CCSSO Inclusive Leadership Webisode Series
Webisode #11:
Strengthening Executive Function Skills: Evidence-Based Opportunities to Support All Learners

Dr. Jacquelyn Gamino, The University of Texas at Dallas’ Center for BrainHealth
James Lowry, The University of Texas at Dallas’ Center for BrainHealth
Holly McCormack, BrainFutures

Tuesday, April 7th 2-3PM ET
For more information about the CCSSO Inclusive Leadership Webisode Series, please e-mail: kizzy.blackwell@ccsso.org
Tech Norms

- Log in to the WebEx system
- Engage camera (helps with understanding in virtual meetings)
- Upon entering, please share your name, role, and organization in the chat pod
- Be in control… mute and unmute yourself
- Please ask questions either via chat pod (at any time) or by raising your hand in WebEx (hand icon during discussion pieces)
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<td><strong>Strengthening Executive Function Skills: Evidence-Based Opportunities to Support All Learners</strong></td>
<td>This webisode will focus on bolstering school leaders’ knowledge of evidence-based practices to enhance executive function skills for all learners. Holly McCormack of Brain Futures and Dr. Jacquelyn F. Gamino and James Lowry at the University of Texas at Dallas, Center for BrainHealth will present.</td>
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<td><strong>Preparing Inclusive Teachers and Leaders for Today’s Students</strong></td>
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Agenda

- **Introduction and Framing**—James M. Paul and Kaylan Connally, CCSSO
- **Research and Work of BrainFutures**—Holly McCormack, BrainFutures
- **Question and Answer I**—Moderated by James M. Paul
- **Practice Examples**—Jacquelyn Gamino and James Lowry
- **Question and Answer II and Conclusion**—Moderated by James M. Paul
We, in partnership with the National Collaborative on Inclusive Principal Leadership (NCIPL), CEEDAR Center, and Oak Foundation believe inclusive principal leaders are vital to supporting students with disabilities and other diverse learners.

Together, we released Supporting Inclusive Schools for the Success of Each Child: A Guide for States on Principal Leadership (www.ccssoinclusiveprincipalsguide.org)
Strategy 4: Promote Principal Development on Inclusive Practices

- Articulate a clear set of practices that advance inclusive and learner-centered leadership as guidance to augment current principal development work

- Provide and promote effective systems of in-service support, evaluation, and professional development for principals at the state and local levels using those practices

- Establish incentives for principal mentoring, coaching and induction programs to include a deliberate focus on supporting the skills leaders need to establish optimal inclusive learning environments

- Ensure that all leaders are knowledgeable of evidence-based and high-leverage practices teachers need to advance positive outcomes for students with disabilities

- Consider developing and using micro-credentials to ensure principals pursue professional development opportunities that hone their skills to support students with disabilities
Where We Focus

Maximizing human potential across four areas

- Youth
- Working Adults
- Mental Health and Addiction
- Older Adults
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<th>Our Approach</th>
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**Research and Analyze**

- Establish consensus standards to guide utilization of brain-focused applications in targeted segments of society
- Identify scientifically-validated interventions that meet these standards
- Issue policy recommendations based upon our research and analysis

**Organize and Advocate**

- Build coalitions and catalyze cross-disciplinary collaboration and action to advance adoption and access
- Disseminate knowledge to core audiences and the public across multiple platforms
The BrainFutures Issue Brief and Advocacy Initiative

- Aggregated research on EF programs
- A transparent evidence-based threshold for evaluating EF programs
- A comparison guide to school-based EF programs
- Models for Action
What is Executive Function?

The ability to learn depends on **Executive Function (EF)** skills: a group of thinking or cognitive abilities essential for managing information and managing oneself.
Decades of research shows that executive functioning is a more powerful predictor than IQ of school readiness and academic achievement.

EF Brain Fitness Interventions Strengthen Emotional Mastery and Fortify Learning

- **Social and Emotional Learning (SEL).** EF skills are foundational to both academic and SEL competencies.

- **Emotional and Mental Grit.** EF skills promote traits associated with inner resilience, such as optimism, gratitude, social and self-awareness, and goal perseverance.

- **Self-Regulation.** Brain fitness interventions can train brain states for optimal learning, lowering stress and reinforcing EF and social and emotional skills.

- **Lifelong Success.** EF (and SEL) skills are associated with long-term academic success and positive life outcomes and well-being.
Schools Are Often Hamstrung By Low EF Challenges

Children with low EF...

