



Right Brain! Left Brain! Hey, What About the Front Brain? Executive Functioning in the 21st Century

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## Topics to Discuss

- ❖ Different Learning Styles
- ❖ Defining Executive Functioning
- ❖ Executive Functioning Deficits in Work and Educational Performance
- ❖ How to Help Individuals with Executive Functioning Deficits

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## The Skeptic

- ❖ Many individuals have problems with attention regulation, focus and organization
- ❖ The focus of this discussion is on the 5-7% of individuals who have chronic and persistent difficulties with these skills

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## The Human Brain

- ❖ It is a complex Organ
- ❖ You have one brain divided into two separate hemispheres
- ❖ Although always working together, each hemisphere is dominant for certain functions (e.g., lateralization)
- ❖ Lateralization varies considerably among individuals

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## Primary Function of the Right Brain

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- ❖ Spatial Abilities
- ❖ Perceptual Reasoning
- ❖ Facial Recognition
- ❖ Social Reasoning
- ❖ Music/Creativity

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## Damage to the Right Brain Causes Deficiencies with.....

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- ❖ Visual Motor Integration
- ❖ Motor Control
- ❖ Social Skill Deficits
- ❖ Difficulty with Abstract Reasoning/Higher Order Reasoning
- ❖ Difficulty with Math, Science, Social Studies Etc.

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## Primary Function of the Left Brain

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- ❖ Language Acquisition
- ❖ Vocabulary
- ❖ Verbal Reasoning
- ❖ Memory
- ❖ Logic
- ❖ Sequencing

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## Damage to the Left Brain Causes Deficiencies with.....

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- ❖ Difficulty understanding spoken/written language
- ❖ Receptive/Expressive Communication
- ❖ Phonological/Auditory Processing Problems
- ❖ Difficulty with Reading/Writing (e.g., Dyslexia/Dysgraphia)

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## Primary Function of The Front Brain

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- ❖ Attention Regulation
- ❖ Impulse Control
- ❖ Activity Level
- ❖ Self Awareness
- ❖ Execution
- ❖ Organization

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## Damage to the Front Brain Causes Deficiencies with.....

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- ❖ Delayed Reaction Time
- ❖ Poor Impulse Control
- ❖ Emotional Lability
- ❖ Distractibility / poor attention regulation
- ❖ Difficulty with Planning / Organization

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## What we Know About the Front Brain

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- ❖ The Front Brain is the last part of our brain to fully develop
- ❖ Development of gray matter goes from back to front
- ❖ The Frontal Lobe is not fully developed until young adulthood (e.g., early 20's.)

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## Executive Functioning Defined

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- ❖ Executive Functioning is a term used to describe a set of mental / cognitive processes that help individuals connect past experiences with present actions
- ❖ There are many types of Executive Functioning Skills
- ❖ Executive Functioning Skills are believed to occur in the Frontal Lobe

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### Evidence of the Frontal Cortex Involvement in Executive Functioning

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- ❖ Individuals Suffering Frontal Lobe Damage
- ❖ Lab Studies Using FMRI Scans
- ❖ Single Cell Electrophysiology Studies in Non-Human Primates

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### Most Common Executive Functioning Skills

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- ❖ Inhibition
- ❖ Shifting Tasks
- ❖ Emotional Control
- ❖ Initiation
- ❖ Working Memory
- ❖ Organization
- ❖ Planning
- ❖ Self Awareness

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### Causes of Executive Functioning Deficits

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- ❖ Traumatic Brain Injury
- ❖ Learning Disabilities
- ❖ Emotional/Behavioral Disorder
- ❖ Genetic Predisposition
- ❖ ADHD

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### How Are Executive Functioning Deficits Identified

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- ❖ There is no single test used to measure Executive Functioning Skills
- ❖ Typically a set of tests (i.e., neuropsychological evaluation) may help identify certain EF Skills
- ❖ Information is gathered from various sources
- ❖ Use of Rating Scales (e.g., the BRIEF)

