

Impact of Poverty on Student Outcomes

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In the following report, Hanover Research examines the effects of poverty on students' academic and behavioral outcomes. After assessing the literature with regards to student achievement and development, this report investigates ways that schools can minimize the negative impacts of poverty for children from low-income households.

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EXECUTIVE SUMMARY AND KEY FINDINGS

INTRODUCTION

The income-achievement gap is 40 percent larger today than it was 20 years ago, and has in fact grown wider than the race/ethnic achievement gap. This change is attributable to “both the substantial progress made in reducing racial inequality in the 1960s and 1970s and the sharp increase in economic inequality in education outcomes in more recent decades.”¹ Indeed, “in 1970, a family with school-age children at the 90th percentile of the family income distribution earned five times as much as a family at the 10th percentile; today, the high-income family earns 11 times more than the low-income family.”² This growing disparity negatively impacts students from impoverished homes and results in diminished outcomes at school. In this report, Hanover Research examines these effects and identifies ways for schools to mitigate them. It comprises two sections:

- **Section I: Poverty and Student Outcomes** examines the impacts that poverty has on a number of academic and behavioral outcomes.
- **Section II: Strategies for Mitigating the Effects of Poverty** addresses evidence-based strategies to reduce the income achievement gap. This section assesses classroom strategies and school-wide programs that have been shown to have a positive effect on low-income students.

KEY FINDINGS

- **Poverty has been linked to lower levels of student achievement and increased propensities for behavioral problems.** Additionally, a variety of key externalities associated with poverty – including weaker relationships with adults, chronic stress, and less parental oversight – are correlated to higher rates of behavioral and socio-emotional problems in school.
- **However, the combination of rigorous curricula and student-centered teaching strategies has been shown to improve student performance and reduce detrimental social and behavioral outcomes.** Evidence suggests that “learner-centered” teaching strategies can effectively engage low-income students by enabling them to more personally and actively participate in school.
- **Teachers and students from impoverished homes can mutually benefit from a supportive classroom environment.** Positive perceptions of school and the school environment can have an affirmative effect on both academic achievement and behavior. Furthermore, teachers also report higher levels of job satisfaction when

¹ Reardon, S.F. “The Widening Income Achievement Gap.” *Educational Leadership: Faces of Poverty*, 70:8, May 2013. <http://www.ascd.org/publications/educational-leadership/may13/vol70/num08/The-Widening-Income-Achievement-Gap.aspx>

² Ibid.

classrooms are more supportive and they can more personally engage low-income students.

- **Early childhood education is especially important for low-income students.** Low-income parents traditionally spend less time engaging in at-home enrichment than their more affluent counterparts, which can cause children from poverty to start school at a disadvantage that may persist for many years. Pre-kindergarten and full-day kindergarten have been shown to produce disproportionately advantageous effects for students from impoverished homes.
- **Low-income students can benefit from increased access to extracurricular, supplementary, and enrichment activities.** These children often have contact with fewer extracurricular and enrichment opportunities, such as sports, art classes, or tutoring. Summer programs, after-school initiatives and clubs, and community service have all been found to benefit low-income students and increase scholastic performance relative to similar peers.
- **Parental outreach offers an impactful and cost-effective way to increase engagement and has been linked to improved student achievement.** High-poverty schools can benefit from targeted parental outreach efforts, particularly around key student transitory periods – such as after kindergarten. Successful outreach models normally involve meetings or classes with parents in which teachers can show them how to support student achievement at home.

SECTION I: POVERTY AND STUDENT OUTCOMES

This section reviews the impacts of poverty on students' academic and behavioral outcomes.

POVERTY AND ACADEMIC PERFORMANCE

In 2014, 23 percent of U.S. children lived in homes either at or below the poverty line, up four percentage points since 2005.³ This is particularly salient for K-12 districts because poverty has been linked to a number of negative consequences for children in school, such as delayed cognitive development and lower test scores.⁴ Children from low-income households are more likely to be exposed to stressors than their affluent peers, accounting for many of the achievement disparities between children of different socioeconomic statuses (SES) and potentially leading to academic, social, and behavioral issues throughout elementary and secondary school.⁵

Income inequality also has adverse effects on school performance as a whole, which exacerbates the difficulties faced by individual students, teachers, and schools (Figure 1.1). In schools with high poverty rates, students are 10 percentage points more likely to experience adult poverty. Likewise, the teacher attrition rate among high-poverty schools is 21.0 percent compared with 14.5 percent attrition at low-poverty schools. Adverse teaching conditions also contribute to the disadvantages at these low-income schools. Indeed, at high-poverty schools, 34.0 percent of teachers instruct outside their field of expertise and only 15.0 percent of new teachers hold relevant master's degrees (compared with 15.0 percent and 24.0 percent, respectively, at low-poverty schools).⁶

³ "Kids Count 2014 Data Book: State Trends in Child Well-Being" The Annie E. Casey Foundation, 2014. p.17. <http://www.aecf.org/m/resourcedoc/aecf-2014kidscountdatabook-2014.pdf>

⁴ [1] Jensen, E. "How Poverty Affects Behavior and Academic Performance." In *Teaching with Poverty in Mind: What Being Poor Does to Kids' Brains and What Schools Can Do About It*, Association for Supervision and Curriculum Development, November 2009. <http://www.ascd.org/publications/books/109074/chapters/how-poverty-affects-behavior-and-academic-performance.aspx>

[2] Isaacs, J. & Magnuson, K. "Income and Education as Predictors of Children's School Readiness." Center on Children and Families, Brookings Institute, December 2011. http://www.brookings.edu/~media/research/files/reports/2011/12/15%20school%20readiness%20isaacs/1214_school_readiness_isaacs.pdf

⁵ "Kids Count 2014 Data Book," Op. cit., p.24.

⁶ Landy, B. "Graph: The Growing Education Gap Between Rich and Poor (Continued)." The Century Foundation, February 2013. <http://tcf.org/blog/detail/graph-the-growing-education-gap-between-rich-and-poor-continued>

Figure 1.1: Ways That Income Inequality Disadvantages High-Poverty Schools

CHARACTERISTIC	HIGH-POVERTY SCHOOLS	LOW-POVERTY SCHOOLS
Chance of Adult Poverty	14.0%	4.0%
Teacher Attrition Rate	21.0%	14.5%
Percentage that are Consistently High Performing	1.1%	24.2%
Percentage of Instructors Teaching Outside their Field	34.0%	15.0%
New Math and Science Teachers with Master's Degree	15.0%	24.0%

Source: The Century Foundation⁷

COGNITIVE DEVELOPMENT

Poverty can have adverse effects on a child's cognitive development, particularly in the years preceding entry into school.⁸ Consistent cognitive stimulation and engagement – crucial aspects of early childhood development – are less likely to occur in impoverished households than in more affluent ones.⁹ This can range from less parent-child interaction to fewer extracurricular opportunities, such as participation in the arts, sports, or supplemental tutoring. For example, studies suggest that “higher-income parents spend nearly a half-hour more per day engaged in direct, face-to-face [...] time with their children than low income parents do, and by the time these children are 5 years old, the poor ones will have heard 30 million fewer words than their wealthy peers.”¹⁰ Cognitive development in young children relies predominately on an exposure to a variety of stimulating activities, such as face-to-face interaction between children and parents. Thus, by the time a child from a low-income household begins school, he or she is at a neurological and cognitive disadvantage due to the limited developmental opportunities that are associated with poverty.¹¹

Additionally, research indicates that poverty affects cognitive development on a biological level, making it more difficult to overcome learning differentials by the time children from impoverished homes reach elementary school. According to MRI scans, poverty can upset development in a variety of key brain areas, and children of poverty have consistently been shown to produce less of the brain tissue used in the processing of information and the execution of actions.¹² Children from middle- and high-income families, by contrast, produce more of this critical brain tissue than children from families living under 200

⁷ Ibid.

⁸ Barncard, C. “Poverty influences children's early brain development.” University of Wisconsin-Madison News, December 2013. <http://www.news.wisc.edu/22393>

⁹ Jensen, Op. cit.

¹⁰ Lahey, J. “Poor Kids and the ‘Word Gap’.” *The Atlantic*, October 2014.

<http://www.theatlantic.com/education/archive/2014/10/american-kids-are-starving-for-words/381552/>

¹¹ Lahey, Op. cit.

¹² [1] Whiteman, H. “Childhood poverty ‘affects brain development’.” *Medical News Today*, October 2013.

<http://www.medicalnewstoday.com/articles/268066.php>

[2] Herzog, K. “Poverty conditions may hinder early brain development, UW-Madison study suggests.” *Journal Sentinel*, December 2013. <http://www.jsonline.com/blogs/news/235473321.html>

percent of the poverty line, despite the fact that the brains at birth are largely identical.¹³ According to Jeff Pollack, co-author of one longitudinal brain scan study, “the absence of enriching activities and interactions are of particular importance” with regards to the developmental differences between children from diverse socioeconomic situations.¹⁴

STUDENT ACHIEVEMENT

It is difficult to separate and isolate the effects of poverty from other highly correlated externalities – such as parenting style, and neighborhood influence – when studying the relationship between income and student achievement.¹⁵ However, evidence suggest that students from higher SES homes generally outperform their less affluent peers in key areas such as mathematics, writing, and reading.

The relationship between income and achievement is normally classified as “monotonic, with each increase in family resources at birth associated with an increase in school readiness outcomes.”¹⁶ Dahl and Lochner found statistically significant evidence of this positive association, reporting that “a \$1,000 increase in family income raises math and reading test scores by about 6 percent of a standard deviation.”¹⁷ This affects both school readiness and performance, and may help to quantify achievement disparities across SES levels. Furthermore, the study suggests that the effects of a \$1,000 increase in earnings are relatively more impactful for poorer and younger students and that “contemporaneous income has the largest effect on achievement, with smaller effects from past income.”¹⁸

One key indicator used to to help pinpoint the different outcomes between low- and high-income students is school readiness. This variable can be measured in a variety of ways, using either academic or nonacademic criteria. In an analysis of longitudinal data, Isaacs and Magnuson observed math and reading scores, learning-related and problem behavior, and health to estimate levels of school readiness between students from different income levels (Figure 1.2).¹⁹ The study found that “fewer than half (46 percent) of children with household incomes of less than \$25,000 at age five score well on all five readiness measures in [the] analysis, compared to 84 percent of children from households with incomes of more than \$100,000.”²⁰ Additionally, the differences in academic skills across the income groups were observed to be larger than behavioral differences. For example, math z-scores for children from the poorest households dropped by -0.48, while scores for children from the most affluent households rose 0.61 at five years (a 1.09 point swing). Conversely, the difference

¹³ Herzog, Op. cit.

¹⁴ Ibid.

¹⁵ Dahl, G.B. & Lochner, L. “The Impact of Family Income on Child Achievement: Evidence from the Earned Income Tax Credit.” *American Economic Review*, 105:5, 2012. p.1928. <http://econweb.ucsd.edu/~gdahl/papers/children-and-EITC.pdf>

¹⁶ Isaacs & Magnuson, Op. cit., p.8.

¹⁷ Dahl & Lochner, Op. cit., p.1930.

¹⁸ Ibid.

¹⁹ Isaacs & Magnuson, Op. cit., p.9.

