

# Making Access to Early-Childhood Education Universal in Cambridge

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## Introduction

“Serious and sustained investments in early-education, beginning now, could make the difference between a student falling through society’s cracks or becoming a healthy, resilient adult helping to drive our economy,” wrote state senate president Stanley Rosenberg and senator Sal DiDomenico in a recent [letter](#) to the *Globe*. Advocating for their statewide Kid’s First Initiative, they declared, “All our students deserve not only a world-class education, but a Massachusetts-class education.”

As Cambridge looks to improve its own educational-outcomes, it’s important for our district to focus on research-based best practices. Study after study makes it clear that comprehensive and universal early-childhood education provides the best and most economical path toward achieving our goals, not only in the classroom, but in our communities, families, and workplaces as well.

The benefits are manifest: it lays the ground for early, life-long social and emotional development; supports continuous cognitive development, eases a single mother’s access to stable employment; and is the best investment we can make to improve educational outcomes.

## Overview

Researchers in childhood development have long been alerting parents to the importance of acting as their child’s first teachers: of reading to their infants and toddlers, (activates areas of the brain related to [narrative comprehension](#)), having easy access to books at home (a better [predictor of education level](#) than parent’s own education), and engaging in “[rich verbal interactions](#)” (quality is better than quantity).

The impacts of such developmental advantages are felt outside of the home. Promising to overcome income and educational gaps, early-childhood education has been the forefront of governmental initiatives to confront generational poverty. Programs such as [Head Start continue to improve](#) literacy rates, vocabulary, math skills, health status, and behavior among the lower-income and special needs populations that they serve, but early gains can [fade](#) when students return to underserved schools, and access is not universal.

In one well-known [study](#), people who had participated in a 1960s preschool program were shown to be more likely to graduate from high school and have higher IQs than their peers who lacked access. Forty years on, these same participants show gains in other areas, with broad implications to our society. Study participants had fewer teen pregnancies or children out of wedlock; they were less likely to have been arrested or spend time in jail; they earned higher wages and received less welfare; and they were found to be significantly [healthier](#) than the control group as measured by bio-markers including lower rates of pre-hypertension and coronary heart disease.

Tabulating the benefits to society, one study found that the program which cost taxpayers \$15,166 had returned a total public benefit of \$195,621. For every dollar invested, the program yielded an estimated [\\$12.90 in public benefits](#)—a nearly thirteen-fold return on investment.

With so much riding on these formative years before kindergarten, expanding access to early-childhood education is a great [imperative of our time](#).

Cambridge's demographics of high-need and income inequality make the need for early education clear. In our diverse city, [nearly half](#) of students qualify for free or reduced lunches. One-sixth of our students live in public housing, one-third qualify as special needs and over 500 students benefit from the Weekend Back Program, which provides students with nutritional food over the weekend. Further, approximately 1,500 single mothers and 300 single fathers in Cambridge support some 2,500 students attending public schools in the city.

While the enrollment of 3- and 4-year-olds in early education programs is estimated at 71.7%, this number remains only an estimate (a problem in its own right), and the percentage of children from lower income and racial or ethnic minority families is surely lower. In a city so materially and academically rich as Cambridge, such shortcomings are indefensible.

When our youngest fail to succeed early in life, they will suffer the consequences of being more likely to be diverted from college, and having more limited potential to engage in our community as healthy, economically stable, and empathetic citizens. We also suffer a great loss when we miss an opportunity to sustain and increase the rich cultural tradition of diversity, academic rigor, and strong public health through the education and engagement of our youngest citizens and their families.

## Cognitive advances

High quality early childhood education stimulates brain development and creates neural pathways that remain fundamental for learning throughout childhood and into adulthood. This section discusses why neural development is critical in the early years of a child's life, how this cognitive development can be threatened in high-stress environments, and lastly, what the beneficial outcomes look like for children who have had access to quality early-childhood education.

