TECHNOLOGY TOOLS TO SUPPORT EXECUTIVE FUNCTIONING

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Objectives for this session

- Understand how technology may support students with their executive function skills
- View some of the technology tools available to help accommodate
- View online resources available
What’s It Like?

- Understood.org

Through Your Child’s Eyes

Grade 10 - Organization
What is Executive Functioning?

There is no consensus — here are a few:

**Dawson and Guare** — Executive skills allow us to organize our behavior over time and override immediate demands in favor of longer-term goals.

**Naglieri and Goldstein** — the efficiency with which individuals go about acquiring knowledge as well as how well problems can be solved.

**Stuss and Benson** — Executive functions is a generic term that refers to a variety of different capacities that enable purposeful, goal directed behavior, including behavior regulation, working memory, planning and organizational skills and self-monitoring.
What is Executive Functioning?

- Obukowicz, Stindt, Rozanski, and Gierach categorize these skills into four categories:
  - Self-Organization (self-management)
  - Information Management
  - Time Management
  - Materials Management
Engages in healthy and positive practices and relationships to promote overall physical and mental well-being
Persists to accomplish difficult tasks and to overcome academic and personal barriers to meet goals
Uses time and financial resources wisely to set goals, complete tasks, and manage projects
Shows strong understanding and belief of self to engage in reflection for individual improvement and advocacy
The Organization Problems Inventory is a tool that can assist in determining the type of organizational problems a student might have.

The inventory is part of Chapter 9 of the WATI Assessing Students' Needs for Assistive Technology (ASNAT) 5th Edition - by Chapter.

The website is: http://wati.org/?pageLoad=content/supports/free/index.php
WATI Student Information Guide

### Chapter 1 - Assistive Technology Assessment

**WATI Student Information Guide**

**SECTION A**

**Organization**

1. **Difficulties Student has with Organization (Check all that apply):**
   - Self-management
     - Unable to self-regulate behavior and attention
     - Easily distracted
   - Time management
     - Arrives late
     - Misses deadlines
     - Poor transition between activities
     - Struggles to settle down after transitions or when it’s work time
   - Material Management
     - Late paperwork and projects
     - Can’t find work tools such as books, scissors, or markers quickly
   - Information Management
     - Breaking a large project into smaller steps
     - Organizing notes or review items
     - Completing small-step tasks

2. **Assistive Technology used (Check all that apply):**
   - **Self:**
     - Fidgets
     - Sensory input tools (e.g., fidgety balls, squeeze toys)
     - Pressure or weighted vest
     - Concentration CD’s or MP3’s
   - **Information:**
     - Folders
     - Table/Notepads
     - Highlighters
     - Daily guides
     - Headphones
     - Digital Organizers
     - Search tools
     - Specialized keyboards
     - Bookmarking tools
     - Graphite pencils
     - Manipulatives:
       - Instructional Tutorials
       - Animations
   - **Material:**
     - Folders/Combos/Bins/Boxes
     - Checklists
     - Coding
     - Filing
     - Parallel electronic storage
     - Computer-based electronic storage
   - **Time:**
     - Clock analog vs. digital
     - Alarms clocks and watches
     - Taking medication
     - Large numbers
     - Visual cues
     - Timed response checking
     - Schedules
       - Picture
       - Worded
       - Calendar-based
     - Digital schedule
     - Digital reminder

3. **Summary of Student’s Abilities and Concerns Related to Organization**

   [Assessing Students’ Needs for Assistive Technology (2005)]

   [http://wati.org/content/supports/free/pdf/form/Sec8-Organization-Form.pdf](http://wati.org/content/supports/free/pdf/form/Sec8-Organization-Form.pdf)
Goal-Directed Persistence

The ability to initiate tasks, plan and organize time and materials, solve problems, sustain effort, and follow through.
Cognitive Flexibility/Shift

- The ability to take perspectives, make connections, think flexibly and move freely from one situation to another.
Self-Control