²⁰ Ibid, p.8.

in problem behavior z-scores only ranged 0.32 points. **Across all measures, overall school readiness increased as income rose.**

Figure 1.2: School Readiness Outcomes by Family Economic Circumstances (p.9)

MEASURE OF ECONOMIC SITUATION	IN SUBGROUP	MATH	READING	LEARNING -RELATED BEHAVIOR	PROBLEM BEHAVIOR	GOOD HEALTH*	SCHOOL READY
All	100%	0.00	0.00	0.00	0.00	0.0	65%
BY HOUSEHOLD INCOME (AT 9 MONTHS)							
Less than \$25,000	35%	-0.43	-0.37	-0.19	-0.11	-1.5	51%
\$25,001-\$50,000	30%	-0.05	-0.05	0.02	-0.01	0.2	62%
\$50,001-\$100,000	26%	0.36	0.33	0.15	0.06	1.1	78%
Greater than \$100,000	10%	0.68	0.54	0.32	0.25	1.7	86%
BY HOUSEHOLD INCOME (AT 5 YEARS)							
Less than \$25,000	27%	-0.48	-0.43	-0.27	-0.19	-1.5	46%
\$25,001-\$50,000	28%	-0.17	-0.15	-0.07	-0.03	-0.3	61%
\$50,001-\$100,000	28%	0.24	0.22	0.16	0.13	0.7	74%
Greater than \$100,000	17%	0.61	0.54	0.26	0.13	1.6	84%
BY ASSETS (CHECKING OR SAVINGS ACCOUNT, INVESTMENTS, AND/OR OWN HOME, AT 9 MONTHS)							
None	20%	-0.50	-0.47	-0.29	-0.17	-3.1	44%
Only 1	26%	-0.20	-0.16	-0.13	-0.10	0.1	58%
Only 2	22%	0.06	0.07	0.01	0.00	0.8	68%
All 3	30%	0.44	0.38	0.29	0.21	1.3	81%
BY TIME SPENT IN POVERTY							
Each year	9%	-0.67	-0.60	-0.35	-0.24	-1.8	42%
3 out of 4 interviews	9%	-0.47	-0.48	-0.35	-0.20	-1.7	45%
2 out of 4 interviews	9%	-0.36	-0.31	-0.33	-0.12	-2.0	51%
1 out of 4 interviews	12%	-0.25	-0.15	-0.04	0.00	-0.1	60%
Never	60%	0.28	0.24	0.14	0.08	1.0	65%

Source: The Center on Children and Families at the Brookings Institute²¹

*The health measure shows the difference in percentage points from the overall percentage of children in good, very good, or excellent health (98.0 percent).

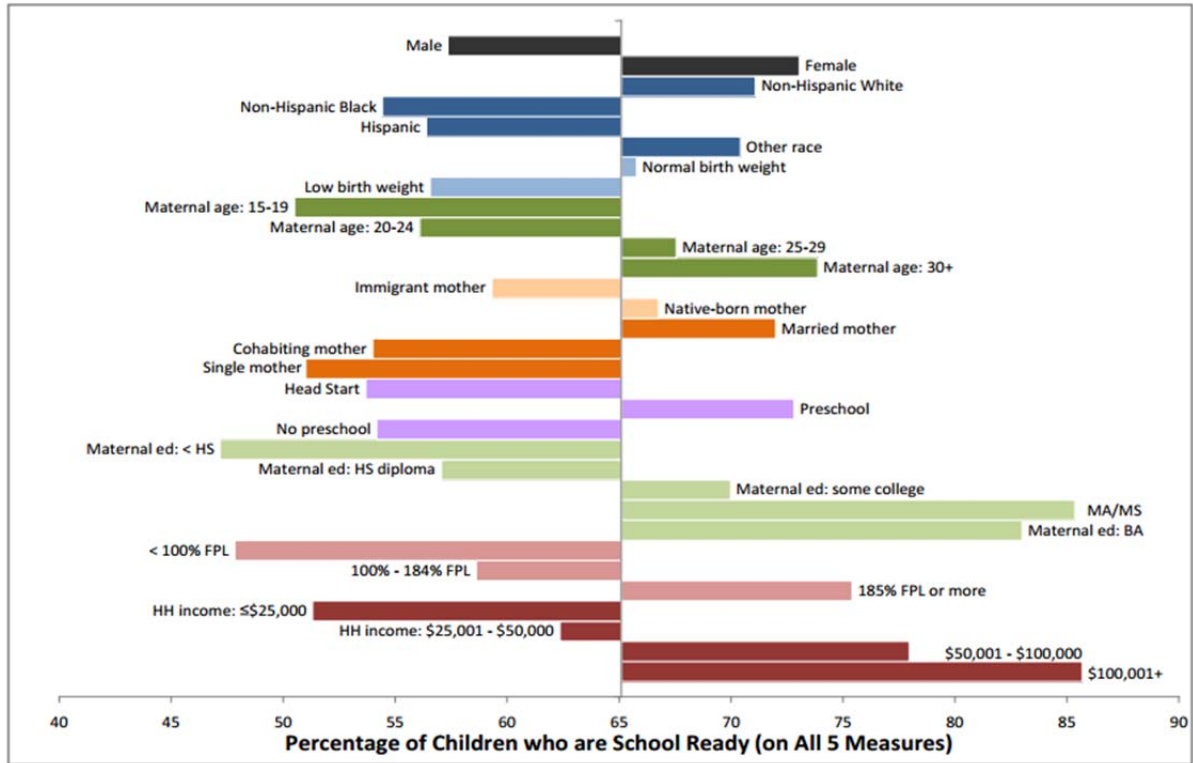
It is also noteworthy to examine other factors that can influence school readiness and that may exacerbate the issues stemming from poverty (Figure 1.3). These externalities, such as household structure or maternal education, have been shown to correlate to either improved or decreased scholastic outcomes. In low-income households especially, one or many of these other factors can be additional detriments to student performance. The children of young and less educated mothers, for example, tend to enter school less ready than those of older and more educated mothers. In fact, **one of the strongest negative predictors of school readiness is maternal education**, with mothers who do not hold a high school diploma decreasing their child's school readiness by as much as 20 percentage points. Data suggest that teenage, single, and cohabitating mothers all also contribute to lower levels of school readiness.²² Many of these negative factors are characteristic of low-

²¹ Ibid, p.9.

²² Ibid, p.17.

income households, and may intensify the gap in readiness between low- and high-income students.

Figure 1.3: Overall School Readiness by Selected Child and Family Characteristics



Source: The Center on Children and Families at the Brookings Institute²³

Reading and math achievement are particularly useful measures of academic performance due to regular testing in the two subjects. Beginning in fourth grade, reading is increasingly used as the vehicle for instruction in all subjects, and subsequently, “mastery of reading becomes a critical component of [a student’s] ability to keep up academically.”²⁴ Similarly, proficiency in math is associated with higher rates of college completion and augmented earnings in the work force.²⁵ To examine the effects of poverty on reading and math scores, specifically, achievement levels in the states with both the highest and the lowest percentage of children in poverty were analyzed. The states with the highest proportion of child poverty are Arkansas (29 percent), Mississippi (35 percent), and New Mexico (29 percent), while the lowest rates occur in Alaska (14 percent), Maryland (14 percent), and North Dakota (13 percent). The national average is 23 percent.²⁶ Figures 1.4 and 1.5 present the achievement levels in math and reading among the six states at critical grades in K-12 education.

²³ Image reproduced from: Ibid.

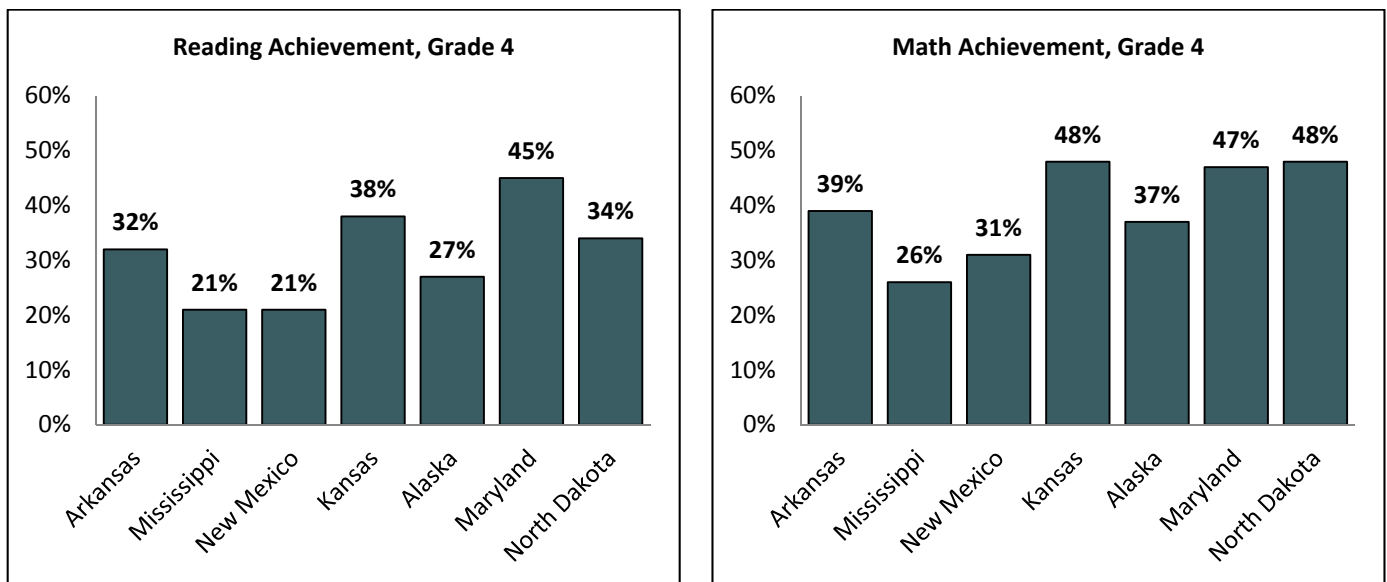
²⁴ “Kids Count 2014 Data Book,” Op. cit., p.28.

²⁵ Ibid, p.29.

²⁶ Ibid, p.46.

