

Talk, Read, Play, Sing

Research

Brain Development:

Burr, Jean, and Rob Grunewald. 2006. [“Lesson Learned: A Review of Early Child Development Studies.”](#)

Research review of various high-profile early intervention programs. The paper provides a summary of model programs and summarizes major findings and implications.

Caskey, Melinda, and others. 2014. [“Adult Talk in the NICU with Preterm Infants and Developmental Outcomes.”](#)
Pediatrics: e578-e584.

The authors of this study compared adult word counts heard by pre-term babies with Bayley Scores of Infant and Toddler Development at 7 and 18 months to investigate the relationship between early exposure to language and later cognitive and linguistic outcomes. The authors found a link between exposure to adult speech in NICU and better cognitive/linguistic outcomes at 7 and 18 months. The impact of parental speech on outcomes for preterm infants indicates an opportunity for intervention with parents beginning in the NICU.

Center on the Developing Child at Harvard University. 2007. [“A Science-Based Framework for Early Childhood Policy: Using Evidence to Improve Outcomes in Learning, Behavior, and Health for Vulnerable Children.”](#) Cambridge.

This report is concerned with applying scientific knowledge to the formation of early childhood policy. Key insights include: 1) Ensuring safe environments, healthy and warm caregiver relationships, and learning opportunities are important for healthy development in young children. 2) Early programs are likely a better investment than later remediation, both in terms of developmental outcomes and return on investment.

Center on the Developing Child at Harvard University. 2007. [“The Science of Early Childhood Development \(InBrief\).”](#) Cambridge.

This two-page summary from the Harvard Center on the Developing Child highlights key insights from the science of early brain development.

Committee on Integrating the Science of Early Childhood Development. 2000. [From Neurons to Neighborhoods: The Science of Early Childhood Development.](#) J. P. Shonkoff and D. A. Phillips, eds. Washington: National Academy Press.

This landmark study is an update and synthesis of current scientific knowledge of child development from birth to age five. Key findings include: 1) Early experiences affect the development of the brain and lay the foundation for intelligence, emotional health, and moral development, but the focus on the period from "zero-to-three" is too narrow. 2) Healthy early development depends on nurturing and dependable relationships. 3) How young children feel is as important as how they think, particularly with regard to school readiness. 4) Although society is changing, the needs of young children are not being met.

Gertler, Paul, James Heckman, and others. 2014. “Labor market returns to an early childhood intervention in Jamaica.” *Science* 344 (6187): 998-1001.

This randomized controlled study examines the long-term benefits of early childhood interventions, specifically a home visiting model in Jamaica that promotes children's cognitive and social development through positive parent-child interactions. Children in the home visiting intervention demonstrated better skills than those in the control group, and their parents had improved parent-child interactions in the early years that translated into greater parental investments later on in life. Most notably, these children also earned 25 percent more as adults than those in the control group, and they also caught up (in earnings) to their advantaged peers.

Gros-Louis, Julie, and others. 2014. "[Maternal Responsiveness and the Development of Directed Vocalizing in Social Interactions.](#)" *Infancy* 19 (4): 385-408.

This study finds how parents respond to infant babbling can speed the child's language development. Researchers discovered that infants whose mothers responded to what they thought their babies were saying showed an increase in developmentally advanced, consonant-vowel vocalizations, which means the babbling has become sophisticated enough to sound more like words. The babies also began directing more of their babbling over time toward their mothers. On the other hand, infants whose mothers did not try as much to understand them and instead directed their infants' attention at times to something else did not show the same rate of growth in their language and communication skills.

Kuhl, Patricia K. 2011. "[Early Language Learning and Literacy: Neuroscience Implications for Education.](#)" *Mind, Brain, and Education* 5 (3): 128-142.

In this article, Patricia Kuhl uses evidence from neuroscience research to propose that it is the interaction between computational skills and social cognition that opens plasticity for language learning. Findings from her research show that early in infancy a child is able to detect the phonetic and prosodic patterns of speech, and transition from universal to language-specific listeners.

