervention in Day Care and Home for Children from Low-Income Families," *Developmental Psychology* 30, no. 5 (1994): 679–89.

8. See, for example, Betty Hart and Todd Risley, *Meaningful Differences in the Everyday Experiences of Young American Children* (Baltimore: Brookes, 1995).

9. Ariel Kalil and Tom DeLeire, eds., *Family Investments in Children's Potential: Resources and Parenting Behaviors that Predict Children's Success* (Mahwah, N.J.: Lawrence Erlbaum, 2004); Neeraj Kaushal, Katherine Magnuson, and Jane Waldfogel, "How Is Family Income Related to Investments in Children's Learning?" in *Whither Opportunity? Rising Inequality, Schools, and Children's Life Chances*, edited by Duncan and Murnane (see note 4); Annette Lareau, *Unequal Childhoods: Class, Race, and Family Life* (University of California Press, 2003).

10. See review in Kaushal, Magnuson, and Waldfogel, "How Is Family Income Related to Investments in Children's Learning?" (see note 9). See also recent evidence on disparities in parenting and time use in Meredith Phillips, "Parenting, Time Use, and Disparities in Academic Outcomes," in *Whither Opportunity? Rising Inequality, Schools, and Children's Life Chances*, edited by Duncan and Murnane (see note 4).

11. A key publication in this debate was the Coleman report, which found that much of the black-white achievement gap was explained by out-of-school factors; see Coleman and others, *Equality of Educational Opportunity* (see note 1). See also Richard Rothstein, *Class and Schools: Using Social, Economic, and*

Educational Reform to Close the Black-White Achievement Gap (Washington: Economic Policy Institute, 2004).

12. Reardon, Valentino, and Shores, "Patterns of Literacy among U.S. Students" (see note 3).

13. Valerie Lee and David Burkam, *Inequality at the Starting Gate: Social Background Differences in Achievement as Children Begin School* (Washington: Economic Policy Institute, 2002). For earlier analyses of the factors explaining socioeconomic status gaps, see Greg Duncan and Jeanne Brooks-Gunn, eds., *Consequences of Growing Up Poor* (New York: Russell Sage Foundation, 1997).

14. Jane Waldfogel and Elizabeth Washbrook, "Early Years Policy," *Child Development Research* 2011 (2011): 1–12.

15. Parallel estimates of early language and math skills provided similar results, but with parenting playing a larger role for language and a slightly smaller role for math; Waldfogel and Washbrook, "Early Years Policy" (see note 14). Similar results were also obtained in a study analyzing a cognitive composite score from the Early Childhood Longitudinal Study, Birth Cohort; Jane Waldfogel and Elizabeth Washbrook, "Income-Related Gaps in School Readiness in the U.S. and U.K.," in *Persistence, Privilege, and Parenting: The Comparative Study of Intergenerational Mobility*, edited by Timothy Smeeding, Robert Erikson, and Markus Jantti (New York: Russell Sage Foundation, forthcoming).

16. Pedro Carneiro and James Heckman, "Human Capital Policy," in *Inequality in America: What Role for Human Capital Policies?* edited by James Heckman, Alan Krueger, and Benjamin Friedman (Cambridge: MIT Press, 2003), analyze reading and math scores for children age six to twelve from the National Longitudinal Survey of Youth by family income quartile and find that large gradients exist at age six and widen somewhat through age twelve. Analyses of children from the Early Childhood Longitudinal Study, Kindergarten Cohort, find that children from families with more risk factors (defined as income below poverty, primary home language not English, parent with less than high school education, and single-parent family) make less progress in the number of questions answered correctly on reading and math assessments between kindergarten and third grade, suggesting that socioeconomic status gradients widen over that period; Amy Rathbun, Jerry West, and Elvira Germino Hausken, *From Kindergarten through Third Grade: Children's Beginning School Experiences* (Washington: U.S. Department of Education, National Center for Education Statistics, 2004). A much smaller study found that socioeconomic status gaps in cognitive outcomes either narrowed or held constant over the first year or two of school; Deborah Stipek and Rosaleen Ryan, "Economically Disadvantaged Preschoolers: Ready to Learn but Further to Go," *Developmental Psychology* 33, no. 4 (1997): 711–23.

17. Katherine Magnuson, Jane Waldfogel, and Elizabeth Washbrook,"The Development of SES Gradients in Skills during the School Years: Evidence from the United States and England," in *From Parents to Children: The Intergenerational Transmission of Advantage,* edited by John Ermisch, Markus Jantti, and Tim Smeeding (New York; Russell Sage Foundation, forthcoming).

18. Results did change, however, when standardized scores, which express children's achievement relative to the standard deviation of the distribution of scores, were used. In general, results with standardized scores showed less widening of gaps over time but still tended to display the pattern of flat or even converging gaps in the first two years of school followed by widening gaps thereafter.

