



Papers by Yellowbrick Leadership

---

## **EXECUTIVE FUNCTIONING AND THE EMERGING ADULT: The Dissonance Between Intelligence and Competence**

**Paule Verdier MDT, OT/L**

Emerging adulthood is a time of cognitive, social, emotional, and behavioral transformation. The brain is more neuroplastic than any other time of life after the first three years and executive functioning and self-organizational skills are “coming online” to set the trajectory for the rest of the emerging adult’s life (Giedd, 2008; Schore, 1994). The brain has overproduced neurons and is now selectively eliminating that which can be ‘weeded out,’ to assist in greater connectivity and integration of disparate brain functions (Giedd, 2008). During the emerging adult years, the myelin lining of the neurons is building and consolidating (Hooper et al., 2004). Development of the orbitofrontal cortex is solidifying, leading to better impulse control and judgment (Galvan et al., 2006). Self-esteem and life competence are also emerging during this time, making the young adult vulnerable to inflation and deflation of self-esteem. Vulnerable self-esteem can lead to avoidance in two ways: 1) avoidance of facing the reality of their competencies and incompetencies, and 2) avoidance of learning a skill. Either way, the emerging adult can feel ashamed and like a failure. This only perpetuates the avoidance. We could find no research study examining the current norms of independent life functioning in this age group, but in our experience, such include skills such as using kitchen appliances, self-care hygiene, regulating sleep, managing finances, maintaining safety, and executive functioning.

Executive functions are self-regulating and control functions that direct and organize behavior. These include planning, decision making, directed goal selection, self-inhibiting, self-monitoring, self-evaluating, flexible problem-solving, initiation, and self-awareness (Zoltan, 1996). For example, self-inhibiting describes the ability to cease doing something, like deciding one is finished with playing a video game and turning it off. Initiation represents the ability to begin a task, which can be very difficult when negative emotions dysregulate functioning. An example of this is how difficult it is for an emerging adult to take a shower in the morning, to just begin that process, when feeling very depressed or anxious. Managing emotions is an essential capacity to develop at this time. This includes tolerating distress, in the moment, and modulating emotions for task accomplishment. Dysregulated emotions negatively affect the ability to function. A depressed brain cannot engage, connect, or sprout new learning circuits (Leuchter et al., 2002). Executive functions rely heavily on frontal lobe circuitry that is relatively late in maturing (Giedd, 2008).

Imagine how challenging a typical day is in an emerging adult’s life. They have to be able to get up in time to do their morning routine, eat, and get to school, work, or volunteering, either by car, foot, or public transportation. They have to be able to run errands like grocery shop within a budget, mail bills, get to doctor’s appointments, etc. At home, they have to manage their apartment, keeping it clean and maintained. They need to prepare their meals, find social activities to fill their time, do laundry, and get to bed at a reasonable hour. They are learning to do these things mostly on their own when, in the past, others have done the tasks for them or assisted them.

For those emerging adults who are not competent in these life skills, their self-image and self-esteem suffer tremendously. They feel debilitating shame and self-recrimination. They try to hide their incompetence, not asking for help, soon they are overwhelmed with dirty laundry, broken appliances, messy refrigerators, and unpaid bills. For example, one young man is fully capable of showering, dressing himself, and making it to appointments, but he has never experienced independent living. He has not learned how to do laundry, budget his money, or set up utilities in a new apartment. He feels great shame and self-contempt, as if he’s “supposed to know how” to do these things, even though he has not had a chance to learn. Instead of reaching out to those around him who can show him the way, he denies his needs out of humiliation and self-condemnation. Instead of asking for assistance, he laughs at the thought, stating he doesn’t need the help. At these moments, he feels utterly alone in the world, unable to request the help he needs because he thinks he



should already know how to do everything. Even when those around him offer support, he brushes it off, later resenting that no one is there to support him. The idea of successfully living an independent life seems hopeless.

To a parent, teacher, or boss, what looks like laziness or irresponsibility may actually be executive functioning deficits, which are neurological mechanisms tied to specific brain functions key to development at this age. The parent sees the son who isn't showering and is distressed, concludes that he is lazy or doesn't care about his appearance, when it is really a deficit in the executive function of "initiation." A teacher observes a student who forgets to turn in homework all the time and concludes that student is irresponsible when, really, it is a deficit in "planning." A boss sees an employee who gets stuck on simple tasks as "dumb" when, in reality, it is a deficit in "problem-solving."

