MEETING THE COMPLEX NEEDS OF YOUTH AND YOUNG ADULTS – ADDRESSING BEHAVIOR AND EXECUTIVE FUNCTION DEFICITS

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EXECUTIVE FUNCTIONING

- The executive functions all serve a "command and control" function; they can be viewed as the "conductor" of all cognitive skills.
- Executive functions help you manage life tasks of all types. For example, executive functions let you organize a trip, a research project, a paper for school, and how to get dressed in the morning.

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EXECUTIVE FUNCTIONS: FUNCTIONAL DEFINITION

- Self-awareness of strengths and limitations (what’s hard to do; what’s easy to do)
- Goal setting
- Planning/organizing
- Initiating
- Inhibiting
- Self-monitoring and evaluating
- Strategic thinking
- Flexible shifting, adjusting, benefiting from feedback

(Feeney, 2005)

THE FRONTAL LOBES

“THE GENERAL”...

- Emotional control center
- Home to our personality
- Involved in motor function, memory, language, perception
- Involved in initiation, judgment, problem solving – planning, organizing … Executive Function
- Involved in impulse control … usually results in lack of inhibition

EXECUTIVE FUNCTION

The teenage brain is like a Ferrari: it’s sleek, shiny, sexy, and fast, and it corners really well. But it also has really crappy brakes.

WEBMD

- Executive function helps you:
  - Manage time
  - Pay attention
  - Switch focus
  - Plan and organize
  - Remember details
  - Avoid saying or doing the wrong thing
  - Do things based on your experience
Dysfunction of the Frontal Lobe

- Little spontaneous facial expression (Kolb & Milner, 1981)
- "Behavioral spontaneity" (Kolb & Milner, 1981); dramatic change in social behavior (Blumer & Benson, 1975)
- Difficulty interpreting feedback from the environment ... perseverating on a response (Milner, 1964), risk taking and non-compliance with rules (Miller 1985)
- Impaired associated learning (difficulty using external cues to help guide behavior) (Drewes, 1975)

Interest in Executive Function

- 5 articles in 1985
- 14 articles in 1995
- 501 articles by 2005
- >1000 articles by 2010
- >6000 articles by 2014

How Brains are Built

- Early experiences effect the "architecture" of the developing brain
- Building a solid foundation in the earliest years provides a base for a lifetime of good mental function and overall health
- Eustress – good stress (e.g., communication, touch, signing, safety, support, meeting new people, studying for a test)
- Distress – toxic stress (e.g., neglect, abuse, parental addiction)
- Solid brain architecture has to be built – kids & families can’t do it on their own

1.) Maturation

2.) Pre-natal Development?

Full-blown Fetal Alcohol Syndrome (FAS) represents only the "tip of the iceberg" relative to all alcohol-related effects or Fetal Alcohol Spectrum Disorder (FASD).
3A.) POST-BIRTH TRAUMATIC BRAIN INJURY?

Leading Causes of TBI

- Assaults 10.7%
- Motor Vehicle 14.3%
- Struck by/against 15.5%
- Unknown/Other 19.0%
- Falls 40.5%

In 2009, 248,418 children (age 19 or younger) were treated in U.S. EDs for sports/rec related injuries w/ diagnosis of concussion or TBI.

About 75% of all assaults associated with TBI occur in persons 15 to 44 yrs. of age. It is estimated that 1,000–3,000 children in the US sustain Shaken Baby Syndrome each year. Health.ny.gov

3B.) POST-BIRTH NON-TRAUMATIC INJURY?

- Illness (e.g., high fever)
- Infections (e.g., meningitis, encephalitis)
- Anoxic injuries (lack of oxygen; e.g., airway obstruction, near drowning)
- Stroke or vascular accident (lack of blood flow)
- Brain tumors
- Poisoning (e.g., ingestion, inhalation) – Substances?
- Metabolic disorders (e.g., insulin shock)

DEVELOPMENTAL STAGES

- Abilities that are just developing, or have not yet emerged, are the most sensitive and most likely to be disrupted.
- These areas are likely to be the Achilles heel for a child with an acquired brain injury, even after he/she grows up.

