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A RESEARCH UPDATE ON THIRD-GRADE READING



THE ANNIE E. CASEY FOUNDATION

Acknowledgments

This report was written by Leila Fiester, senior consultant to the Campaign for Grade-Level Reading and author of *Early Warning: Why Reading by the End of Third Grade Matters*.

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Foreword

Much has happened in the three years since *Early Warning: Why Reading by the End of Third Grade Matters* kicked off the Campaign for Grade-Level Reading — not only in the research world, as this update by Leila Fiester shows, but in homes, schools, neighborhoods and statehouses across the nation.

- In 2012, 124 communities in 34 states, the District of Columbia, Puerto Rico and the U.S. Virgin Islands, representing 350 school districts with 8 million students — 16 percent of all children in the United States who attend public schools — committed to actions recommended by the Campaign for Grade-Level Reading (GLR Campaign) to help more children from low-income families read at grade level by the end of third grade. Fifty more communities are now poised to join them. These local plans involve thousands of community organizations, educators and care providers, local funders, elected officials, parents and neighborhood volunteers who have stepped up to offer their time, talent, resources, political reputation and sweat equity.
- The U.S. Conference of Mayors passed a resolution calling on mayors across the country to launch campaigns against chronic school absence, one of the action areas highlighted in *Early Warning*. Dozens of mayors responded, with many broadening their efforts to include other factors that affect children’s ability to read. The GLR Campaign and Attendance Works issued a similar call to action for superintendents, and by early 2013, 66 had signed on.
- Dozens of national sector-leading organizations mobilized their partners, members and affiliates to boost children’s reading and to tackle dimensions of grade-level reading proficiency, from school readiness and summer learning to good health and parent involvement.
- More than two dozen governors put a stake in the ground on third-grade reading proficiency. To mention only a few: Massachusetts, Georgia and Oregon are among several states working to increase investment in early childhood programs that will improve children’s readiness for school. Connecticut included grade-level reading proficiency in its education reforms. California launched a summer learning campaign and made chronic absence a priority. Wisconsin and Virginia have focused on early literacy screening and intervention for struggling students.

A growing number of state leaders have pinned their hopes for children’s literacy on policies that require third-graders to pass a reading test before being promoted to the next grade, with students who do not pass being kept in third grade until they can read at grade level. More than 30 states plus the District of Columbia have policies for reading proficiency that target third-grade reading and more than a dozen can retain students who do not read proficiently. This practice goes by many names but is often described in terms of “retention” versus “social promotion,” the practice of promoting students along with their social peers regardless of whether they have met the academic requirements.

Proponents of social promotion say that the social disruption of holding students back while their peers move on does more damage to students' academic success and social/emotional development than promoting a student who hasn't mastered the requisite skills. Advocates of retention say that promoting a student who can't perform at grade level causes the student to fall further behind and can deny him or her the chance to acquire important skills.

The push for retention has brought energy and urgency to the effort to improve third-grade reading proficiency, which is good. But the evidence is not strong enough to support a claim that grade retention is the answer. And the evidence is certainly not strong enough to support *mandatory* retention for every child who fails a standardized test, as some proposals and statutes have required.

Decades of research have produced findings that raise serious concerns about the benefits of retention. These studies have found that socially promoted students had higher academic achievement, better personal adjustment and more positive attitudes toward school and that retained students displayed poorer social adjustment, less frequent attendance, more problem behaviors and a greater risk of dropping out of school. Some recent studies suggest that retention may have academic benefits, but these benefits appear to be short-lived and to fade over time, while other studies found no significant differences between promoted and retained students on measures of achievement or personal and social adjustment.

At the same time, educators, policymakers, parents and researchers all agree that the common practice of simply promoting students who have not acquired basic skills for social reasons is neither effective nor equitable. Many of these same students will fail later grades, when the social and academic consequences may be even more severe. Others may continue to move through the grades, while falling further and further behind their peers, ultimately dropping out of school or obtaining a meaningless diploma.

Thus, the best available evidence suggests that retention alone is ineffective at improving student achievement, yet we know that social promotion alone is an unacceptable alternative. Most important we know that intervention programs for third-graders who are at risk of being retained can substantially increase their academic achievement. This suggests that neither passive social promotion nor mandatory retention is a good policy strategy.

Fortunately, widespread attention to the issue of retention has produced some statutes and proposals for reforms that go beyond holding kids back for more of the same. These "smart promotion" policies customize education to meet the needs and circumstances of individual students, an approach we believe should be the standard. They also include strategies to identify struggling students in the early grades and work to close their learning gaps, to minimize the need for retention; they position retention only as a last resort; and they ensure that retention is accompanied by additional interventions.

Colorado's policy is a case in point: For grades K–3, it *requires* that struggling students be assigned to an academic improvement program, receive supplemental instruction during school hours that is tailored specifically to the students' needs or deficiencies and participate in a home reading program. It *suggests* participation in summer school or a summer reading program. Colorado does not require automatic retention for struggling third-graders; rather, it recommends retention only after an individual assessment and discussion among the students' parents, teachers and other school personnel.

The jury is still out on whether policies like these add value to students' academic achievement. An evaluation of Florida's approach to retention is attempting to produce evidence, but it is still too early to reach reliable conclusions. What we do know, from research summarized in *Early Warning* and in this follow-up report, is that the price of failing to close the reading gap for children from low-income families is too steep in economic, social and human terms for this country to continue to pay.

In that spirit, we offer this update of the considerable evidence base for why reading by the end of third grade matters so very much.

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Introduction

In May 2010, the Annie E. Casey Foundation published a KIDS COUNT special report, *Early Warning: Why Reading by the End of Third Grade Matters*, to launch the national Campaign for Grade-Level Reading. Early Warning summarized the research basis for focusing on grade-level reading proficiency as an essential step toward increasing the number of children from low-income families who succeed academically, graduate from high school on time and do well in life and the workforce. The report provided data on the low level of reading skills nationwide, especially among children from low-income families, and highlighted the urgency of getting more children to read proficiently as a way to break the cycle of intergenerational poverty while boosting this country's social equality, economic competitiveness and national security.

The three-part hypothesis embedded in *Early Warning* was this:

1. *If* we assure (a) adult-child interactions that produce high-quality teaching of the whole child, for every child, in every setting, every

day; (b) communities mobilized to help families ensure that their children are healthy, ready, present and engaged in school; and (c) formal and informal systems organized to provide the care, services and family supports that children need from the prenatal stage through third grade,

Then children from low-income families will develop on track to read at grade level by the end of third grade.