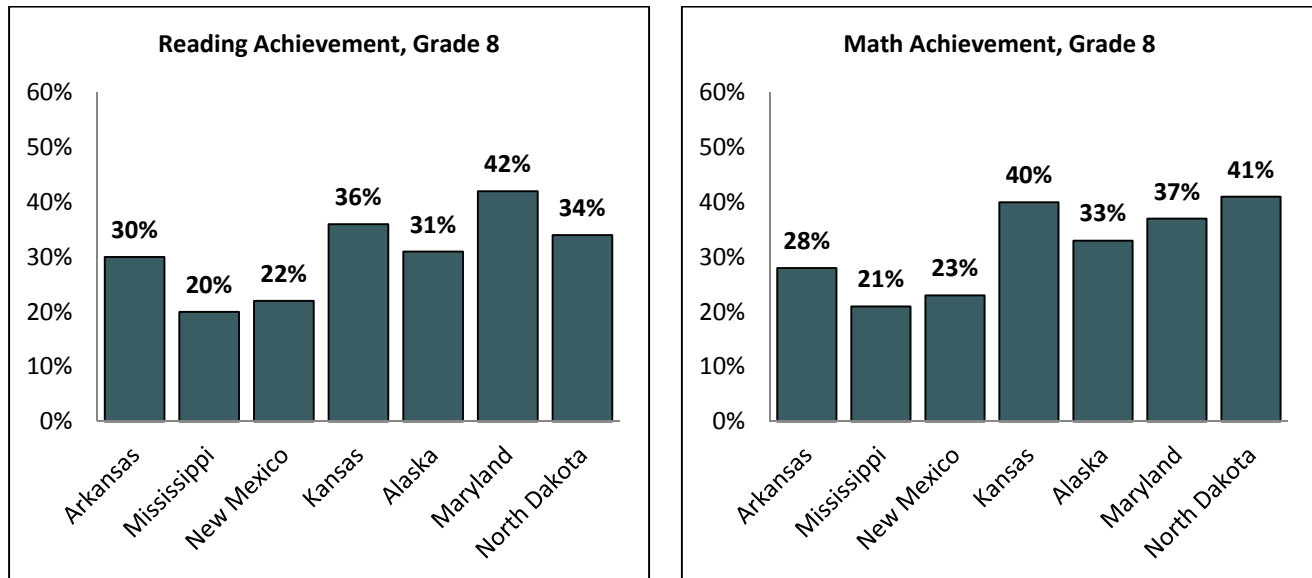
In general, **achievement in both reading and math is higher in the states with the lowest proportions of children living in poverty** (Figure 1.4). In the fourth grade, grade-level reading achievement ranged from 21 percent of the student populations in Mississippi and New Mexico to 32 percent in Arkansas. In the low-poverty states, achievement levels were generally higher, with almost half (45 percent) of Maryland’s fourth graders reading at grade-level. Trends are even more pronounced in math, where 47 percent of Maryland and 48 percent of North Dakota fourth graders perform along grade-level standards in the fourth grade, compared with 26 percent in Mississippi and 31 percent in New Mexico. Achievement differentials in eighth grade mirror these findings. In fact, by eighth grade, all three states with the lowest proportions of child poverty had higher percentages of grade-level student achievement in both reading and math (Figure 1.5).

Figure 1.4: Fourth Grade Achievement in the States with the Highest and Lowest Child Poverty Rates, 2013



Source: The Annie E. Casey Foundation²⁷

²⁷ "Kids Count Data Center: Education." The Annie E. Casey Foundation.
<http://datacenter.kidscount.org/data#USA/1/8/10,11,12,13,15,14,2719>

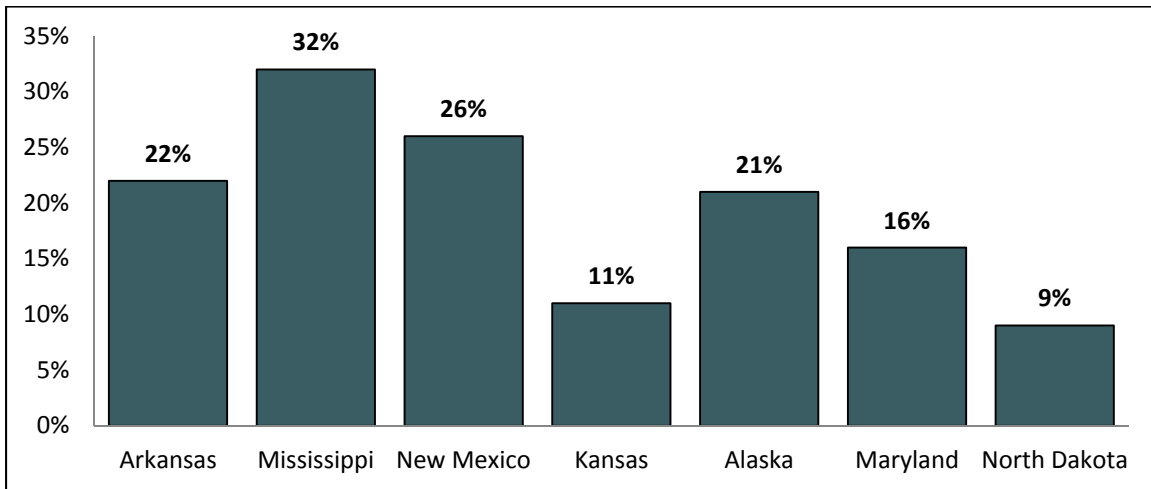
Figure 1.5: Eighth Grade Achievement in the States with the Highest and Lowest Child Poverty Rates, 2013

Source: The Annie E. Casey Foundation

GRADUATION AND DROPOUT RATES

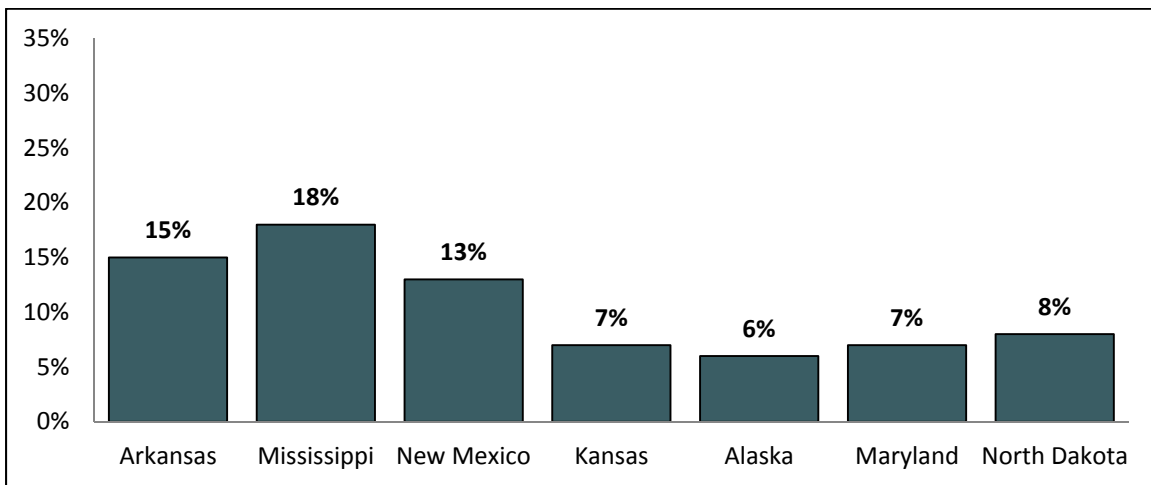
Children of poverty generally have lower high school graduation rates than their more affluent peers, with an average graduation gap between these different SES students of 15.6 percentage points.²⁸ Indeed, only four states' low-income student populations matched the national graduation rate of 80 percent, compared with below-average performance in 44 states. Among the states with the highest rates of child poverty, the percentage of students that did not graduate on-time ranged from 22 percent (Arkansas) to 32 percent (Mississippi) (Figure 1.6). By contrast, only 9 percent of North Dakota's student population did not graduate on-time.

²⁸ Cosman, B. "The High School Graduation Rate is Great, Unless You're Poor." *The Wire*, April 2014. <http://www.thewire.com/national/2014/04/the-high-school-graduation-rate-is-great-unless-youre-poor/361321/>

Figure 1.6: Percentage of Student that Did Not Graduate On-Time, 2011-2012

Source: The Annie E. Casey Foundation

States with lower proportions of children living in poverty also report lower rates of K-12 grade repetition (Figure 1.7). In Alaska, Maryland, and North Dakota, between 6 and 8 percent of students aged 6 to 17 repeated at least one grade during the 2011-2012 academic year. In the states with higher levels of child poverty, however, between 13 and 18 percent of students needed to repeat a grade. This performance differential between students from low- and high-income households can have adverse long-term effects.

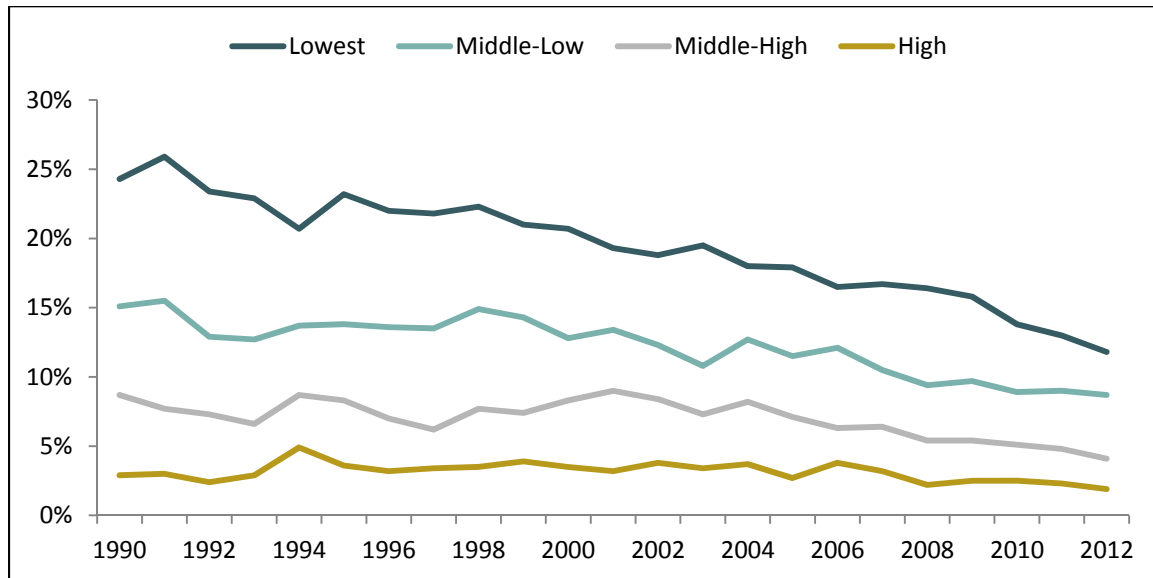
Figure 1.7: Percentage of Students that Repeated At Least One Grade, Ages 6-17, 2011-2012

Source: The Annie E. Casey Foundation

Long-term dropout data also suggest that less affluent students experience higher levels of high school attrition than their more affluent peers (Figure 1.8). The National Center for Education Statistics (NCES) reported that in 2012, the national average dropout rate was approximately 6.6 percent. However, children from families in the lowest quartile of earnings left school at more than six times the rate of students from the highest quartile (11.8 percent dropout rate compared with 1.9 percent), with dropout rates consistently

rising as familial income decreased.²⁹ Although dropout rates have declined overall since 1990, children from low and middle-low earning quartile consistently dropout of high school more frequently than affluent children.

Figure 1.8: National Dropout Rates by Family Income Quartile, 1990-2012



Source: National Center for Education Statistics³⁰

POVERTY AND STUDENT BEHAVIOR

Children who grow up in impoverished households are faced with a variety of challenges that can influence behavioral outcomes. Many of these behaviors, developed in response to less favorable SES environments, can “undermine good school performance” and affect attitudes towards schooling in general.³¹ A study by researchers at the University of Bristol suggests that SES may be correlated to negative behavior, with 35 percent of boys and 29 percent of girls from the lowest quintile of household earnings displaying “clinical-level symptoms of behavior problems at age three, compared with 15 percent of those in the highest quintile of the income distribution.”³² These differences in behavioral outcomes have been growing over the past two decades. Today, low-income students are 3.5 times more likely to experience behavioral problems than their more affluent peers, compared with twice as likely in the 1990s.³³

²⁹ “Percentage of high school dropouts among persons 16 through 24 years old (status dropout rate), by income level, and percentage distribution of status dropouts, by labor force status and years of school completed: 1970 through 2012.” National Center for Education Statistics.

http://nces.ed.gov/programs/digest/d13/tables/dt13_219.75.asp

³⁰ “Percentage of high school dropouts...,” National Center for Education Statistics, Op. cit.