INFANCY STAGE: BIRTH TO 3 YEARS

Developing:
- Refinement of sensory and motor systems
- Language acquisition
- Basic understanding of cause and effect
- Regulation of sleep-wake cycle
- Beginning awareness of self and others
- Emotions and emotional regulation

Disruptions:
- Poor sleep and self-regulation
- Lack of understanding of cause-effect relationships
- Impulsivity & uninhibited behaviors (e.g., biting, hitting)
- High reliance on structure, supervision; difficulty with transitions
- Sudden and Dramatic Mood Shifts
- Emotional reactions are unpredictable, "irrational," and extreme.
**PRESCHOOL STAGE: 3-6 YEARS**

Developing:
- Self-control
- Emotional regulation
- Inhibition – think before acting
- Friendship skills
- Ability to see another person’s perspective
- Ability to accept change in plans
- Ability to judge right from wrong

Disruptions:
- Delay or regression in toilet training
- Disruption in the connections among thinking, emotion, behavior systems
- Emotional dysregulation
- Difficulty with change, temper tantrums and rigid behavior
- Aggressive behaviors (e.g. kicking, hitting)
- Poor acquisition of preschool concepts (same/different, some/all)
- Play is disorganized

**ELEMENTARY SCHOOL STAGE: 6 YEARS TO 12 YEARS**

Developing:
- Robust understanding of cause and effect relationships
- Academic skills
- Focus on effort as important
- Recognition of intention of acts as important

Disruptions:
- In reading, spelling, math skills
- Poor performance despite hard work
- School failure/avoidance
- Behavior problems during unstructured time
- Depression, social isolation or withdrawal from peers
- Sleep disturbance/fatigue

**EARLY ADOLESCENCE: 12 YEARS TO 16 YEARS**

Developing:
- Abstract reasoning
- Autonomy and identity development
- Social competencies and understanding of the world
- Responsibility: self care, baby sitting, pet care

Disruptions:
- Unevenness in cognitive profile
- Slower rate of mental processing
- Difficulty organizing complex tasks over time
- Judgment and reasoning difficulties
- Increased frustration response
- Depression
- Fatigue

**LATE ADOLESCENCE: 16 YEARS TO 19 YEARS**

Developing:
- Complex reasoning and judgment
- Ability to plan and execute complex projects over time
- Solid sense of own identity based on positive identifications
- Social sophistication
- Capacity for altruism

Disruptions:
- New learning deficits (e.g., memory for numbers)
- Conflict between specific challenges and career goals
- Social awkwardness
- Inability to organize complex tasks
- Mental processing speed deficits
- Body image/social image
- Depression

**Mental Health**

- ADHD, PTSD, depression, anxiety, toxic stress and substance abuse
- Change in bio-chemistry: research on 1 cell
- Habituation – to stimuli to result in less neurotransmitter release
- Sensitization – an extreme reflex resulting in a temporary increase in neurotransmitter release

4.) **BIO-CHEMICAL?**

[Image of a neuron structure with labels: Dendrite, Cell Body, Axon Terminal, Schwann Cell, Axon, Myelin Sheath.](Figure 1.2) depicts a basic neuron and its components. (WikиEducator, 2010)
5.) **EVOLUTION OF THE BRAIN**

MRI studies have shown that the frontal area is the most common region of injury following mild to moderate traumatic brain injury (Levin et al., 1987).

An interesting phenomenon of frontal lobe damage is the insignificant effect it can have on traditional IQ testing. An injury to the frontal lobe often has an effect on flexibility of thinking and problem solving ability (executive functioning). There is also evidence showing lingering interference with attention and memory even after good recovery from a TBI (Stuss et al., 1985).

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**MITIGATING FACTORS?**

- Can a person with a known disability or illness be held accountable for inappropriate behaviors?
- Are there mitigating factors related to disability, illness, trauma, stress, substance use/abuse?
- Can you hold a returning veteran accountable for hitting his wife while knowing he suffers from PTSD, TBI and was under the influence of alcohol at the time of the incident?
  - TBI Courts
  - Mental Health Courts
  - Problem-Solving Courts

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**MANIFESTATION DETERMINATIONS**

- i) In general. Except as provided in subparagraph (B), within 10 school days of any decision to change the placement of a child with a disability because of a violation of a code of student conduct, the local educational agency, the parent, and relevant members of the IEP Team (as determined by the parent and the local educational agency) shall review all relevant information in the student’s file, including the child’s IEP, any teacher observations, and any relevant information provided by the parents to determine—
  - (I) if the conduct in question was caused by, or had a direct and substantial relationship to, the child’s disability; or
  - (II) if the conduct in question was the direct result of the local educational agency’s failure to implement the IEP.

