

# Executive Function and Language Development Unpacking the Science and Exploring New Findings

Lisa Guernsey  
Early Childhood Investigations Webinar  
January 16, 2020



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## Background on New America



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### What it Looks Like to Promote Young Children's Growth and Discovery

Stories and Resources for Early Education Leaders

COLLECTIONS



<https://www.newamerica.org/education-policy/collections/ideal-learning-environment>

or

<https://bit.ly/3opkyGZ>



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### Weekly newsletters

EDUCATION POLICY

- EdCentral - Education Policy Newsletters & Events
- Center on Education & Skills Update
- English Learner Update
- Early and Elementary Education Update

Newamerica.org/subscribe

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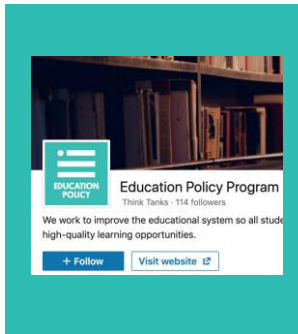
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### On Social media

Twitter:  
@NewAmericaEd

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### Topics we'll cover today

- What contributes to children's growth in **executive functioning skills**
- What contributes to children's growth in **oral language development**
- **Teaching strategies** for promoting these skills in early childhood classrooms



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### How to Prime Preschoolers for Success

The best programs teach kids language skills and focusing abilities through innovative, child-centered activities

By Lisa Guernsey



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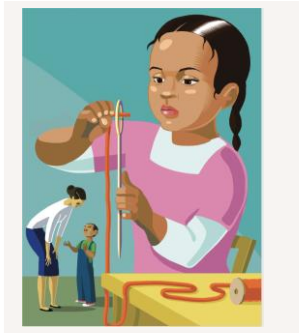
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Go to [ScientificAmerican.com](http://ScientificAmerican.com)

The October 2019 issue

\$6.99 to download PDF



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## Executive Function

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- working memory (being able to hold an idea in one's head and recall it a short time later)
- the ability to control impulses and emotions,
- and the flexibility to shift attention between tasks.



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### What about self regulation?

Self regulation is an overarching construct that includes executive functioning skills as well as being able to reflect on experience, sustain interactions with peers, and more.

-Blair and Raver, "School Readiness and Self-Regulation: A Developmental Psychobiological Approach," *Annual Review of Psychology*, 2015



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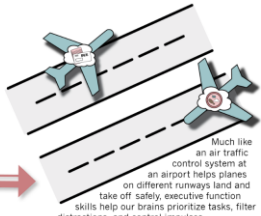
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## WHAT IS EXECUTIVE FUNCTION? AND HOW DOES IT RELATE TO CHILD DEVELOPMENT?

The phrase "executive function" refers to a set of skills. These skills underlie the capacity to plan ahead and meet goals, display self-control, follow multiple-step directions even when interrupted, and stay focused despite distractions, among others.



See this infographic and more at [www.developingchild.harvard.edu](http://www.developingchild.harvard.edu)

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### Reducing stress



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### Reducing stress

Chicago School Readiness Project (CSRP)

- Head Start classrooms in the early 2000s
- Treatment vs. control group
  - Teachers trained on reducing stress in classroom
  - Stress reduction for teachers themselves
  - Consultants in classroom to help children with challenging behaviors
- By spring of that year: Significant impact on behavior, improved EF



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### Providing choice & autonomy



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### Montessori methods



Not groups of children sitting on a rug facing the teacher.

Daily 3-hour uninterrupted "work time" for children.



Photo taken at Breakthrough Montessori Public Charter School. Photographer, Katie Jett Walls

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The story of the little girl and the pomegranate



Flickr photo by Shai Barzilay shared under CC-BY-NC-2.0 License

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### HighScope methods



HIGHSCOPE.

WHO WE ARE OUR RESEARCH OUR PRACTICE OUR REACH

#### Plan-do-review

Unique to the HighScope approach, this sequence includes a 10-15-minute small-group time where children plan what they want to do during work time (the area to visit, materials to use, and friends to play with); a 45-60-minute work time for carrying out their plans; and another 10-15-minute small-group time to review what they've done and learned with an adult and other children. Children are very active and purposeful during "do" time because they are pursuing activities that interest them. They may follow their initial plans, but often, as they become engaged, their plans shift or even change completely.

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### Tools of the Mind methods



Photo from PS 182 in Washington Heights, NYC by Children's Aid



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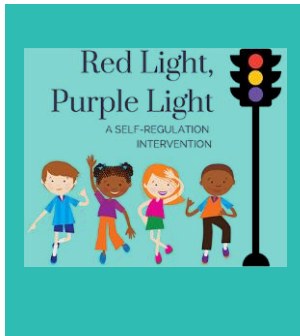
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### Self-regulation games

Based on research by Megan McClelland of Oregon State and Sarah Schmitt of Purdue



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**“When information is too complex and environments are too stressful, executive functions shut down; when information is too simple and environments are uninteresting, executive functions are not called on.”**

Blair and Raver, “School Readiness and Self-Regulation: A Developmental Psychobiological Approach,” *Annual Review of Psychology*, 2015



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## Oral Language Skills



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- *expressing words (not just hearing or reading them)*
- *knowing and using increasingly mature and sophisticated vocabulary words*
- *And using them in **meaningful conversations** that involve increasingly complex sentences.*



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## The impact of conversation



Photo courtesy of Allison Shelley/The Verbatim Agency for American Education: Images of Teachers and Students in Action.