The ability to inhibit and regulate emotional and behavioral responses, and read and respond appropriately to social situations.
Attention and Focus

The ability to filter out distractions and sustain concentration in order to think, listen, or watch with interest.
Working Memory

The ability to mentally store, retrieve, and use information for a task.
Metacognition

The ability to analyze, understand, and monitor one’s learning and thinking.
Low Tech Tools

- Color Coding
- Calendars
- Self-Monitoring Tape
- Visual Schedules
Low Tech Tools

- Portable supplies and multiple locations
- Launching Pad
- Accordion binder
- Weekly “clean sweep”

This helps support
Goal-Directed Persistence:
Time Management
Materials Management
Low Tech Tools

- **Prioritizing Strategies**
  - “Anxiety” categorization (What makes you most nervous? – do it first)
  - Color coding from “hot/red” to “cool/blue”
  - Arrow Tabs and Page Markers on pages in the book to denote most important information that must be learned

This helps support

Goal-Directed Persistence:
- Information Management
- Time Management
- Materials Management
Low Tech Tools

- Calendars

Calendars that Work
http://www.calendarsthatwork.com/

This helps support
Goal-Directed Persistence:
Information Management
Time Management
Materials Management
Low Tech Tools

- **Wipe-off Schedule**
  - Create a schedule (daily, weekly)
  - Put in a plastic frame
  - Use an erasable marker to check off tasks as completed
  - Update the date each week

This helps support Goal-Directed Persistence: Time Management
Low Tech Tools

- **Self Monitoring Tape for Sustaining Attention**
  - Includes tones or beeps at irregular intervals
  - Students record their attending behavior when they hear the tone.

This helps support Goal-Directed Persistence:
  - Time Management
  - Self-Control
  - Attention and Focus

www.TeachingLD.org
Low Tech Tools

- **Visual Schedules**
  - A visual way of letting students know what activities they will be doing today and in what order...
  - Allows students to be more independent
  - Sets up a natural hierarchy of activities which add motivation to work through non-preferred tasks to get to preferred tasks which reinforces completing ALL activities
  - Controls inappropriate behaviors, too!

This helps support
- Goal-Directed Persistence:
  - Time Management
- Cognitive Flexibility/Shift
- Working Memory
Strategy Cards

- Students identify strategies to use in situations where their emotions may get out of control
- Students use a template to make cards showing the strategy in words and visuals
- May serve as a reminder to help students make better self-management decisions

<table>
<thead>
<tr>
<th>Breathe Deep</th>
<th>Take a Break</th>
</tr>
</thead>
<tbody>
<tr>
<td>![Breathe Deep Image]</td>
<td>![Relax Image]</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Count to 10</th>
<th>Walk Away</th>
</tr>
</thead>
<tbody>
<tr>
<td>![Count to 10 Image]</td>
<td>![Walk Away Image]</td>
</tr>
</tbody>
</table>

This helps support: Self-Control
Low Tech Tools

- **Vibrating Watch**
  - Watches are available that can be set to vibrate and show a reminder phrase at the programmed time. Students can program reminders to go off at the beginning or end of class such as “Turn in homework”.

This helps support Goal-Directed Persistence: Time Management
Tech Tools

- MS Word & PowerPoint
- Graphic Organizers
- Notetaking
Tech Tools for Reading

Tools for Academic Performance

Use the text highlight tool to:

- find main ideas, key details, new vocabulary
- interacting with text may help students focus
- emerging readers highlight words they don’t understand and return to them later

This helps support

Goal-Directed Persistence:
Information Management
Attention Focus
Metacognition
Tech Tools for Reading

- Tools for Academic Performance – Text Compactor

Helps students to:

- find main ideas
- interacting with text may help students focus
- allows students to pre or post read summary materials

This helps support:

Goal-Directed Persistence:
Information Management
Attention Focus
Metacognition
Tech Tools for Reading

- **Tools for Academic Performance - Rewordify**

**Helps students to:**
- interact with text which may help with focus
- simplify text to increase understanding

This helps support

- Goal-Directed Persistence: Information Management
- Attention Focus
- Metacognition

Video
Taking Notes

Skills Needed for Note-Taking

• Sustained attention
• Ability to receive (written text or lecture) and process information (identifying main ideas and details) simultaneously
• Ability to comprehend the text
• Capacity to identify important information and determine what to write
• Organization and production of intelligible notes
• Handwriting (if using paper-and-pencil method) or computer skills

Tech Tools for Taking Notes

Tools for Using MS Word

Students can use a data chart organizer for taking notes and keeping track of sources.

