

DOUBLE

JEOPARDY

**How THIRD-GRADE
READING SKILLS
AND POVERTY
INFLUENCE HIGH
SCHOOL GRADUATION**

By Donald J. Hernandez
Professor, Department of Sociology
Hunter College and the Graduate Center,
City University of New York and
Senior Advisor, Foundation for Child Development

The Annie E. Casey Foundation

APRIL 2011

ACKNOWLEDGEMENTS

The research that forms the basis of this report was supported by the Annie E. Casey Foundation and by the Center for Demographic Analysis, University at Albany, State University of New York (NICHD, R24 HD044943). The author also appreciates support provided by the Foundation for Child Development, the collaboration of Nancy A. Denton, research assistance provided by Jeff Napierala and Ruby Wang, and assistance provided by staff of the National Longitudinal Survey of Youth. The author alone is responsible for the content and any error of fact or interpretation.

The Annie E. Casey Foundation

DOUBLE JEOPARDY: HOW THIRD-GRADE READING SKILLS AND POVERTY INFLUENCE HIGH SCHOOL GRADUATION

Educators and researchers have long recognized the importance of mastering reading by the end of third grade. Students who fail to reach this critical milestone often falter in the later grades and drop out before earning a high school diploma. Now, researchers have confirmed this link in the first national study to calculate high school graduation rates for children at different reading skill levels and with different poverty rates. Results of a longitudinal study of nearly 4,000 students find that those who don't read proficiently by third grade are four times more likely to leave school without a diploma than proficient readers. For the worst readers, those couldn't master even the basic skills by third grade, the rate is nearly six times greater. While these struggling readers account for about a third of the students, they represent more than three fifths of those who eventually drop out or fail to graduate on time. What's more, the study shows that poverty has a powerful influence on graduation rates. The combined effect of reading poorly and living in poverty puts these children in double jeopardy.

The study relies on a unique national database of 3,975 students born between 1979 and 1989. The children's parents were surveyed every two years to determine the family's economic status and other factors, while the children's reading progress was tracked using the Peabody Individual Achievement Test (PIAT) Reading Recognition subtest. The database reports whether students have finished high school by age 19, but does not indicate whether they actually dropped out.

For purposes of this study, the researchers divided the children into three reading groups which correspond roughly to the skill levels used in the National Assessment of Educational Progress (NAEP): proficient, basic and below basic. The children were also separated into three income categories: those who have never been poor, those who spent some time in poverty and those who have lived more than half the years surveyed in poverty.

The findings include:

- One in six children who are not reading proficiently in third grade do not graduate from high school on time, a rate four times greater than that for proficient readers.
- The rates are highest for the low, below-basic readers: 23 percent of these children drop out or fail to finish high school on time, compared to 9 percent of children with basic reading skills and 4 percent of proficient readers.
- Overall, 22 percent of children who have lived in poverty do not graduate from high school, compared to 6 percent of those who have never been poor. This

rises to 32 percent for students spending more than half of their childhood in poverty.

- For children who were poor for at least a year *and* were not reading proficiently in third grade, the proportion that don't finish school rose to 26 percent. That's more than six times the rate for all proficient readers.
- The rate was highest for poor Black and Hispanic students, at 31 and 33 percent respectively—or about eight times the rate for all proficient readers.
- Even among poor children who were proficient readers in third grade, 11 percent still didn't finish high school. That compares to 9 percent of subpar third grade readers who have never been poor.
- Among children who never lived in poverty, all but 2 percent of the best third-grade readers graduated from high school on time.
- Graduation rates for Black and Hispanic students who were not proficient readers in third grade lagged far behind those for White students with the same reading skills.

BACKGROUND

More than three decades ago research began to suggest that children with low third-grade reading test scores were less likely to graduate from high school than children with higher reading scores.¹ Third grade is an important pivot point in a child's education, the time when students shift from learning to read and begin reading to learn. Interventions for struggling readers after third grade are seldom as effective as those in the early years.² Recognizing the importance of early reading skills, the No Child Left Behind Act has, from the outset, required states to test reading skills annually for all students beginning in third grade, and to report these results for children by poverty status and race-ethnicity, as well as for English Language Learners and for children with disabilities.³ This act asserted "President Bush's unequivocal commitment to ensuring that every child can read by the end of third-grade."⁴ More recently, in March 2010, the Obama Administration released its blueprint for revising the act, known as the Elementary and Secondary Education Act, calling for "Putting Reading First" by significantly increasing the federal investment in scientifically based early reading instruction.⁵ President Obama has also called for restoring the United States to its position as No. 1 in percentage of college graduates. (It is now tied for 9th). Accomplishing that goal will mean ensuring that millions more students graduate from high school.⁶

Meanwhile, the National Assessment of Educational Progress (NAEP), also known as the "The Nation's Report Card," shows for 2009 that only 33 percent of fourth graders read at a

“proficient” level, while the remaining 67 percent do not, and instead read at the “basic” level (34 percent), or below the basic level (33 percent).⁷ “Fourth grade students performing at the Proficient level should be able to integrate and interpret texts and apply their understanding of the text to draw conclusions and make evaluations.”⁸ Thus, two thirds of students did not finish third grade with these essential reading skills, and are reading below grade level. This report presents the first-ever analysis of high school graduation rates separately for children with reading test scores that correspond roughly to the proficiency levels set by NAEP, with additional results for children reading below the proficient level, at either the basic or below basic level of reading test scores.

