| Define and recognize Executive Functioning and dysfunction in the Early Childhood setting | Understand the impact of Executive Dysfunction in Early Childhood and how it can be predictive of future academic achievement and social skills | Learn strategies and tools to support the development of Executive Function skills in early childhood, to affect the student’s lifelong learning |
Look at the chart and say the **COLOR** not the word

**YELLOW**   **BLUE**   **ORANGE**

Once a level of decoding proficiency is established, the brain insists on reading the word.
THE STUDY OF EXECUTIVE FUNCTIONING

Began in the field of neuropsychology in the late 1980’s.

Through the study of brain injuries learned that EF activity takes place primarily in the pre-frontal cortex.

Multiple ways to organize and represent the skills involved in Executive Functioning. Some say there are 27 separate skills, others have narrowed it to three main skills.
Executive Function skills help us plan, organize, make decisions, shift between situations or thoughts, control our emotions and impulsivity, and learn from past mistakes.

EF has less to do with possessing intellectual knowledge than it does with being able to reason—to use knowledge purposefully and put it into practice.

Executive Functioning issues are not considered a disability on their own. They are weaknesses in a key set of mental skills (which we will review...).
Children aren’t born with Executive Functioning skills—they are born with potential to develop them. Skills are malleable, meaning they can change and are influenced by both positive and negative experiences. Development continues well into the 20’s.

Providing support to children to build EF skills in the home, in early childcare settings and in educational programs is one of society’s most important responsibilities. -Center on the Developing Child, Harvard University
The preschool aged brain is not as differentiated for EF skills—there is a great deal of overlap that can make it difficult to decide if the challenges are due to IC, CF, or WM.

Luckily, many preschool activities can support development of these skills simultaneously.
SUCCESS IN SCHOOL

Top 10 Skills as identified by a survey of 8,000 teachers:

- Listens to others
- Follow the steps
- Follow the rules
- Ignore distraction
- Take turns when talking
- Ask for help
- Get along with others
- Stay calm with others
- Be responsible for your behavior
- Do nice things for others

-Gresham & Elliot, 2006
When measuring individual characteristics such as working memory, inhibitory control, and cognitive flexibility:

- EF mattered more than IQ
- EF skills at age 5 predicts 5th grade academic skills
- High EF connected to high math and reading skill, low EF to low math and reading skill
- Limited evidence to show that working on academic skills early will improve later academic outcomes
# Executive Functioning in Early Childhood

<table>
<thead>
<tr>
<th>Time</th>
<th>Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>8:30 - 9:00</td>
<td>Arrival and Centers</td>
</tr>
<tr>
<td>9:00 - 9:30</td>
<td>Outside (or gym)</td>
</tr>
<tr>
<td>9:30 - 10:00</td>
<td>Small groups (includes snack)</td>
</tr>
<tr>
<td>10:00 - 11:00</td>
<td>Centers</td>
</tr>
<tr>
<td>11:00 - 11:30</td>
<td>Clean up, Storytime, Large group</td>
</tr>
<tr>
<td>11:30 - 12:00</td>
<td>Lunch</td>
</tr>
<tr>
<td>12:30 - 1:30</td>
<td>Rest Time</td>
</tr>
<tr>
<td>1:30 - 2:00</td>
<td>Quiet Activities</td>
</tr>
<tr>
<td>2:00 - 2:15</td>
<td>Afternoon Snack Time</td>
</tr>
</tbody>
</table>

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*Dennis the Menace* cartoon: "By the time I think about what I'm gonna do... I already did it!"
INHIBITORY CONTROL: IS THE ABILITY TO RESIST ENGAGING IN A HABITUAL RESPONSE AS WELL AS THE ABILITY TO IGNORE DISTRACTING INFORMATION

- Ability to control automatic verbal or physical reactions
- Ability to shift during activities
- Ability to plan and set goals
- Ability to self regulate

Weak Cognitive Flexibility

- Difficulty understanding and using academic rules
- Difficulty understanding abstract concepts
- Difficulty with rigid thinking
ACTIVITY TO SUPPORT INHIBITORY CONTROL

Island Game

- What inhibitory controls did you use?
- What was difficult?
- What was easy?
COGNITIVE FLEXIBILITY: IS THE ABILITY TO SHIFT ATTENTION FROM ONE ACTIVITY TO ANOTHER OR TO ACTIVELY SWITCH BACK AND FORTH BETWEEN IMPORTANT COMPONENTS OF A TASK

