



# The Executive Function and School Performance: A 21st Century Challenge

**Academic success in our 21<sup>st</sup> century schools is increasingly linked with children's mastery of a wide range of skills that rely on their use of executive function strategies.**

The crucial role of executive function processes begins in the preschool years and increases as students progress through middle and high school when they are expected to master complex skills that involve summarizing, note-taking and writing. Success depends on students' ability to plan, organize and prioritize tasks, materials, and information, separate main ideas from details, think flexibly, memorize content and monitor their progress. It is important to help children to understand how they think and learn, and to teach them to use strategies in five major executive function areas.

## The Impact of Executive Function Weaknesses on Academic Performance

*When I have to write a paper, I try to write but I can't figure how to get my mind unstuck. I get so frustrated when I have written only a few sentences after an hour so I give up. (John, 7th grade)*

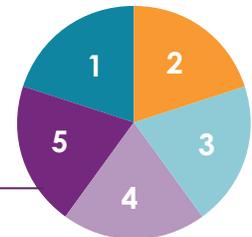
When students like John need to coordinate the skills required for tasks such as writing or completing long-term projects, they often become "stuck," the information gets "clogged," and they struggle to produce.

This model\* of a "clogged funnel" (Meltzer, 2007, 2010, 2018) best explains the challenges faced by students with executive function weaknesses who often:

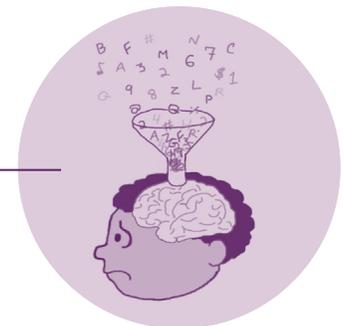
- struggle with open-ended tasks (e.g., organizing their calendars) because they are unable to prioritize and organize the various steps; have difficulty shifting between different components of the task (e.g., switching from outlining to writing, from one academic subject to another, or from calculating a math fact to checking the answer);
- over-focus on the details, ignoring the bigger picture;
- struggle to take notes or to outline because they lose track of the main ideas; have difficulty checking their work without structure or guidance;
- forget to hand in completed work.
- Students who cannot "unclog the funnel" may have difficulty showing what they know. Their grades often do not reflect their ability and, in spite of their effort, they may be labeled as "lazy." As they enter middle and high school, where the demands for independence and efficiency increase, they often become frustrated, lose self-confidence, and, as a result, make less effort in school.

*Mike's performance has been unpredictable all year! He is so bright and creative and his teachers report that he participates in classes. However, homework is a daily battle that I dread. Mike's teachers recently told me that he is often late with papers and projects and that he is lazy. (Parent of a 5th grader)*

### Major EF Function Areas:



1. **Shifting/Thinking flexibly**
2. **Organizing**
3. **Prioritizing**
4. **Accessing working memory**
5. **Self-monitoring/Self-checking**



Without EF strategies, students face challenges of too much information without adequate coping mechanisms.

## Executive Function Strategies: An Overview

Executive function strategies provide an important foundation for improving students' academic performance, confidence and effort. When students like Sarah use effective strategies, they develop a deeper understanding of their unique strengths and weaknesses and begin to see improved grades. Encourage your child or teen to use strategies and, in doing so, keep the following principles in mind:

- Don't assume that your child already knows how to use a strategy.
- Children and teens need to learn when to use which strategies and in what contexts. Not all strategies work for everyone all the time.
- You know your child! Help your child to personalize the strategies that work best so that these techniques become more meaningful.



*My success is due to the strategies I learned and the confidence and self-understanding I gained after I used the strategies and got higher grades. (Sarah, 11th grader)*

### SOME EF STRATEGIES TO USE AS STARTING POINTS:



#### Goal setting

- Help your child to set attainable goals that are well-defined.
- Break goals down into smaller steps and talk about alternative approaches.



#### Shifting/Thinking Flexibly

- Expose your child to jokes, riddles and puns which are enjoyable ways of learning to shift between different meanings.
- Teach your child to think flexibly when solving math problems by comparing their estimates with their answers to word problems or discussing a variety of approaches to a problem.



#### Organizing Ideas

- Encourage your child to use outlines, graphic organizers or webs to organize ideas for large projects.
- Encourage your child to use two- or three-column notes when reading or studying.



#### Organizing Materials

- Work with your child to develop a system for organizing materials in folders, backpacks, and lockers.
- Make sure your child has a designated place for completed assignments. Encourage your child to clean out his or her backpack once a week.

- Provide space at home to file old tests and study guides that may be needed at a later date.



#### Accessing Working Memory

- Encourage your child to create his or her own silly sentences, acronyms or cartoons to remember information.



