

# The Science of Early Brain Development: Implications for Preschool Policy

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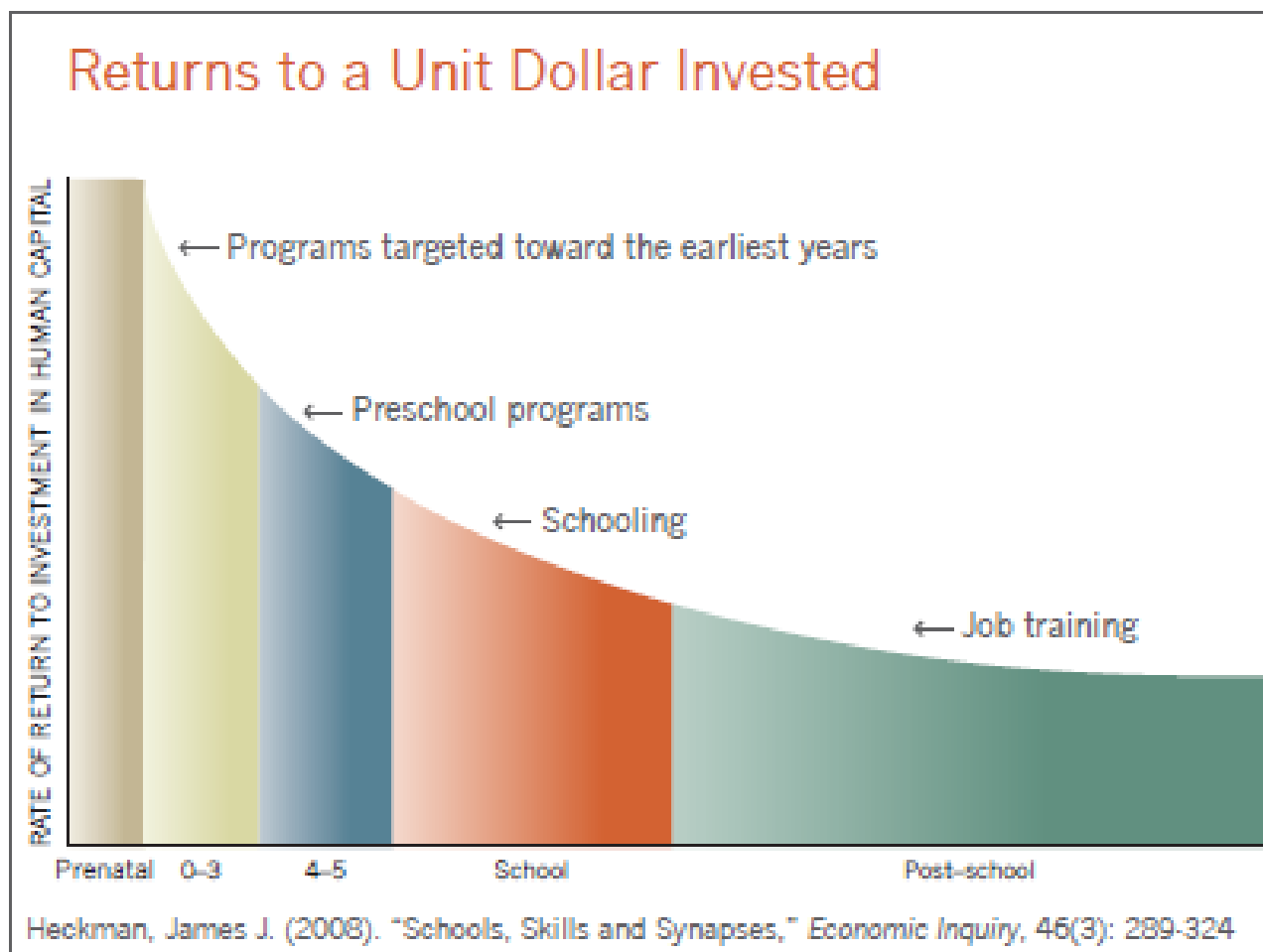
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# Why invest in early childhood?

