Executive function: A new lens for viewing your child

This theory of how we mentally navigate life offers a new way to view a child's strengths and struggles.

By Kristin Stanberry

As each of us goes about daily life, numerous mental processes and skills help us plan for — and respond to — the tasks, challenges, and opportunities we face. Researchers and psychologists have coined the term executive function to describe this constellation of cognitive controls. The dynamics of executive function affect every one of us — young and old, as well as those with and without disabilities. It influences our performance at school, on the job, our emotional responses, personal relationships, and social skills. Yet executive function plays itself out a little differently in each of us; each individual is uniquely strong or competent in some cognitive control areas and weaker in others.

Executive function is a theory developed over the past 20 years. Interest in the theory — and discussion of it — is on the upswing among professionals who treat people with cognitive disabilities, including those with learning disabilities (LD), and attention-deficit/hyperactivity disorder (AD/HD).

The theory of executive function is not an exact science, nor is it a standard diagnostic category. Even so, it can provide a framework in which parents and professionals can understand a child's level of cognitive ability. When a child struggles with learning, attention, or behavior problems, the concept of executive function can help us sort through and pinpoint where the breakdowns occur in the context of her overall functioning. It may also help highlight a child's areas of strength and talent. Finally, it may help us determine how to support the child's growth and development in areas of struggle.

How do experts define executive function?

While definitions of executive function vary slightly, and the concept is still evolving, there is some consensus among researchers, psychologists, and other experts. Sheldon H. Horowitz, Ed.D, director of professional services at the National Center for Learning Disabilities (NCLD), offers a description that reflects the views of many experts: "Executive functioning involves activating, orchestrating, monitoring, evaluating, and adapting different strategies to accomplish different tasks.... It requires the ability to

analyze situations, plan and take action, focus and maintain attention, and adjust actions as needed to get the job done." Executive function is often compared to the conductor of a symphony orchestra, coordinating and managing many cognitive functions. For kids with LD and/or AD/HD, the interaction of cognitive functions may not always produce a harmonious result.

What abilities are involved in executive function?

Thomas Brown, Ph.D., assistant clinical professor of psychiatry at the Yale University School of Medicine and associate director of the Yale Clinic for Attention and Related Disorders, has proposed a model that includes six clusters of cognitive functions involved in executive function. The following table illustrates Dr. Brown's model (terms used by other experts are shown in italics).

Cognitive cluster	Executive functions
Activation	Organizing, prioritizing, and activating to work *Initiating, planning, strategizing, and sequencing*
Focus	Focusing, sustaining, and shifting attention to tasks
Effort	Regulating alertness, sustaining, and processing speed *Pacing, managing time, and resisting distraction*
Emotion	Managing frustration and regulating emotions
Memory	Utilizing working memory and accessing recall *Using feedback*
Action	Monitoring and self-regulating action *Inhibiting*

"Each cluster operates in rapidly shifting interactive dynamics to do a wide variety of daily tasks that require self-regulation by using attention and memory to guide one's action rather than being micro-managed by someone else," explains Dr. Brown.

How does executive functioning work (or not work) in kids with learning or attention problems?

To better understand how various executive functions play out in a child's daily life, let's examine some common childhood tasks and situations. The tables below list some of the executive functions required in specific situations* — and what difficulties result when the necessary executive functions are dysfunctional.

Reading comprehension

Executive function used	Signs of executive dysfunction
Working memory and accessing recall	When she reaches the end of a chapter, she's forgotten key points she picked up (and understood) while reading.
Regulating alertness	When reading a long passage, she can't stay alert and attentive; she has low stamina when it comes to reading.

Writing

Executive function used	Signs of executive dysfunction
Activating (starting)	She doesn't know how to begin a writing project.
Organizing	She has no idea how to outline an essay or report.
Prioritizing	She writes too much about things that are of minor importance to the story.
Sequencing	She presents facts/ideas in a disorganized, illogical order.

Taking tests

Executive function used	Signs of executive dysfunction
Focusing	She is easily distracted and can't stay focused on the instructions or the test questions.
Strategizing	She can't develop an appropriate plan of attack by skimming the test and instructions before taking the test..
Working memory/ accessing recall	When trying to answer test questions, she has trouble remembering information she's previously learned. She struggles to hold onto and mentally manipulate related facts/concepts to answer test questions.
Pacing	She spends too much time on some questions and rushes through others. She may not efficiently budget the time that's allocated.

Long-term projects

Executive function used	Signs of executive dysfunction
Organizing	She can't determine the steps for the project (or their sequence). She has trouble collecting resources and often misplaces what she does find. She struggles to put the pieces of the project together in an orderly or logical way.
Managing time	She doesn't set realistic task milestones to work through the project from start to finish.
Self-regulation	She fails to monitor her progress.

Shifting between tasks

Executive function used	Signs of executive dysfunction
Shifting attention	She can't "let go" of a task to attend to another project when instructed to. She gets "stuck" on a task or favorite pastime and can't move her focus elsewhere when required.
Managing frustration	She becomes angry or frustrated when she feels forced to switch gears.

Playing a game with a group of her peers

Executive function used	Signs of executive dysfunction
Self-regulation	She has a hard time waiting her turn and working cooperatively.
Managing frustration	When frustrated with her peers, she may act out before trying to understand and manage the perceived conflict internally and/or through calm communication.

* Note: The scenarios described above are examples but do not represent a complete list.

Are there tests that measure a child's strength and weakness in executive function?

There is some debate about this, but Dr. Brown states: "A person's ability to perform the complex, self-managed tasks of everyday life provides a much better measure of his or her executive functioning than can neuropsychological tests."

There is also a debate about whether or not an individual's executive function profile can be used, in and of itself, to help identify LD or diagnose AD/HD. It is not standard practice at this time.

How can you use the executive function framework to understand your child's strengths and struggles?

As a parent, you may find the framework of executive function helpful for identifying not only your child's area(s) of difficulty but also her strengths and talents. By organizing and teasing apart that information, her unique "executive function profile" may emerge. This will help you determine where she needs extra help, and where her strengths might help compensate for her areas of struggle.

This perspective may also help you communicate your concerns and observations to teachers and other professionals. This may, in turn, help educators determine what accommodations or interventions might target her areas of difficulty, perhaps by playing to some of her strengths. (Note: Many teachers are not familiar with the concept of executive function. However, your school psychologists may be familiar with the theory because neuropsychological testing is used to assess executive function.)

Whether or not your child meets the criteria for LD or AD/HD, understanding her executive function profile

— where she struggles, where she succeeds, and how those abilities interact — may be a powerful tool for understanding who she is, and how she learns and functions best. Depending on the age of your child, it may also provide a lens through which she can view herself — a view that will change and develop as she matures.

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