## Neural Development

Appropriate stimulation and learning between the ages of 0-5 is critical for a child's ability to learn new information over their lifetime, in large part due to the way the human brain develops and changes fundamentally over a person's life. When children are very young, their brains are in the most [flexible state](#) of their lives; in other words, the brains of young children are highly teachable. As children grow older, their brains become less able to process new and more abstract information. This is due to the way the brain forms and prunes neural pathways. Malleable young brains are able to take in, organize, and process great volumes of completely new information.

As these neural pathways are formed and begin to establish fragile networks of information, the brain prunes out any unneeded or unused pathways to improve efficiency. When children have regular, repeated, high quality interactions with adults, other children, and quality learning materials, their brains maintain and hardwire those complex neural networks of knowledge, skills, and abilities, that would otherwise have been pruned away. Consistent, stimulating, and rich early learning environments are critical for robust, durable neural pathways that last well beyond the early years.

A critical marker for educational outcomes is third grade. Up to that year of schooling, children should be constantly practicing literacy skills to become strong readers. Before the third grade, classroom language-arts learning is largely oriented around children developing strong literacy skills (phonemic awareness, comprehension, phonetics, etc.)—or learning how to read. After the third grade, classroom instruction begins to undergo a shift in focus, where children are asked to use their reading skills primarily to *learn*.

Children who have not yet developed strong literacy skills by the end of third grade are often left behind as they are unable to keep up in a classroom environment where reading is used to *learn*, if they are still learning to *read*. For this reason, developing the cognitive skills and abilities to enable reading is critical for young children.

There is a limited window of time during which brain plasticity and classroom instruction coincide to teach children literacy skills that will serve them throughout the rest of their schooling, and their lives.

## Lowering “Toxic Stress” to Enhance Learning

Another known cognitive benefit of early childhood education concerns the positive brain development consistent in classrooms with low levels of stress. Among families undergoing great amounts of stress due to poverty, teen parenthood, mental health concerns, violence, and other risk factors, children tend to experience toxic levels of stress and anxiety that are now known to be detrimental to brain development.

Spending significant time in a calm, consistent, supportive, and interactive preschool classroom environment can help mitigate the learning barrier created by anxiety and stress in the home. Safe and nurturing preschool environments help children build emotional and cognitive resiliency through stable and supportive relationships with adults.

Toxic stress has been shown to damage neurons in the parts of the brain associated with classroom and workplace learning and behavior causing young children to make fewer, weaker neural connections. The implications of this are huge: the impairment of neural activity during the peak window of opportunity for brain development in those highly teachable early years has lifelong and permanent implications for cognitive functioning later on.

## Lifelong outcomes due to strong early cognitive development

Strong cognitive development that occurs in young children is irrevocably tied to positive outcomes. Longitudinal research aggregated by the Brookings Institute shows that the outcomes for children who participated in “model” early childhood education program studies ([Abecedarian](#), [Perry](#), and [Chicago Child-Parent Centers](#)) were undeniably stronger than among those children who did not participate in these program.

In the 1960s and 70s, there were several studies that measured the differences, both at a point-in-time perspective and longitudinally, for children who participated in such “model” early learning programs. Outcomes for children in the model programs were stunning.

The implications of their higher quality early-childhood education included lower rates of placement in special education, higher IQ scores in childhood, less grade retention, higher high school graduation rates, higher workforce permanence in adulthood (including evidence of higher wages and placement in high-skill jobs), and even lower rates of criminal activity, among other positive social, emotional, and health outcomes.

## Empowering Parents as First Teachers

While delivering high-quality early-childhood education to all preschoolers is critical, it's important to recognize that the continuum of education begins in the home. During the first year of life, a developing brain can form [1 million new neural connections](#) every second, forging pathways that will serve as the basis for ever more complex functions and higher cognition. Before a child learns to speak, interactions and exchanges with parents and caregivers (also known as "[serve and return](#)" relationships) stimulate connections that form the pillars of healthy brain-architecture. When an infant babbles or reaches out, they must be engaged by attentive and nurturing adults. Society's first duty, then, must be to empower parents and caregivers as first teachers.