- Are more likely to repeat a grade
- Receive more disciplinary actions
- Are 8x more likely to drop out of high school before graduating
The Mental Health of our Nation’s Youth Also Faces Serious Challenges

- Adverse childhood experiences (ACEs) affect almost half of U.S. children\(^3\)
- One in six U.S. children aged 6-17 experiences a mental health disorder each year\(^4\)
- 52% rise in adolescent major depressive episodes from 2005 to 2017\(^5\)
- $247 billion is spent each year in U.S. on childhood mental disorders\(^6\)
Adverse Childhood Experiences Pyramid

Source: U.S. Department of Health & Human Services, Substance Abuse and Mental Health Services Administration (SAMSHA) ("About the CDC-Kaiser ACE Study | Violence Prevention | Injury Center | CDC," 2019)
The Opportunity

- New evidence-based programs harness the brain’s neuroplastic potential to produce activity-dependent enhancement of the neurocognitive systems that support executive function and learning

- “School-lunch” programs for the brain
“I am expected to meet all of these academic milestones with students who cannot sit still, are unable to listen, and forget what I taught them 5 minutes ago.”

-Mariah N.
Los Angeles School Teacher
EF skills undergird learning so subject content can be retained

Cognitive training, mindfulness meditation, and EF curriculums have proven to improve executive function

Fundamental EF Skills:

- Focus
- Self-control
- Memory
- Cognitive Flexibility
"Children with poorer EFs benefit more from training; hence, training might provide them an opportunity to ‘catch up’ with their peers and not be left behind.”

– Dr. Adel Diamond
Developmental Cognitive Neuroscientist
Focus
Self-Control
Memory

• Math Achievement
• Reading Achievement
• Prosocial Behaviors
• Mental Health
• Wellness

Poverty and ACES

Neuroscience-Informed and Evidence-Based Programs Can Improve Executive Function

Children will Learn More
More than 40 programs were evaluated

10 met our evidence-based standard

19 others showed strong promise
Identifying Programs | Finding Those That Met the Criteria

- Can be used by students in at least one grade from K-12
- Can be implemented as a classroom-based intervention
- Has been used by “typically developing” students (i.e., not solely for those with ADHD and/or learning disabilities)
- Has research available that studies the specific program, not simply general research about the benefits of the type of intervention
**Inclusion Threshold** | **Applying an Evidence-Based Standard**

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<th>INTERVENTION</th>
<th>ONE RCT OR QUASI-EXPERIMENTAL STUDY IN A PEER-REVIEWED JOURNAL WITH+ SAMPLE SIZE</th>
<th>CLASSROOM-BASED IMPLEMENTATION IN AT LEAST ONE STUDY</th>
<th>EXECUTIVE FUNCTION OUTCOMES IN AT LEAST ONE STUDY</th>
<th>&quot;TYPICALLY DEVELOPING&quot; STUDENTS IN AT LEAST ONE STUDY</th>
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<td>Holistic Life Foundation's Stress Reduction and Mindfulness Curriculum</td>
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**Scope**

- K-12 classroom program
- Used by all students in a class

**Research & Implementation**

- One randomized control trial (RCT) or quasi-experimental study in a peer-reviewed journal with 10+ sample size
- Classroom-based implementation in at least one study
- Executive Function outcomes in at least one study
- Typically developing students in at least one study
EF-Specific Training

- Cognitive Training
- EF Curriculum
- Subject-Specific Comprehension with Cognitive Training

**Mindfulness:** Awareness of thoughts, feelings, senses without judgment

**Neurofeedback:** Feedback about brain activity in a skill-building context

**Social Emotional Learning:** Practices to understand and manage emotions, achieve positive goals, experience empathy, establish positive relationships, and make responsible decisions

**Brain Literacy:** Learning about the different parts, what they are called, how they function, and how they work together to create ideal conditions for learning
Consistent Format | A Way to Compare Programs

**AT A GLANCE**

**GRADES:**
K–8

**TYPE:**
Cognitive Training

**METHOD:**
Autonomous-use, Teacher-assisted

**STUDIES:**
RCT, Review

**PROGRAM FREQUENCY:**
20 minutes of cognitive training/day, two days/week for 10 weeks for a minimum of 10 hours, plus 5 minutes exercise breaks two times/day

**PLATFORM/TECHNOLOGY:**
Online and teacher-directed physical exercise

**TECHNOLOGY REQUIRED:**
One computer or laptop for each educator with internet access, projector for computer-based slides and audio speakers

**TRAINING REQUIRED:**
Yes, 3-hour on-site teacher training and 1-hour online follow-up

- At A Glance
- Program Description Template
- Key Studies Summary
- Other Research Available
- Find Out More
Outcomes Of Profiled Programs

- Increases in % of students meeting proficiency on state-mandated tests for math and reading
- Reductions in disruptive classroom behavior
- Increases in prosocial behavior toward self and others
- Statistically significant improvements on:
  - NIH-recommended executive function tests
  - School-administered tests of core subjects
ACTIVATE™ Outcomes:
20 min/day, 3/wk x 4 months Improves Math and Reading Scores

