Beyond “Lazy and Unmotivated”

Why Parents and Teachers Need to Know About Executive Skills

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Why did I choose the title “Beyond Lazy and Unmotivated?”

Concerns you most about this pupil?
That he is lazy and not working to his potential.

Describe the best things about this pupil:
He is sweet and has a good sense of humor.
What Are Executive Skills?

- Executive skills refer to the cognitive processes required to plan, organize, and execute activities.
- They are frontal lobe functions that begin to emerge shortly after birth but take a full 25 years to fully mature. In students with attention disorders, they tend to develop more slowly than normal achieving peers.
Specific Executive Skills

Neuroscientists, neuropsychologists, and brain researchers have different schema for labeling and organizing executive skills; the organizational scheme we propose places a premium on specificity to better link the skill deficit to interventions designed to remediate the deficit.
Executive Skills: Definitions

• **Response Inhibition**: The capacity to think before you act – this ability to resist the urge to say or do something allows us the time to evaluate a situation and how our behavior might impact it.

• **Working Memory**: The ability to hold information in memory while performing complex tasks. It incorporates the ability to draw on past learning or experience to apply to the situation at hand or to project into the future.
What working memory looks like in a 15-year old
What working memory looks like in a 15-year old-- and what impact it has on parents
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• **Emotional Control**: The ability to manage emotions in order to achieve goals, complete tasks, or control and direct behavior.
Executive Skills: Definitions

• **Flexibility**: The ability to revise plans in the face of obstacles, setbacks, new information or mistakes. It relates to an adaptability to changing conditions.

• **Sustained Attention**: The capacity to maintain attention to a situation or task in spite of distractibility, fatigue, or boredom.
ADHD KIDS

What teachers think we do.  

What society th
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- **Planning/Prioritization**: The ability to create a roadmap to reach a goal or to complete a task. It also involves being able to make decisions about what’s important to focus on and what’s not important.
Planning is a skill that takes time to develop.
Executive Skills: Definitions

- **Organization**: The ability to create and maintain systems to keep track of information or materials.

- **Time Management**: The capacity to estimate how much time one has, how to allocate it, and how to stay within time limits and deadlines. It also involves a sense that time is important.

- **Goal-directed persistence**: The capacity to have a goal, follow through to the completion of the goal and not be put off or distracted by competing interests.
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- **Metacognition:** The ability to stand back and take a birds-eye view of oneself in a situation. It is an ability to observe how you problem solve. It also includes self-monitoring and self-evaluative skills (e.g., asking yourself, “How am I doing? or How did I do?”).
Neural proliferation and pruning is a normal, healthy part of brain development: connections that are not used are pruned away.

The basic architecture of the brain is constructed through an ongoing process that begins before birth and continues into adulthood. During the first few years of life, 700 new synapses (neural connections) are formed every second. After a period of rapid proliferation, connections are reduced through a process called pruning, so that brain circuits can become more efficient. Early experiences affect the nature and quality of the brain's developing architecture by determining which circuits are reinforced and which are pruned through lack of use. Some people refer to this as "use it or lose it." *Graphic Source: Chugani, H.T. Synaptic Density. [Drawing]. In R. Shore, Rethinking the Brain: New Insights into Early Development (p. 20). New York: Families and Work Institute, 1997.*
Areas with many attachments to other parts of the brain develop fast in teenagers
Why is it important to help kids develop executive skills?

• Executive skills might be described as a “hidden curriculum” since they are not explicitly taught, and yet they are required for mastery of content curricula and attainment of academic standards.

• Not only are they critical skills for success in school, but for adults to succeed in the home and in the workplace, they must have effective executive skills.
Why is it important to help kids develop executive skills?

DALE'S FOURTH-GRADE EDUCATION PAYS OFF.

THE JOB YOU ARE APPLYING FOR WILL REQUIRE YOU TO KNOW LONG DIVISION, STATE CAPITALS AND CURSIVE WRITING.
So why is this understanding of executive skills so important for parents and teachers?

• It gives us a framework for understanding these critical skills within a developmental context.

• Knowing what’s developmentally appropriate helps guide the kinds of supports we give kids. (CAN WE TALK ABOUT MIDDLE SCHOOL?!!)

• This understanding then shifts the explanation for underachievement or misbehavior from a “moral failing” within the child to a *skill deficit*.

• Viewing these frustrating behaviors as skill deficits gives them access to an array of intervention strategies designed to reduce the impact of weak executive skills on performance and to teach students deficient skills.
NOW THAT WE’VE ANSWERED THE WHY QUESTION...

Let’s move on to WHAT parents and teachers need to know about executive skills.
Where in the brain are executive skills located? In the frontal lobes (just behind the forehead)
A baby’s brain at 35 weeks weighs only two-thirds of what it will weigh at 39 to 40 weeks.
Scientists now know that chronic, unrelenting stress in early childhood, perhaps caused by extreme poverty, neglect, repeated abuse, or severe maternal depression, for example, can be toxic to the developing brain. While positive stress (moderate, short-lived physiological responses to uncomfortable experiences) is an important and necessary aspect of healthy development, toxic stress is the strong, unrelieved activation of the body’s stress management system in the absence of the buffering protection of adult support. This image depicts the structure of neurons in the areas of the brain that are most important for successful learning and behavior in school and the workplace—the hippocampus and prefrontal cortex. The neuron on the right, which has been subjected to toxic stress, clearly displays underdeveloped neural connections, or weaker brain architecture.
How do executive skills develop?

