

Early Childhood Education: A Strategy for Closing the Achievement Gap

“The achievement gap can be considerably minimized with exposure to high-quality pre-kindergarten.”

Closing Achievement Gaps: Future of Children Policy Brief, Spring 2005

The achievement gap refers to a significant disparity in educational success between groups of children: low-income and minority children as compared to higher-income and non-minority children. The achievement gap exists when children enter kindergarten. Current educational policy has focused on measures in K-12 education to alleviate the achievement gap such as high curriculum standards, reduced class sizes, higher teacher quality, and test-based accountability. However, the achievement gap continues to persist. On a national level, the National Assessment of Educational Progress' National Report Card shows that white and high-income children have consistently outperformed minority and low-income children on math and reading tests from 1992 to 2005.¹ Research demonstrates that high-quality pre-kindergarten and full-day kindergarten are promising strategies to reduce this achievement gap in order to improve student achievement, reduce remedial education costs, strengthen schools, and increase district performance.

The Key to Closing the Achievement Gap is Closing the Readiness Gap

The latest research shows that the achievement gap has deep roots that begin long before school entry.² Forty-six percent of kindergarten teachers report that over half of the children in their classrooms have problems following directions and working in a group.³ Children from low-income families score lower on academic tests prior to kindergarten than children from high-income families.⁴ Similarly, minority children, who are three times more likely than their peers to grow up in poverty⁵, score lower on academic tests prior to kindergarten than their peers. In addition, low-income children are more likely to face environmental and health risk factors which present obstacles to school readiness.⁶

Research shows that the achievement gap that exists in kindergarten tends to widen through the school years: young children who enter school behind their peers are unlikely to ever catch up⁷, resulting in a persistent “achievement gap.”

These findings have led many states to focus their efforts to close the achievement gap on investing in high-quality pre-kindergarten. Currently, three states have universal pre-kindergarten and 15 states are moving toward it. In FY07,

Early Learning Benefits All Children

Children from all ethnic, racial and economic backgrounds benefit from high-quality early childhood education.

- Research suggests that universal programs are more effective at reaching at-risk children than programs targeted at low-income families.
- High-quality early education increases the early reading and math skills in all children. The effects are somewhat greater for disadvantaged children.
- Universal pre-kindergarten has been found to improve the school readiness skills of children from all economic, ethnic and racial backgrounds.

Universal pre-kindergarten reaches children from all backgrounds and ensures that all children enter school ready to succeed.

Source: Barnett, W.S., Brown, K. & Shore, R. The Universal vs. Targeted Debate: Should the United States Have Preschool for All? Preschool Policy Matters, April 2004.

36 states increased investments in pre-kindergarten education to bring total national spending to \$4.8 billion.

Early Education Benefits All Children and Helps Narrow the Achievement Gap for Low-Income and Minority Children

Research demonstrates that high-quality early education improves the school readiness of children from all ethnic, racial and economic backgrounds, with disproportionate benefits to low-income and minority children.⁸ Several studies have found that well-funded, well-designed, and well-staffed pre-kindergarten programs can improve the academic achievement and long-term outcomes of low-income and minority children.

- A June 2007 follow-up study of pre-kindergarten programs in New Jersey's 31 highest poverty districts, known as the Abbott districts, shows that children who attended the program improved in language, literacy and math skills. These achievement gains were sustained through the kindergarten year, leading to a narrowing of the achievement gap. In fact, kindergarteners who attended the Abbott program closed more than 50% of the gap between their literacy scores and the national average. New Jersey was the first state in the nation where the courts decided that educationally “at-risk” children are entitled to an early education. The 1998 Abbott v. Burke decision formally established “well-planned, high-quality preschool” as a constitutional right for all three- and four-year olds in New Jersey's 31 poorest school districts.

Enrollment in the Abbott program has steadily increased from 5,000 children in 1998 to over 40,000 children in 2006. The Abbott Preschool Program is delivered through a mix of public school district and private, community based providers. In addition, state legislators designated an additional 101 low-income school districts as part of the Early Childhood Program Aid (ECPA) system, and school districts must provide voluntary full-day kindergarten and half-day pre-kindergarten for four-year-olds.