- Ability to switch gears and look at things differently
- Ability to “unlearn” old ways of doing things.
- These abilities are a key role in all types of learning

Weak Cognitive Flexibility
- Difficulty understanding and following academic rules
- Difficulty understanding abstract concepts
- Difficulty with rigid thinking
ACTIVITY TO SUPPORT COGNITIVE FLEXIBILITY

• Apple Scramble Game

• What cognitive flexibility was needed?
• What was difficult?
• What was easy?
**Working Memory**

*Is the capacity for holding information in mind while working with part of that information.*

- Ability to keep track of short-term information
- Ability to move short term into organized long term memory
- Ability to use together your auditory memory and visual-spatial memory

**Weak Working Memory**

- Difficulty with getting frustrated easily
- Difficulty with following directions
- Difficulty with doing things a certain way
- Difficulty with answering questions in detail
ACTIVITY TO SUPPORT WORKING MEMORY

• Dice Roll: What can your body do?

• What working memory did you use?
• What was difficult?
• What was easy?
Some sources say that up to 80% of those with autism suffer from executive function disorders.

https://youtu.be/E_mKAjNC5SQ

Some Struggles with Autism:
- Conversation
- Turn-taking
- Attention to expressions
- Failure to recognize social cues
- Initiation
- Preoccupations
- Rigidity
- Social communication

Some Strengths in Autism:
- Attention to detail
- Uniquely skilled areas
- Deeply skilled areas
- Big picture thinking
- Visual processing
- Direct communicator
- Loyalty
- Honesty
- Non-judgmental listener

https://youtu.be/E_mKAjNC5SQ
I can make a plan but it won’t take in the social needs of others…

I can pay attention to objects or activities for longer periods of time than to people…

I can be frustrated by others’ apparent lack of skill…

I’ve seen it done this way, so that’s how I’ll do it from now on…

It’s hard to be flexible and try something new or do something at a different time or place…

I have a hard time inhibiting thoughts, actions and words…

So, what’s getting in the way?
EXECUTIVE FUNCTION AND THEORY OF MIND

- Infants understand other’s goals and intentions
- By 36 months children can infer mental state of someone by the look in that person’s eyes
- Children recognize that others have their own thoughts at around the age of 4-5
EXECUTIVE FUNCTIONING AND AUTISM

❖ EF skills (i.e., inhibition, shifting, cognitive flexibility) are related to Theory of Mind—the ability to take the perspective of others.
❖ Most goal related activity takes place in the context of interacting socially with others.
❖ For kids with developmental delays, such as those with autism spectrum disorders (ASD), Theory of Mind may take a little longer to develop, and some higher level skills may not be reached at all.
❖ Interventions targeting social competence have positive effects on executive functioning in children with autism and other developmental disabilities.
ASSESSING EXECUTIVE FUNCTIONING

BRIEF®-P
Behavior Rating Inventory of Executive Function®—Preschool Version
Age Range: Preschool

(BDEFS-CA)
Barkley Deficits in Executive Functioning Scale—Children and Adolescents
Age range 6-17

CEFI®
Comprehensive Executive Function Inventory™
Jack A. Naglieri, Ph.D., Sam Goldstein, Ph.D.
Age range 5-18
ADDITIONAL INSTRUCTIONAL RESOURCES AND STRATEGIES FOR IMPROVING EF

Social Skills
- Expected and Unexpected Behaviors
- Self Regulation and the “Unthinkables”

Working Memory
- Eight Working Memory Boosters
- Timers and Visual Schedules

Inhibitory Control
- Token Board
- First-Then Schedules
- Whole Body Listening

“Those who most need improvement benefit the most.”

https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4200392/
Diversification of Executive Function Skills
Middle Childhood, 6-12 years old
Executive Function:
Brain’s Control Center
RESOURCES

• Texts and Professional Development:
  • Social Thinking by Michelle Garcia-Winner. https://www.socialthinking.com/Products?f:age=[ages%204-7]

• Web based Resources:
  • Understood, resources for parents to support learning and attention issues and a partnership with 15 non-profit partners. https://www.Understood.org

• Videos and interactive web sites:
  • https://youtu.be/efCq_vHUMqs
REFERENCES

• https://developingchild.harvard.edu/science/key-concepts/executive-function/
• https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4869784/
• https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4084861/
• Social Skills Intervention Participation and Associated Improvements in Executive Function Performance
  https://www.hindawi.com/journals/aurt/2017/5843851/