Executive Functioning

What is it?

Executive Functioning is the brain's ability to absorb information, interpret this information, and make decisions based upon this information.

For example, most people have a routine when they get up in the morning. Some mornings you might look out the window and see something is dripping from the sky. This dripping is interpreted as "rain" which implies a set of rules (i.e., needing to wear different clothes, the soccer game will be canceled which means you need to make other arrangements for an after school activity, rolling down the windows while you drive is not wise, you don't need to water the grass today, etc.)

Executive Functioning System

"The whole purpose of an executive system is to guide behavior with reference to internally specified goals… so that the external world comes to match the internally specified goal state."
- Dr. Christopher Jarrold, PhD, University of Bristol, UK

Our entire life is mediated by our executive system as each step of the day brings about various sets of "rules" that we need to live by. The most complex of these is social interaction (if you meet someone and they are crying your response is going to be very different then if they were smiling).

The executive functioning system is analogous to an "executive" whose job it is to organize and assure that things are running smoothly. For many of Milestones' students, the executive functioning system of their brain is not working properly, meaning that:

a. either it doesn't receive the appropriate signals (such as reading facial expressions)
b. doesn't interpret appropriately (such as noticing that someone is crying, but not understanding why or misinterpreting the cue such as thinking the situation is funny)
c. or is unable to make decisions based upon this information (i.e., when someone is crying this means I need to change my facial expression from happy to concern)

Areas that May be Affected

- Loose Associations: When one thought is loosely associated with another. For example, if a person said, "I went to the barber shop yesterday. That's a nice striped shirt you are wearing". The stripes on the barber pole and the stripes on the shirt "loosely" connect these two sentences.
- Attention Inhibition and Impulsivity: Paying attention and inhibiting responses (Listening to the teacher and wanting to make a comment about what is being said, but not blurting out the comment. Instead pausing between the thought of having the comment and actually making the comment to realize the social rule is to raise one's hand before speaking).
- Shifting ("Switching") Attention: Shifting one's focus between two different things (i.e., copying information from the black board requires shifting between the black board and a notebook).

  Shifting can also occur in the following ways:
  1. From internal to external stimuli (e.g., what am i thinking? to what am i support to be
  2. Relevant external stimuli vs. irrelevant external stimuli

3. From self to others
4. From another person back to internal stimuli for comparison of what s/he said vs. own thoughts
5. Generating internal thoughts as compared to what someone else will think
6. Verbalizing thoughts while comparing person's reaction to see if reaction matches predictions made in step 4
7. If someone else has a different reaction, search internal "database" to problem solve what went wrong and how can the error be corrected (i.e., Do I need more information? Need clarification of verbalization - Oh, I mean…

- Literal Thinking: Because one must shift from the concrete to the abstract in order to understand jokes and metaphors.
- Transitions / Flexibility: Before one attends a new event or switches an activities there appears to be a sort of priming that occurs. During priming people think about what the new situation might be like (i.e., when one goes to a job interview, one attempts to prepare). This "prep time" or priming is a way of easing anxiety. Many students have difficulty or no ability at all to prime for events, which is why social stories can be so calming. When one can't prime or has ineffective priming skills (i.e., assuming things can only be one way) anxiety or tantrums can occur.
- Problem Solving: In order to problem solve, one needs to:
  - Know there is a problem to begin with
  - Be able to come up with various options
  - See the consequence for the various options
  - Choose the best option

General Tips to Assist Executive Functioning

1. Design classrooms/teaching activities based upon organization systems - e.g., give students an "aerial" perspective then zoom in on specifics
2. Start the day by going over a schedule board that the students can manipulate (if the activity is out of the classroom have a list of what needs to go with the activity - outside = boots and coat) / create a schedule within a schedule
3. Color code the board based upon arousal (e.g., active = blue, inactive = yellow)
4. Tell the student what the goal of each activity is - they may not infer this information on their own ("the goal is to have 4 squares cut)
5. Give examples of what a finished product should look like
6. Discuss why this activity is relevant to their lives
7. Emphasize problem solving skills
8. Teach for the process - not results. Having students learn the process of an activity is invaluable (emotional bonding is more important then teaching a lesson)
9. Teach with full understanding and generalization of skills - not rule-based logic (unless that's your last resort)
10. Always tell the student "WHY" (Don't hit Johnny Because it will hurt him and he will be sad
11. Before eliminating, extinguishing, stopping, or decreasing OCD behavior attempt to figure out what purpose it is serving. If it is for organization, you need to replace the organization before eliminating the behavior
12. Use your judgment - why do you think the student engages in a particular behavior? (see motivation assessment scale)
13. What happens if the student doesn't participate? Angry? Falls Apart? Looks Lost?
14. Replace with more functional "rituals" while teaching the skills that underlie the need for the ritual in the

first place. (e.g., student must sit in the blue chair at circle time because s/he doesn't know what the purpose of sitting in a chair is)

15. Do not stop teaching once you have achieved rote earning!
16. Once a student can achieve a goal via rote learning, now it's time to generalize, generalize, generalize… to various people, locations, and objects
17. When engaging in an activity with different parts (e.g., scissors, glue, paper scraps, etc.) have specific places for each part
18. Have a scissor box, a glue box, a box for scraps, a box for completed pieces, etc. - If everything has a "home" then it's easy to figure out where it goes
19. Alex's house - if something is not where it belongs I just don't know where else to look - this causes stress
20. Always have visual targets/markers
21. When learning to line up - have feet, colors, or other targets on the floor ("Johnny, stand on the green dot" - vs. "in line" which is too vague)
22. If walking in a straight line down the hall, have colored tape down the hallway to delineate where to go
23. If sitting on the floor in a circle - use carpet squares (bring these squares to activities outside of class - e.g., music, art, etc.)
24. Have an obvious marker outside the classrooms / bathroom that students will use
25. Figure out how the child learns best and convert all material to that modality
26. Always use visual/auditory cues - if you're doing a cooking activity have all of the steps "written" out using icons or pictures
27. When using step by step instructions - don't leave out the last step - e.g., come back!

Bateson Therapy

Alex Michaels, Executive Director and co-founder of Milestones, has created a therapy called Bateson Therapy, which specifically addresses issues of executive functioning and perspective taking (as she believes there is a strong connection between the executive system and the limbic system - or the emotional part of the brain). The principles of Bateson Therapy are based upon the work of Gregory Bateson's theories of learning and Donald Hebb's neuroscience principles. Bateson therapy is based on the hypothesis that there are biological stages of growth, which are based upon a hierarchy. If stages are learned in a rote manor, Alex hypothesized that an alternative biological method is being used and the hierarchy does not grow.