- The 60 months from birth through age four is the most critical period of human development
- Getting it right in the first place makes much more sense than fixing it down the line

*“It’s easier to build strong children than to repair broken men.”  
(Frederick Douglass)*

# Investment in the earliest years pays off



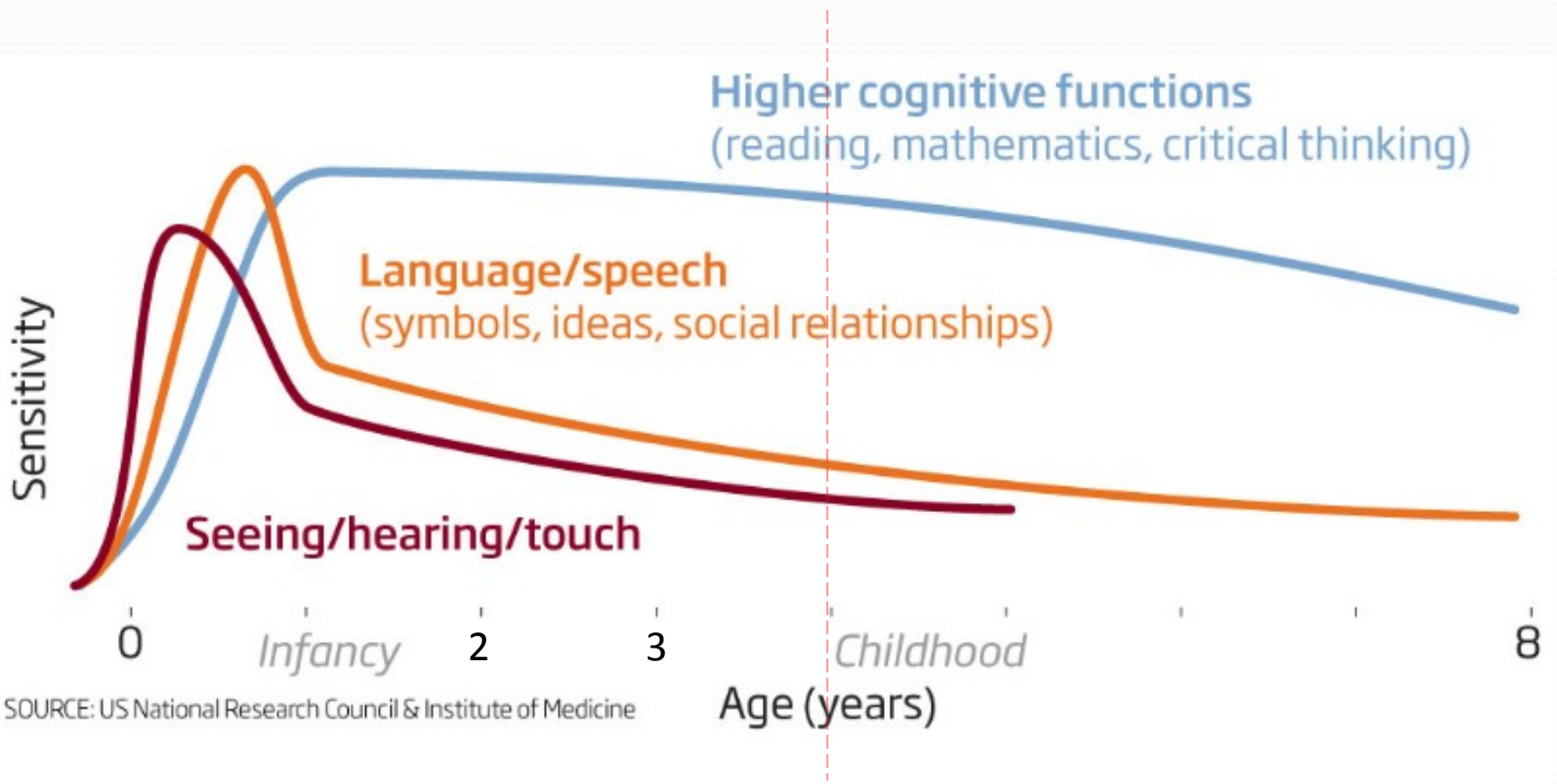
# An extraordinary opportunity

- We're building systems from the ground up
- Use the science of early brain development to inform system design