19. The earliest studies in this line of work include Richard Murnane, *The Impact of School Resources on the Learning of Inner City Children* (Cambridge: Ballinger, 1975); Barbara Heyns, *Summer Learning*

and the Effects of Schooling (Salt Lake City: Academic Press, 1978); and Barbara Heyns, "Schooling and Cognitive Development: Is There a Season for Learning?" *Child Development* 58 (1987): 1151–60. These studies were followed by an important examination of Baltimore schoolchildren: Doris Entwistle and Karl Alexander, "Summer Setback: Race, Poverty, School Composition, and Math Achievement in the First Two Years of School," *American Sociological Review* 57 (1992): 72–84. A recent RAND study provides a comprehensive review: Jennifer Sloan McCombs and others, *Making Summer Count: How Summer Programs Can Boost Student Learning* (Santa Monica: RAND, 2011).

20. Harris Cooper and others, "The Effects of Summer Vacation on Achievement Test Scores: A Narrative and Meta-Analytic Review," *Review of Educational Research* 66, no. 3 (1996): 227–68.

21. James Benson and Geoffrey Borman, "Family, Neighborhood, and School Settings across Seasons: When Do Socioeconomic Context and Racial Composition Matter for the Reading Achievement Growth of Young Children?" *Teachers College Record* 112, no. 5 (2010): 1338–90; David Burkam and others, "Social-Class Differences in Summer Learning between Kindergarten and First Grade: Model Specification and Estimation," *Sociology of Education* 77, no. 1 (2004): 1–31; Douglas Downey, Paul von Hippel, and Beckett Broh, "Are Schools the Great Equalizer? Cognitive Inequality during the Summer Months and the School Year," *American Sociological Review* 69 (2004): 613–35.

22. Christopher Jencks and Meredith Phillips, eds., *The Black-White Test Score Gap* (Brookings Institution, 1998); Katherine Magnuson and Jane Waldfogel, eds., *Steady Gains and Stalled Progress: Inequality and the Black-White Test Score Gap* (New York: Russell Sage Foundation, 2008). As mentioned, estimates of the gaps, and their evolution during the school years, vary depending on the data set and measures used; see Richard Murnane and others, "Understanding Trends in the Black-White Achievement Gaps during the First Years of School," *Brookings-Wharton Papers on Urban Affairs* (2006): 97–135.

23. Cecilia Rouse, Jeanne Brooks-Gunn, and Sara McLanahan, "Introducing the Issue," *Future of Children* 15, no. 1 (2005): 5–14. An earlier analysis of the factors underlying black-white gaps appears in Meredith Phillips and others, "Family Background, Parenting Practices, and the Black-White Test Score Gap," in *The Black-White Test Score Gap*, edited by Christopher Jencks and Meredith Phillips (Brookings Institution, 1998).

24. Jeanne Brooks-Gunn and Lisa Markman, "The Contribution of Parenting to Racial and Ethnic Gaps in School Readiness," *Future of Children* 15, no. 1 (2005): 139–68.

25. Janet Currie, "Health Disparities and Gaps in School Readiness," *Future of Children* 15, no. 1 (2005): 117–38.

26. Katherine Magnuson and Jane Waldfogel, "Early Childhood Care and Education: Effects on Racial and Ethnic Gaps in School Readiness," *Future of Children* 15, no. 1 (2005): 169–96.

27. Greg Duncan and Katherine Magnuson, "Can Family Socioeconomic Resources Account for Racial and Ethnic Test Score Gaps?" *Future of Children* 15, no. 1 (2005): 35–54; Lee and Burkham, *Inequality at the Starting Gate* (see note 13).

28. Rouse, Brooks-Gunn, and McLanahan, "Introducing the Issue" (see note 23); Roland Fryer and Steven Levitt, "Understanding the Black-White Test Score Gap in the First Two Years of School," *Review of Economics and Statistics* 86, no. 2 (2004): 447–64.

29. For an overview of these trends and possible reasons for them, see Derek Neal, "Why Has Black-White Skill Convergence Stopped?" in *Handbook of Economics of Education*, edited by Eric Hanushek and Finis Welch (Amsterdam: North Holland, 2006).

30. Meredith Phillips, "Culture and Stalled Progress in Narrowing the Black-White Test Score Gap," in *Steady Gains and Stalled Progress: Inequality and the Black-White Test Score Gap*, edited by Magnuson and Waldfogel (see note 22).

31. Ronald Ferguson, *Toward Excellence with Equity: An Emerging Vision for Closing the Achievement Gap* (Harvard Education Press, 2007); Ronald Ferguson, "What We've Learned about Stalled Progress," in *Steady Gains and Stalled Progress: Inequality and the Black-White Test Score Gap*, edited by Magnuson and Waldfogel (see note 22).

32. Ronald Ferguson, "Test Score Trends along Racial Lines, 1971–1996: Popular Culture and Community Academic Standards," in *America Becoming: Racial Trends and Their Consequences*, edited by Neil Smelser, William Julius Wilson, and Faith Mitchell (Washington: National Academy Press, 2001).

33. Downey, von Hippel, and Broh, "Are Schools the Great Equalizer?" (see note 21); Fryer and Levitt, "Understanding the Black-White Test Score Gap in the First Two Years of School" (see note 28).