- A 2002 study did a 15-year follow up study of 1,539 low-income children, a portion of whom participated in Chicago’s Child-Parent Center’s high-quality early education program in 1985-1986. The study measured children’s school readiness and achievement, grade retention, special education placement, and delinquency over 16 years. By age 13, school achievement scores were 60% higher in the Child-Parent Center group than in the control group. At age 20, preschool participants had a significantly higher rate of high school completion and a lower dropout rate. Participating children were 40% less likely to be placed in special education or be held back a grade, and 30% more likely to graduate from high school.
- In 1972, the Abecedarian Project placed 111 infants from low-income North Carolina families in a high-quality early education and care program with individualized education interventions or in a comparison group. Children received the intervention from infancy through age 5. Participants’ development was monitored over 20 years and measured at ages 12, 15, and 21. Evaluations revealed benefits including increased IQ by age 12, lower grade retention rates, higher reading and math scores and decreased use of special education services. They were also more likely to complete more years of education and more than twice as likely to attend a four-year college.
- The High/Scope Perry Preschool study, begun in 1962 in Ypsilanti, Michigan, tracked 123 high-risk three- and four-year-olds over 25 years, half of whom were placed in high-quality preschool classes with comprehensive services. Researchers found that preschool participants had higher income levels, greater educational achievement and more socially responsible behavior.

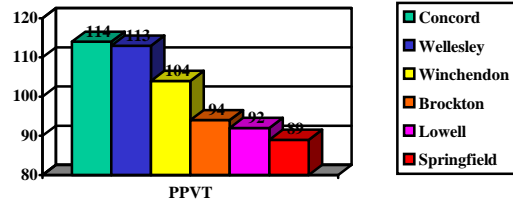
While research shows that all children benefit from a high-quality early childhood education, children from minority and low-income families consistently show the greatest magnitude of improvement in early education settings. Yet, low-income and minority students are the least likely to be enrolled in early childhood education programs of high quality.⁹

The Achievement Gap in Massachusetts

Research conducted in the course of the Hancock vs. Driscoll education equity case shows that kindergarteners from wealthier communities such as Concord, Wellesley and Winchendon scored higher than children from lower income, more diverse communities—Brockton, Lowell and

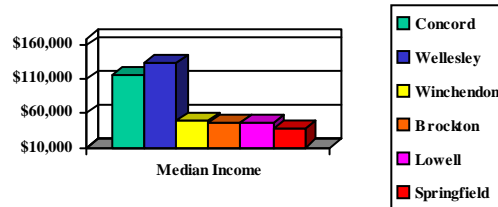
Springfield—on the Peabody Picture Vocabulary Test (PPVT). PPVT is a recognized measure to assess young children’s language ability.¹⁰ These six communities were selected by the court as school districts representative of the Commonwealth’s.

PPVT Score by District Spring of Kindergarten Year



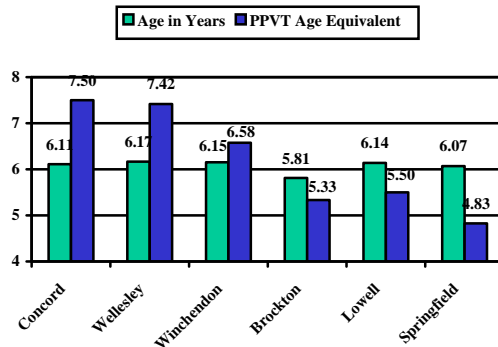
The school districts with the higher test scores were also the school districts with the higher median incomes. The Massachusetts state median income for a four-person family in 2006 is \$82,561.¹¹

Median Income for a Family by Town



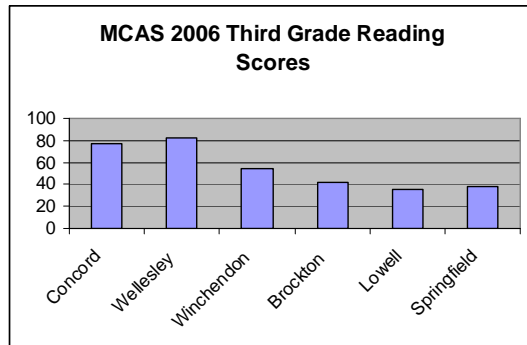
Children from wealthier communities scored well above their chronological age level, while children from the poorer communities scored significantly below their actual age.¹²