2. *If* children from low-income families are reading on grade level by the end of third grade,

Then they will be more likely to succeed academically and graduate from high school ready to succeed in college and in careers.

3. *If* children from low-income families succeed in school and graduate ready to succeed in college and careers,

Then they will be more likely to be successful, productive adults and less likely to fall into poverty.

With this 2013 update, we revisit the issues and arguments raised in *Early Warning* to see whether

the growing research base continues to support that hypothesis and whether new findings, experiments and policy developments might refine our thinking about reading proficiency and about what it will take to get more children, especially those from low-income families, reading proficiently.

We find not only that the research confirms *Early Warning's* premises but it heightens the sense of urgency around third-grade reading proficiency. New studies and program evaluations have extended knowledge down the developmental spectrum to the earliest year of childhood, broadened awareness of the precursors of reading achievement, and deepened understanding of the degree to which early factors are associated with later success or failure.

Meanwhile, federal and state efforts to target early care and learning have drawn new attention to many of the issues outlined in *Early Warning*. In his 2013 State of the Union Address, President Barack Obama called for investments that would establish a continuum of high-quality early learning for children from birth to age five, including providing universal access to prekindergarten; expanding the availability of full-day kindergarten; increasing support for Early Head Start and child care services; and widening implementation of home visiting programs.¹ Twenty-seven governors similarly highlighted early childhood care and education as a priority in their 2013 State of the State addresses, and many have followed through with proposals for action.²

The summary that follows is organized around *Early Warning's* major topics: the characteristics and consequences of the “reading gap” between children from low-income and more affluent

families and factors that affect reading proficiency, including young children's readiness for school, chronic absence from school, summer learning loss, family stressors that interfere with learning and the presence or absence of high-quality teaching.

Other important issues have emerged as priorities that were not captured in *Early Warning*, such as the need to: address gaps in reading achievement for children with learning disabilities and those who are English language and dual language learners; address the health-related determinants of children's school success; align science, technology, engineering and mathematics (STEM) with literacy instruction; accelerate the use of technology for children to acquire reading proficiency; and promote “smart” state policies for student grade promotion and retention based on reading proficiency. We do not explore those issues in this update, but we note here that they underscore the importance of addressing third-grade reading proficiency from a perspective informed by high-quality, cutting-edge research.



Why Third-Grade Reading Proficiency Matters

Early Warning drew a link between failure to read proficiently by the end of third grade, ongoing academic difficulties in school, failure to graduate from high school on time and chances of succeeding economically later in life — including individuals’ ability to break the cycle of intergenerational poverty and the country’s ability to ensure global competitiveness, general productivity and national security. The essay called particular attention to the reading achievement gap not only between white children and children of color but also between children from low-income families and their peers from more affluent families. Data and research analyses published between mid-2010 and early 2013 augment *Early Warning’s* premise as follows.

Early-grade reading proficiency in the United States continues to be unacceptably low for students from low-income families and children of color.

Scores on the National Assessment of Educational Progress (NAEP) reading test did not improve

between 2009 and 2011, the most recent year for which we have data. *Early Warning* reported that 83 percent of fourth-graders from low-income families and 85 percent of students from low-income families who attend high-poverty schools failed to reach the “proficient” level in reading on the 2009 NAEP. In 2011, the percentages for the same populations were 82 and 84 percent, respectively — virtually the same proportions. Put another way: Nearly three-quarters (74 percent) of fourth-graders who scored at the low end of the NAEP scale (below the 25th percentile) on the most recent test were from low-income families, while only 23 percent of children from low-income families scored at the high end (above the 75th percentile).³

The gap in scores between students from higher- and lower-income families continued to be large in 2011: 29 points for the poorest students (those eligible for free meals) and 17 points for less-poor (eligible for reduced-price meals).⁴ Although the poverty/achievement gap narrowed in 2011 (when compared to 2003) in four states (Arizona, New Hampshire, New York, and Pennsylvania), the gap widened in six other states (Colorado, Maine,

Oregon, Vermont, Washington and West Virginia) and the District of Columbia.⁵

NAEP scores also continue to be catastrophically low for children of color, who disproportionately make up the population of students from low-income families. In 2011, the share of low-income black, Hispanic, and Native American students who scored *below proficient* on the NAEP reading test was very high (88, 86 and 87 percent, respectively) and much larger than the share of low-income white or Asian/Pacific Islander students (74 and 72 percent).⁶ However, the size of the gap between white and black students did not change significantly between 2009 and 2011; it narrowed by one point (from 26 to 25) on the NAEP score scale.⁷

Some hope for progress comes from an analysis of NAEP scores in five “mega-states”—the most heavily populated in the nation—by the National Center for Education Statistics. Hispanic fourth-graders in New York, one of these states, made larger gains in reading than their peers nationally between 1992 and 2011, while Florida had a larger percentage of Hispanic fourth-graders who scored at or above proficient in reading than the nation overall or any other mega-state.⁸ Average reading scores for fourth-grade African-American students

also increased in California and Florida by 28 and 25 points, respectively, during that period.⁹ These gains are offset by low proficiency rates overall, however, both in the mega-states and nationally.

The gap between struggling and fluent readers does not diminish over time.

In fact, the gap between strong and struggling readers increases significantly as children progress through school, according to a study of 382 children by Canadian researchers. The study found that as students progressed from kindergarten to grade three, those in the lower ranks of reading achievement were likely to remain there. Moreover, at each subsequent data collection point over a four-year period, the struggling readers fell further behind their grade-level reading peers.¹⁰

The correlations between poverty, failure to read proficiently and failure to graduate from high school have been quantified and reinforced by new research.

Early Warning lifted up a fundamental fact that lay at the core of Ron Haskins and Isabel Sawhill’s 2009 book, *Creating an Opportunity Society*:

.....

CHILDREN WHO DO NOT READ proficiently by the end of third grade are four times more likely to leave school without a diploma than proficient readers.

.....