34. Reardon, Valentino, and Shores, "Patterns of Literacy among U.S. Students" (see note 3).

35. Sean Reardon and Claudia Galindo, "The Hispanic-White Gap in Math and Reading in the Elementary Grades," *American Educational Research Journal* 46, no. 3 (2009): 853–91.

36. Robert Crosnoe and Ruth N. Lopez Turley, "K-12 Educational Outcomes of Immigrant Youth," *Future of Children* 21, no. 1 (2011): 129–52; Jennifer Glick and Bryndl Hohmann-Marriott, "Academic Performance of Young Children in Immigrant Families: The Significance of Race, Ethnicity, and National Origin," *International Migration Review* 41, no. 2 (2007): 371–402.

37. See, for example, Robert Crosnoe, "Health and the Education of Children from Race/Ethnic Minority and Immigrant Families," *Journal of Health and Social Behavior* 47, no. 1 (2006): 77–93; Wen-Jui Han, RaeHyuck Lee, and Jane Waldfogel, "School Readiness among Children of Immigrants in the U.S.: Evidence from a Large National Birth Cohort Study," *Children and Youth Services Review*, forthcoming.

38. Han, Lee, and Waldfogel, "School Readiness among Children of Immigrants in the U.S." (see note 37).

39. Peter Brandon, "The Child Care Arrangements of Preschool-Age Children in Immigrant Families in the United States," *International Migration Review* 42, no. 1 (2004): 65–87; Katherine Magnuson, Claudia Lahaie, and Jane Waldfogel, "Preschool and School Readiness of Children of Immigrants," *Social Science Quarterly* 87, no. 1 (2006): 1241–62.

40. Robert Crosnoe, "Early Child Care and the School Readiness of Children from Mexican Immigrant Families," *International Migration Review* 41, no. 1: 152–81.

41. Magnuson, Lahaie, and Waldfogel, "Preschool and School Readiness of Children of Immigrants" (see note 39); Magnuson and Waldfogel, "Early Childhood Care and Education" (see note 26).

42. Tama Leventhal, Yange Xue, and Jeanne Brooks-Gunn, "Immigrant Differences in School-Age Children's Verbal Trajectories: A Look at Four Racial/Ethnic Groups," *Child Development* 77, no. 5 (2006): 1359–74.

See also Nonie Lesaux, "Reading and Reading Instruction for Children from Low-Income and Non-English-Speaking Households," *Future of Children* 22, no. 2 (2012).

43. Wen-Jui Han, "The Academic Trajectories of Children of Immigrants and Their School Environments," *Developmental Psychology* 44, no. 6 (2008): 1572–90.

44. Reardon and Galindo, "The Hispanic-White Gap in Math and Reading in the Elementary Grades" (see note 35).

45. For an overview of the evidence on such programs, see Snow, Burns, and Griffin, eds., *Preventing Reading Difficulties in Young Children* (see note 2). See also Waldfogel and Washbrook, "Early Years Policy" (see note 14).

46. However, gaps may widen again in later grades; see Lesaux, "Reading and Reading Instruction for Children from Low-Income and Non-English-Speaking Households" (see note 42).

47. Magnuson and Waldfogel, "Early Childhood Care and Education" (note 26); Magnuson, Lahaie, and Waldfogel, "Preschool and School Readiness of Children of Immigrants" (note 39); Christopher Ruhm and Jane Waldfogel, "Long-Term Effects of Early Childhood Care and Education," *Nordic Economic Policy Review,* forthcoming.

48. Harris Cooper and others, "Making the Most of Summer School: A Meta-Analysis and Narrative Review," *Monographs of the Society for Research in Child Development* 65, no. 1 (2000); McCombs and others, *Making Summer Count: How Summer Programs Can Boost Student Learning* (see note 19).

49. See review in McCombs and others, *Making Summer Count* (see note 19).

50. Richard Allington and others, "Addressing Summer Reading Setback among Economically Disadvantaged Elementary Students," *Reading Psychology* 31, no. 5 (2010): 411–27; James Kim, "Effects of a Voluntary Summer Reading Intervention on Reading Achievement: Results from a Randomized Field Trial," *Educational Evaluation and Policy Analysis* 28, no. 4 (2006): 335–55; James Kim and Jonathan Guryan, "The Efficacy of a Voluntary Summer Book Reading Intervention for Low-Income Latino Children from Language-Minority Families," *Journal of Educational Psychology* 102, no. 1 (2010): 20–31; James Kim and Thomas White, "Scaffolding Voluntary Summer Reading for Children Grades 3 to 5: An Experimental Study," *Scientific Studies of Reading* 12, no. 1 (2008): 1–23; Jimmy Kim, "Summer Reading and the Ethnic Achievement Gap," *Journal of Education for Students Placed at Risk* 9, no. 2 (2004): 169–88.

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52. Barbara Taylor and others, "Effective Schools and Accomplished Teachers: Lessons about Primary-Grade Reading Instruction in Low-Income Schools," *Elementary School Journal* 101 (2000): 121–65; Barbara Taylor and others, "Reading Growth in High-Poverty Classrooms: The Influence of Teacher Practices That Encourage Cognitive Engagement in Literacy Learning," *Elementary School Journal* 104 (2003): 3–28.