EXECUTIVE FUNCTIONS

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AGENDA

Definitions

Development

Language Connection

Assessment Tools

Therapy Ideas

Your Ideas

WHAT ARE EXECUTIVE FUNCTIONS?

Higher Order Cognitive Processes

Cognitive Processes
- Attention
- Inhibition
- Working Memory

Components
- Goal Selection
- Planning/organizing
- Initiation/Persistence
- Flexibility
- Self-Regulation

ATTENTIONAL CONTROL

Form a state of readiness to receive and process relevant stimuli

Monitor the success or failure of efforts

Manage Distractions

Manage multiple demands

Types of Attention:

- Sustained attention

- Selective attention

- Alternating attention

- Divided attention

INHIBITORY CONTROL

Ability to resist a strong inclination to do one thing and instead do what is most needed or appropriate

Makes it possible for us to resist acting on our first impulse so we do not do something we would regret

Includes being able to:
- Stay focused despite distractions
  - Selective or focused attention
- Stay on task (& complete) though you may be tempted not to
  - Discipline
- Inhibit acting impulsively & instead make a more considered response
  - Self-control

WORKING MEMORY

Holding information in mind while mentally working with it

Holding information in mind while working on something else
- Ex: following a conversation while keeping in mind what you want to say

Holding in mind where something was hidden despite being given something else to do during the delay

Critical making sense of anything that unfolds over time
- Always requires holding in mind what happened earlier & relating that to what is happening now

COGNITIVE FLEXIBILITY

Ability to quickly and easily switch perspectives or the focus of attention

Manage interruptions, distractions, and changing requirements

Over-ride perseveration, allow for new learning, and adapt to environment

Flexibly adjusting to changed demands or priorities

Being able to think outside the box – CREATIVITY

Critical to creative problem solving

Seeing opportunities and seizing them
- Being able and willing to change course when it seems you were wrong

INFORMATION PROCESSING

Relies on – attention, working memory & Inhibition

Look at the development of:

Speed, Quality, and Quantity
- How much, for how long?

Multiple streams of information
- Dependent on attention & inhibition

Accuracy of perceptions & interpretations
- Can't select relevant goals if perceptions are off

GOAL DETERMINATION

Encompasses Planning and Organization

Key to life-success

Dependent upon quality of input, perceptions, processing, meaning, and interpretations

Dependent on delayed gratifications

Dependent on temperance of emotions and impulses

Becomes more abstract and multi-dimensional as we get older

SELF-AWARENESS & MONITORING

Many levels of awareness

Working towards:
- Self-knowledge
- Meta-cognitive beliefs and knowledge about self
- Awareness of one's strengths and weaknesses
- Ability to recognize tools at one's disposal
- Develop and use compensatory strategies when necessary

DEVELOPMENTAL VARIABLES

Nature, genetic influences

Environmental enrichment, experiences

Nutrition

Stimulation

Myelinization

Synaptic Pruning

Language

TWO YEAR-OLDS....

ATTENTION

- Focused, minimal sustained
- Cannot manage distractions
- Cannot selectively attend

INHIBITION

- Minimal inhibition

WORKING MEMORY & LANGUAGE

- Is emerging
- Does not provide for more than simple, short, brief, concrete

GOAL DETERMINATION

- Is self-driven
- Emerging awareness of environmental rules and expectations of others

PLANNING

- Is by chance

SHIFTING/FLEXING

- Unable to do so
- Results in perseveration

SELF-REGULATION

- Minimal inhibitory control
- Some self awareness separate from others

2

THE THREE YEAR-OLD…..

3

ATTENTION
- Rapid development of sustained attention
- Simple alternative attn. emerges

INHIBITION
- Gradual decrease in impulsivity
- Unable to delay immediate gratification

WORKING MEMORY/LANGUAGE
- Surge in verbal fluency
- Rapid increase in simple language, naming, symbolic representation
- Supports processing of simple rules
- Supports conceptualizing simple ideas, plans

GOAL DETERMINATION
- Some choice-making is deliberate, for simple tasks
- Less frequent choice-making by chance

PLANNING
- Poor organization of ideas
- Strategies are NOT efficient

SHIFTING/FLEXING
- Begin to shift from one stimuli to another

EF SKILLS AT FOUR….