Children aren't born with an equal chance at the American Dream. "[T]hose who finish high school, work full time, and marry before having children are virtually guaranteed a place in the middle class," Haskins and Sawhill wrote. "Only about 2 percent of this group ends up in poverty. Conversely, about three-fourths of those who have done none of these three things are poor in any given year."¹¹

Research conducted since *Early Warning* was published has further strengthened the link that Haskins and Sawhill saw between high school graduation and poverty and has explored two other dimensions: how failing to read proficiently by the end of third grade affects high school graduation, and how living in a neighborhood of concentrated poverty affects reading achievement and high school graduation.

In 2011, sociologist Donald Hernandez reported that children who do not read proficiently by the end of third grade are four times more likely to leave school without a diploma than proficient readers. His analysis of data on nearly 4,000 students showed that dropout rates were highest for the children reading below NAEP's "basic" level: 23 percent of these children failed to graduate on time, compared to 9 percent of children with basic reading skills and 4 percent of proficient readers.¹² Looked at another way, Hernandez found that "children with the lowest reading scores account for a third of students but for more than three-fifths (63 percent) of all children who do not graduate from high school."¹³ He also found that black and Hispanic children who are not reading proficiently in third grade are twice as likely as similar white children not to graduate from high school (about 25 vs. 13 percent).

When we add poverty to the analysis of reading proficiency and high school graduation, the findings are even more sobering. Hernandez found that:¹⁴

- Among children who face a double jeopardy — failure to read proficiently and being poor for at least one year — 26 percent fail to graduate. This is more than six times the rate for all proficient readers.¹⁵
- Overall, 22 percent of children who have lived in poverty do not graduate from high school, a figure about three times greater than the 6 percent rate for children with no family poverty experience. The proportion rises to 32 percent for students who spent more than half the survey period in poverty.¹⁶
- Even proficient readers who are poor drop out at a higher rate than students who have never been poor (11 vs. 9 percent).¹⁷

Other researchers of the poverty/achievement connection have quantified the gap between children from low-income and wealthier families and tracked the gap's growth over time. An analysis of data from 19 nationally representative studies by Stanford University sociologist Sean Reardon found that the gap between children of families from the lowest and highest quartiles of socioeconomic status is more than one standard deviation on reading tests at kindergarten entry,¹⁸ an amount equal to roughly three to six years of learning in middle or high school.¹⁹

Reardon's analysis further found that the academic achievement gap between children from high- and low-income families is nearly twice as large as the black-white achievement gap. According to

Reardon, this “income achievement gap”— which has grown significantly for at least three decades and possibly five — is 30 to 40 percent larger for children born in 2001 than for those born 25 years earlier.²⁰ In other words, just as the income gap between high- and low-income families has widened over time, so has the achievement gap between their children.

Reardon compared standardized test scores in reading and math for children from families in the 90th and the 10th percentiles of income between 1960 and 2007. He found that:

- The relationship “between a family’s position in the income distribution and their children’s academic achievement has grown substantially stronger during the last half-century.”²¹ Family income is now nearly as strong a predictor of children’s achievement as is parental education,²² although parental education remains a slightly more powerful predictor.²³
- The income achievement gap “grew within the white, black and Hispanic populations separately as well as within the population as a whole.”²⁴

Reardon identified income inequality as part of the reason for the income achievement gap, since “money helps families provide cognitively stimulating experiences for their young children... more stable home environments, more time for parents to read to their children, [and] access to higher-quality child care and preschool.”²⁵ But income inequality explains only about half of the growth in the academic achievement gap between children from affluent and low-income families, Reardon found; the rest he attributes to a greater increase in spending on young children’s cognitive

development and enrichment among high-income families than among low-income ones, so that children from wealthier families are more likely to enter school ready to learn and to hold that advantage over time.²⁶

New research also documents the effect of persistent poverty on children’s success in school and as adults. Researchers at the Urban Institute looked beyond the nation’s child poverty rate, which serves as an annual snapshot, to ascertain how many children are persistently poor (i.e., spend at least half their childhood in poverty) and how that experience influences their adult outcomes. Their analysis of 37 years of data from the Panel Study of Income Dynamics found that:

- Persistent poverty disproportionately affects children of low-income parents and children of color. Overall, 10 percent of children are poor for at least half their childhood, but the proportion is 49 percent for children born to poor parents. About 5 percent of white children are persistently poor, compared with almost 40 percent of black children.²⁷
- Persistent poverty during childhood undermines a child’s chance to avoid poverty in adulthood. Children who are poor for half their childhoods are 90 percent more likely not to complete high school and four times more likely to have a teen premarital birth, compared with people who were never poor as a child.²⁸ People who fail to complete high school by age 20 are 50 percent more likely to have sporadic employment and seven times more likely to be persistently poor as young adults.²⁹
- The effects of persistent poverty are worse for children who experience it early in life. Children

who are poor from birth to age 2 are 30 percent less likely to complete high school than children who become poor later in childhood.³⁰

One way that poverty affects academic outcomes is by suppressing children's genetic potential for cognitive achievement, new research suggests. A study of 1,500 children reinforced observations that while children from wealthier families may not be genetically "smarter" than children from poorer families, they have more opportunities to reach their potential — and the differences in cognitive development that stem from socioeconomic disparities begin to appear very early in a child's life. Researchers from the University of Texas-Austin and the University of Virginia tested 750 sets of twins on the Bayley Scales of Infant Development when the children were 10 months old and 2 years old. They found no difference between children from different socioeconomic backgrounds on the first test, but by the second test the children from wealthier families performed significantly better. Both fraternal and identical twins from poorer families performed similarly, suggesting that environment (rather than genetic similarity) was behind their level of cognitive achievement.

Differences did emerge among fraternal twins from wealthier families, however, and researchers estimated that about half the variation in their cognitive changes could be attributed to genes.³¹

These new research findings on the poverty/learning connection strengthen the rationale for expanding and improving early learning (pre-K) programs and for connecting school-based education with wraparound family or community services for children from low-income families.³² The findings also sound a warning that education alone is not the key to upward mobility. As Reardon writes:

At the same time that family income has become more predictive of children's academic achievement, so have educational attainment and cognitive skills become more predictive of adults' earnings. The combination of these trends creates a feedback mechanism that may decrease intergenerational mobility. As the children of the rich do better in school, and those who do better in school are more likely to become rich, we risk producing an even more unequal and economically polarized society.³³

"Place" has been confirmed as an important factor in the interaction among poverty, reading proficiency and academic achievement.

.....

CHILDREN WHO ARE POOR for half their childhoods are 90 percent more likely not to complete high school and four times more likely to have a teen premarital birth, compared with people who were never poor as a child.