#### Prioritizing

- Have your child "divide and conquer" upcoming assignments and projects by planning to complete larger assignments in steps in order to avoid last-minute panics.
- Help your child to create songs, stories and acronyms to remember the steps involved in completing and checking written papers and math problems.



#### Self-monitoring/Self-Checking

- Children need to learn to check their schoolwork before turning it in. Help your child to develop personalized checklists to correct his or her most common mistakes.

**Encouraging children and teens to use executive function strategies puts them on the path to success in school and in life. See our SMARTS Executive Function program for more strategies: [www.smarts-ef.org](http://www.smarts-ef.org).**

Developed by Lynn Meltzer, Ph.D. and her team of educational therapists, psychologists, researchers, and methodologists at ResearchILD, SMARTS is an online, downloadable, ready-to-use executive function curriculum for middle school and high school students. SMARTS teaches practical strategies that help students to understand their own learning profiles. Easy-to-teach lessons help students access strategies that match their learning styles.

SMARTS, for use in both general education and special education settings, integrates executive function strategies into existing curricula. SMARTS can be applied flexibly across subject areas and academic settings, from 1:1 tutoring and small groups, to large classrooms. SMARTS teaches students how to reflect and understand their strengths and challenges, promoting metacognitive awareness, the key to life-long learning.

Since the fall of 2015, more than a thousand teachers around the world have joined the SMARTS community. To learn more, and to try out a free lesson, visit: [www.smarts-ef.org](http://www.smarts-ef.org).



Winner of the CHAD Innovative Program award, SMARTS Online makes EF strategies accessible and affordable worldwide.

### Resources:

#### Publications:

Dweck, C. S. (2008). *Mindset: The New Psychology Of Success*. New York, NY: The Random House.

Goldstein, S. & Naglieri, J. (2015) (Eds.) *Executive Functioning Handbook*. New York: Springer.

Meltzer, L.J. (Ed). (2018) (2<sup>nd</sup> Ed.) *Executive Function in Education: From Theory to Practice*. New York: Guilford Press.

Meltzer, L.J. (2014). *Teaching executive function processes: Promoting metacognition, strategy use, and effort*. In Goldstein, S. & Naglieri, J.(Eds.) *Executive Functioning Handbook*. New York: Springer, 445-474.

Meltzer, L. (2010). *Promoting Executive Function in the Classroom (What works for special needs learners series)*. New York: Guilford Press.

Meltzer, L.J., Greschler, M., Kurkul, K., & Stacey, W. (2015). Executive function and peer mentoring: Fostering metacognitive awareness, effort, and academic success.

Harris, K., & Meltzer, L. (Eds.) *The Power of Peers in the Classroom: Enhancing Learning and Social Skills*. New York: Guilford Press, 1-32.

#### Audio:

Meltzer, L. (speaker). (2017, September,26). *Project Runaway* [Audio blog post]. <http://cerebralmatters.com/podcast/podcast/episode-12/>

Meltzer, L. (speaker). (2017,October,3). *From Pimples to Projects: Taking Charge of How to Learn* [Audio blog post] <http://cerebralmatters.com/podcast/?s=from+pimples+to+projects-299>.

### Authors:

**Lynn Meltzer, Ph.D.** is the President and Director of the Institutes for Learning and Development (ResearchILD & ILD) in Lexington, MA. She is a Fellow and Past-President of the International Academy for Research in Learning Disabilities. She is the Founder and Program Chair of the Annual Learning Differences Conference which she has chaired for the past 34 years. For 30 years, she held positions as Associate in Education at the Harvard Graduate School of Education and Adjunct Associate Professor in the Department of Child Development at Tufts University. Her 40 years of clinical work, research, publications, and presentations have focused on understanding the complexity of learning and attention problems. Her extensive publications include articles, chapters and books, most recently, *Executive Function in Education: From Theory to Practice* (2018), *Promoting Executive Function in the Classroom* (2010) and *The Power of Peers in the Classroom: Enhancing Learning and Social Skills* (2015), co-edited with Karen Harris. Together with her ResearchILD staff, she has developed SMARTS, an evidence-based executive function and peer mentoring/ coaching curriculum for middle and high school students ([www.smarts-ef.org](http://www.smarts-ef.org)).

**Michael Greschler, M.Ed.** is the Director of the SMARTS program at ResearchILD. Over the past 5 years, he has worked on expanding the SMARTS program, refining the SMARTS Online Curriculum, and providing SMARTS Trainings to administrators and teachers across the U.S.A. Since the launch of SMARTS in the fall of 2015, Michael has supported more than 1,000 SMARTS educators around the world, helping them to bring the power of executive function strategies into their classrooms.



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