4

ATTENTION

- Can attend to single directives
- Trouble managing competing stimuli
- Better sustained attention, to complete tasks

INHIBITION

- Decrease in impulsivity
- May delay initial choices
- Can consider "better" choice for "better" reward later

WORKING MEMORY /LANGUAGE

- Able to process sentence-level directives, rules

GOAL DETERMINATION

- Can generate new ideas
- Can select "better" options

PLANNING

- Able to make simple strategic plans

SHIFTING/FLEXIBILITY

- Less perseveration
- Can shift between simple task changes
- Cannot shift between complex, or multiple demands

EFS AND THE FIVE YEAR-OLD:

ATTENTION

- Focus, sustain, some selective attention going on
- Not yet alternating well between multiple demands

INHIBITION

- Can delay some of their own initial choices,
- Still need external cues, however
- Helps to "balance" internal needs w/ external demands

WORKING MEMORY & LANGUAGE

- Structures & semantics surge ahead
- Helps to execute multi-step simple tasks or directives

GOAL DETERMINATION

- Setting simple goals
- Rule-knowledge present
- Begin to merge wants/needs with external rules to determine efforts

PLANNING

- Simple

SHIFTING/FLEXIBILITY

- Rapid surge in mental shifting
- Can flex back and forth from single demands
- Can't switch between multiple sets of rules

EF SKILLS AT SIX…

6

ATTENTION

- Longer sustained attention span
- Able to resist many distractions
- Helps with capacity to learn

INHIBITION

- Start to be more self-controlled
- Rather than other-controlled

WORKING MEMORY

- Helps with capacity to learn

LANGUAGE

- Better verbal fluency
- Begin to use silent, verbal mediation!!!!

GOAL SELECTION

- More strategic efforts
- More planned, purposeful choices, behaviors

PLANNING

- Surge in simple problem solving
- Decline in perseverative behaviors

FLEX/SHIFTING

- Spurt in mental flexibility
- Emerging ability to generate alternate strategies

SEVEN – NINE YEAR OLDS....

7 – 9

ATTENTION

- More selective, deliberate
- Better able to tune out irrelevant

INHIBITION

WORKING MEMORY/LANGUAGE

- Continued use of silent, verbal self-talk mediates planning

GOAL SELECTION

- Surge in ability to determine efforts

PLANNING

- Rapid surge in planful-ness, idea organization
- More obvious efficiency in reasoning

SHIFTING/FLEXING

- Better at switching between rules, sets
- Can develop alternative strategies
- Can manage more task parameters

TEN YEAR-OLDS

ATTENTION

- Mature ability to selectively attend
- Identify relevant information

INHIBITION

- Surge in inhibition; may approach adult levels!
- Able to consider task/external requirements over personal or internal needs/impulses

GOAL DETERMINATION

- More strategic decisions

PLANNING

- Significant increase in complex reasoning

SHIFTING/FLEXING

SELF-MONITORING

ELEVEN – TWELVE YEAR-OLDS

11-12

ATTENTION

- Is relatively mature!
- Can focus, sustain, select

INHIBITION

- *?? Brief return to impulsivity occurs ??*
- Can inhibit irrelevant, perseverative behaviors

WORKING MEMORY & LANGUAGE

- Major increase in WM
- Language abstraction helps in planful-ness, strategic efforts

GOAL DETERMINATION

- Able to develop goals for fairly complex problems

PLANNING

- More insightful and efficient organization
- Note new level of complexity in problem-solving

SHIFTING/FLEXING

- Able to generate alternative strategies, efforts

SELF-MONITORING

- Self-monitoring apparent
- Ability to learn from mistakes
- Ability to generate alternate strategies
- Complex planning and organization

ADOLESCENCE — RELATIVE MATURITY!

Teens

Attention
- Spurt around age 15!
- **Mature systems, more or less**
- Need to flesh out divided attention

INHIBITION
- **Nearing maturity**
- Still prone to impulsive decisions

WORKING MEMORY & LANGUAGE
- Complex, abstract,
- Verbal reasoning available
- **Minimal advances from here on out**

PLANNING
- Multiple strategies can be employed

GOAL DETERMINATION
- Advanced decision-making skills
- Multi-goal efforts
- Can orchestrate multiple requirements
- Not yet completely "done"

SHIFTING/FLEXIBILITY
- **Nearly mature**
- Minimal changes from here to adulthood

SELF-REGULATION
- At risk for reckless behavior
- Intense focus on self
- Manage to monitor and correct situations in immediate environment
- Not yet monitoring 'self' in greater worlds