- ii) Manifestation. If the local educational agency, the parent, and relevant members of the IEP Team determine that either subclause (I) or (II) of clause (i) is applicable for the child, the conduct shall be determined to be a manifestation of the child’s disability.
Hierarchy of Neurocognitive Development

**Productive Citizen**

**Social-Emotional Competency**

**Executive Functions**

**Language Processes**

**Learning Processes**

**Visual-Spatial Processes**

**Sensory-Motor Processes**

**Overall Functioning**

**Higher Order Processes**

**Intermediate Processes**

**Fundamental Processes**

**WHAT DOES IT “LOOK” LIKE?**

**Impacted Attention:** The ability to sustain focus on the information necessary for learning or completing a task.
- Fidgets, squirms in seat, can’t sit still
- Interrupts conversation
- Low frustration tolerance
- Talks Excessively
- Off topic
- Impulsivity (inability to inhibit)

**WHAT DOES IT “LOOK” LIKE?**

**Impacted Inhibition:** The ability to inhibit, block or hold back an impulse.
- Not able to respond to (or “hear”) multi-step instructions
- Acts on the first thing that pops into their mind
- Unable to verbally, physically, or mentally “put on the brakes”
- Difficulties with transitions (space to space or task to task)
- Fidgets, squirms in seat, can’t sit still
- Interrupts conversation
- Talks Excessively

**WHAT DOES IT “LOOK” LIKE?**

**Delayed Processing Speed:** How quickly information is received, processed, and/or outputted.
- Slow to respond to questions
- Appears to not be paying attention
- Looks confused
- Doesn’t follow instructions

**WHAT DOES IT “LOOK” LIKE?**

**Memory:** The mental ability to store and retrieve words, facts, procedures, skills, concepts and experiences.
- Can’t remember more than one thing at a time
- Can’t remember details
- Appears disorganized
- Appears to have an “attitude” problem
- Appears manipulative

**WHAT DOES IT “LOOK” LIKE?**

**Sensory Motor:** Perceiving and responding to what is seen, heard, smelled, tasted, felt and touched.
- Appear overwhelmed
- Emotionally melt down
- Irritable, short fused
- May appear oppositional
- Shuts down
WHAT DOES IT “LOOK” LIKE?

**Visual Spatial:** The ability to generate, retain, retrieve and transform well-structured visual images.
- Appear clumsy
- Appear overwhelmed
- Inability to write clearly
- Inability to gain information from charts or graphs
- Inability to read a map
- Inability to read social cues or facial expressions

WHAT DOES IT “LOOK” LIKE?

**Language (Receptive):** Ability to understand what is being said.
- Confused
- May say “huh” frequently
- Followers
- Struggle with abstract language/sarcasm
- May withdraw

WHAT DOES IT “LOOK” LIKE?

**Language (Expressive):** Ability to be understood.
- Poor grammar or immature speech
- Difficult to follow in conversation
- Difficulty staying on topic
- Difficulties navigating social rules
- May withdraw

WHAT DOES IT “LOOK” LIKE?

**Language (social pragmatics):** Verbal and nonverbal rules of social language and interactions.
- Do not interpret body language
- Use inappropriate eye contact
- May get in your space
- May either say too little or too much
- Have little insight or awareness of how their behavior may be inappropriate

WHAT DOES IT “LOOK” LIKE?

**Emotional/Behavioral:** The awareness of social, emotional and behavioral self-regulation, control and monitoring.
- Over/under reaction
- Difficulties with anger management or emotional regulation
- Melt down
- Can appear emotionally “flat”
- Difficulties making and keeping friends

WHAT DOES IT “LOOK” LIKE?

**Executive Functions (Initiation):** Ability to start an action or activity
- May appear lazy or spacey
- Appears unmotivated
- Follower
- Needs constant cuing
- Lags in independent living skills
WHAT DOES IT “LOOK” LIKE?

Executive Function (Planning): Identifying and completing the steps necessary for task or goal completion.
- Ridged thinking, can’t think of more than one way to do something
- Difficulties doing more than one task at a time
- Difficulties organizing thoughts
- Difficulties with sequential tasks

Executive Function (Mental Flexibility): Ability to easily shift from one idea, train of thought, activity or way of looking at things to another.
- Perseverate
- Difficulties taking feedback
- Resistant
- Can appear stubborn or argumentative
- May appear to lack empathy

Executive Functions (Organization): The ability to create and maintain orderliness in thoughts, activities, materials and the physical environment.
- May seem confused
- Unable to do more than one step in a task
- Conversations may be disjointed
- Resistant
- Difficulties answering open ended questions

Executive Function (Reasoning): Deliberate and controlled mental operations to solve novel and on the spot problems.
- Concrete thinkers
- Can’t think of alternative solutions
- Difficulties answering open ended questions
- Difficulties learning from experience, cause and affect
- Can appear Argumentative

WHAT DOES IT “LOOK” LIKE?

