

Looking at Executive Function

By: Rick Wormeli

It was bright orange and boxy. I had used it repeatedly to "catch air," plowing over snow piles at high speed in school parking lots during the winter. Doing these stunts was safe, I reasoned: It was the family sedan, a Volvo, and at 16, I was invincible.

Sure, my head spun every hour of every day with school assignments, invented worries, real anxieties, fart jokes, satire, and politics in my American Civ class—denying my growing zit population, crushing on the girl in fifth period Trig class, memorizing lyrics to Eagles' songs, and getting ready for the dance Friday night. I couldn't really do anything wrong, I was sure.

Late one afternoon, I pulled around the back of our house and up the slope to park in the leveled carport near the back door. I turned off the engine, twisted the keys from the ignition, grabbed my jacket and books from the passenger seat, and launched out of the car, slamming the door behind me. Once in the house, I dumped my notebooks in my downstairs bedroom and enjoyed after-school. I was one bite into the second of three molasses cookies when the phone rang. It was Mr. Clark, our neighbor.

"Rick," he said. "You'll probably want to look out your back window. It's a quite a sight." Then he chuckled and hung up. Mid-chew, I raced to the window and stared.

There was my orange Volvo sitting all by itself in the center of the tall grass meadow that bordered our back property line. The car had traveled 50 yards, then mauled the 8-foot high bamboo stand separating our backyard from the meadow. I stared at the deep grooves the car had made, tracing them back up to where I had parked the car only moments ago. Parked, I thought, oh crap! I hadn't put it in gear or set the parking brake.

Sound familiar? I was having a problem with executive function.

Executive Function

Executive function (EF) is the set of mental processes that help us plan, organize, strategize, pay attention to details, and manage time. All of us have issues with EF from time to time, even as adults. Executive function in the pre-frontal cortex of the adolescent brain is intermittent at best.

Many of the skills associated with EF are good for *all* students to learn and practice, not just those with identified EF challenges.

And just what are those EF skills? In their book, *Smart but Scattered Teens: The "Executive Skills" Program for Helping Teens Reach Their Potential*, Richard Guare, Peg Dawson, and Colin Guare cite the following:

- Response inhibition
- Working memory
- Emotional control
- Flexibility
- Sustained attention
- Task initiation
- Planning/prioritizing
- Organization
- Time management
- Goal-directed persistence
- Metacognition.



Looking at Executive Function

Students in my classes over the years have blurted out highly inappropriate comments only to have maturity catch up with the front of their brains seconds later. They don't think it's cheating to copy others' homework when they already understand a concept. They think jumping off a one-story building will work just fine if they have an opened umbrella to slow them down. They shoplift a Snickers bar even if they have the cash to pay for it.

Some students swear they can wake up 10 minutes before the bus arrives and be on time for school—and they do arrive on time, but they forget to bring three assignments and one permission slip that are due that day, so they call Mom to see if she can bring those things to school on her way to work, and oh, could she bring some lunch money, too?

Raise your hands if you recognize this student in your classes:

- He reasoned well through tricky word problems last week, but can't figure out similar ones this week using the same processes.
- When doing an Internet search on the speed of light, she gives up when she inputs "light" in the search box and gets 2,220,000,000 possible websites.
- He often misjudges how long tasks will take and is perpetually asking for extensions.
- Almost every day, she leaves some vital supply or assignment in her locker and asks permission to go get it.
- He can't break down large tasks into "doable" sections and proceed through them in an orderly manner.

She demonstrates "learned helplessness," citing fixable problems as excuses for why she can't start the assignment, such as she doesn't have a pen, she doesn't know which page to use, and she can't find her folder on the computer.

Some students' EF capacities are slower to mature, and they need additional assistance from teachers. Unfortunately, many teachers are not trained in how to help students develop these EF skills, especially those students who are identified with challenging learning disabilities or attention deficits.

In addition, when students struggle academically and emotionally, we tend to blame the student. "Come on," the words tumble out of our mouths, "step it up, get organized, use your time wisely, show respect, and get your act together."

These comments are a little like telling a student who doesn't speak our language that he is intellectually incapacitated. As Todd Whitaker would say, who's the slow learner here?