EARLY 20'S

20-25

ATTENTION

- Full maturity expected

INHIBITION

- Full maturity expected

WORKING MEMORY & LANGUAGE

- Maturity in speed, complexity, abstraction

GOAL DETERMINATION

- Multi-focused comparison
- Predictions, analysis

PLANNING

- Complex, multi-tiered

SHIFTING/FLEXING

- Maturity

SELF-REGULATION

- Adapt to changes
- Engage in goal-directed behaviors
- Make ethical, moral, legal decisions
- Avoid sabotaging our efforts w/impulsivity or poor choices
- Implement necessary self-control
- Behave within parameters of our society

CRITICAL STAGES IN EF DEVELOPMENT

Birth-5

- Attentional skills (need foundation)

~6 years

- Mental flexibility (begin to shift, control impulses more)

7-10

- Planning & organization (relevance and critical thinking appear)

9-12

- Processing speed, divided attention (ability to multi-task)

Adolescence

- Skills are on-line, but not yet mature

Early 20's

- Hopefully mature

40's

- Begins to decline a bit

NEED LANGUAGE.......

Language as a tool for:

Self-talk
- Remind, organize
- Regulate, inhibit

Structure
- Sort, group, sequence, plan,

Verbal reasoning
- Compare, predict, interpret

Mediating, articulating
- Experiences, interactions

Language deficits:

Diminish capacity to use these tools

Undermine EF capacity to
- Regulate self, behavior, responses, timing,
- Formulate plans
- Mediate experiences
- Organize conversations
- Compare and reason
- Predict and select
- Engage in sophisticated thinking and problem solving

NEED SOCIAL/NONVERBAL SKILLS...

Social/nonverbal processing as a tool to:

- Interpret others' intent
- Recognize unspoken, yet assumed, knowledge
- Demonstrate expected nonverbal behaviors
- Manage emotional responses and considerations

Social/nonverbal processing deficits

- Disrupt & undermine EF capacity to mediate and respond in socially, culturally, legally acceptable forms of communication

EXECUTIVE FUNCTION

Executive Function skills are more important for school readiness than are IQ or entry-level reading or math.

- (e.g., Blair, 2002; 2003; Blair & Razza, 2007; Normandeau & Guay, 1998)

Research shows that 5-year- olds today are behind in EFs compared with 5-year-olds of a couple of generations ago.

- (Smirnova, 1998; Smirnova & Gudareva, 2004)

Executive Functions are also important for school success.

Working memory and inhibitory control each independently predict both math and reading competence throughout the school years.

	Working Memory	Inhibition
<u>Very Early Grades</u>		
Language Skills	**Adams & Gathercole, 1995; Blair & Razza, 200**	**Blair & Razza, 2007; McClelland et al., 2007**
Math Skills	**Blair & Razza, 2007; Espy et al., 2004; Passolunghi et al., 2007**	**Blair & Razza, 2007; Espy et al., 2004; McClelland et al., 2007**
<u>Later Grades</u>		
Language Skills	**De Beni et al., 1998; Gathercole et al., 2004, 2005; Savage et al., 2006**	**De Beni et al., 1998; Fiebach et al., 2007; Savage et al., 2006**
Math Skills	**Barrouillet et al., 2005; Bull & Scerif, 2001; Gathercole et al., 2004; Swanson & Kim, 2007**	**Bull & Scerif, 2001; Shallice et al., 2002; Passolunghi & Siegel, 2001**

EXECUTIVE FUNCTIONS IN CHILDREN WITH SPECIFIC LANGUAGE IMPAIRMENT

Preschool children with SLI had poorer performance than TD peers on sustained selective attention tasks in linguistic and nonverbal auditory modalities; similar on visual tasks

- Spaulding, Plante, & Vance (2008)

Parent ratings from the showed significantly more impaired EFs in adolescents with SLI compared with their typically developing peers

- Hughes, Turkstra, & Wulfeck (2009)

Children with SLI and lower language functioning (LLF) had significantly lower performance on EF

- Henry, Messer, & Nash (2011)

MANY AUTHORS HAVE FOUND THAT CHILDREN AND ADOLESCENTS WITH TYPICAL LANGUAGE HAVE BETTER EF SKILLS THAN THOSE WITH LI

Global EF measures

- Hughes, Turkstra, & Wulfeck (2009)

Inhibition

- Henry, Messer, & Nash (2011)
- Weyand & Willis (1994);
- Im-Bolter, Johnson & Pascual-Leone (2006)
- Bishop & Norbury (2005)