### High IQ/Executive Functioning Disability

Just because an adult has a high IQ doesn't mean that they are capable of living on their own. We have seen many examples of emerging adults who are well above average in intelligence, but lack executive functioning capabilities. The following domains describe areas of executive functioning and examples of how the emerging adults with high IQs at Yellowbrick perform on a well-established assessment tool for independent life skills functioning, the Performance-Based Assessment of Self-Care Skills (PASS).

The PASS offers the opportunity to observe patients in "real time" for two hours as they perform everyday tasks, thereby, providing the assessor with a wealth of information on the young person's life experiences and difficulties with executive functioning. At Yellowbrick, we use the PASS because of the large discrepancy we have observed between IQ and life functioning. We have also developed our own measure to evaluate these deficiencies in more specific activities, such as using the washer and dryer, self-care and hygiene, and self-organizational patterning.

PASS was created by two occupational therapists it is a criterion-referenced assessment with two versions offered for in-home and in the clinic. Consisting of 26 tasks, although at Yellowbrick, only 17 are utilized as the remaining 9 are not appropriate for this population.

Items are rated on a predefined four-point ordinal scale. The scoring system yields three types of scores for each subtask – task independence, task safety, and task adequacy outcome. There are nine types of assistance provided, where the independence data comes from, they are: verbal supportive, verbal non-directive, verbal directive, gesture, task object or environmental rearrangement, demonstration, physical guidance, physical support, and total assist. Safety data is compiled from unsafe observations from the examiner. Task performance outcomes for a subtask that are of unacceptable quality are checked in the quality column, whereas inefficiency in the task process is checked in the process column. The scores are then summarized from the raw data (Rogers & Holm, 1989).

The following table lists the different areas of executive functioning and the subtasks of the PASS that assist in identifying difficulties in that area.

Self-monitoring & awareness	Planning & organization	Problem-Solving	Mental flexibility & abstraction	Generalization & transfer
Flashlight, Home safety, Cooking, Toenail trimming, Making a bed, Mailing bills, Shopping	Managing medications, Toenail trimming, Cooking, Using the phonebook	Radio broadcast & newspaper article, Flashlight, Cooking, Cleaning, Paying bills, Shopping	Using the phonebook, Home safety	Radio broadcast & newspaper article

Self-monitoring and awareness represent the ability to be aware of one's own limitations and recognize deficits and problems. For example, one adult had great difficulty when to fixing a flashlight that wasn't working properly. While attempting to take the flashlight apart she cut her thumb removing the light bulb. Another self monitoring task is to



identify and correct dangerous situations created in the kitchen. Several did not notice a pair of scissors sticking out of a drawer, point up, the assessor was forced to stop people from walking into the scissors.

The steps needed to achieve and make choices reside in the executive function of planning and organization. Many of the adults exhibit the inability to follow verbal or written directions precisely in several of the subtasks. One required several prompts to follow the directions written on the medication bottles when distributing them.

Problem-solving skills are invaluable and tend to be deficient or lacking in the emerging adult population. In order to problem solve, one must attend to the problem, devise a plan, initiate activity, access information, and integrate feedback from the attempt to solve the problem. When given information through the radio announcement on the PASS, many young adults appear to not understand the underlying subject matter and do not provide a reasonable solution to the problem. Several have replaced both the light bulb and the batteries in the flashlight instead of determining which was faulty. Even after reading the directions, one emerging adult was confused by the directions on a soup can and required physical assistance to open the can. When he did not find a large bowl in the only cabinet he opened, one young man decided to use a plastic pitcher to hold muffin mix. When asked to clean the counters of the kitchen, one chose to use dish soap to clean up spills instead of a traditional cleanser.

“Mental flexibility” and “abstraction” are the abilities to think beyond concrete thought. One young woman had some difficulty finding the number to the pharmacy in the yellow pages, looking for the listing for Walgreens under W instead of P. “Generalization and Transfer” describe the ability to transfer new learning and use new information in a novel situation. There are several tasks that offer the emerging adults an opportunity to use these executive functions. When given an article to read, with the instructions that she reiterate the theme of the article and indicate something she would do differently now that she has read that information, one young woman did not understand the instructions and, instead, wanted to rewrite the article to be more precise in it’s information.

