



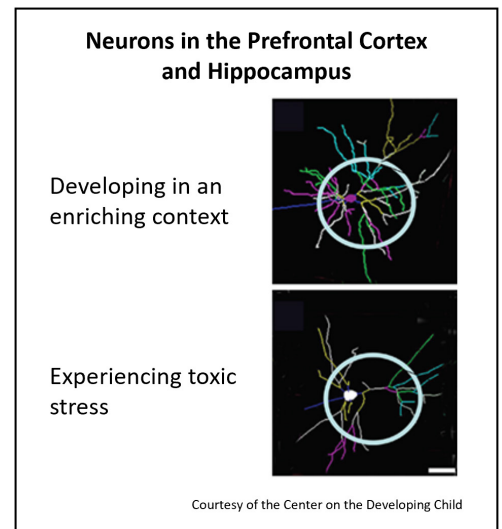
THE RESEARCH EVIDENCE IN SUPPORT OF PRE-K

Decades of independent research demonstrates the immediate and long-term benefits of providing young children with supportive, developmentally appropriate learning environments that build a sound academic, social, and emotional foundation for future success in school and beyond. Informed by the scientific evidence and years of experience as educators, the members of the STL Pre-K Cooperative came together to grow the number of affordable, accessible pre-K seats available to low-income families raising young children in St. Louis neighborhoods with a significant shortage of high-quality programs.

WHY IS PRE-K SO CRITICAL?

Early childhood is a time of incredible brain development. According to Harvard's Center on the Developing Child¹, in the first few years of life, more than one million new neural connections are formed in a child's brain every minute. These connections forge the foundation for sensory processing, language development, social and emotional skills, and higher cognitive function that develop over a lifetime. It's possible to build these foundational competencies later in life, but science tells us it's much harder. Early childhood is a critical period of development.

Development of the brain is shaped by the experiences and environments – either enriching or limiting – a child encounters. A healthy brain rapidly forms a robust network of connections in early childhood and then hones these neural pathways over time. The challenges of poverty – such as violence, food insecurity and homelessness – can create unrelenting stress for children that hinders the formation of their brain architecture. Such chronic stress limits the development of the regions of the brain responsible for memory, critical thinking, impulse control, and emotional regulation^{2,3} – all essential to success in school and the workplace. The supportive relationships, consistent routines, and access to family services pre-K often provides can mitigate students' stress levels.⁴



¹ Center on the Developing Child (2007). *The Science of Early Childhood Development* (InBrief). Retrieved from www.developingchild.harvard.edu.

² Bock J, Gruss M, Becker S, and Braun K. (2005). Experience-induced changes of dendritic spine densities in the prefrontal and sensory cortex: correlation with developmental time windows. *Cerebral Cortex*, 15:802-808. 10.1093/cercor/bhh181.

³ Radley, et al (2004). Chronic behavioral stress induces apical dendritic reorganization in pyramidal neurons of the medial prefrontal cortex. *Neuroscience*, 125(1): 1-6.

⁴ Raver, C.C., and Blair, C. (2016). Neuroscientific Insights: Attention, Working Memory, and Inhibitory Control. *The Future of Children*, 26(2): 95-188.

⁵ Duke University (2017). The Current State of Scientific Knowledge on Pre-Kindergarten Effects. https://childandfamilypolicy.duke.edu/wp-content/uploads/2017/04/PreKStudy_FINAL_ForWeb.pdf

⁶ Ibid.

⁷ Ansari, A. (2018). The Persistence of Preschool Effects from Early Childhood through Adolescence. *Journal of Educational Psychology*, 110(7): 952-973.

⁸ Duncan, G. J. et al. (2007). School readiness and later achievement. *Developmental Psychology*, 43, 1428-1446.