Shifting

- Henry, Messer, & Nash (2011)
- Marton (2008)

Working Memory

- Henry, Messer, & Nash (2011)
- Marton (2008)
- Im-Bolter, Johnson, & Pascual-Leone (2006)
- Marton & Schwartz (2003)
- Ellis, Weismer, Evans, & Hesketh (1999)
- Hoffman & Gillam (2004)

Planning

- Henry, Messer, & Nash (2011)
- Marton (2008)
- Weyandt & Willis (1994)

ASSESSMENT TOOLS

There are a bunch of isolated tasks that are primarily used in research or by psychologists

- Examples: Stroop color/word test, Tower of Hanoi test, Wisconsin Card sorting test, Wechsler Intelligence test for children - digit span and the spatial span (WISC), etc…

- Behavior Rating Inventory of Executive Functions (BRIEF)
  - Questionnaire to be completed by parents, teacher, self (for older individuals)
  - BRIEF-Preschool, BRIEF, BRIEF-Adult; self report for 11years+
  - Scales for Behavior regulation, emotional regulation, and cognitive regulation
    - Behavior Regulation – Inhibit & self-monitor
    - Emotional regulation – Shift & Emotional control
    - Cognitive Regulation – initiate/task completion, working memory, plan/organize task monitor, organization of materials

MORE ASSESSMENT TOOLS

- Behavioral Assessment of the Dysexecutive Syndrome in Children (BADS-C)
  - Hands on executive reasoning and problem solving tasks
  - Normed for individuals 7 years to 16 years
  - Also has an adult version – BADS for older adults
  - Assesses – inflexibility and perseveration, novel problem solving, impulsivity, planning, ability to utilize feedback and moderate behavior accordingly
  - Tasks that include:
    - Card sorting task (yes-red, no-black) then rule changes – yes if same color as previous
    - Water test – remove a cork from a tube using given materials, 5 step plan for a practical problem
    - Key Search – devise and carry out an efficient search pattern to find a hidden key
    - Zoo map – figure out a route while meeting various characteristics
    - Six part test – test ability to create a plan of action and monitor performance; requires scanning abilities and memory

Functional Assessment of Verbal Reasoning and Executive Strategies(FAVRES)

- Real life problem solving and executive tasks

- Normed for individuals 18-79 years

- Can be used informally for teenage/high school students

- Tasks for Planning an event, Scheduling a day, Deciding on a gift, and Building a case to solve a common problem

WORKING MEMORY AND VISUALIZATION

Nonverbal working memory skills allow students to anticipate and produce mental images of what a task might look like, create images of oneself working on a task, as well as a location and time to work on a task. These images can be held briefly in memory as snapshots of a task, or as a "mental movie" of oneself carrying out a task, which is very useful in planning the most effective way to go about completing the task. This anticipatory mental set or mental plan is important to keep in working memory while completing a task so that one can self-monitor how well the plan is being carried out. By reflecting on the plan versus the actual result, one can adjust the steps to carry out as needed. This working memory system allows for reflective, rather than reactive or impulsive, thinking. Images can be held in mind while using self-talk through the sequential steps needed to complete the envisioned task or assignment. Thus, these underlying nonverbal and verbal working memory skills work together to help students plan and sustain focus when reaching goals. Verbal working memory contains the language that is used for self-talk, and this inner speech guides one's attention and intention towards the goal, while visual-mental imagery is important for holding the gestalt image or "big picture" of the goal in mind.

TOOLS OF THE MIND

Program is based on theories of Vygotsky and Luria.

We are not just intellects,

we have **emotions**

we have **social needs** &

we have **bodies**

It helps young children improve their EFs, reduces stress & increases joy in the classroom, & addresses both social & cognitive development.

A key aspect of Tools of the Mind is the minimal time devoted to large group activities and the emphasis on children actively engaging with one another and with the material.
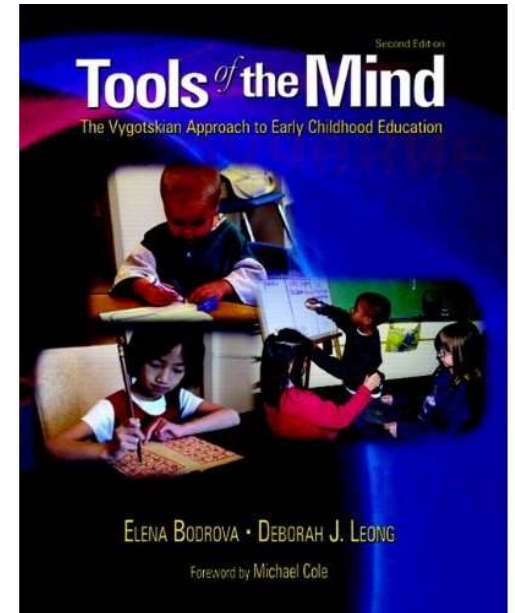
HARD WORK, PERSISTENCE, DISCIPLINE

practice, practice, practice

HIGH STANDARDS – challenge the children

COGNITIVELY DEMANDING – challenge concentration, sustained attention, working memory (remember complicated sequences)