.....

Growing up in a high- or low-poverty community can affect achievement in reading, according to researchers commissioned by the Carsey Institute at the University of New Hampshire. Using data from the Early Childhood Longitudinal Study, they found that the reading levels of rural and urban third-graders lagged behind their suburban peers, and rural students who were struggling readers at the beginning of kindergarten had lower average reading achievement in third grade than both urban and suburban students of the same socioeconomic status. The third-grade reading gaps were associated with differences in the children's socioeconomic backgrounds.³⁴

With the power of place in mind, in 2012 Donald Hernandez updated his *Double Jeopardy* analysis with additional data on graduation rates for children living in concentrated poverty. He found that “living in a high-poverty neighborhood exacerbates the effects of poor reading skills and family poverty.”³⁵ For children who face all three risk factors, more than one-third (35 percent) fail to finish high school. Moreover, even being a good reader cannot fully compensate for the risk that comes from living in a high-poverty neighborhood: 14 percent of good readers from high-poverty communities fail to graduate, compared to only 2 to 4 percent of good readers from affluent or middle-class neighborhoods.³⁶

The poverty-place-reading-graduation connection plays out differently depending on a student's race/ethnicity, research shows. Among the test takers in the National Longitudinal Survey of Youth 1979 cohort (NLSY79) database used by Don Hernandez:

- Black and Hispanic children are more likely to have been poor than white children (63, 49 and 31 percent, respectively).
- Children of color are more likely to have lived in poor neighborhoods. The majority of white students had only lived in middle-class neighborhoods, compared with a smaller proportion of Hispanic or black children (74, 59 and 46 percent). A larger portion of black or Hispanic children had lived in high-poverty neighborhoods, compared with white children (47, 31 and 5 percent).
- Black and Hispanic children are more likely than whites to experience family poverty *and* not read proficiently (53, 41 and 22 percent).

Given those statistics and the fact that high school dropout rates are much higher for students from high-poverty neighborhoods than those from middle-class neighborhoods (35 vs. 23 percent),³⁷ it is not surprising that the dropout rate for students who spend at least a year in poverty *and* do not read proficiently is higher for black and Hispanic students (31 and 33 percent) than white students (22 percent).³⁸

The causes of the racial achievement gap and its connections to poverty are complicated, however. A 2010 analysis by the Council of the Great City Schools affirmed that poverty alone does not seem to explain the differences in reading proficiency between black and white fourth-grade boys. Researchers found that only 12 percent of black fourth-grade boys were proficient readers, compared with 38 percent of white boys, and that black boys who were *not* poor performed no better than white boys who *were* poor.³⁹ The report

renewed public conversation about what besides poverty causes the racial achievement gap, with Harvard scholar Ronald Ferguson suggesting that cultural differences in early childhood parenting practices may play a role along with “sociological and historical forces.”⁴⁰

Findings on downward mobility from the middle class and on job losses for low-educated workers show that the issue is no longer just about reading’s role in breaking the cycle of intergenerational poverty — it is about preventing new cycles from beginning.

The American Dream — a belief that each generation will exceed, or at least maintain, the previous generation’s living standards and economic position — does not hold true for one-third of children raised in middle-class families, according to a report published by the Pew Charitable Trusts in late 2011.⁴¹ Using data from the NLSY79 and that cohort’s scores on the Armed Forces Qualification Test (AFQT), researcher Gregory Acs found sobering patterns:⁴²

- Men and women who were raised in middle-class homes are more likely to fall out of the middle if they do not obtain education beyond high school. People who have a high school diploma or less are 7 to 16 percentage points more likely to be downwardly mobile than people with a college degree.
- Men and women who are divorced, widowed, separated or never married are more likely to lose their middle-class status.
- Race is a factor in downward mobility, but only for men. Black men raised in middle-class

families fall out of the middle at nearly twice the rate of white men (38 vs. 21 percent).

- Differences in average test scores on the AFQT (which measures reading comprehension and word knowledge along with math knowledge) are the most important observable difference in accounting for the downward mobility gap between black and white men. Put more starkly, “AFQT scores are the single biggest predictor of black-white differences in downward mobility from the middle class” when compared to three other factors: family background, individual choices and race alone.⁴³

A separate study of job losses and gains during the national recession and early recovery found that the recovery, which favored workers with more education, “has only increased the divide between the less-educated and more-educated.”⁴⁴ Using data from the Current Population Survey, researchers at Georgetown University found that even during the recent recession, workers with a bachelor’s degree or more earned almost twice as much as workers with only a high school diploma.⁴⁵ Furthermore, almost four out of five jobs lost during the recession were held by workers with no formal education beyond high school. These findings reinforce Haskins and Sawhill’s earlier contention that finishing high school is a key factor in families’ economic stability. They also underscore the dire consequences signaled by low rates of reading proficiency on the NAEP, especially for black males.

Trends in the nation’s demographic composition reinforce both the challenge, and the necessity, for children from low-income families and children of color to read proficiently so they can succeed in (and graduate from) school.

An annual report of data collected from 22 federal agencies shows that, in 2012, the country was well on track to meet the projected changes in racial/ethnic composition that *Early Warning* noted: By 2023, less than half of all children are expected to be white, and by 2050 the estimated proportion of white children drops to 38 percent.⁴⁶ These shifts are especially apparent in data on the “mega-states” of California, Florida, Illinois, New York and Texas, which collectively serve more than 38 percent of the nation’s public school population. Between 2000 and 2010, these five states and New Jersey had the largest increases of any states in the size of their immigrant population,⁴⁷ and immigrants now make up 16 to 27 percent of their total populations.⁴⁸ In California and Texas, “Hispanic students are already the majority, with 52 and 51 percent of the student population, respectively.”⁴⁹

Recent KIDS COUNT data show that the number of children living in areas of concentrated poverty is growing. Nearly 8 million children have lived in areas of concentrated poverty — a proportion that has grown by 1.6 million, or 25 percent, since 2000.⁵⁰ Moreover, African-American, American Indian, and Latino children “are between six and nine times more likely than white children to live in these communities” — and they are “significantly

more likely than white children to have the adverse consequences of living in a high-poverty neighborhood compound the negative effects of household poverty.”⁵¹

Following the national recession, job recovery for adults has been slow and unemployment remains high, which keeps more families at or near the poverty level. As of January 2013, 11.7 million Americans were looking for work, and 4.6 million of them had been jobless for more than six months.⁵² The workers most likely to stay unemployed were those with lower levels of education: More than 5.8 million workers who had a high school diploma or less education lost their jobs between late 2007 and early 2012 (during the recession and early recovery period), while the number of jobs for people with a bachelor’s degree or better actually *increased* by 2.2 million.⁵³

These trends cause concern, given research that links state-level job loss for adults to decreased academic achievement for children. Researchers at Duke University found that mass layoffs cause NAEP scores to decrease (although the impact is larger on math than reading assessments and greater for eighth-graders than fourth-graders).⁵⁴

THE POVERTY/ACHIEVEMENT CONNECTION is particularly troublesome given data from the 2011 NAEP, which showed that students were poorer in 2011 than in previous assessment years.