³¹ Jensen, Op. cit.

³² “Poor children twice as likely to begin school with behavior problems.” Phys.org, November 2010.

<http://phys.org/news/2010-11-poor-children-school-behavior-problems.html>

³³ Ibid.

RELATIONSHIPS WITH PARENTS, TEACHERS, AND PEERS

Social relationships between students and their parents or guardians, teachers, and peers can impact behavioral outcomes in school.³⁴ Often, familial interactions between a child and his or her parents can dictate “the quality of future relationships with teachers and peers and plays a leading role in the development of [...] social functions.”³⁵ Early and constant parent-child interaction can influence early childhood development and help to “set the stage” for future development in three key ways:

- How children learn to **regulate their own emotions**, known technically as self-regulation
- How they **feel about themselves**, which in turn affects whether they see themselves as competent and able to learn
- How they **relate to other** adults and peers³⁶

Students in low-income households are more likely to grow up in homes “lack[ing] positive academic role models.”³⁷ As such, teachers play a critically important role in ensuring these positive behavioral outcomes are met in schools through the formation of affirmative relationships with their students. In a survey of teachers from high-poverty schools, **most teachers cited a commitment to student success and the creation of personal student-teacher bonds as primary reasons for instructing.**³⁸ Yet, research suggests that “not only are young children who act in antisocial ways less likely to be accepted by peers and teachers, but that teachers are also likely to spend less time teaching them and giving them positive feedback.”³⁹ The negative habits or interactions that many children from poverty experience can influence how they cooperate with teachers at school, and can establish a cycle of misunderstanding and strained relationships.

In school, socialization and social status can also play important roles in a child’s development, and children from different socioeconomic backgrounds may process interactions in different ways. A student’s success is significantly influenced by the characteristics of his or her school-wide peers, and studies show that “the racial/ethnic and social class composition of schools [is] more important than a student’s own race, ethnicity, and social class in explaining educational outcomes.”⁴⁰ Peer interactions in low-income

³⁴ Jensen, Op. cit.

³⁵ Ibid.

³⁶ Knitzer, J. “Social and Emotional Development in Young Low-Income Children: What Research Tells Us and Why It Matters for Early School Success.” National Center for Children in Poverty, January 2003. p.2.

https://www.nhsa.org/files/static_page_files/F6133D7D-1D09-3519-AD560CDBE3FB142D/Knitzer.pdf

³⁷ Carter, C.J. “Why Aren’t Low-Income Students Succeeding in School?” The Huffington Post, March 2013.

http://www.huffingtonpost.com/carol-j-carter/why-arent-low-income-stud_b_2909180.html

³⁸ Kraft, M.A. et al. “Committed to Their Students but in Need of Support: How School Context Influences Teacher Turnover in High-Poverty, Urban Schools.” Project on the Next Generation of Teachers, Harvard Graduate School of Education, June 2012. p.13. http://scholar.harvard.edu/files/mkraft/files/kraft_papay_charner-laird_johnson_ng_reinhorn_-_teachers_in_high-poverty_urban_schools.pdf

³⁹ Knitzer, Op. cit., p.3.

⁴⁰ Rumberger, R.W. “Poverty and high school dropouts.” American Psychological Association, May 2013.

<http://www.apa.org/pi/ses/resources/indicator/2013/05/poverty-dropouts.aspx>

schools can help to overcome some of the negative consequences of poverty with regards to relationship building.⁴¹ Indeed, **“the development of positive peer relationships is especially important for low-income children** whose parents must focus on meeting their children’s basic need and often do not have the time or resources to dedicate to skill development and educational interactions.”⁴²

In elementary education in particular, peer relationships often establish the paradigm in which most future interactions occur and can determine how students handle issues such as trust, communication, willingness to help, disloyalty, and/or rejection.⁴³ Because children from low-income homes do not always receive the same socialization as their more affluent counterparts, **school relationships with teachers and peers can help to form the foundations of critical and valuable skills that can have academic benefits for disadvantaged students.**

EMOTIONAL AND SOCIAL CHALLENGES

The emotional and social development of children in poverty can have consequences for future academic outcomes.⁴⁴ Stability is important to a child’s development, yet children of poverty often grow up in unstable environments. Affluent children are likely to “gain a sense of mastery of their environments [and] to develop feelings of self-worth, confidence, and independence,” whereas their economically disadvantaged peers often do not form the same types of secure attachments.⁴⁵ As a result, behavioral psychologists find that children from low-SES homes are more likely to develop “psychiatric disturbances and maladaptive social functioning,” as well as to have school conduct problems.⁴⁶ Jensen suggests that low-income students are overall more likely to exhibit:

- “Acting-out” behaviors
- Impatience and impulsivity
- A more limited range of behavioral responses
- Gaps in politeness and social graces
- Inappropriate emotional responses
- Less empathy for others’ misfortunes⁴⁷

The U.S. Department of Health and Human Services found that a higher percentage of children between 6- and 17-years-old “used prescribed medication for emotional or behavioral difficulties compared with children in families having income at 100% to less than 200% of the poverty level” (Figure 1.9).⁴⁸ The proportion of children from low-income

⁴¹ Barnes, S. “Peer Relationships, Protective Factors, and Social Skill Development in Low-Income Children.” New York University. <http://steinhardt.nyu.edu/opus/issues/2013/fall/barnes>

⁴² Ibid.

⁴³ Ibid.

⁴⁴ Knitzer, Op. cit., p.3.

⁴⁵ Jensen, Op. cit.

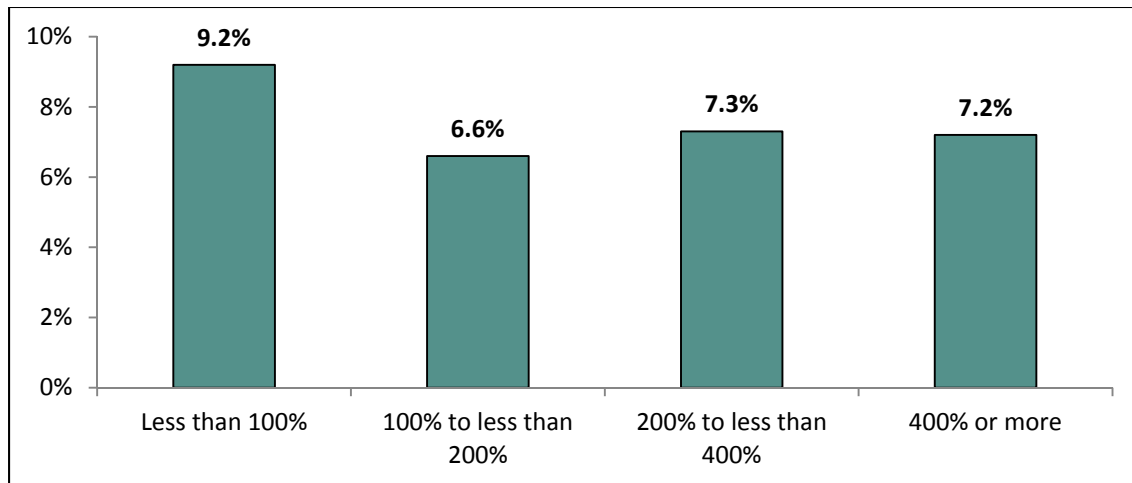
⁴⁶ Ibid.

⁴⁷ Taken verbatim from: Jensen, Op. cit.

⁴⁸ Howie, L.D., Pastor, P.N., & Lukacs, S.L. “Use of Medication Prescribed for Emotional or Behavioral Difficulties Among Children Aged 6-17 Years in the United States, 2011-2012.” National Center for Health Statistics, U.S. Department of Health and Human Services, April 2014. p.3. <http://www.cdc.gov/nchs/data/databriefs/db148.pdf>

households that are medicated for emotional or behavioral difficulties exceeds the national average for all children (7.5 percent), suggesting that economically disadvantaged children may experience higher rates of socio-emotional challenges and thus more incidences of medicated drug use.⁴⁹

Figure 1.9: Percentage of Children Aged 6-17 Prescribed Medication for Emotional or Behavioral Difficulties, 2011-2012



Source: National Center for Health Statistics⁵⁰

Note: Percentages indicate the percent of poverty level.

HEALTH AND WELLNESS

Income and health may be closely related, and research suggests that as income levels drop, overall health falls accordingly.⁵¹ This is particularly prominent with regards to the adverse effects of stress, as children from impoverished households are disproportionately exposed to more stressors on a regular basis than their more affluent counterparts. Common stressors can exert “a devastating, insidious influence on children’s physical, psychological, emotional, and cognitive functioning – areas that affect brain development, academic success, and social competence.”⁵² **The impacts that stress has on a child’s development and wellness negatively affect school performance by encouraging disruptive and impulsive behavior and hindering healthy social interactions.**⁵³ For example, girls from low-income, unhealthy homes are more likely to experience mood swings and similarly-reared boys have lower levels of curiosity, memory, and learning.⁵⁴ The effects that poverty has on stress levels are apparent even before a child begins formal schooling, and has increasingly

⁴⁹ Ibid, p.5.

⁵⁰ Ibid, p.3.

⁵¹ Sapolsky, R. “Sick of Poverty.” *Scientific American*, 293:6, December 2005.

https://www.georgiastandards.org/resources/Lexile_in_Action_CTAE/HS-IHS-6_1260_Sick-of-Poverty.pdf

⁵² Jensen, Op. cit.

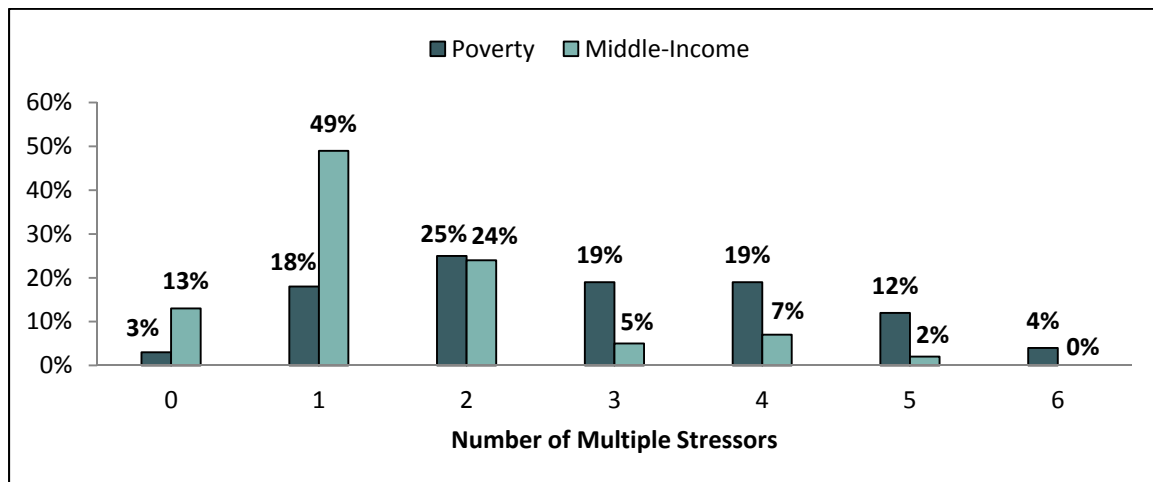
⁵³ Ibid.