Adaptive Living Skills: The ability to utilize all domain areas to adapt to and carry out responsibilities.
- Poor personal hygiene and/or housekeeping
- Inability to manage time or money
- Inability to communicate appropriate information in a timely manner
- Unable to get around in the community, may get lost
- Cannot care for pets
- May not be able to live independently, safely

WHAT DOES IT “LOOK” LIKE?

Achievement: Academic and Work Skills: The ability to utilize all domain areas to achieve in all academic areas and/or the work environment.
- Poor time management
- Unable to communicate appropriate information in a timely manner
- Rigid or concrete thinker
- Poor work production
- Needs a high level of supervision
Collaborative Cross-Agency Training

COMMON LANGUAGE = POWER

Common Language = Understanding
Common Understanding = Common Ground
Common Ground = Systems Progress

SHARING THE HIERARCHY AS A COMMON FRAMEWORK

- Multiple Audiences – Different Lens
  - Settings – e.g., State Agencies, Private, Public, Universities, Facilities
  - Populations – e.g., across special and general education categories, Fetal Alcohol Spectrum Disorder (FASD), Providers, Families/Parents, Intimate Partner Abuse, Behavioral Health
  - Age Groups – Early Childhood, Children, Youth, Adults

Examples:

- State Agencies –
  - Dept. of Education – across disability category consultants
  - State Committee on Substance Exposed Newborns (and FASD)
- Dept. of Human Services – Early Childhood, DVR/CO Brain Injury Program, DYC, Office of Behavioral Health
- Dept. of Judicial – Probation, Judges, Magistrates, Attorneys, Collaborative-Justice Conference, CIT/Law Enforcement, ACL Grant
- Dept. of Health – Title V Care Coordination
- Private Providers –
  - Brain Injury Alliance Case Managers, Private Organizations, Intimate Partner Abuse, Behavioral Health
EXECUTIVE FUNCTION PRINCIPLES
- Structures & Routines
- Time Management Supports
- Creating Future Thinkers (what will success look like)

Learning is possible

Can’t versus Won’t Behavior
Skill versus Will

Hierarchy of Neurocognitive Development
- Productive Citizen
- Complexities Increase with Brain Maturation

Functional burden of the TBI
- Mild
- Moderate
- Severe

Hierarchy of Neurocognitive Development
- Overall Functioning
- Higher Order Processes
- Intermediate Processes
- Fundamental Processes
- Memory
- Processing Speed
- Attention
- Inhibition
- Sensory-Motor
- Achievement/Cognitive Ability/Reasoning
- Social Emotional Competency
- Executive Functions

Can’t versus Won’t
Can’t
Won’t
CONSEQUENCE-BASED STRATEGIES

Thus, behavior management techniques can be classified into two categories:
(1) antecedent strategies, which are used before a behavior occurs in an effort to prevent or elicit a behavior, and
(2) consequent strategies, which are used after a behavior occurs in an effort to prevent the continuation and recurrence of a behavior or to reinforce a behavior.

ANTECEDENT MANAGEMENT

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Although both can be effective in their own way, when applied at the right times.

Crisis Prevention instead of Crisis Management

COLLABORATIVE PROBLEM SOLVING CPS

- People Do Well If They Can
  This is the most important theme of Collaborative Problem Solving: the belief that if a person could do well, they would do well. In other words, if the person had the skills to exhibit adaptive behavior, he/she wouldn't be exhibiting challenging behavior. That's because doing well is always preferable to not doing well.

What's Your Explanation?
- Your explanation for challenging behavior has major implications for how you'll try to help. If you believe a person's behavior is challenging because of lagging skills and unsolved problems, then rewarding and punishing may not be the ideal approach. Solving those problems and teaching those skills would make perfect sense.

GOING BEYOND FBA

Functional Behavioral Assessment (FBA)
- Behaviors serve a function and have a purpose, usually:
  - To get something (e.g., attention, money, good grades, power, control)
  - To avoid/escape something (e.g., punishment, embarrassment, out of work)

Presupposes “will”
- www.BehaviorAdvisor.com

Function of the Behavior

Look For: The Function of the Behavior

- Obtain/Get Something
- Escape/Avoid Something
- Tangible/Activity
- Social
- Stimulation/Sensory
- Adult
- Peer

Executive DYSFUNCTION:
- Inability to delay gratification (wait)
- Inability to manage time — no future thinking which results in poor planning, organization or initiation
- Social INCOMPETENCE:
- Lack of attention to feedback in environment — poor MEMORY & poor LEARNING = repetitive mistakes
- Lack of attention to feedback in environment — poor MEMORY & poor LEARNING = repetitive mistakes

Memory

Sensory

Motor

Processing Speed

Cognitive

Executive

Inhibition

Working

Memory

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Motor

Processing Speed

Cognitive

Executive

Inhibition

Working

Memory
WHAT DO YOU KNOW (SUSPECT) ABOUT YOUR CLIENT?