FINDINGS

ONE IN SIX CHILDREN WHO ARE NOT READING PROFICIENTLY IN THIRD GRADE FAIL TO GRADUATE FROM HIGH SCHOOL ON TIME, FOUR TIMES THE RATE FOR CHILDREN WITH PROFICIENT THIRD-GRADE READING SKILLS

Overall, the research analysis shows that 88 percent of children graduate from high school by age 19, while the remaining 12 percent do not. Graduation rates vary enormously for children with different reading skills in third grade. Among proficient readers, only 4 percent fail to graduate, compared to 16 percent of those who are not reading at grade level at that age. Among those not proficient in reading, 9 percent of those with basic reading skills fail to graduate, and this rises to 23 percent of those with below basic skills (Figure 1, a&b).

Figure 1a: Children Not Graduating from High School by Age 19, in Total, Proficient, and Not Proficient

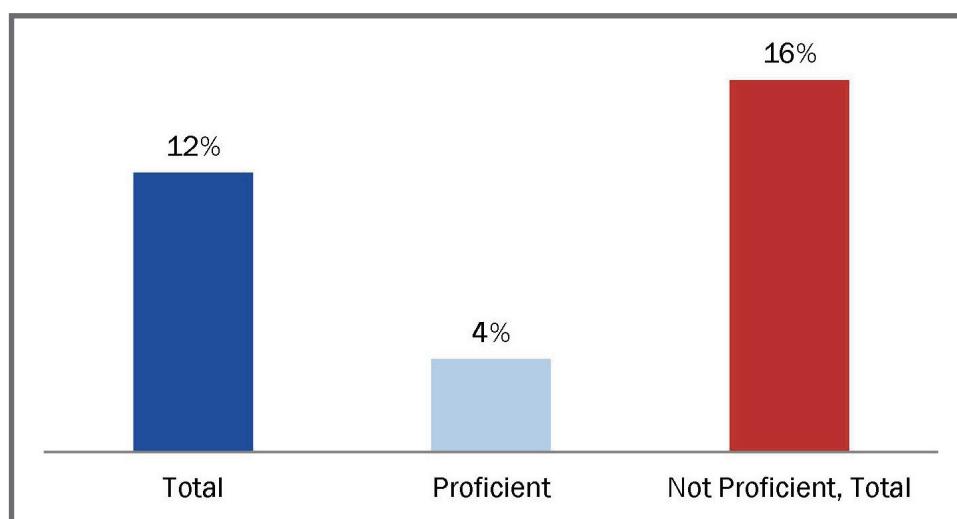
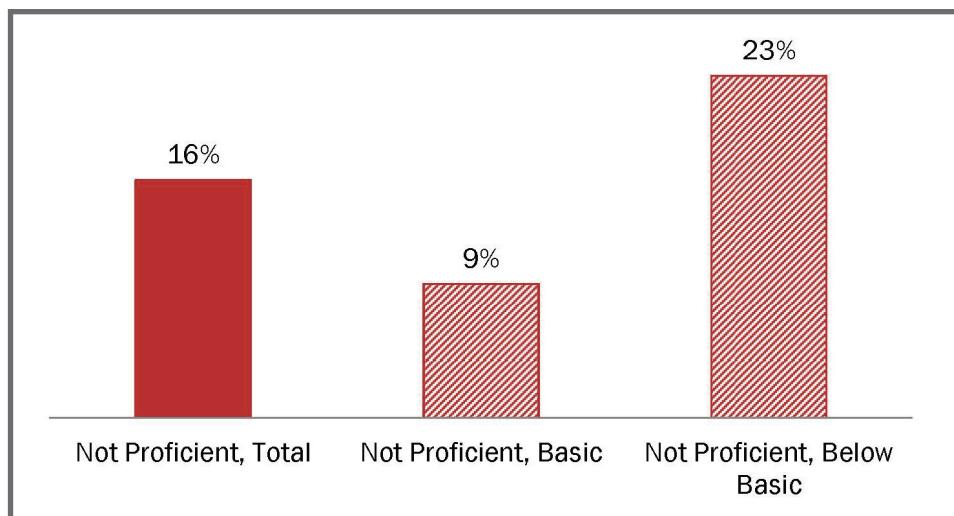
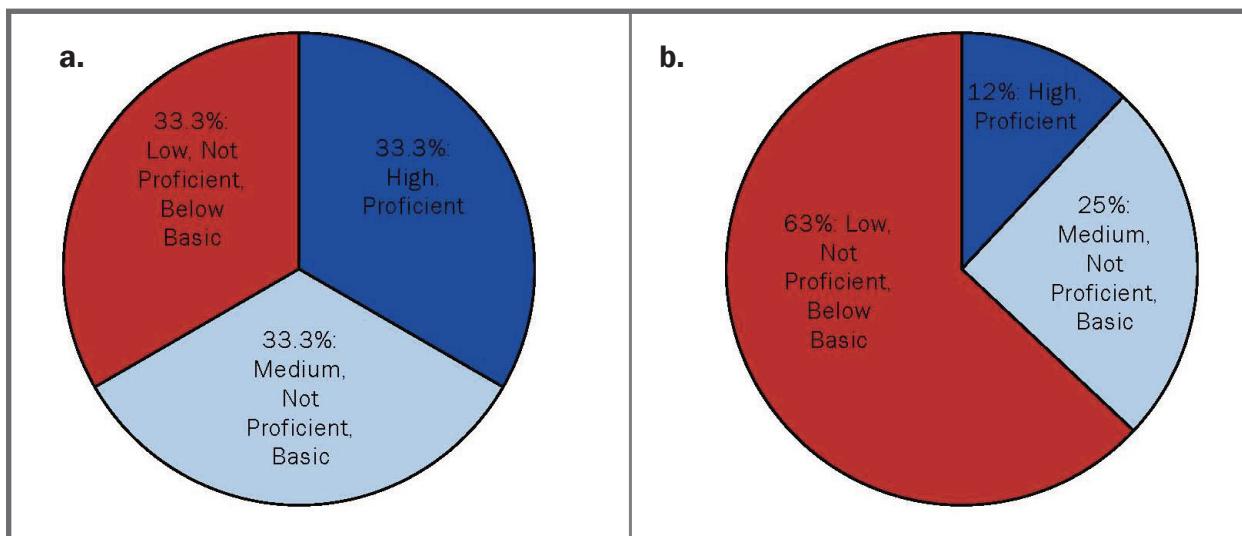