⁵⁴ Ibid.

been observed in babies of low-income families.⁵⁵ Because health and achievement are interrelated, stress and other health issues can exacerbate the academic differences between children from different socioeconomic homes.

In a study of eight- to 10-year-old, low-income, rural children, researchers found that children of poverty experience a “wider array of multiple physical (substandard housing, noise, crowding) and psychosocial (family turmoil, early childhood separation, community violence) stressors than do their middle-income counterparts”⁵⁶ (Figure 1.10). These stressors disproportionately affect low-SES children primarily by augmenting levels of “self-reported psychological distress, greater difficulties in self-regulating behavior, and elevated psychophysiological stress”⁵⁷ (Figure 1.11). Most middle-income children are exposed to either zero (13 percent) or one (49 percent) cumulative risk factor associated with high levels of childhood chronic stress. In contrast, the majority of children from impoverished homes report consistently experiencing two or more of the stress risk factors (79 percent). Accordingly, low-income children were found to have higher blood pressure and an increased presence of overnight stress hormones.⁵⁸

Figure 1.10: Cumulative Risk Exposure among Rural Nine Year-Olds, by Family Income



Source: Evans & English; “The Environment of Poverty”⁵⁹

⁵⁵ [1] Booker, K. “Chronic stress appears to be linked to low-income achievement gap, reports expert.” *Cornell Chronicle*, January 2011. <http://www.news.cornell.edu/stories/2011/01/chronic-stress-seems-linked-achievement-gap>

[2] Evans, G.W., Brooks-Gunn, J., & Klebanov, P.K. “Stressing Out the Poor: Chronic Physiological Stress and the Income-Achievement Gap.” *Pathways*, Winter 2011. p.21. https://web.stanford.edu/group/scspi/_media/pdf/pathways/winter_2011/PathwaysWinter11_Evans.pdf

⁵⁶ Evans, G.W. & English, K. “The Environment of Poverty: Multiple Stressor Exposure, Psychophysiological Stress, and Socioemotional Adjustment.” *Child Development*, 73:4, July/August 2002. p.1238. Accessed via EBSCOHost.

⁵⁷ Ibid.

⁵⁸ Ibid.

⁵⁹ Adapted from: Ibid, p.1242.

Figure 1.11: Psychophysiological Stress Means among Rural Nine-Year-Olds, by Family Income

OUTCOME VARIABLE	POVERTY	MIDDLE-INCOME
RESTING BLOOD PRESSURE		
Systolic blood pressure (mm/Hg)	102.31	100.20
Diastolic blood pressure (mm/Hg)	60.58	58.44
OVERNIGHT STRESS HORMONES		
Cortisol (ug/mg creatinine)	0.033	0.023
Epinephrine (ng/mg creatinine)	5.30	3.56
Norepinephrine (ng/mg creatinine)	32.47	30.76

Source: Evans & English; "The Environment of Poverty"⁶⁰

Jensen's meta-analysis reveals that children of poverty also typically experience higher incidences of moderate to severe illness, including: asthma, respiratory infections, tuberculosis, ear infections and hearing loss, and obesity.⁶¹ These and other health-related issues associated with poverty can cause children to miss more school days or be absent for longer periods of time, increase tardiness, and can lead to greater incidents of sickness during class time – all of which contribute to and exacerbate achievement differentials between children from low-income homes and their wealthier peers.⁶²

⁶⁰ Adapted from: Ibid.

⁶¹ Jensen, Op. cit.

⁶² Ibid.

SECTION II: STRATEGIES FOR MITIGATING THE IMPACTS OF POVERTY

This section addresses effective or promising instructional strategies and school- and district- practices designed to improve outcomes for low-income students. In particular, this section focuses on how teachers, schools, and districts can best close the income-achievement gap.

INSTRUCTIONAL STRATEGIES

No single set of teaching strategies has been shown to be effective in all low-income schools. However, data suggest that **the combination of rigorous curricula and student-centered teaching strategies may improve student achievement and reduce detrimental social and behavioral outcomes** (Figure 2.1).⁶³ Often, teachers in low-income schools lower their expectations or standards in order to reflect the perceived qualities of students from impoverished homes. Yet, like their more affluent peers, “low-income youth learn best at schools in which pedagogy is driven by high academic expectations for all students – where standards are [not] lowered based on socioeconomic status.”⁶⁴

Figure 2.1: Overview of Recommended Strategies for Teachers in Low-Income Classrooms

RECOMMENDATION	DESCRIPTION
Express high expectations through higher-order, engaging pedagogies.	“Learner-centered” teaching strategies are better suited to engage low-income students by enabling them to more personally and actively participate in school (e.g., learner-centered activities can involve students telling/writing stories about themselves and their lives). Teachers should maintain high standards for low-income students, and avoid lowering them to accommodate high-poverty classrooms.
Enhance family involvement.	Parents and guardians of low-income students often have to work longer hours or multiple jobs or do not have the ability to take time off. Therefore, it is essential that schools in high-poverty areas make opportunities for involvement for parents accessible to diverse and/or nontraditional schedules.
Incorporate arts into instruction.	Schools and classrooms can reach out to local artists or musicians to enhance the arts offerings at low-income schools, many of which are the first programs cut in favor of writing or math classes. Students from low-income families can benefit disproportionately from exposure to the arts because unlike more affluent peers, families in poverty often are unable to afford extracurricular opportunities in art, theater, or music.

⁶³ Gorski, P.C. “Building a pedagogy of engagement for students in poverty.” Kappan, September 2013. p.50. <http://www.edchange.org/publications/PDK-Pedagogy-of-Engagement.pdf>

⁶⁴ [1] Adapted by: Gorski, Op. cit., p.50.

[2] Original findings from: Ramalho, E.M., Garza, E., & Merchant, B. “Successful School Leadership in Socioeconomically Challenging Contexts: School Principals Creating and Sustaining Successful School Improvement.” *International Studies in Educational Administration*, 38, November 2010. Accessed via EBSCOHost.

RECOMMENDATION	DESCRIPTION
Incorporate movement into instruction.	Poor schools often lack the resources to provide appropriate physical education or athletic programs for students, a shortcoming that is exacerbated by the inability of low-income families to fund extracurricular opportunities for children. Because “students who are physically fit fare better in school,” teachers can help improve achievement by allowing students to move day-to-day.
Focus intently on student and family strengths.	Teachers in high-poverty schools can subconsciously develop a “deficit view” of students, which drives down performance and job satisfaction. Indeed, when teachers maintain high expectations and highlight student strengths, student achievement rises and teachers report that they are happier.
Analyze materials for class bias.	It is important to avoid stereotyping low-income students and families, who are often portrayed in “stereotypical ways in picture books and other learning materials.” Resources such as the National Association for the Teaching of English Working Party on Social Class and English Teaching can help guide teachers and administrators in avoiding unintentional biases.
Promote literacy enjoyment.	“This means literacy instruction should not focus solely on mechanics and should avoid practices that give students negative associations with literacy, such as forcing them to perform literacy skills publicly.”
Reach out to families early and often.	Often, parents of low-income students grew up in poverty themselves, and are either uncomfortable or unfamiliar with the school system. It is a vital responsibility of the teachers of students from poverty to engage parents and build positive relationships of trust through persistent communication.

Source: Gorski; “Building a pedagogy of engagement for students in poverty.”⁶⁵

STUDENT-CENTERED LEARNING

Student-centered instruction is a pedagogy frequently used by low-income schools to encourage higher performance from students. In a study of schools comprised predominately of low-income students throughout California, researchers found that the student-centered teaching approach was more suited to meet the needs of students from impoverished homes with regards to the development of important skills, a strong foundation in essential knowledge, and increased college preparedness.⁶⁶ This model was successful by either integrating “rigorous academics with career-based learning and real-world workplace experiences” or creating “personalized learning environments for students to develop 21st century skills.”⁶⁷ According to the Center for Reinventing Public Education (CRPE), core principles of student-centered learning include: **1) personalized instruction; 2) authentic instruction; 3) mastery-based assessment; 4)**

Low-income youth learn best when pedagogy is driven by high academic expectations for all students – where standards aren’t lowered based on socioeconomic status.

⁶⁵ Adapted from: Gorski, Op. cit., pp.50-51.

⁶⁶ Friedlaender, D. et al. “Student-Centered Schools: Closing the Opportunity Gap.” Stanford Center for Opportunity Policy in Education, June 2014. p.1. <https://edpolicy.stanford.edu/sites/default/files/scope-pub-student-centered-research-brief.pdf>

⁶⁷ Ibid.

learning that reaches beyond the school walls; and 5) learning models that change the school schedule.⁶⁸

Student-centered classrooms “create a context within which rich, engaging curriculum is offered to all students in a manner that personalizes education and supports students’ individual needs.”⁶⁹ This model of instruction is particularly beneficial to students from low-income families, for many of whom the traditional “drill-and-kill” approach encouraged by standardized testing does not work.⁷⁰ Indeed, the fact-driven model espoused by No Child Left Behind (NCLB) and other contemporary education initiatives can overlook the learning needs of some students. For low-income students in particular, the student-centered approach helps underachieving learners acquire the specialized set of skills and knowledge base required to enter the labor market by overcoming the “narrow and impoverished” curricula prevalent in high-poverty schools.⁷¹

Schools and classrooms that incorporate key elements of student-centered learning are “more likely to develop students who have transferrable academic skills; feel a sense of purpose and connection to school; as well as graduate, attend, and persist in college at rates that exceed their district and state averages.”⁷² These key components include:

- Curriculum, instruction, and assessments that are designed to help students engage in the learning process and **develop analytical, collaboration, and communication skills**. Formative assessments that enable teachers to understand how and what students are learning so they can support student mastery of content, skills, and dispositions.
- School structures that **support personalization and connections to adults** within the school and to the community outside of school. Teachers should work together to focus on students’ strengths, interests, and needs; to engage in their own learning; and to collaborate on the improvement of their instructional practices.
- Leadership that is shared among the adults in the building with a specific focus on **incorporating the voices of teachers, staff, administrators, and parents** in key decisions.⁷³

Student-centered learning further works to bolster the achievement of students from poverty by providing them with more autonomy than traditional learning models. Opportunities for in-class leadership can augment the achievement levels of low-income students by “emphasizing the importance of students connecting with and applying what

⁶⁸ Miller, L.J., Gross, B., & Oujidani, M. “Getting Down to Dollars and Cents: What Do School Districts Spend to Deliver Student-Centered Learning?” Center for Reinventing Public Education, November 2012. p.2. http://www.crpe.org/sites/default/files/pub_scl_dollarsandcents_nov12.pdf

⁶⁹ Friedlaender et al., Op. cit., p.2.

⁷⁰ Ibid.

⁷¹ Ibid.

⁷² Ibid, p.3.

