



Children Come First: The Time is NOW for Our Youngest Learners

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During the pandemic, the Region 6 Comprehensive Center (RC6) assembled a team of early learning professionals who determined the need for a statewide early learning collaborative to ensure that school policies, practices, and strategies for PK-3 learners encompass what research and data tell us is essential to their successful development and learning through the pandemic and beyond. In 2021, U.S. Secretary of Education Miguel Cardona urged educators to use the pandemic as an opportunity to “reimagine education,” which reinforced the work of the RC6.

This resulted in resources that include a white paper titled “Children Come First: Ensuring School Policies, Practices, and Strategies Lead to Positive 3rd Grade Outcomes,” and the ongoing development of corresponding briefs responding to the specific needs of multi-disciplinary early childhood educators. Resources can be accessed on the Region 6 Comprehensive Center (RC6) website.

This brief addresses the need to ensure that knowledge of brain development research is considered essential to supporting and



The brain research clearly states that it is imperative we optimize the experiences of young children to ensure positive learning trajectories.

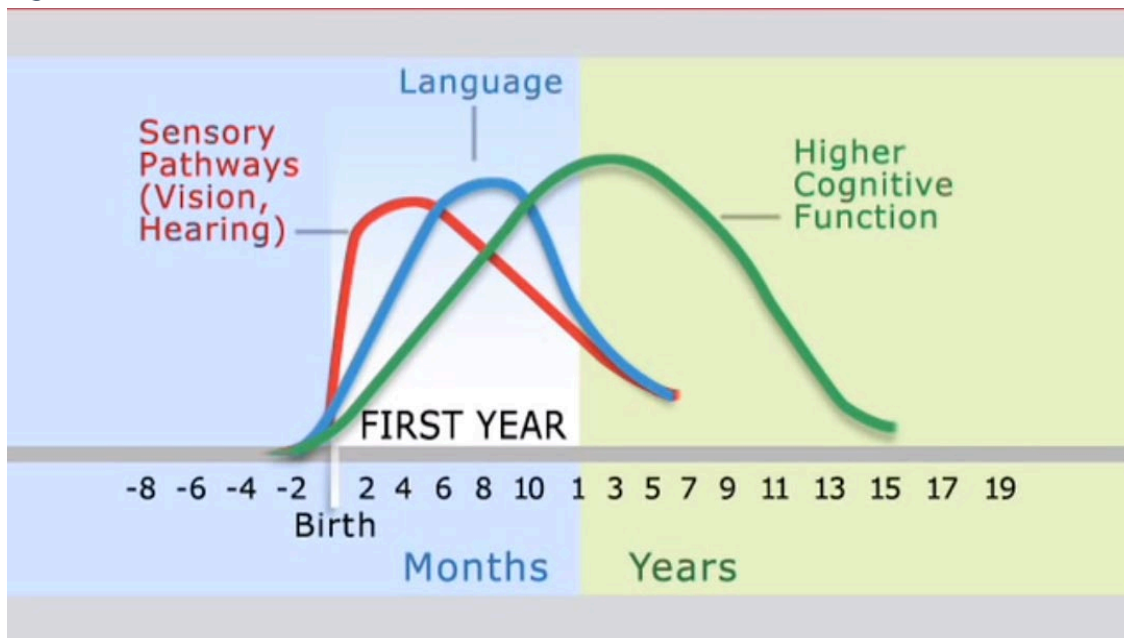
advocating for optimal learning and development for young children. Becoming familiar with and conversant with this research is vital to effective advocacy for quality learning environments for young children.

We know children form academic trajectories early in their school careers that tend to be stable and difficult to change over the course of their schooling (Alexander et al., 1993), and that children’s negative perceptions of competence become stronger and harder to reverse as they progress through school (Valeski & Stipek, 2001). Failure to take full advantage of this vital period in their lives by ensuring that children see themselves as valuable, and competent members of the school community counters brain research which provides unquestioned evidence that the PK-3rd Grade period is the time to optimize their learning and development.

Brain Development

This graph makes it evident that children’s higher cognitive function optimally develops between the ages of 3 and 8. It is apparent that quality experiences across the PK-3rd grade continuum are vital to healthy brain development. Children’s brain architecture is the combination of their genes and their lifelong experiences. Their brain architecture establishes either a sturdy or fragile foundation for children’s learning, health, and behavior.

Figure 1:

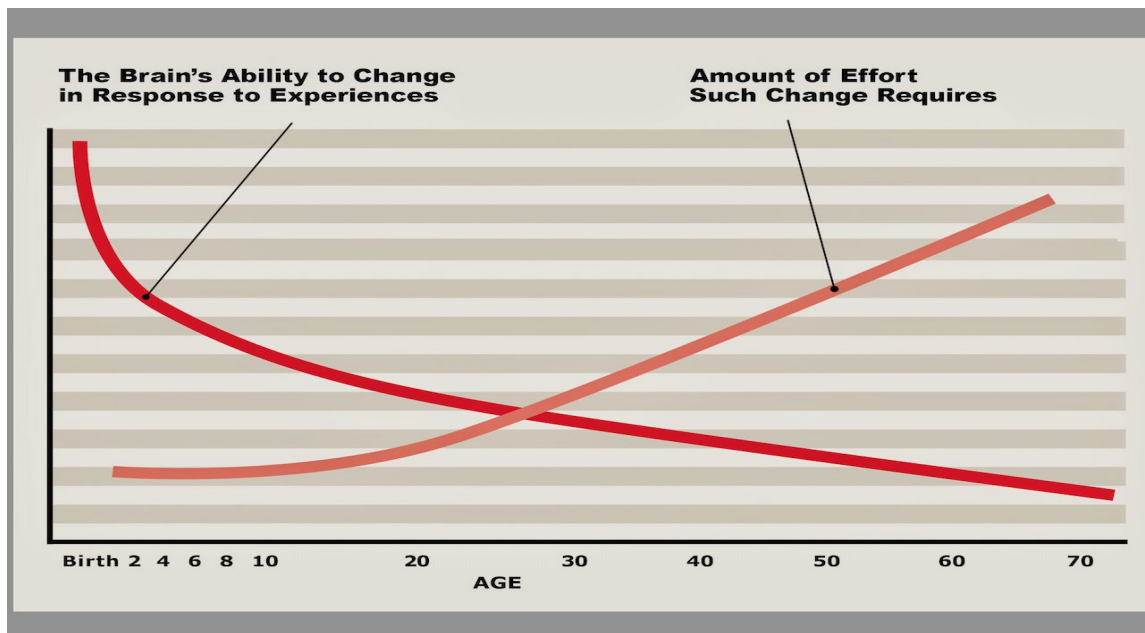


Source: C.A. Nelson (2000). InBrief: The science of early childhood development. Center on the Developing Child. Harvard University. (<https://developingchild.harvard.edu/resources/inbrief-science-of-ecd/>). Reprinted with permission.

The Brain’s Ability to Change and the Effort Required

This graph makes it apparent that the brains of young children require little effort to grow and change in response to experiences. Notably, as we get older it becomes much more difficult to change and it requires a much greater effort.

Figure 2:



Source:

Levitt (2009). Brain Architecture. Center on the Developing Child. Harvard University. (<https://developingchild.harvard.edu/science/key-concepts/brain-architecture/>). Reprinted with permission.

Self-Regulation and Executive Function

The development of executive function within the pre-frontal cortex is a set of mental processes that support abilities to manage oneself and find and use resources to achieve a goal.

A critical aspect of executive function is self-regulation, which helps children to respond effectively to the world around them. Within the prefrontal cortex, self-regulation develops as a continuum that ranges from reactive/impulsive to proactive and goal directed. As children grow a sense of independence and self-control, their brain's capacity to regulate their behavior continues to develop, but they still need guidance from adults.

Executive function and self-regulation skills depend on three types of brain function: working memory, mental flexibility, and self-control. Each type of executive function skill draws on elements of the others.

- **Working memory** governs the ability to retain and manipulate distinct pieces of information over short periods of time.
- **Mental flexibility** helps to sustain or shift attention in response to different demands or to apply different rules in different settings.
- **Self-control** helps to set priorities and resist impulsive actions or responses.

Shonkoff, J., et al. (2011).




A child's development of executive function skills rests on the neurocognitive skill of *reflection*, or the ability to step back and deliberately sustain attention on goal-directed problem solving

(Zelazo 2015). For a child to increase their executive function skills, their ability to reflect must be developed. The more the brain practices reflection, the more neural circuits become efficient.

Learning how to think evolves over time with adequate exposure and practice. Part of an optimal curriculum entails regular opportunities for children to develop their abilities to think by practicing planning, organization, and time management. Opportunities for, and assistance in developing children’s working memory and their ability to monitor/reflect upon their successes and challenges are also critical pieces of the curriculum puzzle. Children’s emotional skills also deserve equal attention. Essential to children’s success in school and in life, are their abilities to control their impulses, regulate their emotions, be flexible in their thinking and responses, and be able to start and persist, in their work and efforts. Students are mis-served when this work is not consistently part of the curriculum.

Thinking and Emotional Skills – Prefrontal Cortex

The figure below lists the range of skills managed by the prefrontal cortex. Information on how these skills can be developed through classroom instruction can be found in the brief entitled ‘Executive Function Brain Development: Flexing Pre-Frontal Cortex Muscles’

FLEXING PREFRONTAL CORTEX MUSCLES	
	
Left Lobe:	Right Lobe:
 THINKING SKILLS	 EMOTIONAL SKILLS
<ul style="list-style-type: none">• Planning• Organization• Time Management• Working Memory• Self-Monitoring	<ul style="list-style-type: none">• Impulse Control• Regulation of Emotions• Flexibility• Task Initiation• Persistence

Source: Oertwig, & Ritchie, (2017). Culture of excellence: [PowerPoint Presentation for Marin County, CA Office of Education.]

INQUIRING INTO POLICIES, PRACTICES, AND STRATEGIES

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HOW DOES THIS APPLY TO YOUR LEARNING ENVIRONMENT?

- ✓ How can you use the power of brain research to advocate for the provision of curriculum that best supports the learning and development of young children?
 - Who is your audience?
- ✓ Give examples of curriculum and instructional practice that could best integrate the development of executive function and self-regulation.
- ✓ Identify the activity settings (Choice, Whole Group, Small Group, Individual Work, Peer Group work) that might provide the best opportunities for children to develop executive function and self-regulation.
- ✓ Describe which practices teachers need to re-examine to ensure that children are child-regulated rather than adult-regulated—throughout the day.

For further information see these other briefs in our **Children Come First** series at: <https://region6cc.uncg.edu/resources/>. Or visit the Early Childhood web page at: <https://region6cc.uncg.edu/early-childhood/>.

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A copy of this publication can be downloaded from the Region 6 Comprehensive Center website at: <https://region6cc.uncg.edu/resources/>.

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