This helps support:
- Goal-Directed Persistence:
- Information Management
- Attention and Focus
- Working Memory
- Metacognition
Guided Notes

- Facilitate note-taking for struggling students
- Skeleton outline containing main points with blank spaces for students to fill in
- May include key terms, phrases, and definitions
- Requires students to actively respond & improves their note taking

Choose a format to use consistently

This helps support:
Goal-Directed Persistence: Information Management
Attention and Focus
Working Memory
Guided Notes from Outlines

I. Greece
II. People adapted to their environment in different ways.
   A. Physical Characteristics
      1. Located among mountains and hills
      2. Limited rich soil
      3. Surrounded by the Mediterranean Sea
   B. Human Characteristics
      1. People were farmers
      2. People were shipbuilders
      3. People were traders
   C. Ways they adapted to their environment
      1. Adaptation
      2. Adaptation
      3. Adaptation

This helps support:
Goal-Directed Persistence:
Attention and Focus
Working Memory
Tech Tools for Taking Notes

- **Guided Notes – PowerPoint Notes View**

  WHAT were Loyalists and Patriots?

  Patriots were the people in the American colonies that wanted to break away from England.

  They wanted independence for the colonies.

  Picture by Richard Stein.

  Patriots were _______ in the American _______ that wanted to _______ from England. They _______ for the colonies.

  This helps support:
  
  - Goal-Directed Persistence:
  - Information Management
  - Attention and Focus
  - Working Memory
Tech Tools for Taking Notes

- **Notetaking**
  - Digital Recorder
  - Livescribe Pen - Records audio and notes synchronously
  - AudioNote or SoundNote Apps
  - OneNote
Tech Tools for Taking Notes

- **Smartpen**
  - Students can take notes in class using the smartpen
  - Option of audio recording
  - Upload to computer
  - Organize by subject
  - Search by keyword

This helps support:
Goal-Directed Persistence:
  - Information Management
  - Materials Management
Attention and Focus
Working Memory
Metacognition
Using Graphic Organizers

SmartArt in MS Word

This helps support:
- Goal-Directed Persistence:
  - Information Management
- Attention and Focus
- Working Memory
- Metacognition
Tech Tools for Writing

Kidspiration Templates

- Use templates to help students structure their writing

Hamburger Paragraph

Research

This helps support:

- Goal-Directed Persistence:
  - Information Management
- Attention and Focus
- Working Memory
- Metacognition
Tech Tools for Writing

Inspiration Research Organizer Template

This helps support:
- Goal-Directed Persistence: Information Management
- Attention and Focus
- Working Memory
- Metacognition
Tech Tools for Writing

Using Graphic Organizers

- Using Graphic Organizers helps support:
  - Goal-Directed Persistence
  - Information Management
  - Attention and Focus
  - Working Memory
  - Metacognition
Tech Tools for Managing Long Term Assignments

- **Tools for Using MS Word**

  - Select a book by July 2
  - Read book by July 14
  - Complete introduction
  - Complete body of book report
  - Complete conclusion of book report
  - Final project due by July 25

  Use the forms feature of MS Word to create a checklist

This helps support:
- Goal-Directed Persistence:
  - Time Management
  - Materials Management
  - Initiate Tasks
- Working Memory
Email

When teachers request a hard copy of an assignment, have the child email the assignment to his teacher or his/her own account. Then, the student can print it out at school if it is misplaced.