⁷³ Taken verbatim from: Ibid, p.2-3. Emphasis added.

they are learning.”⁷⁴ This increased autonomy is reinforced by the generally stronger relationships that student-centered learning fosters between students and teachers. A key aspect of the success of the student-centered schools in California is the teachers’ ability to build substantive relationships with the students. This naturally allows instructors to “tailor their interactions to meet individual students’ strengths, interests, and needs.”⁷⁵ Because a main goal of student-centered learning is to decrease class size while increasing instruction time, students receive more personalized attention and thus can form substantive bonds with their teachers. For school administrators, this often means increasing the per-pupil expenditures by hiring more teachers to reduce class size.⁷⁶

Figure 2.2: City Arts and Technology High School, San Francisco, California

The City Arts and Technology High School (CAT) enrolls approximately 400 students, 70 percent of which receive free or reduced-price lunch. Despite its high-poverty status, CAT students across all SES and racial/ethnic demographics graduate completing all courses required for college admission (99 percent readiness compared with the district average of 56 percent).⁷⁷ CAT administrators attribute the school’s success to its emphasis on personalization and student-centered activities. Daniel Allen, the school’s principal, boasts, “Our small community of 400 students is remarkably student-centered, from picnics in the park, to parent-teacher conferences each quarter, to excellence assemblies honoring student success. Each student is assigned an academic advisor whose primary responsibility is to help students develop a strong academic identity.”⁷⁸

Indeed, CAT’s student-centered pedagogy enables students to personalize their education in four key ways: “advisory classes, opportunities for student self-exploration, parent engagement, and the ‘small things’ that contribute to the strong teacher-student relationships that undergird the school.”⁷⁹ Advisory classes, operated cohort-style, allow students to meet with an advisor once a week and synthesize their learning, short- and long-term goals, and overall mental and emotional well-being. CAT encourages self-exploration by allowing students to use homework and in-class assignments to pursue individual interests. The school engages parents through semi-annual conferences and proactive outreach that inspires parents to become “collaborative partners.” Finally, teachers at CAT underline the importance of less formal interactions with students as a way to get to know them and in turn, further able to personalize the students’ school experiences.⁸⁰

CREATING A SUPPORTIVE ENVIRONMENT

Addressing potential academic, socio-emotional, and/or behavioral problems in high-poverty schools requires an understanding of how and why such issues arise. It is important to create a learning environment that encourages strong social and emotional skills that complement scholastic achievement.⁸¹ To that end, Jensen developed a series of “action

⁷⁴ Ibid, p.5.

⁷⁵ Ibid.

⁷⁶ Miller, Gross, & Oujidani, Op. cit., p.14.

⁷⁷ Friedlaender et al., Op. cit., p.2.

⁷⁸ Allen, D. “Principal’s Welcome.” City Arts & Tech High School. <http://www.es-cat.org/principals-welcome/>

⁷⁹ Lewis-Charp, H. & Law, T. “Student-Centered Learning: City Arts and Technology High School.” Stanford Center for Opportunity Policy in Education, 2014. p.10.

https://edpolicy.stanford.edu/sites/default/files/publications/student-centered-learning-city-arts-and-technology-high-school_0.pdf

⁸⁰ Ibid, pp.10-15.

⁸¹ Jensen, Op. cit.

steps” that can help to guide teachers in low-income classrooms in creating supportive environments that can foster high performance (Figure 2.3). Research suggests that positive perceptions of school and the school environment can have an affirmative effect on both academic achievement and behavior.⁸² The effects of this supportive classroom climate can alter students’ attitudes toward school, and data suggest that this positive outlook has “a stronger association with grades than social supports from family, friends, or neighbors.”⁸³

The Safe and Civil Schools guidelines embody many of the principles associated with the creation of an effective learning environment for low-income students:

- All students must be treated with dignity and respect
- Students should be taught the skills and behaviors necessary for success
- Motivation and responsibility should be encouraged through positive interactions and building relationships with students
- Student misbehavior represents a teaching opportunity⁸⁴

⁸² Hopson, L.M. & Lee, E. “Mitigating the effect of family poverty on academic and behavioral outcomes: The role of school climate in middle and high school.” *Children and Youth Services Review*, 33, July 2011. Accessed via Elsevier.

⁸³ Ibid, p.2225.

⁸⁴ Taken verbatim from: “Safe & Civil Schools Series Overview.” Randy Sprick’s Safe & Civil Schools. http://www.safeandcivilschools.com/products/scs_overview.php

Figure 2.3: Action Steps to Create a Supportive Classroom Environment**Embody respect.**

- Give respect to students first, even when they seem least to deserve it
- Share the decision making in class
- Avoid such directives as "Do this right now!", instead, maintain expectations while offering choice and soliciting input
- Avoid demeaning sarcasm (e.g., "How about you actually do your assignment quietly for a change?")
- Model the process of adult thinking
- Discipline through positive relationships, not by exerting power or authority

Embed social skills.

- Teach basic but crucial meet-and-greet skills (e.g., introductions, eye contact, etc.)
- Embed turn-taking in class
- Remind students to thank their classmates after completing collaborative assignments
- Implement social-emotional skill building programs in the early years

Be inclusive.

- Always refer to the school as "our school" and the class as "our class" and avoid using the me-and-you model that reinforces power structures
- Acknowledge students who make it to class, and thank them for small things
- Celebrate effort as well as achievement; praise students for reaching milestones as well as for fulfilling goals

Alter the environment to reduce stressors.

- Reduce parallels with prison (e.g., play music for class transition instead of bells)
- Reduce homework stress by incorporating time for homework in class
- Use cooperative structures that avoid a top-down, authoritarian approach
- Help students blow off steam by incorporating celebrations, role-plays, and physical activities
- Incorporate kinesthetic arts, creative projects, and hands-on activities into your classes

Empower students.

- Introduce conflict resolution skills and teach students how to deal with anger/frustration
- Introduce responsibilities and the value of giving restitution, as well as stress reduction techniques (both physical and mental)
- Teach students to set goals and focus on what they want
- Give students a weekly life problem to solve collectively

Source: Jensen; "How Poverty Affects Behavior and Academic Performance"⁸⁵

⁸⁵Adapted from: Jensen, Op. cit.

CONSIDERATIONS TO REDUCE ACHIEVEMENT GAPS

Reducing the growing income achievement gap requires a multifaceted approach from districts and policymakers. As Reardon notes, reforms need to encompass “[e]conomic policies that reduce inequality; family support policies that ensure children grow up in stable, secure homes and neighborhoods; and early-childhood education policies that promote cognitive and social development.”⁸⁶ Schools play an important, but currently modest, role in equalizing the opportunities between children from low- and high-income families. The characteristics of school and learning programs can have long-term effects for students, particularly those coming from impoverished households. The role of schools, then, is critical to ensuring all students reach comparable levels of achievement regardless of socioeconomic situation – especially as the United States lags behind many other developed countries in terms of intergenerational mobility.⁸⁷ However, schools can and do play an important role in supplementing national and/or local policies by identifying key strategies that can effectively minimize income gap disparities:

- First, states and school districts could devote a **greater share of their resources and efforts** to the earliest grades, including kindergarten and preschool. Because achievement gaps are self-perpetuating, the earlier [schools] intervene to reduce them, the more effective [they] will be at eliminating them in the long run.
- Second, growing evidence suggests that **more time in school** (for example, extending the school day or year or providing after-school or summer-school programs) may help to narrow academic achievement gaps...
- Third, states and school districts can do more to ensure that all students have equal **access to high-quality teachers**, stimulating curriculum and instruction, and adequate schools resources.⁸⁸

As Schwartz summarizes, a “core assumption that underlines each of [these] recommendations is that poverty [...] is inherently destabilizing. Thus anti-poverty policies – whether in health, housing, education – should share the goal of increasing stability as a necessary condition for improvement.”⁸⁹ Teachers and administrators are challenged to continually address lagging students from low-income families while simultaneously dealing with increased turnaround, student absenteeism, and higher rates of school failure. These issues exacerbate the fragmentation and volatility that is present in many high-poverty schools.⁹⁰

⁸⁶ Reardon, Op. cit.

⁸⁷ Schwartz, H. “Proposed educational innovations to reduce income-based achievement gaps.” RAND Corporation, March 2014. p.2. https://socialinnovation.usc.edu/files/2014/03/Schwartz_Reduce-Income-Based-Achievement-Gaps.pdf

⁸⁸ Taken verbatim from: Reardon, Op. cit. Emphasis added.

⁸⁹ Schwartz, Op. cit., p.3.

⁹⁰ Ibid.

EARLY CHILDHOOD EDUCATION

High-quality pre-kindergarten education is increasingly becoming a staple of the localities with the highest levels of educational achievement, including Shanghai, Singapore, Finland, and Norway. Research posits that these **pre-kindergarten programs may eliminate up to 20 percent of the achievement gap in elementary education alone.**⁹¹ Pre-kindergarten and full-day kindergarten programs, specifically, are “promising strategies to reduce [the] achievement gap in order to improve student achievement, reduce remedial education costs, strengthen schools, and increase district performance.”⁹² Not only do assessment scores rise when children receive quality early education, but many of the detriments associated with poverty can also be mitigated. In high achieving areas, “institutionalized preschool education is found to increase school-appropriate behavior and cognitive abilities, both which contribute to increased test scores.”⁹³

Students from poverty experience disproportionate benefits from early childhood education.⁹⁴ Evidence suggests that full-day kindergarten is relatively more beneficial for low-income students than for those from higher income families in terms of both academic achievement and social integration. Low SES students that attend kindergarten “exhibit more independent learning, classroom involvement, and productivity with their peers.”⁹⁵ For example, low-income students in Montgomery County, Maryland who were enrolled in full-day kindergarten made the most gains, “surpassing their counterparts in half-day programs offered in more affluent communities.” Likewise, low-income kindergarten students in Philadelphia are observed to perform better than comparable peers in half-day or no kindergarten, and saved Pennsylvania “millions of dollars through significantly reduced grade retention in first, second, and third grade.”⁹⁶

⁹¹ Frede, E. & Barnett, W.S. “Why Pre-K is Critical to Closing the Achievement Gap.” National Association of Elementary School Principals, May 2011. <http://www.naesp.org/principal-mayjune-2011-early-childhood/why-pre-k-critical-closing-achievement-gap>

⁹² “Early Childhood Education: A Strategy for Closing the Achievement Gap.” Early Education for All and Strategies for Children. p.1. http://www.strategiesforchildren.org/eea/6research_summaries/07_AchievementGap.pdf

⁹³ Frede & Barnett, Op. cit.

⁹⁴ “Early Childhood Education: A Strategy for Closing the Achievement Gap,” Op. cit., p.1.

⁹⁵ Ibid, p.4.

⁹⁶ Ibid.

