

The Investor's Case: Executive Function & Self-Regulation



What Science and Research Tell Us...

- Executive function (EF) and self-regulation (SR) skills are the brain's "[air-traffic control system](#)," managing the dynamic flow of information and stimuli we experience daily.
- By enabling children to pay attention, think flexibly, and manage behaviors, EF and SR serve as crucial building blocks for all future cognitive, social, and emotional growth.
- These abilities emerge at birth and develop rapidly in early childhood. Children experience a dramatic [window of opportunity for growth from ages 3 and 5](#), when the neural circuits for EF and SR are particularly sensitive to experience.
- Chronic stress actively inhibits EF and SR skills, making them uniquely vulnerable to the effects of poverty and [adversity](#). By age 2, low-income children already demonstrate weaker EF skills relative to their higher-income peers.

Why It Matters...

- Children's early EF and SR abilities are one of the [best predictors](#) of their academic achievement—more so than traditional measures of intelligence, including IQ. And unlike IQ, these skills can be taught!
- Beyond the classroom, children with strong EF and SR capacities earn higher incomes, have better physical and mental health, and engage in less substance use and criminal activity in adulthood. A landmark study found that children with high self-control are [3x less likely](#) to be financially insecure or convicted of a crime as adults than their peers with low self-control.
- EF and SR skills are also [critical to resilience](#), helping children who have faced adversity to overcome obstacles and thrive.

What "Good" Would Look Like...

- Our goal is to ensure that all young children develop healthy EF and SR skills. For babies, this means shifting attention and self-soothing; for toddlers, focusing for short periods and briefly delaying gratification; and for preschoolers, concentrating for longer time frames and persisting through difficult tasks.
- A crucial first step is to build the EF and SR abilities of the adults in children's lives. In turn, these adults can foster learning environments rich in opportunities for self-directed play and problem-solving.

Strategies for Scaled Impact....

Two-generation approaches that strengthen EF and SR skills in both adults and children and address the effects of stress

Tech-enabled interventions and assessments that can be used by non-experts (e.g., parents, teachers) across diverse settings

Approaches that integrate EF and SR development into existing early learning instruction (e.g., literacy, numeracy)

Dig Deeper: EF & Self-Regulation

Key Terms

The 3 components of EF:

- **Working memory** allows us to hold and use information in our brains over short time periods
- **Inhibitory control** enables us to resist impulses and ignore distractions
- **Cognitive flexibility** helps us shift attention and apply different rules in different settings

Co-regulation: process by which a caregiver helps a child regulate thoughts and emotions, gradually teaching the child to do so independently

Key Research Studies

- How stress and adversity undermine EF in the brain
- SR's role in lifelong resilience
- The brain's second window for EF development in adolescence
- How early SR skills drive math and reading, enhance school readiness and success, and predict adult health, wealth, and public safety
- The role of autonomy-supportive parenting in children's EF

Field Leaders

- The Center on the Developing Child develops and scales cutting-edge EF and self-regulation interventions with community partners
- CASEL advances SEL research, practice, and policies nationwide
- Committee for Children develops and disseminates the widely used Second Step SEL curriculum
- The Developmental Social Cognitive Neuroscience Lab produces groundbreaking research on early EF

Promising Innovators

- Reflection Sciences has created a game-like app to assess EF in children as young as two years old
- Ready4Routines helps low-income parents and children incorporate healthy routines, scaffolding, and mindfulness into their daily lives
- Peekapak and Tools of the Mind embed self-regulation skill development into language and literacy instruction
- Visit our Venture Index for more innovators in this space!

Key Funders

- Institute for Education Sciences
- Bezos Family Foundation
- Bill & Melinda Gates Foundation
- Chan Zuckerberg Initiative
- *To learn more, check out this national database of funders in this space!*

Sample Metrics & Tools

METRICS

- Attention and impulse control
- Ability to recognize and manage emotions
- Ability to switch gears and focus on multiple aspects of a task

ASSESSMENT TOOLS

- NIH Toolbox Flanker Test and Dimensional Change Card Sort
- Minnesota Executive Function Scale
- Preschool Self-Regulation Assessment

Want to learn more? Check out Promise's full resource library!
Feedback on our materials? Share your thoughts with us!