Figure 1b: Further Analysis of Children Not Proficient Who Didn't Graduate from High School By Age 19, Total, Not Proficient Basic and Below Basic



As a result of these enormous differences across groups, 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. Third-grade reading matters. (Figure 2, a&b).

Figure 2, a: Third-Grade Reading Test Scores, All Children
b: Children Not Graduating High School by Third-Grade Reading Test Scores, All Children



CHILDREN WHO HAVE LIVED IN POVERTY AND ARE NOT READING PROFICIENTLY IN THIRD GRADE ARE ABOUT THREE TIMES MORE LIKELY TO DROPOUT OR FAIL TO GRADUATE FROM HIGH SCHOOL THAN THOSE WHO HAVE NEVER BEEN POOR

Children whose families live in poverty often lack resources for decent housing, food, clothing, and books, and they often do not have access to high quality child care and early education or to health care. They also are more likely to live in neighborhoods with low-performing schools. Consequently, children in poor families tend to develop weaker academic skills and to achieve less academic success. Many arrive at kindergarten without the language or social skills they need for learning. They miss school frequently because of health or family concerns. They slip behind in the summer with little access to stimulating educational programs or even regular meals.

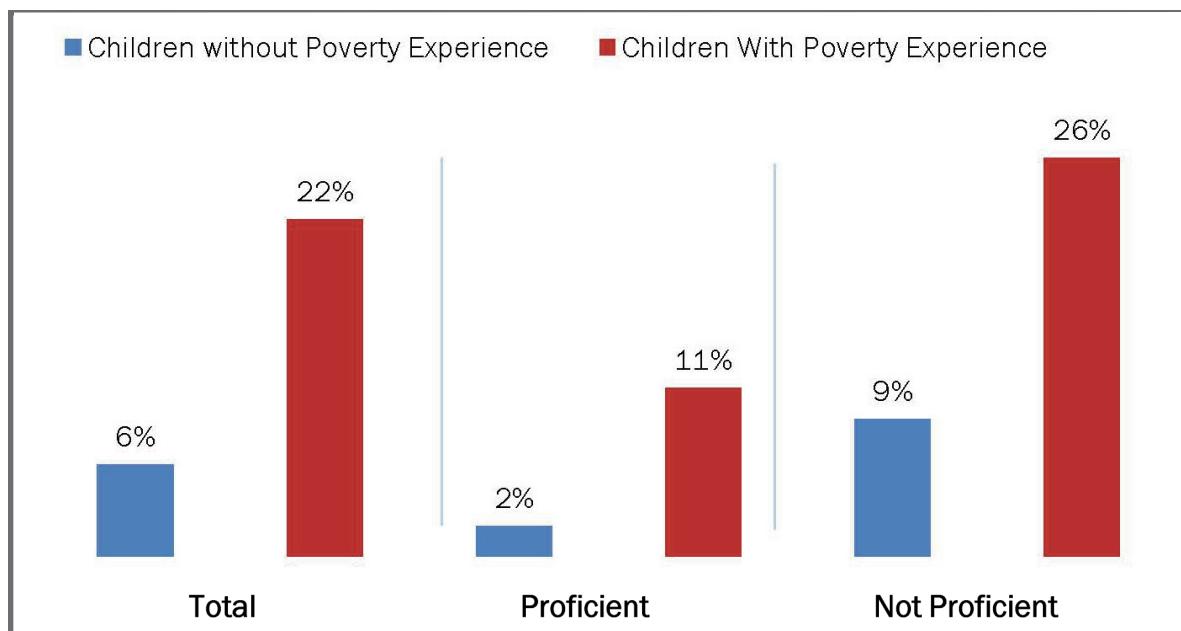
Consequently, the children in poor families are in double jeopardy: They are more likely to have low reading test scores and, at any reading-skill level, they are less likely to graduate from high school.

