Assistive Technology Tools & Strategies to Support Executive Functions

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Introductions

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All materials and handouts for this presentation can be found here:

Honey, in class we want you to focus... Focus. Got it?

Are your eyelashes real?
Executive Functions

Executive functions are a set of processes that relate to managing oneself and one's resources in order to achieve a goal. (Cooper-Kahn, 2008).

Impairments of any or all of these EF skills may be present in spite of strong intellectual skills and unaffected language capacity (University of Michigan, n.d.).
“The deliberate, goal-directed control of behavior.”

Philip David Zelazo
University of Minnesota
Do you have challenges with

Executive Function
Neuroanatomy

Of Executive Functions
Executive Dysfunction is not:

A diagnosis

A disorder
Executive Dysfunction may be associated with:

- ADD/ADHD
- Autism SD
- Bipolar Disorder
- Depression
- Learning Disability
- Some medications
- TBI
- And also…
Every kid you’ve ever known.

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Need a lot of support

Need a little support

Get it "as is"
Parents and educators must understand that behaviors seen in students are not always due to a lack of trying, but may be a lag in their executive development.
Marshmallow Test
Students who could resist for 15 minutes:

- were significantly less likely to have problems with behavior, drug addiction or obesity by the time they were in high school
- scored an average of 210 points higher on the SAT.
- demonstrated better responses to stress, better social skills as reported by parents.
- were more verbally fluent, rational, attentive, planful, and able to deal well with frustration and stress during adolescence.
The Stroop Test

Please state the **color of the text**

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**Shift**

The ability to move freely from one situation to another and to think flexibly in order to respond appropriately to the situation. The ability to shift is often called cognitive flexibility.

**Inhibition**

The ability to stop one's own behavior at the appropriate time, including stopping actions and thoughts. The flip side of inhibition is impulsivity; if you have weak ability to stop yourself from acting on your impulses, you have lack of "impulsive control".
Emotional Control
The ability to modulate emotional responses by bringing rational thought to bear on feelings.

Initiation
The ability to begin a task or activity and to independently generate ideas, responses, or problem-solving strategies.
Working Memory
The capacity to hold information in mind for the purpose of completing a task.

Planning/Organization
The ability to manage current and future-oriented task demands.
Self-Monitoring

The ability to monitor one's performance and to measure it against some standard of what is needed or expected (Cooper-Kahn, 2008).
What does Executive Dysfunction look like in the classroom?
He’s just lazy.
He just seems lost.
He’s constantly blurting out answers!
Her backpack is such a mess!
I have to tell him the directions a million times!
She argues about everything!
He can do the work- but he can’t get started on his own.
He takes everything so personally!
He is always off topic.
She has great ideas—
but she can’t get them down on paper.
What it REALLY looks like...
Disclaimer

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Organization is a subset of executive function along with other neurologically based skills.

An area in which a child can receive targeted support through strategies and assistive technology.

It is important to identify the specific area of difficulty in order to choose the right tool (i.e., loses homework)
• Self-management
• Time management
• Information management
• Material management
SELF MANAGEMENT

Allows students to manage their behaviors in accordance with a set of rules, procedures, or standards.

• Sitting on the carpet in circle time rather than running around the classroom

• Paying attention to the teacher and not daydreaming

• Raising one’s hand and not blurting out the answer
Dennis the Menace

"By the time I think about what I'm gonna do... I already did it!"
Self-management includes

- the ability to filter, regulate, and attend
- the ability to use goal-directed skills
- the ability to complete tasks
SELF MANAGEMENT

• Sensory Regulation Tools
• Movement and Deep Pressure Tools
• Fidgets
• Auditory Tools
• Visual Tools/Supports
OT/PT Room  Sensory Choice Board

- bolster swing
- trampoline
- bike
- squishy ball
- platform swing
- molding clay
- push
- crawl
- hop
- button
- build
- push down
- jump
- T-stool twist
- large ball
- zipper
- bounce on ball
- iPad
- throw
- water table
- puzzle
- scissors
- markers
- draw
LISTEN, THEY'RE ALL THE SAME - IT'S OK IF THEY TOUCH EACH OTHER...
Visual Directions

- sit
- sit
- watch
- listen
- quiet
- sing
- dance
- look
- read book
Power Card

Dolphin wants you to remember:

- Share your toys
- Friends share their toys even if it is your favorite toy
- Friends share!