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### Signs/Symptoms someone may have Executive Functioning Deficits

- ◇ Do they have lots of missing assignments
- ◇ Do they do their work, but often forget to turn it in
- ◇ Do they lose things easily
- ◇ Are they easily distracted
- ◇ Do they have erratic and unprovoked mood swings
- ◇ Do they struggle with starting or following through with tasks
- ◇ Are they forgetful with basic task

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### ADHD Re-defined

- ◇ ADHD is a neurological Disorder
- ◇ The Prefrontal Cortex is Smaller in volume
- ◇ Lower levels of Dopamine
- ◇ Most cases (e.g., 85% are genetically inherited)
- ◇ Children with ADHD are believed to have significant deficits with Executive Functioning

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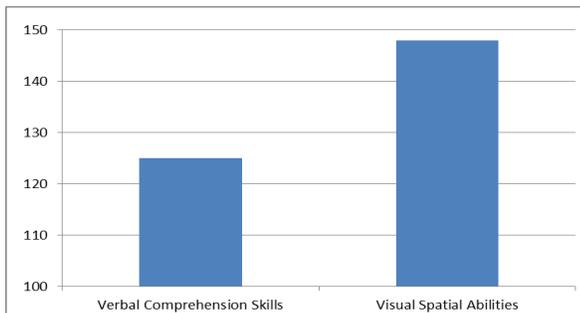
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### John's Intellectual Skills



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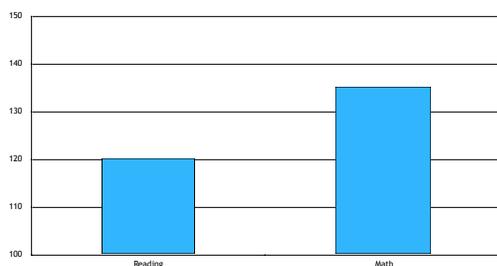
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### John's Academic Skills



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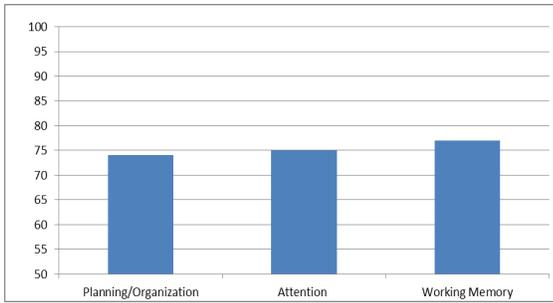
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## John's Executive Functioning Skills



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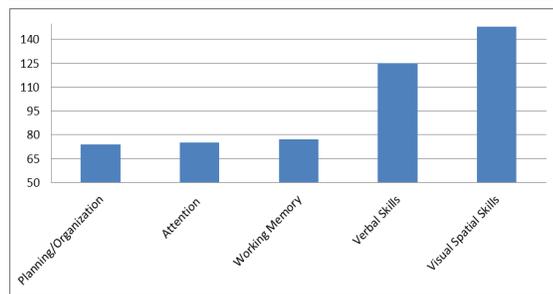
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## Intellectual/EF Comparison



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## Executive Functioning Deficits Impacts Performance

- ❖ They may not retain information easily
- ❖ They will often forget their work
- ❖ Take an excessive amount of time to complete tasks
- ❖ Lose things easily
- ❖ Difficulty with planning/organization etc.

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What Can you Do to Help Those  
Who May Have  
Executive Functioning Deficits?

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## Have a Disability Mindset

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- ❖ Interventions “Over Time” will help improve deficits of Executive Functioning
- ❖ Individuals can learn how to better manage or accommodate their problems with EF.
- ❖ Remember the 3 P’s Patience and Persistency will Pay off.

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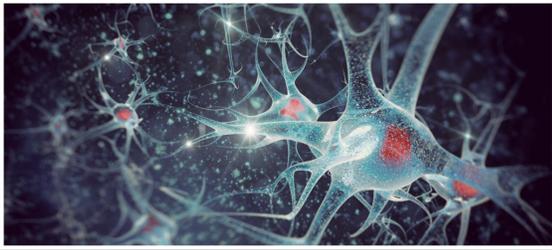
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## Neuroplasticity

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Do you mean my brain is “plastic??”