Using eligibility for the National School Lunch Program to classify children as living in low-income families, results of the NAEP show that nationwide 55 percent of fourth graders in moderate- and high-income families have reading skills below the proficient mark. This jumps to 83 percent for children in low-income families.⁹ New results calculated for this study show that children whose families have incomes below the federal poverty threshold are less likely to finish high school, especially if they have low third-grade reading scores. (The federal poverty threshold in 2010 was \$22,162 for a family of four with two children).¹⁰

For the database used in this study, known as the National Longitudinal Survey of Youth 1979 or NLSY79, children and mothers are interviewed biennially in even-numbered years. Thus, poverty status is measured for each sample child in five of the years between the second and 11th grades (See Appendix I for additional information). Children are characterized in this report as having experience with poverty if, in at least one of these five years, they lived in a family with an income below the federal poverty threshold, and as spending more than half of their childhood in poverty if they lived in poor families for more than half of these years.

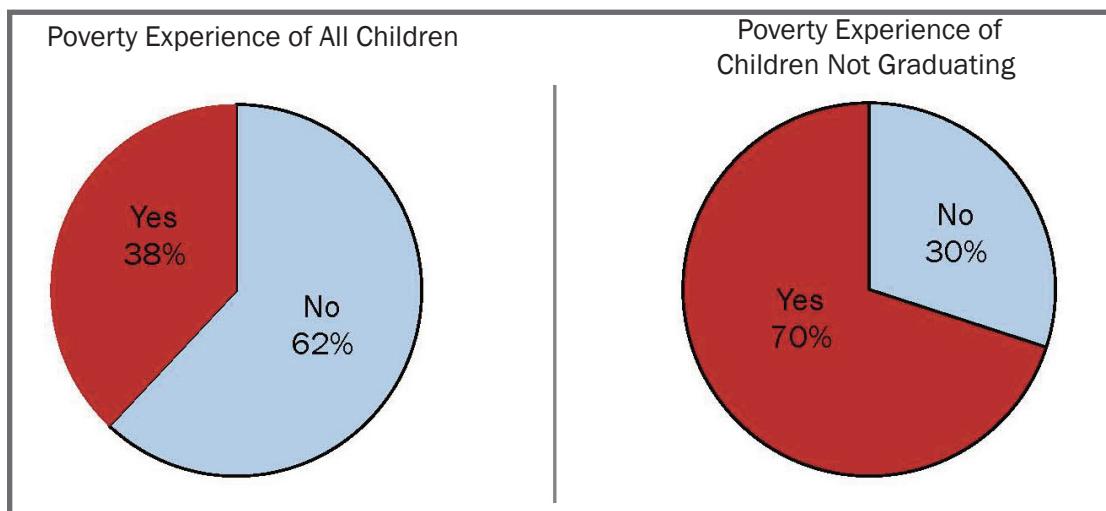
Overall, 22 percent of children with some family poverty experience do not graduate from high school, a figure about three times greater than the 6 percent rate for children with no family poverty experience (Figure 3). This rises to 32 percent for children spending more than half of the survey period in poverty.

Figure 3: Children Not Graduating from High School by Age 19, by Poverty Experience and Reading Proficiency



Among children with two risk factors—poverty and reading skills below the proficient mark—26 percent do not graduate from high school, compared to 9 percent with these subpar reading scores who have never experienced poverty. The graduation rates improve when poor children are reading at a proficient level in third grade. Even so, 11 percent of the top readers who spent at least one year in poverty failed to graduate on time, compared to 2 percent of those who have never been poor. Overall, children who spend a year or more in poverty account for 38 percent of all children, but they account for seven-tenths (70 percent) of all children who do not graduate from high school. Poverty matters (Figure 4).