Adapted from Gagnon, 2001
TIME MANAGEMENT

Making Tasks more Manageable

- Task Analysis
- Chunking
- Batching
- Routines/habits
- Analog Versus Digital
- Clock Time Versus Perception of Time
Look, it's almost 11 o'clock!

Wow, the last two hours really flew by!

I hope the teacher didn't say anything important.
Task Analysis and Time Estimation Sheet

Task:

Estimated Time to Complete Task:

Actual Time to Complete Task:

Difference between Estimate and Actual:

Detailed Steps:
1.
2.
3.
4.
5.
6.
7.
8.
9.
10.
HOW TO BE PRODUCTIVE USING THE POMODORO TECHNIQUE

NAMED AFTER THE ITALIAN WORD FOR TOMATO SINCE THE TIMER USED BY THE TECHNIQUE’S CREATOR WAS SHAPED AS A TOMATO

PICK A TASK

TO DO
- Write XYZ
- Task 2
- Task 3

A list should be planned ahead of time.

SET THE TIMER TO 25 MINUTES

Although a mechanical timer is suggested (like this tomato-shaped kitchen timer), any type will do.

GET TO WORK

NO DISTRACTIONS ALLOWED

STOP WHEN TIME IS UP

DING

This block of work time is called a POMODORO.

RECORD PROGRESS

TASK: WRITE XYZ
- Pomodoro 1
- Pomodoro 2

Make note of anything that could aid future improvement.

TAKE A FIVE MINUTE BREAK

GET UP

MOVE

GET YOUR MIND OFF THE TASK

NOURISH YOURSELF

Breaks keep you fresh.

GET BACK TO WORK

IN FLOW

AND REPEAT PREVIOUS STEPS

Squeeze in mindless chores for increased productivity.

AFTER THE FOURTH POMODORO TAKE A LONGER BREAK (15 - 30 MINUTES)

I GOT SO MUCH DONE

CONTINUE LIKELY UNTIL CALLING IT A DAY

With such focus and flow, time is used more efficiently while reducing mental fatigue.

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TIME MANAGEMENT

• Visual Schedules
• Checklists
• Planners
• Timers
• Reminders/Notes
• Apps/Extensions
Schedules

- Schedule of the learner’s day at school
- Class schedule posted at a central location, available for all students
- Sequence of two events to help a student understand what comes next
Based upon the “Get Ready, Do, Done” instructional method developed by Ward and Jacobson.

360 Thinking Timer
INFORMATION MANAGEMENT

Organizing Information
- Color and Size
- Sticky Notes
- Tabs
- Flags
- Index Cards
- Notebooks
- Binders
- Focusing Information

Retaining Information
- Highlighters
- Highlighter Tape
- Mnemonics
- Flashcards
- Study Guides
- Recordings
MATERIALS MANAGEMENT

1. Ability to keep workspace, play areas, and materials orderly.

2. Ability to determine what materials or resources are necessary for a task and have them readily available.

Students who have difficulty with organization may lose materials and/or fail to turn in completed work.
HOW CAN I BE FAILING WHEN I HAVEN'T EVEN TURNED ANYTHING IN?
• **Classroom Organization**- Structured routine, Keep materials in the same spot, preferential seating, etc

• **Cubby**- Consider location, Let student assist in organization, Pictures with or without words.

• **Desk Organization**- Plastic tray with color coded bottoms, Bins, Pull out drawer with string attached, additional storage, Picture of a clean desk

• **Folders/Binders**- Coded (color, word labels, symbols, pictures)

• **Electronic Filing and Storage**- Computer, Apps, Cloud
Boundaries

- Arrange the environment in a systematic way.
- Includes covering materials unnecessary for performing skills
Beginning of the semester: “Get all A’s!”

http://hyperboleandahalf.blogspot.com/
End of the semester:
“Just don’t FAIL!”

Rest of the year:
JUST DON'T FAIL!
Ready, Set ... Go!
Shout out!
“So, how do I get my paws on all this awesome stuff?”
“So, how do I get my hands on all this awesome stuff?”
Arizona Department of Education AT Short Term Loan Library

Please note: The equipment inventory via this program is only available for loan to personnel from public education agencies (i.e., districts, charters, and other public schools), as defined in Arizona state statute and recognized by the Arizona Department of Education. If you are not affiliated with a public education agency, please visit the Arizona Technology Access Program’s loan program, which is available to all residents of Arizona.

Welcome
Any questions?
When a teacher wants to know if there are any questions, she doesn't mean any question. She wants to be asked about the thing she's teaching. So if she's teaching you about Mexico, don't ask if "Bubbles" is a good name for a hamster.
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References