The poverty/achievement connection is particularly troublesome given data from the 2011 NAEP, which showed that students were poorer in 2011 than in previous assessment years. The percentage of fourth-graders eligible for free school lunch (43 percent) — NAEP’s measure of deepest family poverty — was 5 percentage points larger than in 2009, and the proportion of children eligible for reduced-price lunch (families that are less poor) or not eligible at all were smaller in 2011 than in 2009.⁵⁵ For 37 states and the nation overall, the percentage of tested students from low-income families was larger in 2011 than in 2003. (Nationally, more than half — 52 percent — of fourth-grade public school students who took the NAEP in 2011 were from low-income families).⁵⁶

The economic argument for investing in children’s early development and education is gaining evidence and traction.

The Starting Well Index, a measurement tool created in 2012 by the research arm of *The Economist*, ranks the availability, affordability and quality of preschool environments in 45 countries. The rationale behind the index is that early childhood education not only boosts economic growth by helping women participate in the workforce, it is “a major force in helping overcome issues relating to child poverty and educational disadvantage,” especially “in very unequal societies where... generational and cyclical repetition of poverty and low achievement [exist].”⁵⁷ The United States fared poorly on the Index, ranking 31st on availability of early education, 16th on affordability, and 22nd on quality.⁵⁸

A separate study by the Center for American Progress and the Center for the Next Generation compared investments in early education and child development made by the United States, China, and India as well as each country’s educational outcomes. That 2012 report noted that “half of U.S. children get no early childhood education, and we have no national strategy to increase enrollment.” And, despite “impressive high school graduation and college enrollment statistics... more than half of U.S. post-secondary students drop out without receiving a degree.”⁵⁹ Based on those statistics and demographic trends, the authors estimated that by 2020 “the U.S. share of the world’s college graduates will fall below 18 percent while China’s and India’s will rise to more than 13 percent and nearly 8 percent respectively... [T]he sheer population sizes of China and India mean that relatively soon they will match the United States in the number of skilled-workers competing in globally-mobile industries.”⁶⁰



Factors That Contribute To Third-Grade Reading Proficiency

Early Warning outlined several factors that contribute to whether a child does or does not read proficiently by the end of third grade, including: The child's *readiness for school* in terms of health, language development, social-emotional skills and participation in high-quality early care and learning programs; circumstances that undermine children's ability to learn to read, including *chronic absence* from school, *summer learning loss* and *family-related stressors* (e.g., family mobility, hunger, housing insecurity and toxic stress); and the *quality of teaching* that the child experiences in home, community and school settings. The summary that follows highlights new research and developments related to each topic.

SCHOOL READINESS

Research continues to show that fewer children from low-income families are ready for school at kindergarten entry. A 2012 study by the Brookings Institution's Social Genome Project noted that fewer than half (48 percent) of poor children are ready for school at age 5, compared to 75

percent of children from families with moderate and high income.⁶¹ Other recent research indicates that 86 percent of children whose family income is above \$100,000 are ready for school at kindergarten entry, compared with only 42 percent of children whose families are poor throughout their childhood.⁶²

Using data from the Early Childhood Longitudinal Study-Birth Cohort (ECLS-B), Brookings researchers sought to understand which factors influence the poverty gap in school readiness.⁶³ They found the largest impact when they controlled for family demographics (e.g., parents' level of education, marital status, mother's age at birth and immigrant status; and child's gender, age and race/ethnicity). The gap shrank further when they controlled for low birthweight, preschool attendance and parents' health and behaviors. Even with all other factors controlled, however, a gap of 7 percentage points remained between children from poor and non-poor families.

Preschool attendance ranks among the strongest success factors that influence the school readiness of children from low-income families, according to Brookings' analysis of ECLS-B data:⁶⁴ "Children

who attend some form of preschool program at age four are 9 percentage points more likely to be school-ready than other children,” due largely to early math and reading skills and, to a lesser extent, positive learning-related behaviors acquired in preschool.⁶⁵ The study simulated effects on school readiness of three interventions — preschool, smoking cessation programs for pregnant women and nurse-home visiting programs for new mothers — and found that preschool programs “offer the most promise for increasing children’s school readiness.”⁶⁶

Several new studies and evaluations reinforce the value of pre-K interventions that target children’s social-emotional skills, especially for children from low-income families. To mention only a few:

- *Early development of working memory and attention control skills was found to predict growth in emergent literacy and numeracy skills during the pre-K year, and these skills in turn predicted kindergarten reading and math achievement, according to a longitudinal study of more than 160 Head Start participants.*⁶⁷
- *While genes provide the blueprint for the executive function (the capacity to control one’s impulses, make plans, stay focused, etc.), the early environments and relationships to which children are exposed affect how the capacity develops, according to a study published by the Center for the Developing Child at Harvard University in 2011.*⁶⁸ The executive function is essential to succeeding in a school setting. Researchers studied more than 14,500 children in 2,109 classrooms, using ECLS-K data, and found that children with low attention and, sometimes, aggressive behavior made fewer gains in test

scores during kindergarten. The achievement gap between children with and without low attention was larger than the gap based on income, race or ethnicity.⁶⁹