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## Neuroplasticity

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- ❖ Neuroplasticity is an umbrella term that describes lasting change to the brain throughout an individual's life course.
- ❖ This notion is in contrast with the previous scientific consensus that the brain develops during a critical period in early childhood and then remains relatively unchanged (static)

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## Neuroplasticity

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- ❖ Neuroplasticity: The brain's ability to reorganize itself by forming new neural connections throughout life.
- ❖ Neuroplasticity: allows the neurons (nerve cells) in the brain to compensate for injury and disease and to adjust their activities in response to new situations or to changes in their environment.

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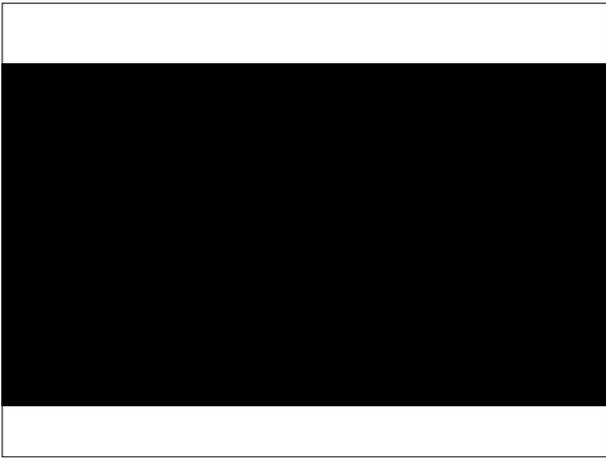
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## Neuroplasticity

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- ❖ Remember the brain is re-organizing
- ❖ New cells are compensating for dead cells
- ❖ This re-organization and compensation has to be "stimulated."

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## Limits to Neuroplasticity

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- ❖ Neuroplasticity enables the brain to compensate for damage, but sometimes an area of the brain is so extensively damaged that its natural ability to reorganize is insufficient to regain the lost function.
- ❖ In the case of Huntington's Disease the death of many cells may render the brain unable to reorganize corrective connections.

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## Promoting Neuroplasticity

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- ❖ Medications
- ❖ Rehabilitation
- ❖ Timing
- ❖ Activity...Activity and more Activity

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Positive Reinforcement  
Re-Defined

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- ❖ Mindset by Carol Dweck, Ph.D.
  - ❖ It is more about teaching self awareness than teaching skills per se
  - ❖ Hong Kong Moms vs. Illinois Moms (who is right??)
  - ❖ Remember the word “YET”

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Its about the Method  
of Instruction

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- ❖ Use Explicit Instruction:
  - Step 1: Set an appropriate Goal
  - Step 2: Teach/Model Strategies (i.e., guided practice)
  - Step 3: Monitor progress.....change if needed
  - Step 4: Reinforce accomplishments

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Are you a “Consultant or an  
Executive Secretary?”

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Additional Quick Tips

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- ❖ Break down tasks
- ❖ Openly discuss not argue about what to do differently
- ❖ Monitor! Monitor! Monitor!
- ❖ Use visual cues
- ❖ Don't do it for them
- ❖ Prompt at the point of performance
- ❖ Use technology

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# Resources

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- ◊ [www.chadd.org](http://www.chadd.org)
- ◊ [www.chaddofutah.com](http://www.chaddofutah.com)
- ◊ [www.schwablearning.org](http://www.schwablearning.org)
- ◊ [www.ldonline.org](http://www.ldonline.org)
- ◊ "Smart But Scattered" by Peg Dawson and Richard Guare
- ◊ "Explicit Instruction Effective and Efficient Teaching"
- ◊ "Schooling by Design"
- ◊ TGIF: published by Sopris West
- ◊ "Teacher's Encyclopedia of Behavior Management"

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## Questions

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