Age and Age Equivalent PPVT Scores in Kindergarten by School District



In an analysis of the same districts using more recent student achievement data from the Massachusetts Comprehensive Assessment System (MCAS) tests, third-grade MCAS reading scores demonstrate that the wealthier communities continue to outperform the lower income,

more diverse communities. Thus, third-grade reading scores are predictive of later academic achievement.



The Massachusetts Comprehensive Assessment System (MCAS) was implemented in response to the Education Reform Law of 1993, which required that MCAS be designed to:

- Test all public school students across the Commonwealth, including students with disabilities and students with limited English proficiency
- Be administered annually in selected grades
- Measure performance based on the learning standards in the Massachusetts Curriculum Frameworks
- Report on the performance of individual students, schools, and districts
- Serve as one basis of accountability for students, schools, and districts

MCAS tests fulfill the requirements of the federal No Child Left Behind (NCLB) law. NCLB requires annual assessments in reading and mathematics for students in grades 3-8 and high school.

Additionally, the 2005 National Assessment of Educational Progress' Massachusetts Report Card shows that white and high-income children consistently outperform minority and low-income children on math and reading tests in grades 4 and 8.¹³ Massachusetts, like the rest of the nation, faces an educational achievement gap for its low-income and minority children.

Other States Taking the Lead

Some states are seeking to improve student performance and narrow the achievement gap by addressing young children's school preparedness. Emerging research links universal preschool programs to improving the school readiness of low-income and minority children as well as of those from higher income and non-minority families:¹⁴

- Georgia was the first state to offer publicly-funded pre-k to all four-year-olds, thanks to the leadership of former Governor Zell Miller and revenues from the state lottery. Legislation creating universal pre-k passed in 1993 and the program was open to all four-year-olds in 1995. The

six-and-a-half hour per day program serves (with Head Start) about 58% of Georgia's four-year-olds.¹⁵

- Oklahoma's Legislature initiated a universal pre-k program in 1998 by financing it as part of the K-12 funding formula. Over 70% of four-year-olds participate

Early Learning and the Federal Government

The federal government understands the importance of children's early learning on later achievement and has initiatives in place which address the readiness gap young children face as they enter school:

- Head Start is a federally funded program begun in 1965. Each year, over 800,000 preschool-age children from low-income families, with diverse backgrounds and needs, attend Head Start classrooms or home service. Head Start's comprehensive approach focuses on social competence and school readiness. Head Start programs reach an estimated 5% of preschool aged children in Massachusetts.
- In 2002, the Bush Administration introduced the *Good Start, Grow Smart* initiative. The goal of the program is to help children start school ready to learn. To meet this goal, the program focuses on standards, professional development and reading skills. Thus far, the *Good Start, Grow Smart* initiative has primarily aimed to increase quality in Head Start classrooms. In 2006, the program provided Massachusetts with a \$3.4 million grant to improve the language and pre-reading skills of young children.

Preparing all children for the demands of school would help to close the achievement gap.

Source: "What is Head Start?" Southern Illinois University Edwardsville East St. Louis Center: http://www.siu.edu/ESL/hs/what_is.htm; Administration of Child and Families: Head Start Bureau. The Head Start Child Outcomes Framework, 2000 and "What is Head Start?" Southern Illinois University Edwardsville East St. Louis Center: http://www.siu.edu/ESL/hs/what_is.htm; Administration of Child and Families: Head Start Bureau. The Head Start Child Outcomes Framework, 2000

in the program, which is offered by 93% of Oklahoma's 544 school districts. While school districts are the grantees, districts can subcontract with community-based providers to offer the program. The program runs for a minimum of two-and-a-half hours per day, but providers can offer up to six hours per day and receive a higher reimbursement rate.