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**Early studies show us the benefit of dialogic reading...**




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**...and how much adults' speech and ways of talking can help children...**

**"We find greater syntactic growth over a year of preschool in classes where teachers' speech is more syntactically complex."  
- Huttenlocher et al, 2002**




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**...even in math and science.**



Flickr photo by Laurie Sullivan used under CC BY license.

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### Conversation supported by classroom management



Original Articles

## Prekindergarten Interactive Book Reading Quality and Children's Language and Literacy Development: Classroom Organization as a Moderator

Sonia Q. Cabell, Tricia A. Zucker, Jamie DeCoster, Carolina Melo, Lindsay Forston & Bridget Hamre  
Pages 1-18 | Published online: 24 Sep 2018

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### Using planning and pretend play



Photo from PS 182 in Washington Heights, NYC by Children's Aid



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## Evidence of positive impact on children's learning



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## Links to academic outcomes



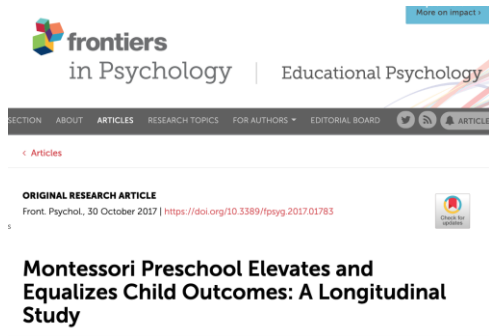
### The Chicago School Readiness Project: Examining the long-term impacts of an early childhood intervention

Tyler W. Watts, Jill Gandhi, Deanna A. Ibrahim, Michael D. Masucci, C. Cybele Raver  
Published: July 12, 2018 • <https://doi.org/10.1371/journal.pone.0200144>

#### Abstract

The current paper reports long-term treatment impact estimates for a randomized evaluation of an early childhood intervention designed to promote children's developmental outcomes and improve the quality of Head Start centers serving high-violence and high-crime areas in inner-city Chicago. Initial evaluations of end-of-preschool data reported that the program led to reductions in child behavioral problems and gains in measures of executive function and academic achievement. For this report, we analyzed adolescent follow-up data taken 10 to 11 years after program completion. We found evidence that the program had positive long-term effects on students' executive function and grades, though effects were somewhat imprecise and dependent on the inclusion of baseline covariates. Results also indicated that treated children had heightened sensitivity to emotional stimuli, and we found no evidence of long-run effects on measures of behavioral problems. These findings raise the possibility that developing programs that improve on the Head Start model could carry long-run benefits for affected children.

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frontiers in Psychology | Educational Psychology

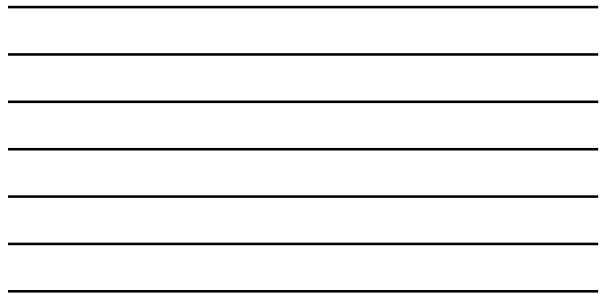
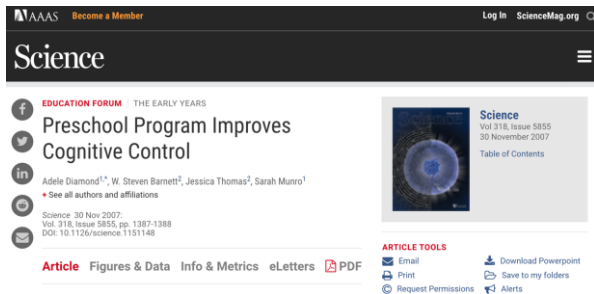
SECTION ABOUT ARTICLES RESEARCH TOPICS FOR AUTHORS EDITORIAL BOARD

ORIGINAL RESEARCH ARTICLE  
Front. Psychol., 30 October 2017 | <https://doi.org/10.3389/fpsyg.2017.01783>