This helps support:
Goal-Directed Persistence:
Materials Management
Follow through
Tech Tools for Managing Time

**Timers**

- [http://www.timeme.com/timer.htm](http://www.timeme.com/timer.htm)
- [http://timer.onlineclock.net](http://timer.onlineclock.net)
- [http://www.timeanddate.com/timer](http://www.timeanddate.com/timer)

This helps support:
- Self Management
- Time Management
Over the last thirty years, more than forty research studies have documented the effectiveness of mnemonic strategy instruction. These strategies have been shown to be effective for elementary and secondary students with mild disabilities (e.g., LD, intellectual disability, emotional disturbance). (Scruggs, Mastropieri, Berkeley, & Marshak, 2010)

- “Scow,” think of keyword “cow.”
- Remember the picture of the cow sitting in the boat filled with sand.
- This will help you remember that “scow” means “a large flat-bottomed boat with broad square ends used chiefly for transporting sand, gravel, or refuse.”

http://iris.peabody.vanderbilt.edu/module/ss2/perspectives-and-resources/what-study-skills-strategies-can-improve-students-academic-performance/page-4-mnemonics/#content
Capitalization

Overall appearance

Punctuation

Spelling

Where Do I Get Images?

- Google Images
- Advanced Google Search
- Tag Galaxy

http://iris.peabody.vanderbilt.edu/module/ss2/perspectives-and-resources/what-study-skills-strategies-can-improve-students-academic-performance/page-4-mnemonics/#content
Self-Regulation

- Self-monitoring
- Self-instruction
- Goal-setting
- Self-reinforcement

Mobile Tech Tools

- **Electronic Organizers**
- **Organizing Digital Files**
Mobile Tech Tools

- Electronic Organizers
Many mobile devices have the capability of taking pictures. For example, students could take a picture of the assignment that the teacher wrote on the board, or a picture of the way their desk should be organized.

This helps support:
Goal-Directed Persistence: Follow Through
Working Memory
Organizing Digital Files

Google Docs

This helps support:
Goal-Directed Persistence: Materials Management
Internet Resources

- Online Checklist Creator
- Flash Cards
- Rubrics
- Study Guides and Strategies
Middle school students with ADHD who often were not prepared for class (i.e., being punctual, being ready for class [seated, eyes on teacher], and having supplies [paper, notebook, pen or pencil]) were taught how to self-monitor their actions by using a checklist and to self-evaluate how well they followed the behaviors on that checklist. On average these students were prepared for class less than 50% of the time prior to the intervention in comparison to an average of 100% after it.

(Gureasko-Moore, DuPaul, & White, 2007)
Internet Resources

- Online Checklist Creator
  - Choose the grade level for the type of project you want your students to do.
  - You can choose from writing, presentation, multimedia, or science projects.
  - You can make a checklist with the touch of a button!

http://pblchecklist.4teachers.org/checklist.shtml

This helps support:
Goal-Directed Persistence:
- Time Management
- Materials Management
- Initiate Tasks
- Working Memory
Internet Resources

- **Flash Cards**
  - [http://www.quizlet.com](http://www.quizlet.com)
  - [http://www.studystack.com](http://www.studystack.com)
  - [http://www.funnelbrain.com](http://www.funnelbrain.com)
  - [http://www.studyblue.com](http://www.studyblue.com)
  - [http://www.proprofs.com](http://www.proprofs.com)
  - [http://www.aplusmath.com](http://www.aplusmath.com)
  - [http://www.spellingcity.com](http://www.spellingcity.com)

This helps support:
- Working Memory
- Attention and Focus
- Metacognition
### Rubrics