Through a process called myelination. Myelin acts as insulation, increasing the speed with which nerve impulses are transmitted. The faster the impulse, the better the skill.
All skills, including executive skills, improve with practice...

The more you practice, the better the skill. Practice also makes the task less effortful.
What can the 13-year old brain do?
What can the 13-year old brain do?
And there may be gender differences...
Frontal lobes take time to develop...

The diagram illustrates the development of various executive functions over age. The horizontal axis represents age in years, ranging from 4 to 72. The vertical axis shows the performance on executive tasks, with improved performance on executive tasks on the left and immature skills on the right.

Key points include:

1. Cognitive flexibility
2. Inhibitory control
3. Working memory
4. Goal-setting and problem solving
5. Theory of mind
6. Affective decision making

The curves indicate the approximate age at which each executive function reaches maturity.
Cognitive Decline Begins In Late 20s, Study Suggests

Date: March 20, 2009

Source: University of Virginia

A new study indicates that some aspects of peoples' cognitive skills — such as the ability to make rapid comparisons, remember unrelated information and detect relationships — peak at about the age of 22, and then begin a slow decline starting around age 27.

"This research suggests that some aspects of age-related cognitive decline begin in healthy, educated adults when they are in their 20s and 30s," said Timothy Salthouse, a University of Virginia professor of psychology and the study's lead investigator.

His findings appear in the current issue of the journal Neurobiology of Aging.

Salthouse and his team conducted the study during a seven-year period, working with 2,000 healthy participants between the ages of 18 and 60.

Participants were asked to solve various puzzles, remember words and details from stories, and identify patterns in an assortment of letters and symbols.

Many of the participants in Salthouse's study were tested several times during the course of years, allowing researchers to detect subtle declines in cognitive ability.

Top performances in some of the tests were accomplished at the age of 22. A notable decline in certain measures of abstract reasoning, brain speed and in puzzle-solving became apparent at 27.

Salthouse found that average memory declines can be detected by about age 37. However, accumulated knowledge skills, such as improvement of vocabulary and general knowledge, actually increase at least until the age of 60.
As the maturing brain becomes more specialized to assume more complex functions, it is less capable of reorganizing and adapting. For example, by the first year, the parts of the brain that differentiate vocal sounds are becoming specialized to the language the baby has been exposed to and are already starting to lose the ability to recognize important sound distinctions found in other languages. As the brain prunes away the circuits that are not used, those that are used become stronger and increasingly difficult to alter over time. Declining plasticity means it's easier and more effective to influence a baby's developing brain architecture than it is to rewire parts of its circuitry in the adult years. In other words, we can "pay now" by ensuring positive conditions for healthy development, or "pay more later" in the form of costly remediation, health care, mental health services, and increased rates of incarceration. Graph Source: P. Levitt (2009)

www.developingchild.harvard.edu

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What Do Executive Skill Weaknesses Look Like in Students?

- Acts without thinking
- Interrupts others
- Overreacts to small problems
- Upset by changes in plans
- Overwhelmed by large assignments
- Talks or plays too loudly
- Resists change of routine
- Doesn’t notice impact of behavior on others
- Doesn’t see their behavior as part of the issue

- Easily overstimulated and has trouble calming down
- Gets stuck on one topic or activity
- Gets overly upset about “little things”
- Out of control more than peers
- Can’t come up with more than one way to solve a problem
- Low tolerance for frustration
- Acts wild or out of control
What Do Executive Skill Weaknesses Look Like in Students?

• Doesn’t bother to write down assignment
• Forgets directions
• Forgets to bring materials home
• Keeps putting off homework
• Runs out of steam before finishing work
• Chooses “fun stuff” over homework or chores
• Passive study methods (or doesn’t study)

• Forgets homework/forgets to pass it in
• Leaves long-term assignments or chores until last minute
• Can’t break down long-term assignments
• Sloppy work
• Messy notebooks
• Loses or misplaces things (books, papers, notebooks, mittens, keys, cell phones, etc.)
• Can’t find things in backpack
What Do Executive Skill Weaknesses Look Like in Younger Students (K-2)?

- Forgets directions
- Forgets to bring materials back and forth between home and school
- Runs out of steam before finishing work
- Chooses “fun stuff” over homework or chores
- Leaves a trail of belongings wherever he/she goes

- Sloppy work
- Loses or misplaces things (books, papers, permission slips, mittens, lunch money, etc.)
- Messy desk/cubby areas/backpack
- Leaves a “paper trail”—scattered around the room
And finally, WHAT can we do to help kids with weak or immature executive skills?
There are 3 primary ways adults can help kids with weak executive skills:

1. Change the environment to reduce the impact of weak executive skills.
2. Teach the youngster executive skills.
3. Use incentives to get youngsters to use skills that are hard for them.