



National Center *for* Learning Disabilities

The power to hope, to learn, and to succeed

Executive Function



What is executive function?

"Executive Function" is a term used to describe a set of mental processes that helps us connect past experience with present action. We use executive function when we perform such activities as planning, organizing, strategizing and paying attention to and remembering details.

People with executive function problems as having difficulty with planning, organizing and managing time and space. They also show weakness with "working memory" (or "seeing in your mind's eye"), which is an important tool in guiding one's actions.

As with other manifestations of LD, disorders in executive function can run in families. Problems can be seen at any age but tend to be increasingly apparent as children move through the early elementary grades; the demands of completing schoolwork independently can often trigger signs that there are difficulties in this area.

How does executive function affect learning?

In school, at home or in the workplace, we're called on all day, every day, to self-regulate behavior. Normally, features of executive function are seen in our ability to:

- Make plans
- Keep track of time
- Keep track of more than one thing at once
- Meaningfully include past knowledge in discussions
- Engage in group dynamics
- Evaluate ideas
- Reflect on our work
- Change our minds and make mid-course corrections while thinking, reading and writing
- Finish work on time
- Ask for help
- Wait to speak until we're called on

These skills allow us to finish our work on time, ask for help when needed, wait to speak until we're called on and seek more information.

Problems with executive function may be manifested when a person:

- Has difficulty planning a project
- Has trouble comprehending how much time a project will take to complete
- Struggles to tell a story (verbally or in writing); has trouble communicating details in an organized, sequential manner
- Has difficulty with the mental strategies involved in memorization and retrieving information from memory
- Has trouble initiating activities or tasks, or generating ideas independently
- Has difficulty retaining information while doing something with it; e.g., remembering a phone number while dialing.

How does executive function affect learning?

There is no single test or even battery of tests that identifies all of the different features of executive function. Educators, psychologists, speech-language pathologists and others have used measures including the

Wisconsin Card Sorting Test (Berg, 1948), the Category Test (Reitan, 1979), the Trail Making Test (Reitan, 1979), and the Progressive Figures and Color Form Tests (Reitan & Wolfson, 1985) – to name a few.

Careful observation and trial-teaching are invaluable in identifying, and better understanding, weaknesses in this area.

What are some strategies to help?

There are many effective strategies one can use in when faced with the challenge of problems with executive function. Here are some methods to try:

General Strategies:

- Take step-by-step approaches to work; rely on visual organizational aids.
- Use tools like time organizers, computers or watches with alarms.
- Prepare visual schedules and review them several times a day.
- Ask for written directions with oral instructions whenever possible.
- Plan and structure transition times and shifts in activities.

Managing Time:

- Create checklists and “to do” lists, estimating how long tasks will take.
- Break long assignments into chunks and assign time frames for completing each chunk.
- Use visual calendars at to keep track of long term assignments, due dates, chores, and activities
- Use management software such as the Franklin Day Planner, Palm Pilot, or Lotus Organizer
- Be sure to write the due date on top of each assignment.

Managing Space and Materials:

- Organize work space.
- Minimize clutter.
- Consider having separate work areas with complete sets of supplies for different activities.
- Schedule a weekly time to clean and organize the work space.

Managing Work:

- Make a checklist for getting through assignments. For example, a student's checklist could include such items as: get out pencil and paper; put name on paper; put due date on paper; read directions; etc.
- Meet with a teacher or supervisor on a regular basis to review work; troubleshoot problems.

The Bottom Line:

The brain continues to mature and develop connections well into adulthood, and a person's executive function abilities are shaped by both physical changes in the brain and by life experiences, in the classroom and in the world at large. Early attention to developing efficient skills in this area can be very helpful, and as a rule, direct instruction, frequent reassurance and explicit feedback are strongly recommended.