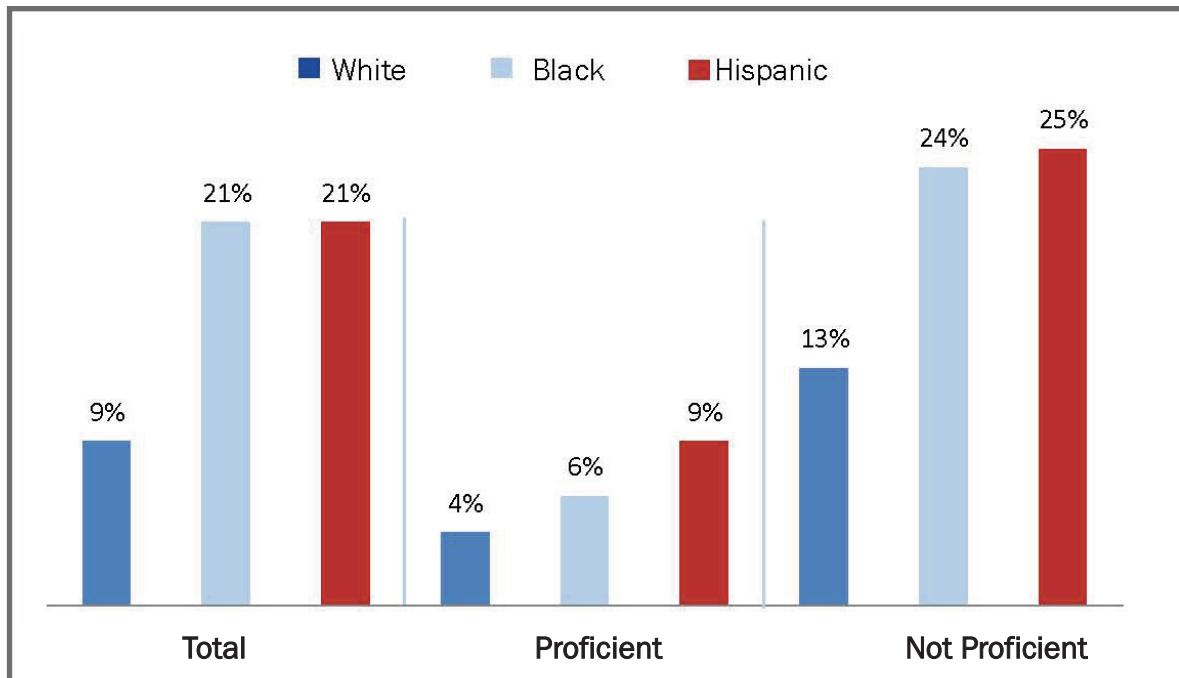
Figure 4: Poverty Experience of Children Not Graduating from High School



BLACK AND HISPANIC CHILDREN WHO ARE NOT READING PROFICIENTLY IN THIRD GRADE ARE ABOUT TWICE AS LIKELY AS SIMILAR WHITE CHILDREN NOT TO GRADUATE FROM HIGH SCHOOL

Black and Hispanic children are not only more likely to live in poverty, they also are more likely to live in neighborhoods with concentrated poverty and low-performing schools. Results from NAEP show that only 42 percent of White students read at the proficient level in fourth grade, and this falls to 16 percent for Black students and 17 percent for Hispanics.¹¹ The NLSY79 database provides racial and ethnic background for students, allowing for a breakdown of test scores on that basis. The study shows that about a quarter of Black and Hispanic students in the survey who are not reading proficiently in third grade don't graduate from high school, compared to 13 percent of other students. (Because there are few Asian families in the longitudinal survey they are combined in a single category largely composed of White students). Thus, Black and Hispanic students who haven't mastered reading in third grade are 11 to 12 percentage points less likely to graduate from high school than White students with similar reading skills. Only about 4 percent of White students who read well in third grade fail to graduate from high school, compared to 6 percent of Black students and 9 percent of Hispanics, differences which are not statistically significant (Figure 5).

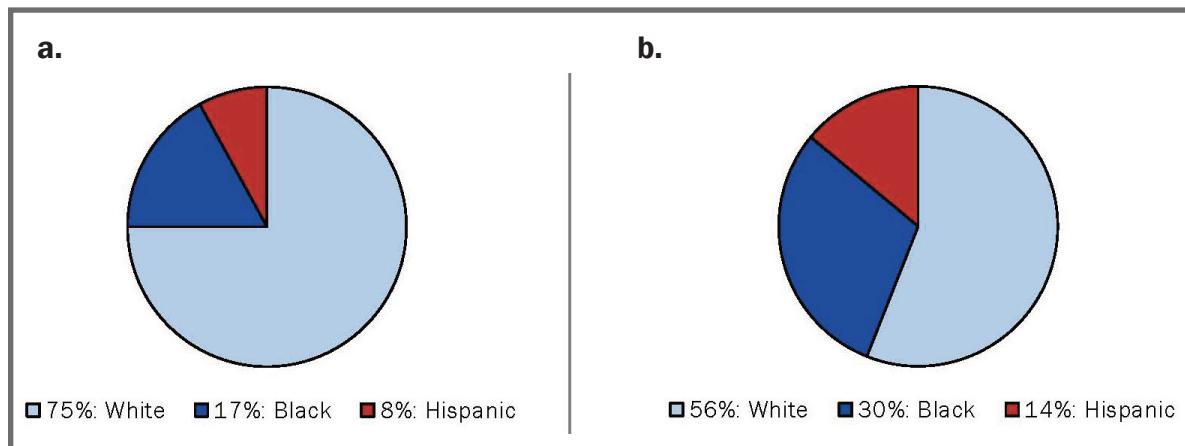
Figure 5: Children Not Graduating by Race-Ethnicity