PHYSICAL ACTIVITY, INTENSIVE MOVEMENT & VISUOMOTOR TRAINING

SELF-CONFIDENCE, PRIDE

Emotions - JOY, PASSION – engage & motivate

SOCIAL SUPPORT, SOCIAL BELONGING – part of a group (an ensemble of dancers or musicians) – children help one another, listen to one other, & respect one another. Each is an important part of the whole.

ANSWERING QUESTIONS

Therapist sings a little song before the child responds.

- think about the answer, don't tell me

Imposes time between presentation of stimulus and response to make children take the time they need to 'compute' the answer

TIME AWARENESS

Children often show a tendency to either not know or underestimate the time needed to complete tasks. Usually because of difficulty in the ability to break down steps to complete tasks, therefore children will benefit from opportunities to do this in order to estimate the time needed to complete each step

Throughout task execution, children compare the plan and time estimates with the actual progress of completion with planned checkpoints during the task or assignment using an analog clock and timer mediators.

It is also helpful to identify and remove Time Robbers™ at various checkpoints in order to refocus her attention and completion of a task

Managing Time Robbers

Identify, Remove, Re-Plan

What did the Time Robber Steal?		
My Body	Thirsty	☐
	Hungry	☐
	Sleepy	☐
	Antsy	☐
My Organizer	I can't find my assignments and papers	☐
	My papers/binders are messy	☐
	I'm looking for materials: pens, pencils, etc…	☐
	I don't have a plan for how to do this.	☐
My scope	I don't know how to start	☐
	I can't decide what to do. I don't have a goal	☐
	I am trying to do too much	☐
	I'm trying to make it perfect	☐
My focus	I'm distracted by the computer or other electronics	☐
	I'm socializing	☐
	I'm going from task to task	☐
	I forgot what the assignment was asking me to do. I have gone in a different directions	☐
	I am distracted by other things in the room	☐
Other		☐
		☐

GET READY, DO, DONE — 360 THINKING

Planning approach in order to improve her executive functioning skills. Children work to break down the steps to complete an end goals for planning backwards.

Children can use information from the directions to sketched the 'Done' features of a project and label the key elements of the plan.

You then work backwards for the steps in sequence to complete this task during the "Do" stage of planning

- Developing the ability to formulate a gestalt image of an end goal and generating a specific sequence of actions that the child can picture himself/herself carrying out at a future moment in time.

Children then continue to think backwards by recording the materials they needs to "Get Ready" and do the steps that were outlined

Planning with Visuals using the 360 Thinking™ Approach: For academic tasks, transition from the use of models that are often presented as the "end result" of a given assignment or task to the use of sketches and plans of an assignment when it is "Done".

Children will need to be taught how to 'translate' verbal directions into a visual sketch of the end result and then verbalize and list materials to "Get Ready" and the steps to take or "Do" the task.

The "Done" stage is the sketch of a completed task, as well as the space where it needs to be turned in, the time when it will be turned in and the teacher who will need to receive it. This is incorporating plans to enhance situational awareness. The Get Ready, Do, Done mats can be placed in front of a child for sketching the plan, writing the steps for the plan and organizing the materials needed for the plan. This process serves as a foundation of supporting executive function development.

DECLARATIVE QUESTION PROMPTS

An important way to increase awareness of strategies, which can help scaffold to independence:

High Support Declarative Prompts – Bring Child's attention to the specific problem and prompt her how to directly carry out the solution:

- "What would you be carrying if you were prepared to write in this class?" (before he walks to his desk or have pictures of materials posted on the board that students need to see on their desk to be ready for class)
- What would your desk space look like if you are done with the spelling assignment and you are ready to work on the writing assignment?"
- "Let's draw what you will see this assignment to look like when it's done"
- "What will this assignment look like in half the time?" "Let's mark a half point on your sheet with a clock-check reminder."
- "If you were ready to work on this paper, what would you have on your desk?"
- "Does your work match the picture of your plan?" or "What part of your work matches your plan and what part of your work still needs to match your plan?"
- "What assignments in your working notebook look similar to the one you are working on today? How is the one today same, but different?"
- "Where do you picture your _____ is kept….desk or backpack?"
- "What was the outcome?" "Did the _____strategy work?" "Where can you write the strategy so you will remember it or Let's write the strategy in your strategy notebook" "When might you picture yourself looking at your strategy card to use that same strategy again?"

