

Educators are currently presented with an urgent call and a unique opportunity to ensure that school policies, practices, and strategies for our youngest learners encompass what research and data tell us is essential to their successful development and learning. For all of its terror, deep sadness, and loss, the COVID-19 pandemic also provides educators with a unique and essential opportunity to boldly step up and make school a positive and transformative time for children, families, and educators.

The long-term goal is to increase the number of early childhood programs and early grade

classrooms with high-quality learning environments that contribute to reducing inequities, closing achievement and opportunity gaps, and supporting young learners.

Over the past several years, our youngest learners, particularly children of color, as well as overburdened and under-resourced learners, have experienced trauma that has the potential to disrupt the architecture of their developing brains. It is up to stable, caring adults in their lives to implement well-researched strategies that not only support children's intellectual growth, but even more importantly, their social and emotional development. This

Within the context of the cost of the pandemic to education, the lenses of equity, research, data, parallel processes, and aligned practices must be used to ensure that the knowledge of brain development research is considered essential to optimal learning and development.

includes an intentional focus on equity—where decisions are prioritized to ensure school is a place where children find themselves smart, capable, and know they belong.

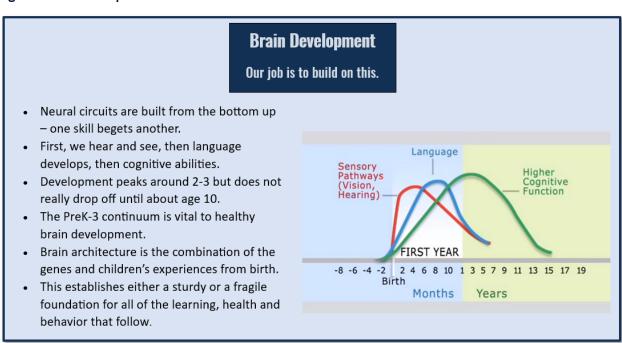
We know children form academic trajectories early in their school careers that tend to be stable and difficult to change over the course of their schooling (Alexander et al., 1993).

Children's negative perceptions of competence become stronger and harder to reverse as they progress through school (Valeski & Stipek, 2001).



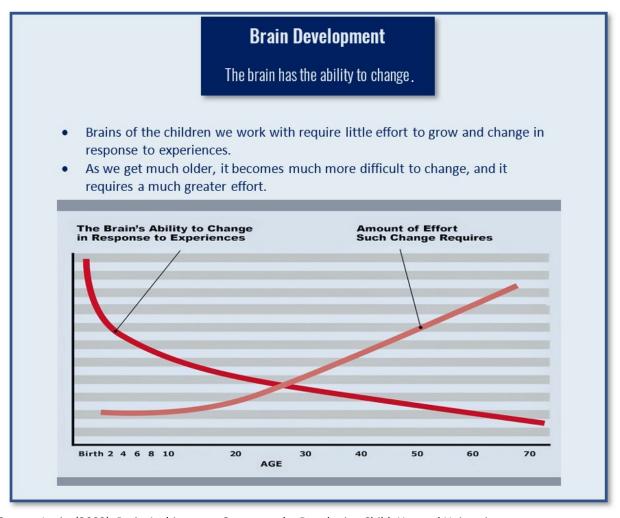
The brain research clearly states that it is imperative we optimize the experiences of young children to ensure positive learning trajectories.

Figure 1: Brain development



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.

Figure 2: The brain's ability to change and the effort required



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

The development of executive function, a set of mental processes that support abilities to manage oneself and find and use resources in order to achieve a goal, is vital to children's

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success. 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

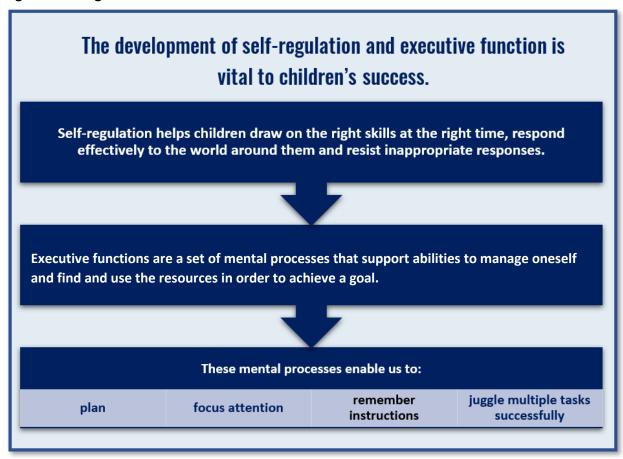
and goal directed. As children grow a sense of independence and self-control, their brain's capacity to regulate their behavior continues to develop, but they still need guidance from adults.

Opportunities to develop and practice self-regulation should be provided across all ages, grade levels, and settings using a systematic and intentional approach like that taken with literacy and

math. Skills must be learned, practiced, reinforced, and deepened over time. Children's self-regulation cannot develop when adults regulate behavior. (Murray et al., 2016).

Strengthening executive function starts with modeling. Learning how to think evolves over time with adequate exposure and practice. Prior to students becoming skilled at planning, organizing, and reflecting upon their achievements, teachers must verbally model thinking skills for students by thinking aloud and making connections (Center on the Developing Child at Harvard University, n.d.).

Figure 3: Self-regulation and executive function



Adapted from Executive function & self-regulation, Center on the Developing Child. Harvard University. https://developingchild.harvard.edu/science/key-concepts/executive-function/

The most effective way to support a young child's development of self-regulation is through play-based experiences. Decades of research tells us that play is an essential part of children's healthy growth and development. Early childhood experts have long agreed that young children who are provided with rich play-based learning environments excel in all domains of development and learning (Copple & Bredekamp, 2009; Elkind, 2007; Gullo, 2006; Sahlberg & Doyle, 2019; Yogman et al., 2018). Not only does play help increase children's memory, critical thinking skills, social skills, oral language skills, and literacy and mathematical skills, play also

increases children's abilities to regulate their emotions, responses, and behaviors. While early educators know and understand the importance of play, there continue to be elementary classrooms where the majority of the day is focused on a siloed approach to literacy and mathematics with limited opportunities for choice. In 2018, the American Academy of Pediatrics stated that "play is fundamentally important for learning 21st century skills, such as problem-solving, collaboration, and creativity, which require the executive functioning skills that are critical for adult success" (Sahlberg & Doyle, 2019, pp. 4–5). The time is now to listen to and focus on the research regarding play.

The good news for teachers and their students is that executive function skills can be developed and strengthened when they are explicitly taught and practiced across content and social contexts.

Figure 4: Thinking and emotional skills – prefrontal cortex

FLEXING PREFRONTAL CORTEX MUSCLES



Left Lobe:

THINKING SKILLS

- Planning
- Organization
- Time Management
- Working Memory
- Self-Monitoring

Right Lobe:



- 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.]

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 misserved when this work is not consistently part of the curriculum.

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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