- *Classroom-based interventions that involve training, coaching and mental health consultation can yield “significant school readiness benefits for low-income children,”*⁷⁰ according to an evaluation of more than 600 children who participated in the Chicago School Readiness Project (CSRP). The program improved 4-year-olds’ self-regulation skills (attention, impulse control and executive function) but not effortful control skills (the ability to control one’s behavior as needed when one does not want to do so). Evaluators found that CSRP supported the development of self-regulatory skills that make it easier to learn and increased children’s learning opportunities. Researchers also found improvement in children’s vocabulary, letter naming and early math skills.⁷¹
- *The alignment of pre-K education with K–12 curricula for children from low-income families, English language learners and students with special needs can boost participants’ vocabulary, early reading, writing and social skills during the year before kindergarten entry, according to an evaluation of the St. Paul Public Schools’ Project Early Kindergarten-Early Reading First. Teachers’ ratings of students suggested that the program gave children more academic competence and reduced problem behaviors more than other pre-K experiences did. Results were stronger for children who attended a school-based program than for those who participated in child care. However, the gains narrowed over*

time, and prior studies suggest they may fade out by third grade.⁷²

New studies trace the link between high-quality early childhood programs and positive outcomes in elementary school and much later in life:

- *Entering school ready to learn “can improve one’s chances of reaching middle-class status by age 40 by about 8 percentage points,”* according to a 2011 analysis by Brookings scholars.⁷³
- *Intensive early education that emphasizes language, social, emotional and cognitive development during ages 1–3 may eliminate income-based cognitive and achievement gaps by ages 5 and 8.* Using data from the Infant Health and Development Program (IHDP), which offered center-based early education similar to the Abecedarian Project to almost 1,000 randomly selected children in eight cities, and nationally representative data from the Early Childhood Longitudinal Study, economists Greg Duncan and Aaron Sojourner projected that two years of services delivered between the ages of 1 and 3 would essentially eliminate the income-based gap in children’s IQ by the end of the program. Despite “considerable fadeout of program effects,” the researchers estimate that income-based gaps in IQ and achievement would be “substantially reduced or even eliminated completely” by age 5, and one-third to three-fourths of the gap would be eliminated by age 8 (depending on whether program implementation was targeted or universal).⁷⁴
- *The quality of preschool experiences predicted levels of achievement in literacy, numeracy, science and social-behavioral outcomes at age 11* in a study of more than 3,000 children in England. Moreover, “children who attended low-quality

preschools had cognitive and behavioral scores that were not significantly different from those of children with no preschool experience.”⁷⁵

- *The most powerful behavioral predictor of later achievement is a student’s approach to learning, something that is shaped by early childhood programs that develop social-emotional skills,* according to a U.S. study using data from the ECLS-K. Researchers examined the relationship between first-graders’ behavior and their reading and math achievement at the end of fifth grade. The effect was strongest for students from low-income families, minority students and (in mathematics) girls.⁷⁶
- *A follow-up study of participants in the Abecedarian Project provides fresh evidence of some long-term results for children from low-income families.* Research on children from low-income families who participated in the Abecedarian Project when they were 0–5 years old found that by age 30, these individuals — who received health care, social services and early learning support — were four times more likely to obtain a college degree than those in a control group, but the participants did not experience significantly different outcomes in income levels or involvement with the criminal system.⁷⁷ Overall, the researchers found “strong evidence for educational benefits, mixed evidence for economic benefits, and little evidence for treatment-related social adjustment outcomes.”⁷⁸
- *A similar study of the Child-Parent Center Education Program found that effects can endure into adulthood.* A study of almost 1,000 children who participated in this preschool program, by researchers from the University of Minnesota

and University of Missouri, found that by age 28 the participants had significantly higher levels of educational attainment than individuals in a control group. The educational achievements translated into higher economic status for participants and lower rates of involvement in the criminal and justice systems.⁷⁹

Economic research continues to find that school readiness programs can be cost-effective over the long term. *Early Warning* cited findings by Nobel Award-winning economist James J. Heckman that investments in low-income young children's healthy development are more economically efficient than efforts to address problems as children age, in part because early skills make it easier and more efficient to develop later ones. Heckman documented a rate of return on investment for early childhood programs that serve low-income children of 7 to 10, "[exceeding] the historical rate of return to equity of around 6 percent."⁸⁰ More recently:

- A 2011 study by the Wilder Foundation examined an Illinois program serving 90,000 3- to 5-year-olds and found it generated an estimated \$353 to \$530 million in combined cost savings and annual revenue over 23 years,

including up to \$40 million in savings for K–12 schools, \$259 million in reduced government spending and increased tax revenues, \$231 million in reduced social costs and \$72 million in increased wages and tax revenues from high school graduates in the labor force.⁸¹

- A study of the Child-Parent Center program, an integrated pre-K-to-third-grade approach in Chicago, found that improvements in educational outcomes produced a long-term return to society of \$8.24 for every dollar invested during the first four to six years of school, including prekindergarten.⁸²

Despite all of the evidence supporting the value of high-quality early childhood education, recent data show that many children still do not receive it. The international comparison conducted by the Center for American Progress and the Center for the Next Generation notes that while the U.S. early childhood education "system" currently serves about 8.2 million children ages 3–5,⁸³ "nearly one-half of the children who most need an early learning boost — those from families with limited incomes and levels of education — are not enrolled in these programs."⁸⁴

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CHRONIC ABSENCE

“Too many children miss too much instructional time due to chronic absence,” stated *Early Warning*, citing an analysis by Hedy Chang and Mariajose Romero of high chronic absence rates in the early grades and their effect on later achievement and dropout rates.⁸⁵ Chang and Romero’s report also noted that high rates of chronic absence in many schools and districts are masked by the inability to track or analyze individual student-level data. Subsequent studies reinforced and augmented both observations.