Among those who spend at least a year in poverty and don't read proficiently, the rates for not graduating from high school rise to 22 percent for White students and to 31 and 33 percent for Black and Hispanic students, respectively (Appendix II Table). Among those who read well and live in poverty a year or more, about 10 to 14 percent of White, Black, and His-

panic students do not graduate from high school; and if they both read well and do not experience poverty, only 2 to 5 percent do not graduate. Although Black and Hispanic students are more likely to be poor readers by third grade and more likely not to graduate from high school, a majority (56 percent) of students in this survey who failed to graduate are White, while 30 percent are Black, and 14 percent are Hispanic (Figure 6).

Figure 6, a: All Children by Race-Ethnicity
b: Children Not Graduating from High School by Race-Ethnicity



POLICY AND PROGRAM STRATEGIES

The findings in this report point toward three distinct environments where new policies and programs could foster children's school success. The first is schools, which have the immediate responsibility for teaching children to read. Second is the family, because poverty and limits on available resources in the home can undermine children's capacity and opportunities to learn. Third is federal, state, and local policy, which can profoundly influence the organization and focus of schools and the extent to which children and families live in poverty.

High-quality early education is a cost-effective investment for improving both early and later school success, particularly for students in low-income families and for Black and Hispanic children.¹² Unfortunately, studies show the effects of good PreK programs can "fade out." But research also shows that gains for students are sustained if high-quality PreK is linked with the elementary grades, to create a common structure and coherent sets of academic and social goals.¹³ The integrated PreK-3rd approach to education, if fully developed and effectively implemented, involves six components: (1) aligned curriculum, standards, and assessment from PreK through third grade; (2) consistent instructional approaches and learning environments; (3) availability of PreK for all children ages 3 and 4, as well as full-day kindergarten for older children; (4) classroom teachers who possess at least a bachelor's degree and are certified to teach grades PreK-3rd; (5) small class sizes; and (6) partnership between the school and families.¹⁴ A recent study of an integrated PreK-3rd approach imple-

mented in Chicago found improved educational outcomes leading to a long-term societal return of \$8.24 for every \$1 invested in the first four to six years of school, including the PreK years.¹⁵

Of course, both in the early years and later childhood, chronic school absence is associated with lower educational attainments.¹⁶ This is particularly true for low-income children who are more likely to be chronically absent and more likely to lose out on the intensive literacy instruction in the early grades. The negative impact of school absences on literacy learning is 75 percent greater for low-income children than for their more affluent peers.¹⁷ Schools must address this problem, as well as providing effective instruction whenever students are present in the classroom. Similarly, research spanning 100 years has shown that students lose ground during summer, particularly low-income students. They lose an average of more than two months in reading achievement over the summer, slowing their progress toward third-grade reading proficiency.¹⁸ It is also, therefore, important for schools and communities to develop opportunities for summer learning which are aligned with instruction that occurs during the regular school year.

In families, parents are the first teachers, preparing their children to read simply by talking and reading to them frequently. They can also be the first to spot health and developmental problems that may lead to reading difficulties. But parents don't always know what to look for or how to help their children, and access to health care is essential. Poverty is strongly associated with lack of health insurance coverage. For example, 10 percent of people in families with incomes of \$50,000 or more are not covered by health insurance, but this jumps 19 percent for those with family incomes between \$25,000 and \$49,999, and to 29 percent for those with family incomes below \$25,000.¹⁹ Children in poor families also are more likely than their peers to have parents with limited education, because lower education is associated with earning lower incomes.²⁰ These finding suggest that policies and programs which would increase access to health insurance for children and to improved education for parents, particularly in low-income families, could play an important role in fostering children's educational success.

Finally, schools and parents cannot, by themselves, bring about these changes. Federal, state, and local governments will be essential in the development and funding of efforts to expand PreK, to develop integrated PreK-3rd initiatives, to reduce chronic absenteeism, to expand summer learning opportunities, to assure that schools provide high-quality instruction, and to provide access to health insurance and to effective opportunities for parents to increase their educational levels and human capital. The links between parent education, family income and children's educational success further suggest the potential value in pursuing two-generation strategies, which seek to improve results for children by focusing simultaneously on school policies and programs, and on strengthening families through increased parental education and improved employment opportunities that reduce family poverty, as well as increased health insurance coverage for all family members.