- Toxic stress?
- Mental health issues?
- Fetal Alcohol Spectrum Disorder?
- Traumatic Brain Injury or Non-Traumatic Brain Injury? Assault? In a gang?
- A victim of domestic violence? The abuser? The victim of child abuse?
- Substance Abuse?

Teacher Input/Functional Observation(s)

<table>
<thead>
<tr>
<th>Teacher Input/Functional Observation(s)</th>
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<tbody>
<tr>
<td><strong>Brain Injury Observation Form</strong></td>
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<table>
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<th>Attention</th>
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<tr>
<td><strong>Social Function</strong></td>
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<tr>
<td>Significant</td>
<td>Below Average</td>
<td>Average</td>
<td>Above Average</td>
<td>Significantly Above Average</td>
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<tr>
<td>Increase</td>
<td>Decrease</td>
<td>Stable</td>
<td>Increase</td>
<td></td>
</tr>
<tr>
<td>Focus on teacher's instructions</td>
<td>Attention to detail</td>
<td>Comprehension of task</td>
<td>Presented in appropriate manner</td>
<td>Use of appropriate language</td>
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<td>Evaluates social cues appropriately</td>
<td>Response to feedback</td>
<td>Interacts appropriately</td>
<td>Equally comfortable in small &amp; large groups</td>
<td></td>
</tr>
<tr>
<td>No problem-solving skills</td>
<td>Decision-making skills</td>
<td>No decision-making skills</td>
<td>No decision-making skills</td>
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</tr>
</tbody>
</table>

Assessments

Situations:

- Neuropsychological Assessment, Focusing on Attention and Executive Functioning Subtests
- Behavior Rating Inventory of Executive Function (BRIEF), up to age 18 years.
- Continuous Performance Tests
- TOVA – Test of Variables of Attention

Fundamental Processes

Suggestions:

- If in a group setting, seat next to clients with appropriate attention abilities.
- Clear desk and area of everything except what is needed for the task at hand.
- Connect new learning to prior knowledge or with areas of interest.

Interventions

Situations:

- Schedule most important work during times when the client has displayed their greatest concentration abilities.
- Seat nearest the location of instruction and away from distractions (e.g., doors, windows, high traffic areas).

Function of the Behavior

- Can't remember expectations:
  - Memory
- Doesn't read visual cues:
  - Visual-Spatial
- Is off-task while reviewing expectations:
  - Attention
- Doesn't understand expectations:
  - Receptive Language
- Behavior Non-compliance:
  - Expressive Language
- Community
- Home
- School

And what about the setting events? = Internal Interferences

Teach appropriate ways to express verbal discontent

Make sure you have attention before reviewing expectations

Write out/draw out steps to compensate for memory

Be mindful of Rx interactions, family stress, financial stressors, medical/neurological factors
FBA – Function of the Behavior?

- Performance Deficit
  - Generalize the skill to other environments
  - Practice in various settings and under various circumstances

- Environmental Factors
  - What are the environmental factors affecting the behavior? Can the environment be changed?
  - Antecedent Management

Skill versus Will

- Skill Deficit
  - Teach the skill – to which ever deficit you determine to be underlying the behavior (treatment)
  - Testing the limits – Apply an appropriate limit (consequence)

- Skill Acquisition
  - Identify the skill deficit – teach the skill
  - Break the skill down to reasonable “chunks” for more impressive acquisition

Caveat: If you do not get the desired change in behavior, go back to the question of a skill acquisition problem or a skill generalization problem.

RESOURCES

CDE TBI: http://www.cde.state.co.us/cdesped/ad-tbi
CDE FASD: http://www.cde.state.co.us/cdesped/fasd
Colorado Kids Brain Injury Resource Network (“CO Kids Website”): www.COKidswithbraininjury.com
Brain Injury in Youth – Supports for School Success Community of Practice – https://youthbraininjury.obaverse.net/welcome/
LEARNet - A Problem Solving System for Teachers, Clinicians, Parents, and Students (Brain Injury Association of New York State): www.learnet.org
CBIRT – In The Classroom - http://intheclassroom.cbirt.org/accounts/signup/

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