### Montessori Preschool Elevates and Equalizes Child Outcomes: A Longitudinal Study

NEW AMERICA

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Science

EDUCATION FORUM THE EARLY YEARS

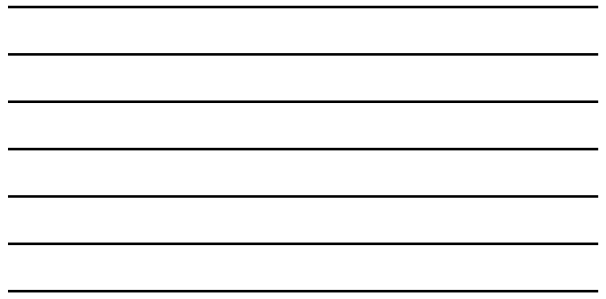
### Preschool Program Improves Cognitive Control

Adele Diamond<sup>1\*</sup>, W. Steven Barnett<sup>2</sup>, Jessica Thomas<sup>2</sup>, Sarah Murro<sup>1</sup>

Science 30 Nov 2007  
Vol. 318, Issue 5855, pp. 1387-1388  
DOI: 10.1126/science.1151148

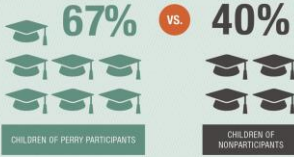
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### Perry Preschool: Intergenerational Effects

Children of Perry participants are much more likely to complete high school without suspension, compared to children of nonparticipants.



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### Without good EF and oral language...

- When the adults in children’s lives are elevating their stress instead of decreasing it, it is difficult for children to develop these skills, and
- When children’s daily routines include few opportunities for autonomy, for planning and executing on plans, for practicing control, and for having conversations, it is difficult for children to develop EF and oral language skills.

*Without these skills, children struggle in school and in relationships—and in life.*



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### Teaching Strategies



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### Environment: Lessons from CSRP

- Teachers were provided with extensive professional development designed to help them improve their classroom behavioral management.
- Mental health consultants came to the classroom *weekly* to guide teachers and help with particularly challenging behaviors.



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### Lessons from HighScope

“Look for children **articulating plans, following through, and recalling what they want do**, what materials they will use, how they will use those materials and who they want to play with during child-initiated times of the day.”

- Shannon Lockhart, associate director of the early childhood group at the HighScope Educational Research Foundation.



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### Lessons from Montessori



Photo by Katie Jett Wells, Breakthrough Montessori, Washington, DC



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**More ideas**

- Don't go it alone. Teachers need support, such as mental health consultants.
- Set up opportunities for children to talk about what they are doing during dramatic play.
- Learn from "Plan. Do. Review."
- Play games! The Freeze game. Simon Says. Red Light, Purple Light.



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**For the future**



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*A study to watch for*

An IES-funded study comparing high-fidelity Montessori to non-Montessori public preschool in 6 racially and socioeconomically diverse districts.



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*A study to watch for*

Clancy Blair and colleagues studying Tools of the Mind in Sunset Park / Brooklyn as part of a health/community intervention.



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### Research Questions for the Future

- What are all the ways that these activities could be integrated into the teaching of an academic concept or set of practices (in ELA, math, science, social studies)?
- Are there differences across subject-specific domains?
- What curricula for domain-specific skills should be used alongside or integrated with these methods?



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### Policy Questions

- Do early educators have enough support in their schools and communities to help children build these skills?
- What do they need that they are not getting?
- Are today's kindergarten readiness assessments providing enough information on EF and oral language development?



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## Resources and Trainings



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## Ideal Learning Principles

trustforlearning.org



Trustforlearning.org

### Principles of Ideal Learning Programs

Drawing from the strength of world-renowned early childhood approaches including Montessori, Reggio Emilia, Froebel, Bank of the Mind, Bank Street College of Education, and Waldorf, these principles outline core concepts that form the foundation of quality early childhood education or "Ideal Learning." These principles allow for multiple pathways, approaches and models and take into account the varied contexts within which early educators and care providers work. There are several essential beliefs, however, that thread throughout that are worth noting, including a commitment to play, relationship-based interactions, an ecologically-informed, child-centered perspective, equity, and a strength-based and equity-based approach with children, adults and families. Together, they balance principles of attachment and independence that are meaningful for young children's development.

Full disclosure: Trust for Learning is one of the more than dozen funders of the Education Policy Program at New America.



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## Oregon State online course

<https://workspace.oregonstate.edu/course/red-light-purple-light-a-self-regulation-intervention-program>

### Credential

Upon completion of this course, you will receive a certificate for 6 hours of professional development training from Oregon State University.

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**Professional development from the National Center for Montessori in the Public Sector**

[www.public-montessori.org/continuing-education/](http://www.public-montessori.org/continuing-education/)

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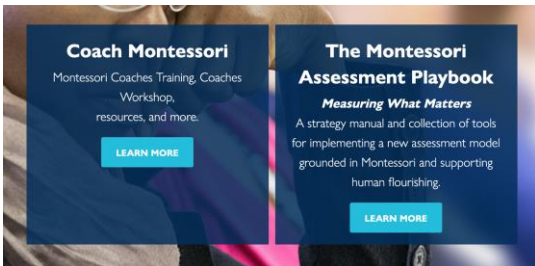
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**Thank You**

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