Supporting a parent's role as "first teachers" ensures that children receive the rich sensory and language experiences required for later development.

By the age of 4, a child from a lower-income family may communicate with a [fraction of the vocabulary](#) that their more affluent peers command. Closing that word gap, however, may be as simple as encouraging parents to talk to their infants more frequently, expanding the number of words a poor child might hear per hour from 600 to the more than 2,000 that a wealthier child might hear.

### Harvard University Center on the Developing Child

#### *Policy Implications: The Science of Early Childhood Development*

- The basic principles of neuroscience indicate that early preventive intervention will be more efficient and produce more favorable outcomes than remediation later in life.
- A balanced approach to emotional, social, cognitive, and language development will best prepare all children for success in school and later in the workplace and community.
- Supportive relationships and positive learning experiences begin at home but can also be provided through a range of services with proven effectiveness factors. Babies' brains require stable, caring, interactive relationships with adults—any way or place they can be provided will benefit healthy brain development.
- Science clearly demonstrates that, in situations where toxic stress is likely, intervening as early as possible is critical to achieving the best outcomes. For children experiencing toxic stress, specialized early interventions are needed to target the cause of the stress and protect the child from its consequences.

New research confirms that children [carry certain literacy skills](#) from their first language into a second language. That's an important finding for Cambridge, where more than a quarter of all students speak a language other than English at home. Spanish, Haitian Creole, Amharic, Bengali, and Arabic account for the top 5 most common non-English languages spoken by CPS students. It doesn't matter how you say, "I love you" to your child, as long as you say it often.

To make sure parents are prepared for their role as first teachers, home visitation programs have [shown](#) promising gains in providing educational services, as well as health care education and early intervention counseling catered to the wellbeing of the family. To be successful, such home visitation programs must be integrated into other family and community services, exercise cultural competency, and reach out to high-risk families in traditionally underserved populations.

If we are to properly value the contribution of parents to public education, we must consider more broadly the impediments to first teachers, including the socio-economic, chronic health, and stress factors that diminish a caregiver's ability to provide appropriate interaction. Harvard's Center on the Developing Child warns that "[toxic stress](#)," the kind generated by neglect, abuse, or the accumulated burdens economic hardship, "damages developing brain architecture, which can lead to lifelong problems in learning, behavior, and physical and mental health."

Paid parental leave time for both parents has been shown to reduce postpartum depression, stress, and economic instability, and [the child is the clear winner](#). Children whose parents had access to adequate family leave showed better cognitive development, social emotional skills, and were healthier. As the number of single mothers climbs in Cambridge (8 percent currently), and the need for quality childcare is more fully understood, it is important to consider how programs that begin at birth and also educates children could positively influence women's participation in the workforce and help their families over time.

Once out of the home, childcare facilities and early-educations programs must be ready to push every child further along their developmental continuum. Research out of the University of Chicago by Nobel laureate James Heckman makes clear the [social benefits of early-childhood education](#) from infancy through programs aimed at 3- and 4-year-olds. Looking at children who were enrolled in childcare programs after 8 weeks of life, Heckman [found](#) benefits 35 years later ranging from educational level attained, to health, and employment. At age 30, participants were observed to have higher employment rates "between 7 and 13 points for women who participated in the programs, and between 11 and 18 points for men, compared to people who attended a lower-quality alternative or stayed at home."

While those programs might have been expensive, the long-term benefits and returns make early-education one of the best investments a community can make.

## Cambridge's Findings

Cambridge's commitment to expanding early-childhood education began with the release of a 2011 report out of then Mayor David Maher's [Blue Ribbon Commission on Early Childhood Education and Care](#) (co-chaired by now Rep. Marjorie Decker and Vice-Mayor Marc

McGovern). “If early childhood care and education were one of our top priorities as a community,” their report asked, “what would the City of Cambridge do?”

The Commission’s survey of early education programs in Cambridge found a patchwork of public, private, and family care providers serving over six hundred infants and toddlers across the City. In the absence of focused services, estimates provided the best information available to stakeholders attempting to direct outreach. To develop comprehensive programs, the Commission advocated for the “linkage of data systems so that children can be followed from birth into school.”