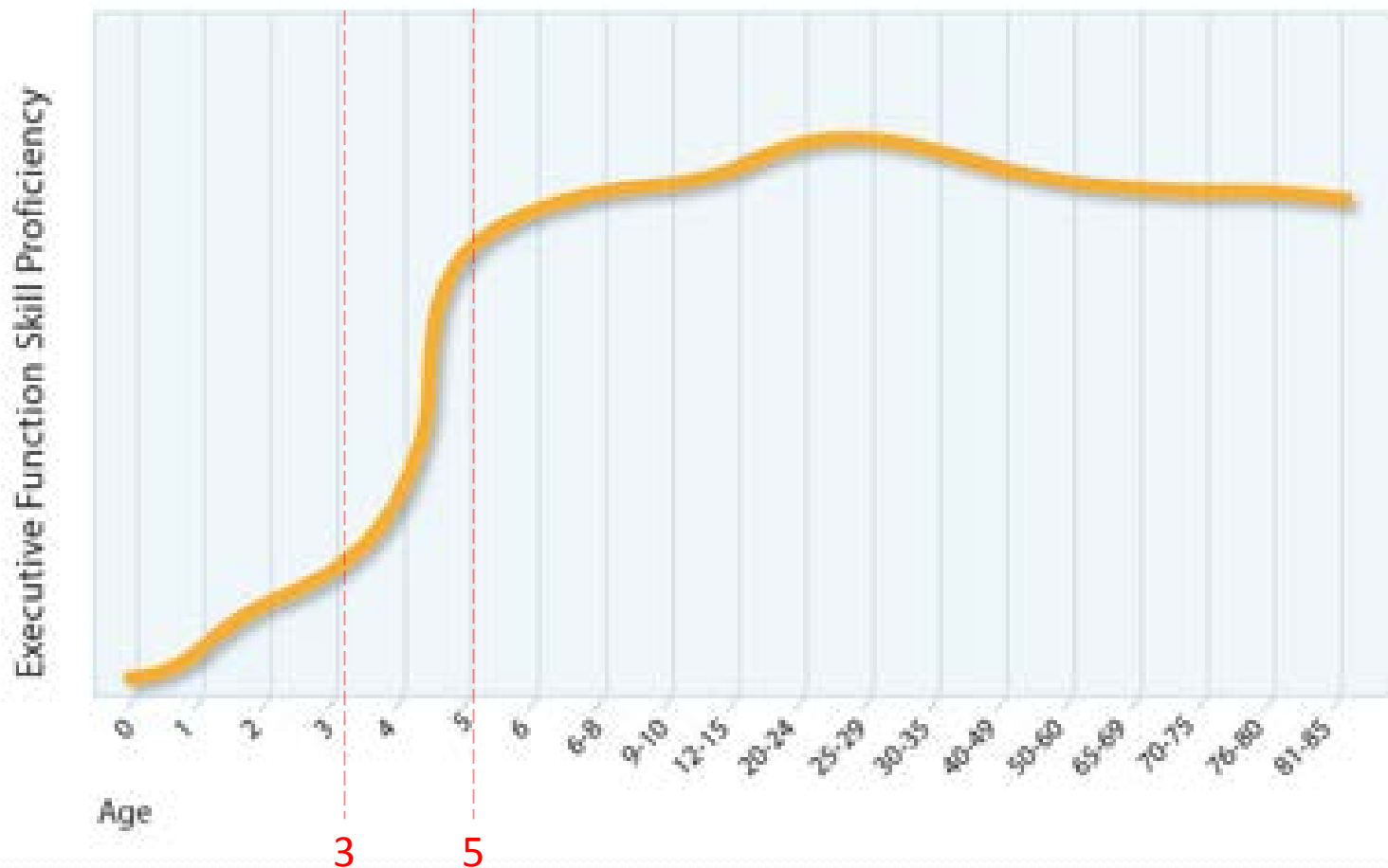
# Early experiences build brains

- **Brains are built, not born**
- From birth, children's brains form *42,000 new connections per minute*, building the brain's physical architecture
- Children's early experiences establish either a sturdy or fragile foundation for all of the learning and development that follows
- Development is cumulative
- Emotional, social, and cognitive development are interconnected and interdependent