Figure 2.4: Iowa's Every Child Reads 3-5 Initiative

The Iowa Department of Education recently launched the *Every Child Reads 3-5* (ECR 3-5) initiative “to expand the capacity of early care and education systems (including early childhood care and education providers) to use language, reading, and writing strategies to enhance the literacy development of children ages 3 to 5 years.”⁹⁷ The program aims to increase school readiness by ensuring young children receive literacy enrichment before they begin school as kindergarteners. ECR 3-5 combines professional development for teachers and early childcare professionals with training modules for parents and guardians. Training modules for teachers and parents comprise 10 units that introduce the topic of literacy and subsequently guide listeners through various stages of early childhood reading standards and expectations.⁹⁸ Modules for teachers and childcare professionals focus on language, reading, and writing, while those for parents emphasize at-home ways to bolster literacy, such as “Talking with your child,” “Asking questions,” and “Responding to words you child is saying.”⁹⁹

The Washington State Institute for Public Policy (WSIPP) conducted an analysis of the academic and cost effectiveness of early childhood education on the learning outcomes of low-income students (Figures 2.5 and 2.6). Across all program types (i.e., state and/or district pre-kindergarten, Head Start, model program), researchers observed a statistically significant increase in test scores immediately following the completion of pre-kindergarten.¹⁰⁰ There are less data available with regards to long-term measures of student achievement such as high school graduation, grade retention, crime, and teen births, explaining the larger effect sizes for several other categories. Nonetheless, WSIPP’s analysis suggests that early childhood education is beneficial to a number of outcomes on average. **State and/or district pre-kindergarten programs were found to be particularly advantageous for low-income students**, especially in contrast with Head Start programs. State-level early childhood education initiatives generally resulted in higher graduation rates, lower grade retention, lower need for special or enrichment education, and reduced crime and teen birth rates later in life.¹⁰¹

⁹⁷ “Every Child Reads 3-5.” Iowa Department of Education. <https://www.educateiowa.gov/pk-12/early-childhood/every-child-reads-3-5>

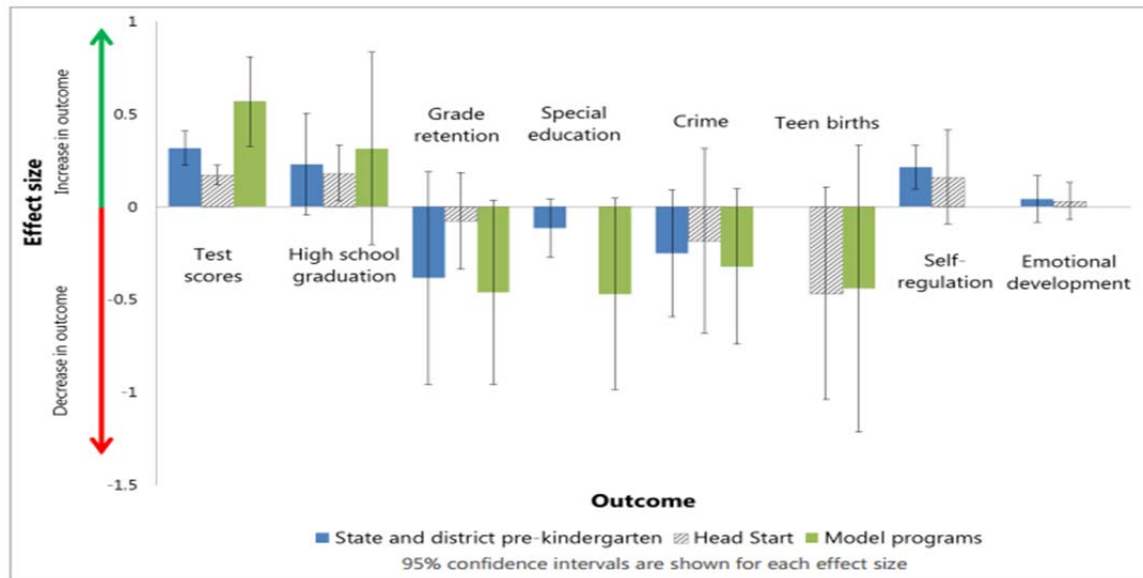
⁹⁸ “Summary of Every Child Reads: Excellence in Teaching and Learning Professional Development Materials.” Iowa Department of Education. <https://www.educateiowa.gov/sites/files/ed/documents/ECRSummary.pdf>

⁹⁹ “Every Child Reads 3-5,” Iowa Department of Education, Op. cit.

¹⁰⁰ “Early Childhood Education for Low-Income Students: A Review of the Evidence and Benefit-Cost Analysis.” Washington State Institute for Public Policy, January 2014. p.6. http://www.wsipp.wa.gov/ReportFile/1547/Wsipp_Early-Childhood-Education-for-Low-Income-Students-A-Review-of-the-Evidence-and-Benefit-Cost-Analysis_Full-Report.pdf

¹⁰¹ Ibid, p.6.

Figure 2.5: Early Childhood Education Outcomes for Low-Income Three- and Four-Year-Olds



Source: Washington State Institute for Public Policy¹⁰²

To examine the costs and benefits associated with early childhood education, WSIPP studied projected labor market earnings, district and criminal justice expenditures, childcare costs, and health care costs.¹⁰³ Like academic benefits, state and/or district pre-kindergarten programs were found to yield a higher benefits-to-costs ratio, suggesting that schools may consider individualized early childhood education programs in lieu of Head Start.

Figure 2.6: Benefit-Cost Results of Early Childhood Education for Low-Income Three- and Four-Year Olds

PROGRAM	BENEFITS	COSTS	NET PRESENT VALUE (NPV)	BENEFITS-TO-COST RATIO	ODDS OF A POSITIVE NPV
State and/or district program	\$29,210	\$6,974	\$22,236	\$4.20	91%
Head Start	\$22,452	\$8,564	\$13,888	\$2.63	89%

Source: Washington State Institute for Public Policy¹⁰⁴

EVIDENCE-BASED REFORMS

The collection and maintenance of data can act as a “vital supplement” to any reform effort that schools enact to close the achievement gap.¹⁰⁵ Specifically, districts rely on quantitative analysis and evidence-based reforms to pivot initiatives in order to ensure that new or redeveloped programs for low-income students are effective. According to Young and Kirkpatrick, data:

¹⁰² Image reproduced from: Ibid, p.6.

¹⁰³ Ibid, p.7-8.

¹⁰⁴ Ibid, p.7.

¹⁰⁵ Young, M. & Kirkpatrick, R. “The Important Role of Data in Closing the Achievement Gap.” Pearson, 2013.

http://researchnetwork.pearson.com/wp-content/uploads/The_Important_Role_of_Data_in_Closing_the_Achievement_Gap.pdf

- Can and should be used to ground any potential reform efforts by providing insight into previous studies and reform efforts.
- Can be used explicitly identify a school or district’s current gap, and provide insight into appropriate goal-setting/metrics that can be used to measure progress.
- Is used to ensure that progress (or not) is meaningful at the statistical level, which can inform necessary adjustments to policy.¹⁰⁶

For example, many low-income schools rely on grants from state education departments to fund restructuring or redevelopment efforts in order to improve student performance. Currently, approximately 1,500 schools receive grant money from the School Improvement Grant, a federal initiative that funds local education departments’ grants budgets.¹⁰⁷ When schools want to reform curricula, enrichment programs, or other academic and/or extracurricular initiatives, the administration can seek outside funding to supplement internal efforts. However, the majority of grants require evidence-based data to support continued subsidies. Schwartz recommends that grant-awarding agencies lengthen the follow-up period to encourage continuity and allow schools to collect performance metrics and utilize quantitative analytic techniques.¹⁰⁸ The recommendation states that “payment of [a] graduated annual allocation would be conditional on: (a) continued implementation of the original comprehensive school reform; (b) meeting of interim benchmarks that measure the fidelity of the reform; and, (c) *the direct linkage of proposed alterations to evidence from interim benchmarks.*”¹⁰⁹

INCREASED ACCESS TO OPPORTUNITIES

Low-income students generally lack the extracurricular, supplemental, and/or enrichment opportunities and materials to which their more affluent peers have access. For example, among the highest quintile of earners’ children, 94 percent were read to at least three times a week, 85 percent were likely to have a computer at home, and on average, spent 11 hours a week watching television.¹¹⁰ In contrast, among the lowest fifth of earners’ children, only 63 percent were read to at least three times a week, 20 percent were likely to have access to a home computer, and on average, spent 18 hours a week watching television.¹¹¹ This decreased access to opportunities impedes achievement and can lead to unequal academic success in early grades, specifically.

By increasing access to or providing additional opportunities for children from low-income homes, schools may be able to moderate the negative effects of poverty. Evidence suggests that **“high-performing, high-poverty schools consistently find ways to increase their students’ instructional time.** In addition to after-school, weekend, and summer school

¹⁰⁶ Adapted from: Ibid.

¹⁰⁷ Schwartz, Op. cit., p.8.

¹⁰⁸ Ibid.

¹⁰⁹ Ibid. Emphasis added.

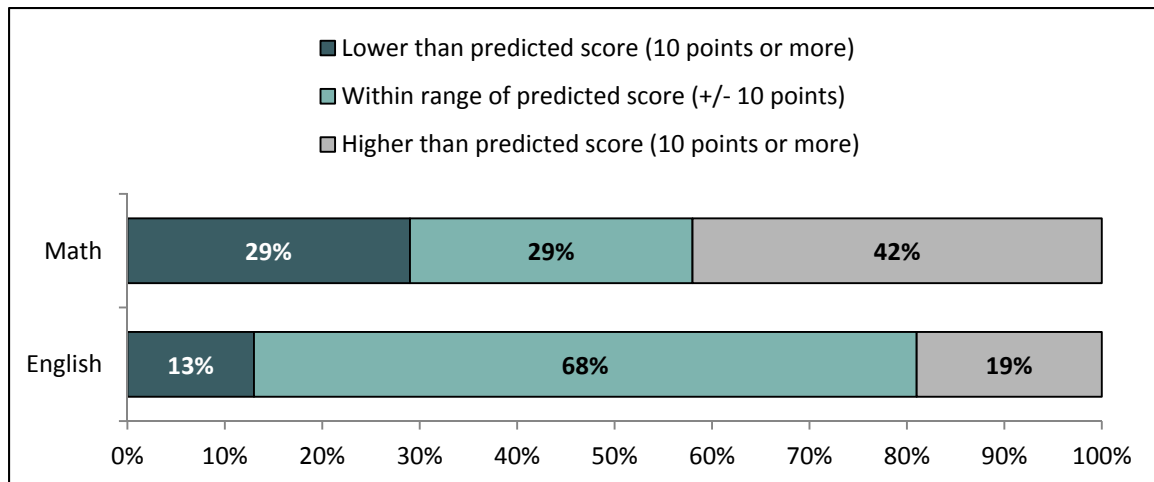
¹¹⁰ “The Effect of Poverty on Student Achievement.” Office of Assessment, Research, and Data Analysis, Miami-Dade County Public Schools, July 2009. p.5. <http://files.eric.ed.gov/fulltext/ED544709.pdf>

¹¹¹ Ibid.

programs, these schools provide disadvantaged students with tutoring and extra instructional support.”¹¹² Summer programs have proven to be especially effective at shrinking the income achievement gap by reducing the disproportionate amount of time that students from low-income households lose during the three-month break on educational or enrichment activities. Indeed, “[r]esearchers have found that approximately half of the achievement gap between children from higher and lower income families at the start of high school is due to the cumulative lack of summer gains among lower income children.”¹¹³

In a comprehensive study of Virginia’s year-round schools, the Joint Legislative Audit and Review Committee (JLARC) found that certain student subgroups scored higher on the Virginia Standards of Learning (SOL) assessments in year-round schedules than comparable peers in traditional schools.¹¹⁴ The study, which examined student achievement between 2001 and 2009, found that low-income and minority students’ SOL scores improved faster at year-round schools than those of their counterparts at traditional schools (Figure 2.7). Sixty-one percent of Virginia’s year-round schools reported that students from poverty scored higher in English than their peers at schools that did not offer summer programs.¹¹⁵ Using a score-prediction model, the JLARC study found “positive effects for both English and math. For example, at 42 percent of year-round schools, the math SOL scores of economically disadvantaged students was 10 points or higher than predicted.”¹¹⁶

Figure 2.7: Average Standardized Test Scores of Economically Disadvantaged Students at Year-Round Schools in Virginia, 2009



Source: Joint Legislative Audit and Review Commission¹¹⁷

¹¹² Ibid, p.17. Emphasis added.