83% proficient vs. 58%

92% proficient vs. 63%

82% proficient vs. 69%

Pearson Reading Assessment
Activate Class: Grade 3, 95%
free/reduced lunch

Pearson Math Assessment
Activate Class: Grade 1, 49%
free/reduced lunch

District Math Assessment
Activate Class: Grade 2 <10%
free/reduced lunch
MindUP Outcomes:
Practice in PreK and Kindergarten; 15 instructional lessons and deep breathing exercises 2-3/day x 60 seconds

Early Reading Assessment at end of kindergarten: MindUP group had higher scores (209 vs. 201, p < .01)

Figure 1. Change in teacher BRIEF-P scale scores (pre- to posttest) for MindUP and BAU groups (negative change scores = improved executive functions). BRIEF-P = Behavior Rating Inventory of Executive Function for Preschoolers; BAU = business as usual.
School Implementation Strategies Are Included

• Leadership and Accountability (including Assessment)
• Advance Planning
• High-Quality Implementation
• Investment in Champions
• Funding Considerations
• Additional Adoption Tips
Discussion and Reflection

- What questions or comments do you have for Holly?
- What additional questions did the presentations spark for you?

Moving Forward

- How could the work and resources Holly shared be applied in your context?
- Do you have resources or work underway that aligns to Holly’s presentations that could help peers?
Translating brain science into usable applications to improve cognitive function across the lifespan
UT Dallas’ Center for BrainHealth
Strategic Memory Advanced Reasoning Training Program

- To date more than 82,000 students have received SMART in six states
- Focus on high-level executive function
- Essential thinking skills for academic, career and military success
Higher-order executive function

- Complex problem solving
- Novel thinking
- Emotional regulation
- Judgment & decision making
- Cognitive flexibility
Strategic Memory Advanced Reasoning Training

- Take advantage of brain plasticity
- Empower students to harness their unique brain capacity
- Empower teachers to develop and improve their personal brain function
Strategic Memory Advanced Reasoning Training

Goals of the SMART program

- Teach students *how* to learn, not *what* to learn

- Take advantage of the enormous brain development occurring in middle and high school years

- Development = Greater plasticity

- Focus on cognitive development of higher order thinking
Standardized Test Results

- Significant student progress in all tested content areas
- Improved executive function reflected in academic, social, emotional, and eventually work environments
Teacher Training

- Five-day intensive teacher training as well as in-classroom coaching
- Teachers commit to train students in all classes
- Stand-alone curriculum taught during regular class periods
- Teachers have access to additional materials via the secure SMART website
- Additional assistance for enhancing thinking skills with typical curriculum
What is SMART?

- Stairstep approach to enhance complex executive function

- Fosters critical thinking using principles from the science of learning

- Emphasis on the role of asking questions to analyze, interpret, and abstract meanings
Implementing SMART in the Classroom
Implementing SMART in the Classroom

- 10 sessions over a 4-week period
- Pre and post assessments to assess thinking skill improvement
- Teacher guided
- Student engagement is key
Student Results

- Historical Math Passing Rates of Cohort
- Standardized Test Results
The BrainHealth Project

How far and fast can the average healthy brain be transformed into a more fit and robust version of itself, with marked, life-improving improvements in productivity, decision-making, problem-solving, creativity, achievement and well-being? This is our challenge.

Pilot Phase Underway

A pilot is currently being conducted through July 2020 in the Dallas-Ft. Worth area. Enrollment is now closed, but please sign up to receive updates so you can be among the first to sign on when The BrainHealth Project™ launches nationwide later this year!
The SMART for Educators Team

- Doris Boat
- Ellen Brady
- Courtney Frost
- Brittanie Gray
- Eddie Hamilton
- James Lowry
- Cuwonna Peoples
- Denice Myers
- Russ Riddle
- Jeanne Rintelmann
- Barbara Robinson
- Erin Rohde
- Dana Sisco
- Janet Washington
Discussion and Reflection

» What questions or comments do you have for Jacquelyn and James?

» What additional questions did the presentations spark for you?

Moving Forward

» How could the work and resources Jacquelyn and James shared be applied in your context?

» Do you have resources or work underway that aligns to Jacquelyn and James’ presentations that could help peers?
Thank you for joining us. Please reach out to James M. Paul at james.paul@ccsso.org with any questions about the webisode series. Please join us for upcoming webisodes.

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6 National Research Council (US) and Institute of Medicine (US) Committee on the Prevention of Mental Disorders and Substance Abuse Among Children, Youth, and Young Adults: Research Advances and Promising Interventions; O’Connell ME, Boat T, Warner KE, editors. Preventing Mental, Emotional, and Behavioral Disorders Among Young People: Progress and Possibilities. Washington (DC): National Academies Press (US); 2009.