In 2015, a newly formed [Cambridge Early Childhood Task Force released its own set of recommendations](#) to expand “high quality and affordable early education and care, physical and mental health, and family support.”

With some sense of urgency, the Task Force stressed that reaching children early represents “a critically important window of opportunity to develop a child’s full potential and shape key academic, social, and cognitive skills that determine a child’s success in school and in life.”

The report identified the following five “fundamental concerns” for the City to address:

- **Access to Information:** It’s challenging for families in Cambridge to find appropriate services and for early childhood services providers to keep abreast of the full range of available services.
- **Maintaining and Improving Quality:** Quality is not consistent throughout the community’s early childhood services and providers. Organizers report challenges in maintaining quality programs and qualified staff given financial pressures.
- **Aligning and Coordinating Services:** Better coordination and alignment between family childcare, community-based preschools and family support services, the Department of Human Services, and the Cambridge Public Schools emerged as a key theme of the Task Force’s assessment of needs.
- **Addressing Critical Gaps:** Families, providers, and local experts identified several gaps in critical areas, including additional supports for social-emotional skill development, mental health, family engagement, families in crisis, dual language learners, and children with disabilities.
- **Affordability and Access:** For many Cambridge families, finding high quality, affordable early childhood services is difficult and presents considerable financial hardships. Making high quality home visiting, infant-toddler care, and preschool more affordable for Cambridge families is a clear priority for families, early childhood providers, and the Task Force.

The report recommends taking important steps toward increasing access to early childhood education, continuing to rely on “Cambridge’s mixed delivery system, expanding home visitation programs, establishing two new early-childhood positions, and established a

“Birth through Third Grade Governance Board” as a foundation on which to build future progress.

Most recently, the City of Cambridge demonstrated its commitment to early childhood education in its [Annual Budget 2017-2018](#) with an added \$1 million over last year’s allocation. In FY16, the Birth to Third Grade Partnership received less than \$100,000 in funding. Just two years later, the Partnership is supported with a \$2.3 million infusion earmarked to “expand access to high quality preschool opportunities for low-income three- and four-year-olds.” Goals include increasing outreach to families, developing a plan for “enhancing mental health supports,” and offering professional development opportunities to Cambridge’s childcare providers.

## Cambridge Can Do Better

The importance of early-childhood education is being realized amid some of the most daunting challenges to face our public education system. Cuts in federal spending threaten programs that support the health and wellbeing of vulnerable and their children while our public education system and its ability to serve as a great equalizer diminishes. More locally, low wages and the high cost of childcare and rent drain household resources, or simply drive families out of our neighborhoods. In a city where childcare services can cost more than rent, providing needs-based access high-quality early-childhood education and care is a matter of economic and social justice.

Cambridge has taken encouraging steps toward expanding early-childhood education, but much more needs to be done. The most recent approach of offering a limited number of scholarships to needy students cannot bring about the systemic change that is needed. Despite Cambridge’s spending well above the state average per pupil (\$27,500 vs. 14,900), racial and economic achievement, and opportunity gaps in math and science—critical to entering the high-tech economy—are evident as early as third grade and persist into high school and beyond. Amid the wealth of resources at Cambridge’s disposal, our success rate in moving students through college within six years is an anemic 38 percent.

We know that children are born ready to learn, and that those first few years are critical in determining how well a child will thrive, learn, and succeed later in life. Children who do not receive optimal growth and development can catch up to their peers if they receive appropriate interventions. “The later we wait to support families with children who are at greatest risk,” Harvard’s Center on the Developing Brain warns, “the more difficult—and likely more costly—it will be to achieve positive outcomes.”

Cambridge currently reports that more than 20 percent of third graders are not reading at grade level. As reading is one of the clear early warning indicators of children falling behind their peers, it is not acceptable for Cambridge to be missing the mark on this critical indicator year after year.

The time is now to ensure that every child in Cambridge, especially those most in need, have access to high-quality early-childhood education.