¹¹³ Ibid.

¹¹⁴ “A Review of Year-Round Schools.” Report to the Governor and the General Assembly of Virginia, Joint Legislative Audit and Review Commission, October 2012. p.iii. <http://jlarc.virginia.gov/reports/Rpt430.pdf>

¹¹⁵ Ibid, p.21.

¹¹⁶ Ibid, p.22.

¹¹⁷ “A Review of Year-Round School,” Joint Legislative Audit and Review Commission, Op. cit., p.22.

Another program that may disproportionately benefit low-income students is the provision of service-learning and community service opportunities. These initiatives appear to benefit students from low-income families or in low-performing schools by improving academic achievement and reducing the income achievement gap between high- and low-SES students (Figure 2.8). Researchers analyzed three distinct datasets to reach conclusions and the findings suggest that **“service of only one hour per week among lower-income students was related to significant reduction of the gap in achievement-related assets between higher and lower-income students.”**¹¹⁸

Figure 2.8: Academic Outcomes by Service Involvement and Socioeconomic Groups, 2005

OUTCOME	STUDENTS INVOLVED WITH COMMUNITY SERVICE		STUDENTS NOT INVOLVED WITH COMMUNITY SERVICE	
	HIGHER SES	LOW SES	HIGHER SES	LOW SES
Achievement Motivation	75%	66%	63%	54%
School Engagement	67%	58%	58%	49%
Homework	59%	49%	49%	37%
Bonding to School	62%	55%	48%	39%
Reading for Pleasure	28%	25%	18%	14%
Consistent Attendance	80%	70%	75%	64%
High Grades	29%	11%	22%	8%

Source: Scales & Roehlkepartain; “Can Service-Learning Help Reduce the Achievement Gap?”¹¹⁹

Service learning aids low-income students by emphasizing “shared inquiry,” which blends classroom learning, community life, and thoughtful decision-making; and, by engaging students in a similar way as student-centered learning pedagogies. Primarily, students are able to take “ownership of the cognitive work, and [make an] authentic connection to the ‘real-world’ and community.”¹²⁰ Evidence suggests that for every additional point that a student scores on the “connection to community” criteria, he or she gains a threefold increase in the likelihood of achieving a B+ GPA in high school.¹²¹ In fact, students from low-income homes that participate in community service perform at comparable levels to their high-income peers that do not engage in service learning. However, despite the suggested benefits, only 29 percent of high-poverty schools offer service learning versus 36 percent of other schools, and only 26 percent of students in those high-poverty schools actively participate in the programs.¹²²

¹¹⁸ These data sets include the National Study of Principals, an aggregate study of middle and high school students [n=217,000], and sample of middle and high school students from Colorado Springs [n=5,136]. (See: Scales, P.C. & Roehlkepartain, E.C. “Can Service-Learning Help Reduce the Achievement Gap?” In *Growing to Greatness 2005*, National Youth Leadership Council, 2005. p.10, 16. <http://www.nylc.org/sites/nylc.org/files/files/114AchieveGap.pdf>)

¹¹⁹ Ibid, p.16.

¹²⁰ Ibid, p.14.

¹²¹ Ibid, p.15.

¹²² Ibid.

OUTREACH TO PARENTS

Parent engagement is “increasingly viewed as an essential support to children’s learning in early care and education programs and throughout the school years.”¹²³ However, low-income students often can lack the same support system at home that their more affluent counterparts enjoy, which can hinder academic, behavioral, and/or socio-emotional progress.¹²⁴ Many of the advantages with which children from higher-income households enter school derive from the opportunities provided in their early years, which “suggests that policies intended to equalize children’s opportunities to learn should influence lower-income parents’ involvement, expectations, and actions.”¹²⁵ Thus, low-income schools can positively influence student outcomes by involving parents as much as possible in the education process. Engagement is generally classified in three ways, and schools can help bolster student success by knowing how to reach out to parents uniquely for each:

- **Home-based parent involvement** (e.g., playing games with children that offer learning enrichment)
- **Community activities** (e.g., taking children to the library)
- **School-based parent involvement** (e.g., volunteering in a child care or early grades classroom or attending a parent-teacher conference)¹²⁶

Schools will naturally have the most direct influence over school-based parent involvement, but evidence suggests that the students of parents that combine multiple types of engagement, particularly in early education, tend to exhibit higher levels of achievement. For example, playing with blocks, mazes, puzzles, and counting games at home can augment later math performance and work to complement lesson plans from school.¹²⁷

Research suggests that parent engagement usually decreases after key grade-level transitions (e.g., after pre-kindergarten or after kindergarten).¹²⁸ High-poverty schools can benefit from targeted parental outreach efforts, particularly around these important student transitions. In one study, “children in preschool through first grade whose teachers engaged in more outreach to parents, through invitations to workshops and classroom volunteering, showed greater learning gains, suggesting that outreach may have encouraged greater parent involvement.”¹²⁹ Teachers that were able to form stronger relationships with parents through persistent outreach efforts experienced more parental engagement in school-based activities.

Figure 2.9 outlines five model programs that have been shown to be successful in promoting increased parent engagement and student outcomes among low-income cohorts. These

¹²³ Smith, S. et al. “Parent engagement from preschool through grade 3: A guide for policymakers.” National Center for Children in Poverty, September 2013. p.3. http://www.nccp.org/publications/pdf/text_1084.pdf

¹²⁴ Hopson & Lee, Op. cit., p.2225.

¹²⁵ Schwatz, Op. cit., p.11.

¹²⁶ Taken verbatim from: Smith et al., Op. cit., p.4.

¹²⁷ Ibid, p.4-5.

¹²⁸ Ibid, p.7.

¹²⁹ Ibid.

programs have been specifically designed to engage parents in early childhood education (i.e., preschool through third grade).

Figure 2.9: Promising Models for Increasing Parental Engagement in Low-Income Families

MODEL	DESCRIPTION
The Companion Curriculum	Intervention parents were invited to attend a monthly teacher-led workshop in which they observed a teacher demonstration of early learning activities and then practiced the activities with their children. Activities included play and conversation to promote children’s social-competence; story-telling and reading to promote language skills; and math experiences such as counting, sorting, and adding. Participants received dinner and transportation assistance. Parents in the intervention group reported increases in their reading to children while parents in the comparison group reported declines in parent-child reading over the year. Children of parents in the intervention group were found to have stronger vocabulary knowledge and social-emotional skills.
Family Mathematics Curriculum	Intervention parents were invited to attend eight Saturday classes with their child over a four-month period. The parent-child pairs sat at tables and were given materials for a math activity. After teachers demonstrated teaching the child the activity, the parents tried out the activity with their child as teachers provided guidance. For example, the teachers helped parents learn to support their child’s completion of tasks at a lower level before moving to more advanced activities. In both groups, teachers had the same ethnic/racial background as parents. A teacher liaison was assigned to contact participating parents before each class to identify barriers to their attendance. The program addressed barriers by providing child care at the class, arranging carpools to help with transportation, and encouraging mothers to send another family member to the class if she could not attend.
Getting Ready Intervention	This model aimed to help parents increase their warm, sensitive engagement with children; become aware of their child’s strengths; identify natural learning opportunities in the home; understand early development; and gain skills in using positive, responsive strategies for supporting children’s learning. Teachers conducted five home visits annually over two years and used supportive discussion, child observation, and modeling to promote parents’ engagement with children. Teachers were also trained to use these strategies in interactions with parents at school. After two years, children in the intervention group were rated by teachers as showing stronger attachment to adults and more assertiveness and self-direction.
Abriendo Puertos/ Opening Doors	This program is designed for Latino parents of children birth to age 5 and delivered in 10 sessions by trained community educators in school and community settings. The curriculum, which is available in English and Spanish, covers a range of topics that includes not only strategies parents can use to promote their children’s language, social-emotional, and literacy skills, but also parents’ wellness, and parent problem-solving and advocacy skills that can help them obtain important supports for their children and family. Parents showed significant gains in their understanding of ways they could promote their children’s ability to express and regulate their feelings and support their language and literacy skills.

MODEL	DESCRIPTION
<p>Incredible Years Parent Program</p>	<p>In this model, parents of children identified as being at mild to moderate risk for behavior problems attended parent sessions focused on parenting skills to help manage children’s challenging behavior and foster their social-emotional, communication, and problem-solving skills. The program also provided guidance to parents on strategies for promoting children’s language and reading skills and collaborating with teachers to support children’s success in school. During the interactive sessions, trained facilitators led discussion and role-plays. Parents also watched videos showing culturally diverse parents engaging in activities that promote children’s social and academic competence. Home assignments encouraged practice of new activities and parenting strategies. Transportation, meals, and child care were provided to help encourage parent attendance.</p>

Source: National Center for Children in Poverty¹³⁰

Schools can invest resources in key initiatives that will target low-income parents, such as informational coaching or public education and awareness campaigns.¹³¹ Both these options, on which many of the above models are based, represent cost-effective and sustainable solutions for low parental involvement. This is true because “[e]ven if campaigns to alter family practices were low impact, so long as those impacts were widespread and the cost of implementation relatively low...”, schools could reach an array of potential applicants and increase the opportunities to influence parent engagement.¹³²

Figure 2.10: Irving Independent School District, Texas

Irving Independent School District (IISD) is located in Texas and serves a student population that is 69 percent Latino and 80 percent of its students come from low-income households.¹³³ Despite the adverse conditions facing the majority of IISD’s students, the district operates schools that “achieve an ‘exemplary’ state rating by meeting the 90 percent passing standard required without the generous aid of loopholes.”¹³⁴ Schools attribute success, in part, to their parental outreach efforts that engage students’ parents in the learning process by familiarizing them with support techniques. For example, at John Haley Elementary School, teachers offer semi-monthly lessons for parents in topics “such as preparing children for the transition to middle school and teaching the adults math lessons so they can teach their children.”¹³⁵ Furthermore, many of these programs are offered in both Spanish and English to accommodate the district’s sizable Latino population (the “Parents” page on the IISD website is also bilingual¹³⁶). Past parent outreach efforts have included: Drug and Violence Awareness summit, Anti-Bullying parent programs, Find a Tutor for Your Child guidance, and a series of Strong Kids/Strong Schools videos.¹³⁷

¹³⁰ Taken almost verbatim from: Ibid, p.8-10.

¹³¹ Schwartz, Op. cit., p.3-4.

¹³² Ibid, p.11.

¹³³ Unmuth, K.L. “Irving ISD faces challenges as poverty grows in inner-ring suburb.” *The Dallas Morning News*, January 2011. <http://www.dallasnews.com/news/education/headlines/20100718-irving-isd-faces-challenges-as-poverty-grows-in-inner-ring-suburb.ece>

¹³⁴ Unmuth, K.L. “High-poverty Irving elementary school is rich in success, earns exemplary rating.” *The Dallas Morning News*, November 2010. <http://www.dallasnews.com/news/education/headlines/20100914-High-poverty-Irving-elementary-school-is-189.ece>

¹³⁵ Ibid.

¹³⁶ “Parents.” Irving Independent School District. <http://irvingisd.net/education/school/school.php?sectiondetailid=9646&>

¹³⁷ “Resources for Parents.” Irving Independent School District. <http://irvingisd.net/education/components/scrapbook/default.php?sectiondetailid=25994>

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