IMMEDIATE BENEFITS OF PRE-K

When students attend a high-quality pre-K program that features responsive instruction with back-and-forth dialogue among teachers and students and curriculum that progressively builds on students' academic, social, and emotional skills and knowledge in an organized, engaging classroom, they finish pre-K better prepared to succeed in elementary school.⁵ They master the foundational letter and number concepts that underpin reading and more complex math operations. They also develop the problem-solving, self-regulation, and relationship-building skills – along with positive attitudes towards school – they'll need to successfully navigate school and society.⁶

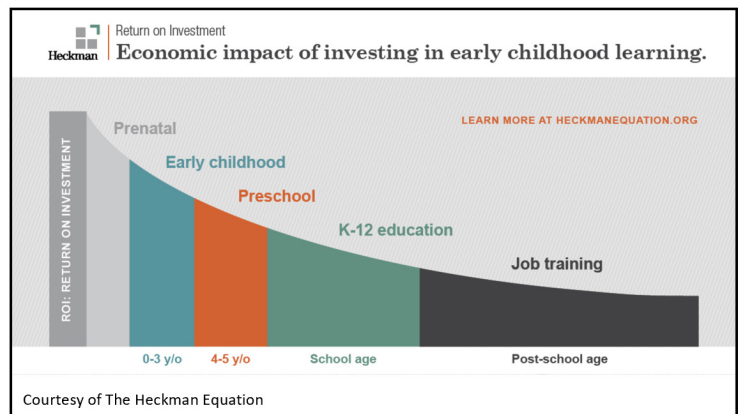
That learning is reflected in increased academic achievement in Kindergarten, but also higher test scores through elementary and middle school.⁷ Math and Reading ability in Kindergarten is a powerful predictor of school success through high school and most of the children who start out behind won't close that gap,⁸ so a strong start can make all the difference.

While all children benefit from high-quality pre-K, low-income students and students of color see the greatest gains.⁹ Black children, who are less likely to attend high-quality early childhood programs, enter Kindergarten, on average, nine months behind their White peers. The National Institute for Early Education Research projects, however, that extending pre-K access to every child would completely close that gap.¹⁰

LONG-TERM BENEFITS OF PRE-K

High-quality pre-K programs shift the academic trajectory of children growing up in poverty, but they also reap long-term economic, social, and even health benefits. Studies show pre-K completion reduces health problems, drug use and incarceration and increases college graduation and earnings over an individual's lifetime.¹¹ These long-term benefits help pre-K attendees break the cycle of poverty; their children are more likely to realize similar positive outcomes.¹²

The community wins too in terms of increased civic and economic participation and savings on public social service spending. Nobel Prize-winning economist James Heckman estimates the return on investment for dollars spent on pre-K are as high as 10 percent per year.¹³ The earlier investments are made, the bigger the return.



WHAT ABOUT THE “FADE OUT EFFECT”?

An often-cited meta-analysis of the IQ gains in pre-K students found that pre-K produced immediate jumps in measured IQ but that advantage faded by third grade.¹⁴ Just as the quality of a pre-K program shapes its effectiveness, sustaining and increasing the gains made in pre-K is influenced by the quality of education students receive after pre-K.¹⁵ K-12 schools must provide rigorous academic and social-emotional instruction to realize the full academic benefits of pre-K for the long term.¹⁶

Weighing the full range of short- and long-term benefits of high-quality pre-K, it is one of the best investments we can make to support our children in reaching their full potential and to build strong communities.

⁹ Duke University (2017). The Current State of Scientific Knowledge on Pre-Kindergarten Effects. https://childandfamilypolicy.duke.edu/wp-content/uploads/2017/04/PreKStudy_FINAL_ForWeb.pdf

¹⁰ Friedman-Krauss, A. and Barnett, S. (2020). Special Report: Access to High-Quality Early Education and Racial Equity. National Institute for Early Education Research. <https://nieer.org/wp-content/uploads/2021/02/Special-Report-Access-to-High-Quality-Early-Education-and-Racial-Equity.pdf>.

¹¹ The Heckman Equation: <https://heckmanequation.org/>.

¹² Ibid.

¹³ Ibid.

¹⁴ Protzko, J. (2015). The environment in raising early intelligence: A meta-analysis of the fadeout effect. *Intelligence*, 53: 202-210.

¹⁵ Stipek, D. (2017, March 17). The Preschool Fade Out Effect is Not Inevitable. Education Week: <https://www.edweek.org/teaching-learning/opinion-the-preschool-fade-out-effect-is-not-inevitable/2017/03>.

¹⁶ Ibid