A 2012 report by Johns Hopkins University researchers was the first to try to quantify chronic absenteeism nationwide. Bob Balfanz and Vaughan Byrnes analyzed data suggesting that the national rate of chronic absenteeism is 10 to 15 percent, meaning that 5 million to 7.5 million students miss at least 10 percent of their school days every year.⁸⁶

The premise that many districts and schools fail to detect chronic absence because of data issues was confirmed by a study conducted jointly by the Child and Family Policy Center and Attendance

Works (2011).⁸⁷ An analysis of data from three urban districts found that, while schools with average daily attendance (ADA) rates higher than 97 percent rarely have a problem with chronic absence, schools with ADA rates below 93 percent “are almost certainly dealing with high concentrations of absenteeism.”⁸⁸

New studies continue to show that chronic absence has a negative effect on students’ academic performance and other outcomes. For example:

- *Students who are chronically absent score lower on reading tests than other students.* Students who arrive at school ready to learn but then miss 10 percent of kindergarten and first grade score 60 points below regularly attending students on third-grade reading tests, on average, according to a study of 640 students in 19 California school districts.⁸⁹ Moreover, chronic absence in kindergarten and first grade may erase many benefits of entering kindergarten with strong readiness skills.
- *Chronic absence during the early years of school often predicts absenteeism and achievement*

CHRONIC ABSENCE in kindergarten and first grade may erase many benefits of entering kindergarten with strong readiness skills.

problems in later grades, according to studies in Oregon and Baltimore.^{90,91}

- *Students with low attendance in pre-K and kindergarten are more likely to be retained in grade.*⁹²
- *The number of days a student is absent has a significant negative effect on third- and eighth-graders' reading and math scores and on high school students' grade point average. The impact is greatest for middle- and higher-achieving students, a study in the Redwood City (California) school district found.*⁹³
- *Chronic absence is a key predictor of dropping out of high school.*⁹⁴ Beginning in eighth grade, the odds of dropping out approximately double for each year that a student is chronically absent, according to an analysis of data on all Utah public school students enrolled in 2010–11.⁹⁵
- *Chronic absence in the early grades was linked to higher rates of later criminal behavior* in a study of 182 boys and young men incarcerated in three Illinois prisons. The *Chicago Tribune's* analysis of state data found that 74 percent of the young men in prison had been chronically absent from school, and nearly 60 percent could not read at a third-grade level when they went to prison.⁹⁶

Institutional policies, practices and perceptions often create barriers to regular school attendance for young children of color. These “racialized” barriers, highlighted in a 2013 research summary by the Race Matters Institute, include: environmental toxins that trigger health problems, often found in the low-income communities where many children of color live; ineffective outreach from schools to parents of color to ease their children’s transition

into school and to help them attend regularly; lack of reliable transportation and conflicting parent work schedules, factors that disproportionately affect low-income and immigrant families of color; residential instability; and higher rates of school suspension and expulsion for students of color.⁹⁷

Education sociologist Douglas Ready focused more specifically on how school absenteeism affects low-income children’s cognitive development. Using data from the ECLS-K, he examined the links between children’s social class, school absences and academic growth during kindergarten and first grade. Ready found that “socioeconomically disadvantaged children who have good attendance rates gain more literacy skills than their higher-SES peers during kindergarten and first grade,” suggesting that chronic absence may be especially harmful for this population.⁹⁸

Several new reports and evaluations have assessed the quality and effectiveness of state or local chronic absence interventions. For instance, the Vera Institute’s study of New York State’s policy of reporting the parents of chronically absent students to child protective services for “educational neglect” determined that the child welfare system is ill-equipped to address teens’ school attendance and the strategy is not effective (at best) and counterproductive (at worst).⁹⁹ Evaluators from Public/Private Ventures, however, found that Providence, Rhode Island’s citywide after-school effort, the AfterZone, improved school attendance and attitudes among other outcomes.¹⁰⁰

Momentum continues to build around the chronic absence findings. In June 2012, the U.S. Conference of Mayors unanimously passed a resolution calling on mayors across the country to launch

campaigns against chronic school absence. The resolution aims to improve the monitoring of data on chronic absence as well as interventions. By early 2013, 66 school superintendents had also signed onto a call to action issued by the Campaign for Grade-Level Reading and Attendance Works. The call to action urged superintendents to lead efforts to improve school attendance, beginning in the early grades.

SUMMER LEARNING

Early Warning noted that many low-income children fall behind during the summer by as much as two months of reading achievement, while their middle-income peers make slight gains. The achievement gap produced by summer learning loss grows over the years until it is nearly insurmountable. Recent research has further established the link between summer learning loss and limited reading proficiency among low-income students and provided evidence that summer programs can counteract the trend.

Separate studies of summer learning programs offered in different contexts all confirm that high-quality summer programs can disrupt learning loss. For example:

- *Students who regularly attended high-quality summer programs performed better in school than their peers who did not attend the same programs, and the positive effects lasted for at least two years, according to a study by the RAND Corporation that examined programs operated by school districts.¹⁰¹ The study confirmed that many kinds of programs can help prevent summer learning loss, although they are not guaranteed to do so.¹⁰² The report also identifies several indicators of program quality, including individualized*

instruction, parental involvement, regular attendance, small class sizes, alignment with the school-year curriculum and content that extends beyond remediation.

- *Free, voluntary reading programs offered at public libraries seem to improve participants' reading scores and prevent summer learning slide. A three-year study of summer reading programs at public libraries in eight states, conducted by Dominican University and the Johns Hopkins University Center for Summer Learning, tested participating students at the end of third grade and again at the beginning of fourth grade. Participants scored higher than non-participants on reading tests; their families had more books in their homes; parents said their children spent more time reading than before they participated; and teachers and librarians observed that the participants returned to school ready to learn. However, this study did not have a control group and researchers had no way of knowing whether children who did not participate in the public libraries' summer program did not participate in any other summer reading program that might have influenced their outcomes.¹⁰³*

A third study measured the effects of a voluntary summer reading intervention on 370 Latino children from low-income, Spanish-speaking families. Students who received 10 self-selected books and participated in family literacy events read more during the summer than children in the control group, but their vocabulary and reading comprehension did not show significant gains. (These results differ from those of other evaluations, which found evidence of improved reading proficiency for English language learners in other summer programs.) Researchers concluded that the quality

of implementation was an issue,¹⁰⁴ which supports *Early Warning's* premise that high-quality teaching is a key factor in children's reading progress — even during the summer.

Research on children from low-income families offers new evidence that having access to books can ameliorate the summer learning slide. The three-year study involved 852 randomly selected elementary school students from 17 high-poverty schools, with 478 students from the same schools serving as a control group. The intervention gave participating students a set of self-selected trade books. The experiment found statistically significant improvement on state reading tests for participants, with the largest effects for the most economically disadvantaged children.¹⁰⁵

FAMILY STRESSORS

As *Early Warning* noted, many family stressors can distract children from the task of learning, including hunger, housing insecurity, family mobility, family violence, parental depression, and abuse and neglect. Research published in 2009, right before *Early Warning*, helped explain how factors like these influence the epigenome (the “operating system” that determines how an individual's genetic

“hardware” functions), making it more likely that specific genes will or will not be expressed.¹⁰⁶

That research reinforced earlier findings that “supportive environments and rich learning experiences generate positive epigenetic signatures that activate genetic potential...result[ing] in epigenetic changes that establish a foundation for more effective learning capacities in the future.”¹⁰⁷

Persistent negative experiences, meanwhile, can cause damaging chemical modifications.