Luby, Joan, and others. 2013. "[The Effects of Poverty on Childhood Brain Development: The Mediating Effect of Caregiving and Stressful Life Events.](#)" *JAMA Pediatrics* 167 (12): 1135-1142.

Several sources have demonstrated a link between poverty and the areas of the brain that are involved in stress regulation and emotion processing, and a link between supportive parenting and brain development. This study investigates the relationship between poverty, total white and total cortical gray matter volume, and hippocampus and amygdala volumes. It supports the conclusion that poverty "is associated with smaller white matter, cortical gray matter, and hippocampal and amygdala volumes" (p. 1140). However, these effects may be mediated by caregiving, and the research underscores the critical role of nurture for child well-being.

Word Gap:

Dickinson, David K., and others. 2012. "[How Reading Books Fosters Language Development around the World.](#)" *Child Development Research* 2012: 1-15.

This piece pulls evidence from a number of studies that show the importance of making language the primary focus for early interventions, specifically through book reading. It highlights how book reading provides an ideal setting for fostering language while at the same time building strong affective bonds between parents and children; and how reading comprehension is critical for long-term academic success and is dependent on language abilities that emerge early in life.

Fernald, Anne, and Adriana Weisleder. 2012. "[SES differences in language processing skill and vocabulary are evident at 18 months.](#)" *Developmental Science* 16 (2): 234-248.

This research finds that by 18 months of age, toddlers from disadvantaged families are already several months behind more advantaged children in language proficiency. According to the study, toddlers from wealthier homes could identify pictures of simple words they knew — “dog” or “ball” — much faster than children from low-income families. By age 2, the study found, affluent children had learned 30 percent more words in the intervening months than the children from low-income homes.

Greenwood, Charles R., and others. 2011. “[Children’s Home Language Environments Using Automatic Speech Recognition and Technology.](#)” *Communication Disorders Quarterly* 32 (2): 83-92.

This research replicated and extended the findings of the Hart & Risley study using automatic speech processing instead of human transcription of language samples. Thirty-seven children between the ages of 12 and 20 months were recruited, and their families’ educational attainment was used as a socioeconomic indicator. The study lasted 10 months, and researchers collected audio recordings in the children’s homes via LENA’s automated speech processing technology. Similar to the key findings in Hart & Risley, this study found that children in lower income households heard fewer words compared to children from middle or higher-income households.

Hart, Betty, and Todd R. Risley. 1995. “[The Early Catastrophe: The 30 Million Word Gap by Age 3.](#)” *Meaningful Differences in the Everyday Experiences of Young American Children*. Baltimore: Paul H. Brookes Publishing Co.

During the 1960s, Kansas psychologists Betty Hart and Todd Risley observed 42 families at different socioeconomic levels - welfare homes, working-class homes, and professionals' homes - for an hour each month to learn about what typically went on in homes with 1- and 2-year-old children learning to talk. Results showed that children in professionals' homes were exposed to an average of more than fifteen hundred more spoken words per hour than children in welfare homes. By age four, this amounted to a total gap of 32 million words.

Putnam, Robert D. 2015. *Our Kids: The American Dream in Crisis*. New York: Simon & Schuster.

There is a startling gap between parents based on education and the amount of time that they spend engaging in activities that support cognitive development, or so-called “Goodnight Moon” time. “Goodnight Moon” time includes activities such as reading, talking, and playing—activities that have increased dramatically among families with highly educated parents. In the 1960s and 1970s, highly educated and less educated parents were spending similar amounts of time reading to their children. More recently, the total gap between high- and low-educated parents’ time spent on “Goodnight Moon” activities was more than half an hour daily. This gap adds up over weeks, months, and years culminating in a significant gap in time investment in young children.

Snow, Kyle. 2013. “[New Research on Early Disparities: Focus on Vocabulary and Language Processing.](#)” National Association for the Education of Young Children.

Web review of recent research findings regarding the word gap and implications for child policy and practice.