DECLARATIVE QUESTION PROMPTS

<u>Moderate Support Prompts-</u>

Bring attention to the specific problem but student needs to recall the solution or how to carry out the solution:

- "Check your time/ half-point mark?"
- "Do your answers match the model?"
- "How's your pace?" (with a visual gesture towards the marks on the clock)
- "Where might you find a strategy/hint for _____"
- "What are 2 steps to circle in that direction?" "How can you make a reminder to follow both steps on your worksheet?"
- "How will you decide (or what will you see) when you are done?"
- "Could you see yourself using any different strategies?"
- "What would a good stop spot look like?"

<u>Faded to Low Support Prompts-</u>

Bring attention to a problem without labeling the problem:

- "hmm…"
- "huh!"
- "oh no"
- Use of more subtle facial expressions and voice tones

FACILITATE THE EXECUTIVE FUNCTION PROCESS

Use of Visuals: Provide visual picture supports for tasks in school and home. Photograph the end result of daily routines, such as out the door or daily chore, and students can work to "match the picture". Photos can be faded out with verbal prompts to recall the picture.

Use of Time Awareness Strategies: Time awareness is an important skill for self-regulation, focus, and prioritizing tasks. It is a difficult to teach without making time visible. To do this, it is helpful to use a "working clock" which visually shows the time to start, check and complete work by shading on a glass-faced clock with a dry erase marker. At the mid-point check in on the task. "Time Robbers" can be checked at the mid-point and "Time Savers" can be put in place. Frequent time robbers can be tracked and personal Time Robber and Time Saver sheets can be created for each child.

ORGANIZATION OF MATERIALS AND SCHEDULE ROUTINES:

Use pictures/photographs of organized spaces to increase independent maintenance of spaces such as desks, backpacks, binders, locker/cubby and bedroom. A list of "kinds of materials" that go in various boxes, areas, baskets, containers can also be helpful for supporting working memory.

It is strongly recommended that the schedule day, i.e. Monday or A Day, for example, and the schedule is both posted in the classroom and hallway by the coat storage and the locker storage areas. It can also be placed inside the sleeve of a daily organizational binder.

Use a consistently color-coded notebook system across classes with time assigned to manage temporary storage folders or expandable file folders into 3 ring binders.

Organization is also directly related to time management. Provide children with specific times when it is appropriate to organize and maintain materials and spaces, e.g. notebooks, cubbies, etc. and to write homework in an agenda book. Specific homework assignments ought to be written in the agenda book rather than general terms such as "math" or "page 23". Initial assistance will be required for organizing during the week as a child plans to accomplish specific assignments that are in a larger assignment packet in her weekly schedule.

Work with children to understand the "4 T's" when organizing papers: Test, Trash, To Do, To Ask. Create piles of papers that may be loose and receives support in identifying which pile and where papers are organized.

ACCOMMODATIONS & SUPPORT IN THE CLASSROOM:

Structured and multi-sensory instruction: Programs such as Visualizing and Verbalizing and Thinking Maps would provide visual support for language processing and comprehension

Provide Choices: Use word banks for demonstrating knowledge

Visuals: Provide visuals that are clearly labeled for class and studying, and provide

Memory Support: Provide simple partially completed outlines and give cues when to fill in the outlines during class. Provide pictures to insert or paste into notebooks as "notes". Contextual pictures of a student and the class engaged in activities related to assignments are also helpful.

Executive Function Support: Develop consistent organizational routines and help children follow the routines with "future declarative" question prompts. Provide visual models or templates of the end result of a task to increase understanding of the "end" product they are working towards. Provide simple action steps and pictures as a breakdown of instructions

ACCOMMODATIONS & SUPPORT IN THE CLASSROOM:

Directions: When giving directions, it would be beneficial to use mediators and/or maps to tap out the directions before following the directions. Begin with following directions in the classroom, then gradually following directions outside the classroom with a map of the space to imagine in order to support visual memory and visualization.