<table>
<thead>
<tr>
<th>CATEGORY</th>
<th>4</th>
<th>3</th>
<th>2</th>
<th>1</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Organization</strong></td>
<td>Information is very organized with well-constructed paragraphs and subheadings.</td>
<td>Information is organized with well-constructed paragraphs.</td>
<td>Information is organized, but paragraphs are not well-constructed.</td>
<td>The information appears to be disorganized. 8)</td>
</tr>
<tr>
<td><strong>Amount of Information</strong></td>
<td>All topics are addressed and all questions answered with at least 2 sentences about each.</td>
<td>All topics are addressed and most questions answered with at least 2 sentences about each.</td>
<td>All topics are addressed, and most questions answered with 1 sentence about each.</td>
<td>One or more topics were not addressed.</td>
</tr>
<tr>
<td><strong>Sources</strong></td>
<td>All sources (information and graphics) are accurately documented in the desired format.</td>
<td>All sources (information and graphics) are accurately documented, but a few are not in the desired format.</td>
<td>All sources (information and graphics) are accurately documented, but many are not in the desired format.</td>
<td>Some sources are not accurately documented.</td>
</tr>
</tbody>
</table>

[http://rubistar.4teachers.org/](http://rubistar.4teachers.org/)

Helps students know what is expected ahead of time so they can plan accordingly.

This helps support:
- Attention and Focus
- Metacognition
Rubrics

Rubrics for Assessment

Online Teacher Resource
http://www.teach-nology.com/web_tools/rubrics/

This helps support:
Attention and Focus
Metacognition
Internet Resources

- **Study Guides and Strategies**

  [Study Guides and Strategies](http://www.studygs.net)

  This helps support: Metacognition

  http://www.studygs.net
Assistant Technology to Support Executive Functions

KoolTools4Students

How to Help a Child with Weak Working Memory

Executive Function Skills and Assistive Technology
http://www.onlinedigeditions.com/article/Executive_Function_Skills_and_Assistive_Technology/1538179/179980/article.html
Other Resources

- Reference Materials
Executive Skills in Children and Adolescents

Practical Intervention in Schools by Peg Dawson EdD and Richard Guare Phd

This book provides step-by-step guidelines and many practical tools to promote executive skill development by implementing environmental modifications, individualized instruction, coaching, and whole class interventions.
Unstuck & On Target!

An Executive Function Curriculum to Improve Flexibility for Children with Autism Spectrum Disorders by Lynn Cannon, Lauren Kenworthy, Katie Alexander, Monica Adler-Werner, Laura Gutermuth Anthony, and John Elder Robinson.

A CD with activities is also provided.
Other Resources

- Using Technology with Classroom Instruction that Works, 2nd Edition

by Howard Pitler, Elizabeth Hubbell, Matt Kuhn

This book is about using technology as one of several tools for providing good instruction.
Other Resources

- **Promoting Executive Function in the Classroom**

  by Lynn Meltzer

  This book helps teachers incorporate executive function processes into the classroom curriculum.
Other Resources

- *Boosting Executive Skills in the Classroom: A Practical Guide for Educators*

  By Joyce Cooper-Kahn  
  Margaret Foster

  This book offers strategies to help students with executive function challenges.
Other Resources

- Mind in the Making: The Seven Essential Life Skills Every Child Needs

by Ellen Galinsky

This book is about life skills such as:

• Focus and self-control
• Perspective taking
• Communicating
• Making connections
• Critical thinking
• Taking on challenges
• Self-directed engaged learning
Boosting Executive Function Supplemental Content

Boosting Executive Skills in the Classroom: A Practical Guide for Educators
Joyce Cooper-Kahn & Margaret Foster
ISBN: 978-1-1181-4109-0
Paperback
192 pages
January 2013

- Student Planner
- Graphic Organizer
- Self Evaluation Chart
- Dream Questionnaire
- Planning Guide
- Targeting Table

www.josseybass.com/go/executivefunction
The Power of Habit: Why we do what we do in life and business

by Charles Duhigg

This book explains why habits exist and how they can be changed.
Other Resources

- Assisting Students’ Needs for Assistive Technology (Chapter 9 – Assistive Technology for Organization) - WATI

http://www.wati.org/?pageLoad=content/supports/free/index.php
Other Resources

- **IRIS Module**

Other Resources

- Google site with documents from this presentation

https://sites.google.com/site/execfuntion/
Your Ideas?