Improving EF Skills

No single strategy will work with every student, nor is there one magical strategy that will solve one student's EF problems. It's always going to involve multiple strategies implemented in concert. Successful teachers are dynamic in their approach, too, adjusting EF strategies as students mature.

Here are some of the strategies that promote EF success:

- *Exercise daily.* In her PBS online article, "The Science of Smart: A Surprising Way To Improve Executive Function," Annie Murphy Paul, author of the forthcoming book, , says, "Aerobic exercise can grease the wheels of executive brain function." She contends that "regular exercise and overall physical fitness have been linked to academic achievement, as well as to success on specific tasks like safely crossing a busy street while talking on a cell phone."
- *Analyze and break down tasks.* Ten-page paper? Forget it. With EF-challenged students, break assignments into smaller chunks so each piece is much more doable. Students can experience a sense of accomplishment and monitor progress more often. Give students struggling with EF issues practice in breaking down tasks such as preparing a bibliography, doing an Internet search, washing their P.E. uniform, and getting themselves ready for a musical, athletic, or theatrical performance.
- *Confirm, reconfirm, and reconfirm again all directions.*
- *As often as possible, cue from afar.* "Communicate indirectly (for example, note, text message). The idea is to create distance between you and your teen so that the cue can work without the two of you being in the same space at the same time," according to Guare, Dawson, and Guare.

Looking at Executive Function

- *Announce upcoming events and changes to the regular schedule well in advance and do it repeatedly.* No surprises, if possible. If we are actually going to have a surprise visitor to the classroom, we may tell students struggling with EF skills about it ahead of time.
- *Practice transitions from one activity to another, both as individuals and in small groups.* Yes, this is important, even with middle and high school students.
- *Record all due dates at the top of every assignment or the opening page of any electronic file.*
- *Remove clutter and distractions from the immediate visual area of the student while he works.*
- *Do a book bag dump and clean out once a week and on the same day of the week.* If everything is on an iPad, do a folder and file clean-out and confirm the current organization is helping, not hindering the student's success.
- *Provide effective, constructive, and frequent descriptive feedback.* Focus on decisions students make, not the quality of the work. It's specific feedback that motivates and matures, not the label on the performance.
- *Make every goal transparent.* Provide lots of examples of the final product for every standard. Provide students with ample experience critiquing others' products and attempts at the learning goals. In doing this, they build a robust internal editor that helps them compare their own work with given exemplars in real time. They monitor their own progress and adjust their efforts without feeling threatened.
- *Provide a compelling visual aid for everything students have to learn.*
- *Help students identify risks involved in their decisions.* This is done in many ways, including role-playing; self-talks; ropes course initiatives programs; encouragement to try out for new sports, clubs, and programs; and reading short passages about risky behavior and discussing potential outcomes before reading the final descriptions of what happened. Risk-taking can increase dopamine production in adolescents, which creates pleasure, making it very attractive. Helping students connect with their core values as the individuals they want to be, the people their families want them to be, will provide an effective metric of risk assessment.
- *Show progress towards goals visibly and often.*
- *Create a successful emotional atmosphere.* Let all students know that they are accepted as fully valued class members. Operate as an advocate for students, not an adversarial "gotcha" taskmaster. Know that humiliation for EF shortcomings kills motivation and enflames resentment.
- *Demonstrate how EF skill success leverages students for what they desire in life.* For example, help them make a plan for making enough money to purchase something of value.

Positive Mindset

Despite the less-than-stellar development in EF when I was 16, I'm a successful dad, husband, and educator. We all get there. Let's not hold lack of EF development against students. Instead, let's use it as a platform for self-awareness and creative problem-solving – you know, maturation. The Eagles were right back then, and they're right for EF-challenged students today: "Take it easy. Don't let the sound of your own wheels make you crazy."

*Rick Wormeli is a long-time teacher, consultant, and writer living in Herndon, Virginia. His newly released book, **The Collected Writings (So Far) of Rick Wormeli: Crazy Good Stuff I Learned about Teaching** is available from AMLE at www.amle.org rwormeli@cox.net. @rickwormeli*

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