Instructions: When providing instructions for projects and novel multi-step assignments, it can be beneficial to create a sketch of the final result and examining rubrics to include the key features of the goal level in the sketch.

Initiation: Frequent monitoring of comprehension of the task and expected end result by the teacher in the classroom

Paraphrasing and Overload: Clarify the type and purpose of language used during instruction. Indicate when paraphrasing information, as children are likely to think they are being told two different ideas, i.e. another way to say the same idea.

Abstract language: The use of abstract language to deliver instruction typically doubles as students move through elementary school. Clearly define any ambiguous and inferential language during instruction so that it is concrete.

Reviews: Provide a visual when reviewing background knowledge for a new task, i.e. this is the summary for chapter 1, now we are going to read and summarize chapter 2.

Active Listening: Provide classroom entrance and exit cards for students to write one thing learned from previous class, and one question and predicted response for the current class.

Creative Play Makes for Kids in Control

TikaTok - Create and share your own books

StoryPlace - Create narratives

KidsReads - Recommended reads for kids!

StudyDog - Reading programs

Audible Kids - Audio books, magazines and TV subscriptions

smyface.com/ - Fun interactive website to explore facial expressions and emotions with kids

Executive Function Skill Development

Expanding Expression

Learning Works for Kids

Mindset Online

Revolutionary Social Remediation Programs and Resources

Language Based Phonology, Reading Comprehension and Writing Programs

The Story Grammar Maker and Theme Maker Programs

Attention Skills Training Program

Recommended Games and Activities

A Bit of Banter Jr. – good use for conversation skills

Taboo – to develop vocabulary, schematic thinking and expressive language

Outburst Junior - to develop vocabulary, schematic thinking and expressive language

Imaginiff Jr. - great for developing episodic memory and abstract, inferential thinking skills

American Girl 300 Wishes – great for social skills, forming opinions and making decisions

Break the Safe - amazing collaborative social skills game: you will need to find on ebay

Oodles of Doodles - to develop vocabulary, schematic thinking and visual imagery skills

Stare Junior – for episodic memory, attention and schematic thinking

Whoonu - great for social skills, forming opinions and making decisions

Sync Up - great for social skills, schematic thinking and expressive language

Remote Control Impulse Control, Franklin Learning Systems - a great game for teaching impulse control and self regulation

Apples to Apple - develops verbal organization and semantic feature analysis skills

Pictionary and Pictionary Man - develop visual-motor construction and formulation of "future picture" thinking

Scattegories - develop verbal organization and word retrieval skills at the word level

TriBond Junior - develop flexible thinking and verbal organization skills at the word level

Rat A Tat Cat - reinforce visual-sptial skills and working memory

Charades for Kids - to facilitate nonverbal expression and gestural communication

Blokus - to develop visual-spatial, visual working memory and problem solving skills

Independent Games

Independent games foster attention, organization and problem solving skills.

Rush Hour

River Crossing

Hotspot

Cover Your Tracks

Tipover

Building

Legos and vast number of other manipulatives are offered in stores now that can be used for building freestyle from imagination to building sets that foster visual-spatial, organization and bottom-top style of problem solving. Try using household objects, toys or spaces as models for building. Most Lego manuals can also be downloaded from the internet if a child has an abundance of legos, but would like more specific directions for building objects and schema sets.

Clays are soft, pliable building materials also offered in various colors and can be painted, which offers another medium for helping kids develop these construction skills.

Role Playing

Role-playing can extend well beyond preschool and kindergarten. As kids get older in the middle school years, they can be given ideas for putting on plays or shows with character scripts, settings and costume/props. High schoolers may enjoy directing younger students to develop plays and shows. This kind of play develops problem solving, executive function, social thinking and expressive language skills. Role-plays can occur indoors or outdoors with props developed for the setting. Read books related to some schemas to provide vocabulary and ideas that would be helpful for developing scripts. Cooking and baking activities are ideal for increasing expressive language and verbal organization skills, as sequences are naturally involved. Try having your child "teach" you how to make some dish they have learned in order to increase verbal sequencing skills. A step by step sequence of pictures can be drawn, written and assembled to make individual cookbooks. Give props from home to role-play from books or favorite series that your children enjoy, subjects or themes learning at school, and from the following schemas:

- Magic Shows
- Magic Tree House
- Fairy Series
- Frontier
- Fashion Show
- Beauty Parlor
- Entrepreneur Activities: Lemonade stand, car washes, snack shacks

Can also be applied to classroom roles in various activities

Director

Your job is to lead the discussion and introduce the section of text to be discussed.