FUTURE ANALYSES WILL PROVIDE A DEEPER UNDERSTANDING

This brief presents the preliminary results from the first phase of research into the factors that keep students from finishing high school. Additional analysis will look at the effect that neighborhoods with high concentrations of poverty have on student graduation rates. Beyond that, the next phase of this research will systematically assess the living conditions of children to identify family, school, and neighborhood resources that can foster resilience among children, that is, resources which can make it possible for at-risk children to achieve third-grade reading success, and resources which can make it possible for children with limited third-grade reading skills to catch-up so that they can graduate from high school on time. This research will focus especially on the impact of increased mother's education and family income, access to health insurance, access to pre-kindergarten and high-quality schools, and improved neighborhood safety. I plan to expand the research to understand the role of specific family processes that link family, school, and neighborhood resources to third-grade reading success and to high school graduation.

APPENDIX I

TECHNICAL NOTES

The results for on-time high school graduation (by age 19) presented in this report are calculated from the National Longitudinal Survey of Youth 1979 (NLSY79) and the associated data for children of mothers in the sample. The NLSY79 is the only data source capable of providing such estimates, because it is the only nationally representative study that has assessed student reading in third grade, and then subsequently has followed the same children into their young adult years.

More specifically, this study calculates high school graduation rates for children born between 1979 and 1989 to mothers who were in the age range of 22 to 32 years. The mothers in the sample were originally selected to be nationally representative of all women born in the years 1957 to 1964, and who were residents in the U.S. in 1978. They were first interviewed at ages 14 to 22 in 1979.²¹ Insofar as the baby-boom generation was born in the years 1946 to 1964, the high school graduation rates reported here are for children who are old enough (age 19 or more) to have graduated from high school on time, and who have mothers born in the last half of the baby boom.

The NLSY79 was conducted by the Bureau of Labor Statistics in the U.S. Department of Labor. The sample size for analyses in this report was 3,975 children. Reading assessments were conducted as early as 1986, and data used in this report were collected as recently as 2008. Reading skill is measured in this study using the Peabody Individual Achievement Test (PIAT) Reading Recognition subtest. This survey interviews children and their mothers biennially in even-numbered years. For half the sample, data were collected for children as of

third, fifth, seventh, ninth, and 11th grades. For the other half of the sample, data were collected for children as of the second, fourth, sixth, eighth, and 10th grades.

For reading test scores, results were used for third grade if available, otherwise test scores were calculated as the average of second-grade and fourth-grade scores if both were available, otherwise the second-grade assessment was used if available. This study calculates the proportion of years a child experiences family poverty as the number of “interview years” the child lived in a poor family divided by the number of interview years available for the child between second grade and eleventh grade.

This study calculates high school graduation rates for children in the top, middle, and bottom thirds of the PIAT reading score distribution. These subpopulations were selected to correspond roughly to children classified in NAEP as reading at a proficient, basic, or below basic level. In the years between 1992 and 2009, the proportion scoring at or above proficient on NAEP was in the narrow range of 29 to 33 percent, while the remaining 67 to 71 percent scored below proficient at either the basic or below basic level. The proportion scoring in the middle (basic) category, was 18 to 26 percent in the years up to 2000, and in the higher range of 26 to 34 percent through 2009, while the proportion with test scores in the lowest (below basic) category was 38 to 41 percent up to 2000, and in the range of 33 to 27 percent in the years that followed.²²

APPENDIX II

| Percent Failing to Graduate from High School by Age 19, for Children by Third-Grade Reading Test Scores, by Race-Ethnicity, and by Poverty Experience | | | | | |
|---|--------------|------------|----------------------------------|-------|-------------|
| | | | Reading Scores Below Proficiency | | |
| | All Children | Proficient | Total | Basic | Below Basic |
| Total | 12 | 4 | 16 | 9 | 23 |
| White | 9 | 4 | 13 | 7 | 19 |
| Black | 21 | 6 | 24 | 15 | 30 |
| Hispanic | 21 | 9 | 25 | 12 | 33 |
| Have Not Experienced Poverty | | | | | |
| Total | 6 | 2 | 9 | 5 | 14 |
| White | 5 | 2 | 7 | 4 | 12 |
| Black | 10 | 3 | 12 | 6 | 18 |
| Hispanic | 12 | 5 | 15 | 5 | 24 |
| Have Experienced Poverty | | | | | |
| Total | 22 | 11 | 26 | 18 | 31 |
| White | 19 | 11 | 22 | 15 | 27 |
| Black | 28 | 10 | 31 | 22 | 35 |
| Hispanic | 30 | 14 | 33 | 20 | 40 |

ENDNOTES

¹ Lloyd, D.N. (1978). Prediction of School Failure from Third-Grade Data. *Educational and Psychological Measurement*, 38, 1193-2000.

² Reported in Annie E. Casey Foundation (2010), "EARLY WARNING! Why Reading by the End of Third-grade Matters" A KIDS COUNT Special Report from the Annie E. Casey Foundation. Baltimore, MD. Annie E. Casey Foundation.