# Sensitive periods for physical, linguistic, and cognitive development: **birth through 3**



Sensitive period for development of “Executive Function” (behavior and emotional control):  
**ages 3 through 4**



# How does healthy development occur?

- Secure relationships with **responsive, caring adults**: Young children need ongoing, warm, responsive interactions to develop socially, emotionally, and intellectually.
- From birth, children's positive, back-and-forth interactions with their caregivers literally build the architecture of the developing brain





# Adverse childhood experiences have a long-lasting negative impact on a child's developing brain architecture

- Poverty
- Parents lack secure employment
- Single-parent families
- Parents are high school dropouts
- Maternal depression
- Neglect and abuse
- Trauma (e.g. homelessness, domestic violence)

# Negative consequences of inadequate early experiences

- Gaps between advantaged and disadvantaged children begin emerging as early as 9 months of age
- By 18 months, toddlers from low-income families can already be several months behind in language development
- By age three, children with college-educated parents have vocabularies as much as three times larger than those whose parents did not complete high school.
- Gaps continue to widen, leaving disadvantaged children up to two years behind by age five.

# Summary

- Birth through age four is crucial to a child's future success in school and in life
- Interactions with caring adults provide the foundation for healthy development
- Adverse childhood experiences have a permanent negative impact on a child's developing brain architecture

# Five implications for policy

- The earliest years are critical
- “**Child care**” is an especially important early learning setting
- **Effective staff** are the key to program quality
- **At-risk children** will gain most from programs
- A **mixed-delivery system** emphasizing the quality of children’s experiences & parental choice will best meet the needs of low-income families and children

# Child care is crucial

- Distinction between “care” and education is a false one: Young children are continuously and rapidly learning wherever they are and from whomever they’re with
- Many young children spend a significant portion of their waking hours in child care
- Child care is an important work support for adults and is also a key **early learning setting for children**
- For the most disadvantaged children, a year of pre-K at age 4 is too little too late to prepare them for success in school

# Effective staff are key

- Effective, dedicated, stable staff are crucial
- But credentials aren't the right approach  
*“empirical evidence about the effects of a bachelor's degree is inconclusive”*  
(National Academy of Sciences, 2015)
- **High-quality, responsive teacher-child interactions,** both emotional and instructional, are the key\*
- What to do?
  - Expand, not limit, the pool of potential staff
  - Focus on selection and on-site training

\* Williford, et al. (2013); Hamre, et al. (2012); Mashburn, et al. (2008); Early, et al. (2007)

# Mixed-delivery systems provide the best options for families

- What's important:
  - Engaging, safe learning environments
  - Effective, high-quality adult-child interactions
  - Positive child outcomes
- Include all high-quality providers, regardless of tax status
- A strong, choice-based system includes center-based child care; family child care; private preschool; public, school-based programs; and Head Start
- Family child care is a critical component of system, especially for low-income children



# The bottom line

- Invest in birth through age 4
- Target disadvantaged children
- Focus on staff competence, not credentials
- Build a decentralized, choice-driven system focused on the quality of children's daily experiences

# Herbert Hoover, 1930:

## Address to the White House Conference on Child Health and Protection

We aim “to set [children’s] feet upon surer paths to **health and well-being and happiness...**

...Let no one believe that these are questions which should not stir a nation; that they are below the dignity of statesmen or governments. If we could have but one generation of properly born, trained, educated, and healthy children, a thousand other problems of government would vanish.”