For example,
Welcome to our circle. We are discussing Chapters 3 and 4 of...

You must:
- Keep the discussion going.
- Introduce each person to take their turn.
- Make sure that everyone participates.

Summariser

It is your job to give a summary of what has occurred.

Write a few sentences which sum up the events in this section of the text.

Question Master

It is your job to think of 3 interesting discussion questions.

Try to think of questions that get your group to share their own thoughts and opinions about the book.

For example:
- What did you think about...?
- How would you feel if...?
- What would you do if...?

Detective

It is your job to investigate new words.

Find 2 or 3 words that you don't know the meanings of.

Find out what they mean and be ready to share them with the group.

PRETEND PLAY

Vygotsky: Engaging in social pretend play is critical for developing executive function skills in very young children. It is emphasized in Tools of the Mind.

Children must plan who they want to be in a pretend scenario, and the teacher holds them accountable for flexibly adjust to twists and turns in the evolving plot (cognitive flexibility)

During social pretend play, children must hold their own role and those of others in mind (working memory)

inhibit acting out of character (employ inhibitory control), and

All three of the core executive functions thus get exercise.

Arts and Crafts

There are numerous websites and crafts available at stores, but crafts that can be made as a part of other projects can maximize vocabulary, planning and thinking skills. Art classes can be a great way to get children motivated in trying to shift to art activities at home.

Music

Learning musical skills can be some fun ways to spend leisure time. Singing, drums, and piano are relatively inexpensive if play instruments are used and manuals with audio direction are provided. If students can take some classes, it may stimulate some more interest in spending time away from the "screen" and they can develop a skill that can become a part of fun social times with friends.

Gross Motor Activities

Gross motor activities are a natural part of most children's playtime. These activities have health and social benefits that are important for their overall well-being but are also important in developing executive function skills. As a child or teen engages in team or individual activities, they develop schema, social and organizational skills. If your child or teen does not show an interest in team sports, the following independent activities have been found particularly beneficial for children with attention and learning difficulties:

Rock Climbing

Biking

Swimming

Karate and other self-defense classes - highlight mental control and body-mind connection as well as following directions

Horseback Riding - many programs offer therapeutic riding classes and these enhance self-awareness, problem solving, perspective talking, social skills and following directions

OTHER IDEAS

Time Management
- Prioritizing Tasks and Time
- Sensing the Sweep of Time
- Creating Study Routines and a Conducive Study Environment
- Management of Papers and Material

Long Term Project Management
- Strategies for Planning and Using Time Effectively
- Breaking Projects into Manageable Parts
- Self-Accountability for Completion of Intermediate Project Steps

Writing
- Breaking Down and Interpreting Types of Writing Assignments
- Brainstorming with Schema Analysis Strategies
- Pre-Planning and Organization of Ideas Using Consistent Methods
- Writing, Revising, Editing
- Use of Technology Resources during the Writing Process

Test Preparation
- Review of Past Test Preparation and Taking Skills
- Effective Note Taking and Preparation of Study Materials for Test Preparation
- Anticipation of Format and Content
- Development and Independent use of Study Strategies
- Strategies for Organization and Execution of Short and Long Essays
- Planning and Estimating Time during the Test
- Evaluating Performance and Planning for Future Test Preparation Strategies

Reading Comprehension
- Story Grammar for Fiction
- Visualization and Mental Imagery Strategies
- Methods for Previewing as important for Connections
- Understanding Inherent Organization of Written Information
- Recognizing Relevant Details and Categorizing of Main Ideas
- Comprehension of Various Genres
- Note taking and Techniques for Storage and Recall of information
- Understanding Figurative and Abstract Language
- Reasoning Sills: Making Text Connections, Text Analysis, Inferences, Predictions

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TOOLS OF THE MIND

http://www.youtube.com/watch?v=qgyUPH3a2Ss

http://www.toolsofthemind.org/extendedcampus/toolsofthemind/index.shtml

http://www.npr.org/templates/story/story.php?storyId=76838288

http://www.headgates.org/resources/3.%20Executive%20Control.pdf

http://docsfiles.com/pdf_tools_of_the_mind.html

http://www.ibe.unesco.org/publications/innodata/inno07.pdf

http://thesciencenetwork.org/docs/BrainsRUs/Education%20Forum_Diamond.pdf