Current research on epigenetics expands our sense of how stress affects children's cognitive development and readiness to learn. Scientists have found that even after the epigenome has been modified by extreme childhood stress, it may be altered again to reverse the damage and restore functioning.¹⁰⁸

Specific epigenetic modifications “occur in brain cells as cognitive skills like learning and memory develop.” Therefore, by activating the brain circuits dedicated to those skills it may be possible to stimulate positive epigenetic modifications.¹⁰⁹

Moreover, positive social-emotional experiences for young children, along with supportive family and community environments, “will reduce the likelihood of negative epigenetic modifications” that might impair future learning.¹¹⁰

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New neuroscientific research on children draws a link between the stress of poverty, hormonal changes and impaired learning ability. Researcher Clancy Blair of New York University and colleagues measured cortisol levels in 170 4-year-olds who attend Head Start programs while also assessing the children's executive functions. They retested the same children in kindergarten and found that those with high cortisol levels and low executive function were likely to have difficulty with math, reading and writing.¹¹¹ In a separate study that followed 1,200 children and their families for seven years, researchers found that the more impoverished the family, the more likely the children were to have elevated cortisol levels and poor executive functioning.¹¹²

A study of divorce and cohabitation's effect on preschoolers' emerging literacy skills explored the link between reading and family stress for a nationally representative subset of 6,450 children drawn from the ECLS-B survey.¹¹³ Researcher Jay Fagan determined that divorce *per se* does not negatively affect early literacy; rather, it is the mother's pursuit of a new marriage or cohabitating relationship shortly after the end of the previous relationship that seems to depress children's test scores. Fagan also found that mothers in stable cohabitating relationships are more likely to have children with significantly lower literacy scores than mothers in stable marriages — in part because mothers who do not marry their child's biological father experienced a drop in economic status. These findings suggest “that several partnerships over a short period of time are disruptive to child development” and that “cohabitation, even when stable...has negative effects on children,” Fagan concluded.¹¹⁴

These findings underscore the urgency of reducing family stress in children's lives and providing environments and family supports that enable children's brains to develop in healthy ways — especially during the very early years when brain development is most rapid — in order to “protect young children from epigenetic changes that can lead to lifelong problems...[and to] maximize the return on future investments in education, health, and workforce development.”¹¹⁵

HIGH-QUALITY TEACHING

Early Warning viewed high-quality teaching broadly, as something that happens not only with teachers at school but with family members at home and with caregivers in community settings. With all of those dimensions of teaching in mind, we note the following developments.

New research underscores the importance of enriched home learning environments and parent engagement in preparing children from low-income families to succeed in school. A five-year study of more than 1,850 children and their mothers from low-income households, published by Mathematica Policy Research in 2011, found that differences in learning environments predicted the children's level of literacy skills.¹¹⁶ “Children whose learning environments were consistently low in quality across the four ages studied [1, 2, 3 and 5 years old] were much more likely to have delays in language and literacy skills at pre-kindergarten,” while “home learning experiences that are consistently supportive in the early years may close the school readiness gap of children from low-income backgrounds,”¹¹⁷ researchers concluded.

Higher-income parents' greater investment in children's early cognitive development may contribute to the family income-based gap in children's educational achievement, other researchers hypothesize, based on findings that highly educated and higher-income parents spend more time in child-care activities than less-educated and lower-income parents¹¹⁸ and that high-income, college-educated families' spending on preschool-age children has increased over the past 40 years.¹¹⁹

Classroom and community strategies to improve children's literacy continue to draw attention, while the research base grows to support the "seamless continuum" of education that *Early Warning* called for. To name just a few: The Alliance for Early Success (formerly the Birth to Five Policy Alliance) published a policy framework tool in 2013 that provides evidence-based and innovative options in the areas of learning, health and family support for children from birth through age 8, with a priority on children from low-income families and other vulnerable populations.¹²⁰

A 2010 practice guide for educators, published by the U.S. Department of Education's Institute of Education Sciences, recommends strategies to help students in kindergarten through third grade become motivated to read and to understand written text.¹²¹ The American Federation of Teachers published a summary of strategies for improving the transition from early learning programs to the K-3 school years,¹²² based on a framework developed by Harvard University's Kristie Kauerz. And a 2012 report by the Center for American Progress documents the barriers to having a well-coordinated system of services for children from birth to age 5 and proposes reforms to boost the

effectiveness and efficiency of public investments in early childhood education.¹²³

The Common Core State Standards, which had just been drafted when *Early Warning* was published, are now on the verge of changing how teachers across the country instruct children in reading. All but four states adopted the English language arts guidelines, which emphasize writing as well as reading and call for teachers of *all* disciplines to teach appropriate literacy skills.¹²⁴ The shift from adoption to implementation of the standards is leading publishers to align textbooks and curriculum materials with the standards. Education researchers draw hope from those developments and from the observation that both political parties "are moving closer together on standards of quality, calling for closer ties between teacher evaluations and student performance and for reviews of teacher tenure practice."¹²⁵



Conclusions

The Campaign for Grade-Level Reading gained traction quickly with a broad and diverse audience, according to Managing Director Ralph Smith, because it addresses concerns that are consequential, pervasive, and amenable to solutions and it frames both the problems and the solutions in a data-rich, evidence-based context. The research summarized in this update thoroughly validates Smith's hunch. Three years after the publication of *Early Warning* and the start of the GLR Campaign, a wealth of new research supports the *goal* (grade-level reading proficiency for more children) and the sense of urgency attached to reaching it, the *hypothesis* (that third-grade reading proficiency is crucial for continued academic success and to break the cycle of intergenerational poverty), and the *key factors* in solving the equation (school readiness; regular attendance at school; summer

learning opportunities; healthy, unstressed families; and high-quality teaching). Although not everyone agrees on the best path to get there, experts across many fields and sectors have targeted the same outcome and their findings are, for the most part, mutually reinforcing.

The knowledge base continues to grow. And with each new finding, we gain more insight, resources and confidence for the challenge of helping more children, especially those from low-income families, read at grade level by the end of third grade.

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