## **CASE EXAMPLES:**

### **BRILLIANT BOY WHO CAN'T FUNCTION WHEN EMOTIONALLY DYSREGULATED**

Charles had completed his degree before entering treatment. He is in the highest one percentile in Verbal and Performance scores on IQ testing. Yet, after college, Charles fell apart, unable to get out of bed and go to work. The PASS provided several opportunities for the assessor to determine in detail the nature of his difficulties in executive functioning. During the assessment his awareness decreased, to the point that physical gesturing had to be used to point out a home storage problem and that he had been given too much change during the shopping exercise. His problem-solving skills proved to be limited, as he chose to mail bills using two 27-cent stamps instead of one 42cent stamp.

He was unable to follow the verbal directions given to him regarding the radio broadcast and newspaper article subtasks, instead adding information he had previously learned. Rather than checking to see if the batteries were dead in the flashlight, Charles chose to take the entire flashlight apart to examine the bulb and determine whether it was in working order before attending to the batteries.

Throughout the assessment, Charles made comments on the tasks being “out-dated.” Even when he made only a slight mistake, he had a hard time admitting to being wrong, instead trying to blame someone or something else for the problem. He was extremely confident throughout the assessment, to the point of being patronizing. His inability to be open to making mistakes stops him from seeking out help in learning life skills.



## THE EFFECTS OF ATTENTION DEFICIT DISORDER ON A BRIGHT YOUNG WOMAN

Angie is a very bright young woman with severe Attention Deficit Disorder (ADD). Prior to Yellowbrick Angie had been in a series of treatment centers for substance abuse and mood disorder. Her ADD made performance on the PASS very difficult, many of her executive functions were impaired, leading to dangerous situations. Young adults with ADD can begin a task, but are not capable of seeing it through to the end, and are often prone to making a multitude of mistakes. Angie had difficulty attending to the radio broadcast, she was unable to identify the underlying subject matter, and was not able to provide a reasonable solution to the problem. Home tasks were helpful in identifying Angie's difficulties.

During the cooking activities, Angie was haphazard, unable to pay attention to detail, and created several unsafe situations, and incurred a slight burn to her hand. She almost walked into a pair of scissors that were poking out of a drawer. She seemed unaware of messes on countertops and did not clean them when instructed to clean up after herself.

In emerging adulthood when independent living skills are developed, it is alarming how many highly intelligent young adults experiencing severe mood dysregulation do not know how to do simple tasks such as turning on a gas oven, know whether or not canned goods should be refrigerated, or how to write a check. They may have been able to do these things in the past, but experiencing extreme emotions can cause severe dysregulation of behavior. The effect on self-esteem is severe, and many young people state they felt ashamed of not being knowledgeable or experienced in some life tasks. This can be true even if they complete them correctly. The effect on those around them is also significant. Parents, in particular, may become very distressed and feel like the future for their child is hopeless. Whether it is lack of experience, poor executive functioning, or ADD, these emerging adults are unable to perform in the basic areas of life skills. When their self-esteem is adversely affected, they may not reach out for help, therefore never learning adequately. What this means for the life trajectory for emerging adults is that they will not be prepared to live independently without a greater appreciation and attention to building these skills.

## REFERENCES

- Galvan, A., Hare, T. A., Parra, C. E., Penn, J., Voss, H., Glover, G., Casey, B.J. (2006). Earlier Development of the Accumbens Relative to Orbitofrontal Cortex Might Underlie Risk-Taking Behavior in Adolescents. *The Journal of Neuroscience*. June 21, 2006. 26(25). p. 6885-6892.
- Giedd, J. N. (2008). The Teen Brain: Insights from Neuroimaging. *Journal of Adolescent Health*, 42, 335-343.
- Hooper, C., Luciane, M., Covelin, H. M., and Yarger, R. S. (2004) Adolescents' Performance on Iowa Gambling Task; Implications for the development of decision making and ventromedial prefrontal cortex. *Developmental Psychology*. 40(6). 1148-1158.
- Leuchter, A. F., Cook, I. A., Witte, Elise A.; Morgan, Abrams, M. (2002). Changes in Brain Function of Depressed Subjects During Treatment with Placebo. *The American Journal of Psychiatry*. 2002. 155:122-129.
- Schore, A. N. (1994). *Affect Regulation and the Origin of the Self: The Neurobiology of Emotional Development*. Lawrence Erlbaum Associates, Hilldale, NJ.
- Zoltan, B. (1996) *Vision, Perception, and Cognition: A Manual for the Evaluation and Treatment of the Neurologically Impaired Adult*. Third edition. Slack Inc. Thorfare, NJ. 1996.