- In 2004, Florida voters passed a ballot initiative and the Legislature passed a bill to provide publicly-funded, voluntary pre-k for every four-year-old in the state beginning in August 2005. Most academic year programs operate for three hours per day; summer programs operate for eight hours per day. Currently, nearly 56% of four-year-olds participate in the *Voluntary Prekindergarten Program*.
- In 2006, Illinois, became the first state to provide universal pre-kindergarten to both three- and four-year-olds. *Preschool for All* is funded through the Early Childhood Block Grant. The universal program provides at least two and a half hours per day per child and requires teachers to hold a bachelor's degree and training in early education.

Recent evaluations of preschool initiatives in Georgia and Oklahoma have shown positive cognitive, social and emotional and language outcomes for participating children, especially those from low-income and minority backgrounds.

Full-day Kindergarten and the Achievement Gap

Full-day kindergarten is another promising intervention for closing the achievement gap. Research has conclusively demonstrated the benefits – socially and academically – of full-day kindergarten. Several studies have documented that children in full-day classrooms exhibit more independent learning, classroom involvement and productivity with their peers. While children in half-day kindergarten experience school readiness benefits as well, children who attended full-day programs tend to be better prepared for primary-grade learning than those in half-day programs.¹⁶

Children from low-income and educationally disadvantaged backgrounds who attend full-day kindergarten programs show lasting academic and behavioral benefits and are less likely to need remedial instruction or special education in later schooling.

- An evaluation of children in Montgomery County Maryland found that lower-income children in full-day kindergarten made the greatest gains, surpassing their counterparts in half-day programs offered in more affluent communities.
- A study of 17,600 Philadelphia children found that full-day kindergarten helped children from low-income families perform better and saved the school district millions of dollars through significantly reduced grade retention in first, second and third grade.¹⁷

High-quality pre-kindergarten experiences followed by full-day kindergarten offer all children, and especially those at-risk, a strong foundation on which to build future success.

Closing the Achievement Gap in Massachusetts Today

In order to improve student achievement and address the gap in achievement between low-income and minority children as compared to higher-income and non-minority children, Massachusetts must address the school readiness gap. Children from lower-income, diverse communities are less ready on average for kindergarten than children from other communities.

Although most of Massachusetts' young children currently participate in some sort of pre-kindergarten program, not all children have access to an early education environment that optimizes their healthy development – an environment that includes high-quality program standards, well-trained and compensated teachers, and the use of a developmentally appropriate curricula. For example, only 43% of preschool slots are accredited by National Association of Early Young Children or National Association of Family Child Care. Moreover, recent studies conducted in Massachusetts have

shown that early education programs serving predominately low- and moderate-income families were rated as lesser in quality than those serving moderate to high-income families.¹⁸

Early education must be part of the state's coordinated

K-12 and the Achievement Gap in Massachusetts

The No Child Left Behind (NCLB) Act has accelerated the urgency of closing the achievement gap. States, districts and schools must make adequate yearly progress toward having all students proficient in reading and mathematics by the 2013-14 school year. The accountability measure – Adequate Yearly Progress (AYP) – is driven by annual targets to meet this goal. The law specifies rewards for districts and schools that make progress, as well as corrective actions for those that persistently fail to improve.

Massachusetts has addressed NCLB and the achievement gap in K-12 education system:

- The Massachusetts Department of Education has developed a comprehensive web-based system, the Information Management System (IMS), to replace the paper-based data collection and information exchange system between the department and a school district.
- Massachusetts requires teachers to have passed a test demonstrating basic skills in reading, writing and math prior to receiving a teaching certificate. For all grade levels, Massachusetts requires a subject-area major rather than a major in education.
- Massachusetts requires middle and secondary school teachers to hold a bachelor's degree plus 24 semester hours, or other experience, that addresses the competencies designated by the certificate.
- Massachusetts requires teachers in schools identified as low performing to take subject-matter exams.

Source: No State Left Behind: The Challenges and Opportunities of ESEA 2001, Education Commission of the States, 2002.

effort to close the achievement gap in order to improve student achievement, reduce remedial education costs, strengthen schools, and increase district performance.