³ Archived: Executive Summary of the No Child Left Behind Act of 2001, retrieved March 15, 2011, from <http://www2.ed.gov/nclb/overview/intro/execsumm.html>

⁴ Archived: Executive Summary of the No Child Left Behind Act of 2001, retrieved March 15, 2011, from <http://www2.ed.gov/policy/elsec/leg/blueprint/index.html>

⁵ Archived: Executive Summary of the No Child Left Behind Act of 2001, retrieved March 15, 2011, from <http://www2.ed.gov/nclb/overview/intro/execsumm.html>

⁶ Reported in America's Promise Alliance (2010), Building a Grad Nation: Progress and Challenge in Ending the High School Dropout Epidemic, Washington D.C. America's Promise Alliance.

⁷ Reported in Annie E. Casey Foundation (2010), "EARLY WARNING! Why Reading by the End of Third-grade Matters" A KIDS COUNT Special Report from the Annie E. Casey Foundation. Baltimore, MD. Annie E. Casey Foundation.

⁸ The NAEP Reading Achievement Levels by Grade. Retrieved March 15, 2011 from <http://nces.ed.gov/nations-reportcard/reading/achieveall.asp#2009aid>

⁹ Reported in Annie E. Casey Foundation (2010), "EARLY WARNING! Why Reading by the End of Third-grade Matters" A KIDS COUNT Special Report from the Annie E. Casey Foundation. Baltimore, MD. Annie E. Casey Foundation.

¹⁰ U.S. Census Bureau, 2011, Retrieved March 26, 2011 from <http://www.census.gov/hhes/www/poverty/data/threshld/index.html>

¹¹ Reported in Annie E. Casey Foundation (2010), "EARLY WARNING! Why Reading by the End of Third-grade Matters" A KIDS COUNT Special Report from the Annie E. Casey Foundation. Baltimore, MD. Annie E. Casey Foundation.

¹² Haskins, Ron and Cecilia Rouse. 2005. "Closing Achievement Gaps." *The Future of Children, Policy Brief*, Spring 2005. Princeton, N.J.: Princeton-Brookings; Heckman, James J. and Dimitriy V. Masterov. 2007. "The Productivity Argument for Investing in Young Children." Retrieved January 23, 2009, from http://jenni.uchicago.edu/human-inequality/papers/Heckman_final_all_wp_2007-03-22c_jsb.pdf; Lynch, Robert G. 2004. *Exceptional Returns: Economic, Fiscal and Social Benefits of Investment in Early Childhood Development*, Washington, D.C.: Economic Policy Institute.

¹³ Reynolds, J.J., Temple, J.A., Robertson, D.L. & Mann, E.A., (2001) Long-term Effects of an Early Childhood Intervention on Educational Achievement and Juvenile Arrest: A 15-year Follow Up of Low-income Children in Public Schools. *Journal of the American Medical Association*, 285(18), 2339-2346; U.S. Department of Health and Human Services (Dec. 2003). *State-funded Prekindergarten Programs: What the Evidence Shows*. Washington, D.C.: U.S. Department of Health and Human Services.

¹⁴ Grantmakers for Education. Making the Most of Our Investments: How PK-3 Alignment Can Close the Achievement Gap from the Start. Retrieved March 28, 2011 from <http://www.fcd-us.org/sites/default/files/MakingTheMostOfPK3Investments.pdf>

¹⁵ Reynolds, A.J., Temple, J.A., White, B.A.B., & Ou, S. (January/February 2011) Age 26 Cost-benefit Analysis of the Child-parent Center Early Education Program. *Child Development* 82(1): 379-404

¹⁶ Chang, H.N. & Romero, M. (September 2008). *Present, Engaged, and Accounted For: The Critical Importance of Addressing Chronic Absence in the Early Grades*. New York, NY: National Center for Children in Poverty

¹⁷ Ready, Douglas D., *Socioeconomic Disadvantage, School Attendance, and Early Cognitive Development, The Differential Effects of School Exposure*, Sociology of Education, October 2010

¹⁸ The Campaign for Third Grade Reading. Retrieved March 28, 2011 from
<http://www.gradellevelreading.net/policypractice/summer-learning-loss/>

¹⁹ DaNavas-Walt, C., Proctor, B.D., & Smith, J.C. (September 2010). *Income, Poverty, and Health insurance Coverage: 2009*. Current Population Reports, Consumer Income, P60-238. Washington, DC: US Census Bureau.

²⁰ Crissey, S.R. (January 2009). *Educational Attainment in the United States*, Current Population Reports, P20-560. Washington, DC: US Census Bureau, Detailed Tables, Appendix B. Retrieved March 28, 2011 from
<http://www.census.gov/hhes/socdemo/education/data/cps/2007/tables.html>

²¹ National Longitudinal Surveys, The NLSY79, Retrieved March 12, 2011 from
<http://www.bls.gov/nls/nlsy79.htm>

²² National Assessment of Educational Progress, Retrieved March 27, 2011 from
http://nationsreportcard.gov/reading_2009/nat_g4.asp?tab_id=tab2&subtab_id=Tab_1#tabsContainer