Legislation is currently pending in Massachusetts to make high-quality pre-kindergarten universally available by 2012. *An Act Relative to Early Education and Care* (H.3776) begins with a phase-in plan for low-income children. The plan calls for the implementation of high-quality program standards to ensure children are learning and builds on current public and private early childhood programs. More than 50% of the children in the state's pilot program, Massachusetts Universal Pre-kindergarten Program, live in families with incomes at or below 85% of the Standard Median Income.

In June 2007, Massachusetts Governor Deval Patrick announced his "School Readiness Project," laying the foundation for his cradle-to-career education plan. He has charged the Project with developing a phase-in plan for high-quality universal early education for three- and four-year olds and full-day kindergarten to the children of the Commonwealth. The research supports these investments as effective and necessary to minimize the achievement gap and prepare all students for success in school and beyond.

¹National Assessment of Educational Progress website: http://nationsreportcard.gov/reading_math_2005/

²Haskins, R. & Rouse, C. "Closing Achievement Gaps" *The Future of Children*. Policy Brief: Spring 2005.

³Rouse, C., Brooks-Gunn, J., & McLanahan, S. "Introducing the Issue." *School Readiness: Closing the Racial and Ethnic Gaps*, 15, 1. Spring 2005.

⁴Duncan, G. J. & Magnuson, K. A. "Can Family Socioeconomic Resources Account for the Racial and Ethnic Gaps in Test Scores?" *School Readiness: Closing the Racial and Ethnic Gaps*, 15, 1. Spring 2005.

⁵Kids Count Massachusetts Data Book, 2007. Available: http://www.kidscount.org/sld/db_summary.jsp

⁶Ibid.

⁷Coley, R. J. "An Uneven Start: Indicators of Inequality in School Readiness." Princeton, N.J.: Educational Testing Service Policy Center, 2002; West, J., Denton, K., and Reaney, L. "The Kindergarten Year: Findings from the Early Childhood Longitudinal Study, Kindergarten Class of 1998–99." Washington, D.C.: National Center for Education Statistics, 2001.

⁸Gormley, W.T. et al. "The Effects of Universal Pre-K on Cognitive Development." *Developmental Psychology*, 41 (6) 2005.

⁹Duncan, G. J. & Magnuson, K. A. "Can Family Socioeconomic Resources Account for the Racial and Ethnic Gaps in Test Scores?" *School Readiness: Closing the Racial and Ethnic Gaps*, 15, 1. Spring 2005.

¹⁰Ukrainetz, T.A. & Bromquist, C. "The Criterion Validity of Four Vocabulary Tests Compared with a Language Sample." *Child Language and Teaching Therapy*, 18, 1. February 2002.

¹¹US Census Bureau. <http://www.census.gov/hhes/income/4person.html>

¹²Barnett, W.S. http://www.startingat3.org/_documents/Barnett%20PPVT%20Score%20by%20District%20%20MA1.ppt

¹³National Assessment of Educational Progress National Report Card, 2005. State Comparisons in Reading: http://nces.ed.gov/nationsreportcard/nrc/reading_math_2005/s0006.asp?printer= and State Comparisons in Math: http://nces.ed.gov/nationsreportcard/nrc/reading_math_2005/s0021.asp?printer=

¹⁴Laosa, L. M. *Effects of Preschool of Educational Achievement*. NIEER Working Paper: March 2005.

¹⁵State Preschool Yearbook. National Institute of Early Education Research. Available: <http://nieer.org/yearbook/pdf/yearbook.pdf#page=84>

¹⁶*Full-Day Kindergarten: Expanding Learning Opportunities*. Policy Brief, West Ed, April 2005.

¹⁷Weiss, A.M.D.G., & Offenber, R.J. (2002, April). Enhancing urban children's early success in school: The power of full-day kindergarten. Paper presented at the annual meeting of American Educational Research Association, New Orleans, LA.

¹⁸Marshall, N. L. et al. *Early Care and Education in Massachusetts Public School Preschool Classrooms. A Report on the Findings from the Massachusetts Cost and Quality Study*. (Wellesley, MA: Wellesley College Center for Research on Women, 2002; ED 480 815)

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