

# **EXECUTIVE FUNCTION**

**FOR STUDENTS WITH AUTISM AND INTELLECTUAL DISABILITIES**

**PADMAJA SARATHY**

**Educational Consultant and Author**

[www.infinitepossibilities-sped.com](http://www.infinitepossibilities-sped.com)

[psarathy@earthlink.net](mailto:psarathy@earthlink.net)

**AbleNet University Webinar**

**MARCH 15, 2017**

# EXECUTIVE FUNCTIONING

## COGNITIVE FLEXIBILITY

- Webinar Focus Topic: Executive Function (EFs) Component– Cognitive Flexibility
  - The role of **Cognitive Flexibility (and EFs)** for academic, school and life success
  - Discuss issues associated with Cognitive Flexibility
  - Learn specific strategies to address Cognitive Flexibility difficulties

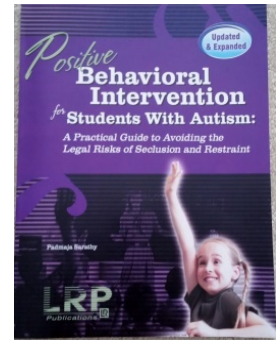
# PARTICIPANT POLL

- Special Education Teacher?
- Administrator?
- Support Staff?
- General Education Teacher?
- Paraeducator?
- Parent?
- Other?



## Author & Educational Consultant

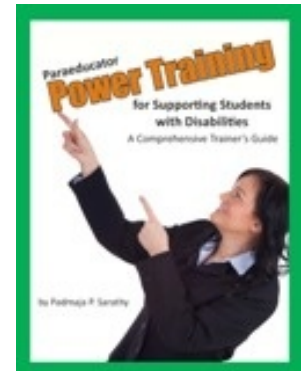
[www.infinitepossibilities-sped.com](http://www.infinitepossibilities-sped.com)



- **Positive Behavior Strategies for Students with ASD: A Practical Guide to Avoiding the Legal Risks of Aversives, 2013.** Publisher: LRP Publications, ([www.shoplrp.com](http://www.shoplrp.com))
- **Autism Spectrum Disorders: Seven Steps of Support, 2015.** A quick reference laminated guide; Publisher: National Professional Resources, Inc. ([www.nprinc.com](http://www.nprinc.com))
- **Serving Students with Severe and Multiple Disabilities (Second Edition), 2014:** A Guide to Strategies for Successful Learning (Publisher: LRP, [www.shoplrp.com](http://www.shoplrp.com))
- **Sarathy, P., 2017. Students with Significant Disabilities: At the Crossroads of IDEA and ESSA.** LRP Publications. Recently released.

# BOOKS AND PRODUCTS

- **Paraeducator Training DVD and Trainee Manual, 2013.** (Park Place Publications - [www.ed311.com](http://www.ed311.com))
  - A 'Trainer of Trainers ' DVD with multiple training units and Paraeducator Trainee Manual
- **From Early Intervention... to Preschool Program... and School-Age Services: A Parent's Guide, 2006.** (LRP Publications, [www.shoplrp.com](http://www.shoplrp.com))
- **Together We Succeed: Building a Better System for Transitioning Preschoolers with Disabilities , 2004.** (LRP Publications).
- **STEM Teaching Strategies for Young Learners.(2016).** A quick reference laminated guide. Legal Digest - [www.ed311.com](http://www.ed311.com)
- **Magical Musical Transitions (2009).** A Music CD for assisting children with Autism Spectrum Disorders. Marketed by [www. nprinc.com](http://www.nprinc.com)



# EXECUTIVE FUNCTIONS (EFs)

**EFs are the cognitive processes needed for academic, school and life success...**

- To be able to focus, hold, and work with information in mind, filter distractions, control impulses, switch gears and adjust to changing demands are EFs.
  - Children are not born with EFs but have the potential to develop these capacities through repeated practice and gradually strengthened in a nurturing environment.
- Executive functioning sets the stage for subsequent learning and successful adult outcomes.

Adapted from Harvard's Developing Child Project

# EF COMPONENTS

- There are 3 core functions needed to build EFs:
  - Working Memory
  - Cognitive or Mental Flexibility.
  - Self Control/Inhibitory Control
- Each type of EF skill draws on the elements of the other.
- EFs support the process, the “how of learning” to enable children to master the content – “the what of learning”.
- EFs are critical for success in school, in friendships, in jobs, and for mental and physical health and for quality of life.  
(Moffitt et al, 2011)

# COGNITIVE OR MENTAL FLEXIBILITY



- **Cognitive or Mental Flexibility** is the capacity to nimbly switch gears and adjust to changed demands, priorities, or perspectives.
  - ✓ Enables us to apply different rules in different settings.
  - ✓ “The ability to stay on track is an asset, but being ‘dead in the track’ is not.” (E. Goldberg)
  - ✓ Self-control and persistence are assets, rigidity is not.
- Children use this skill of Cognitive or Mental Flexibility with a variety of tasks and in a number of situations.



# COGNITIVE FLEXIBILITY: WHAT DOES IT LOOK LIKE?

- **Children use the skill of Cognitive Flexibility when they are:**
  - Learning exceptions to rules of grammar.
  - Approaching a science experiment in different ways until they get it to work.
  - Trying different strategies when they are working out a conflict with another child.
  - Remembering and applying “outside voices” and “inside voices” and the different situations in which they should use each.



# EF CHALLENGES AND STUDENTS WITH SPECIAL NEEDS

- Students with ASD have executive function differences, impaired cognitive flexibility and self-regulation difficulties (Aspy, 2012).
  - Adjusting to changes in strategies, shifting focus from one task to another, transitioning to different environments and personnel, changes in routine, etc. is challenging for them.

# STUDENTS WITH SPECIAL NEEDS: EF CHALLENGES

- **Students with intellectual disabilities may also experience some rigidity issues (cognitive inflexibility) that may negatively impact their problem solving approaches.**
  - Difficulty with working memory (recalling relevant information and applying it to new tasks and situations) may negatively impact their flexibility in working with math and writing activities.

# COGNITIVE FLEXIBILITY ISSUES

Transitions may present a big challenge

Coping with unseen/unfamiliar events

Accepting mistakes and letting go of frustration

Shifting focus on tasks/  
topics/activities/  
environments

Appreciating different  
perspectives in solving problems

Difficulty with social interactions

# EF CHALLENGE: COGNITIVE FLEXIBILITY

Mental Flexibility: Shifting Gears

What problems do you see?

# Participant Survey

Identify the problem that you encounter the most...

- Transition issues (activities/environment/people)
- Shifting from one task or one topic to another
- Coping with unfamiliar/unexpected event
- Social Interaction/Communication
- Accepting different perspectives

# SURVEY

- **Transition issues (environment/people)**
- **Shifting from one task/topic to another**
- **Coping: unfamiliar/unexpected event**
- **Social Interaction/Communication**
- **Accepting different perspectives**

# COGNITIVE FLEXIBILITY: WHAT HELPS?

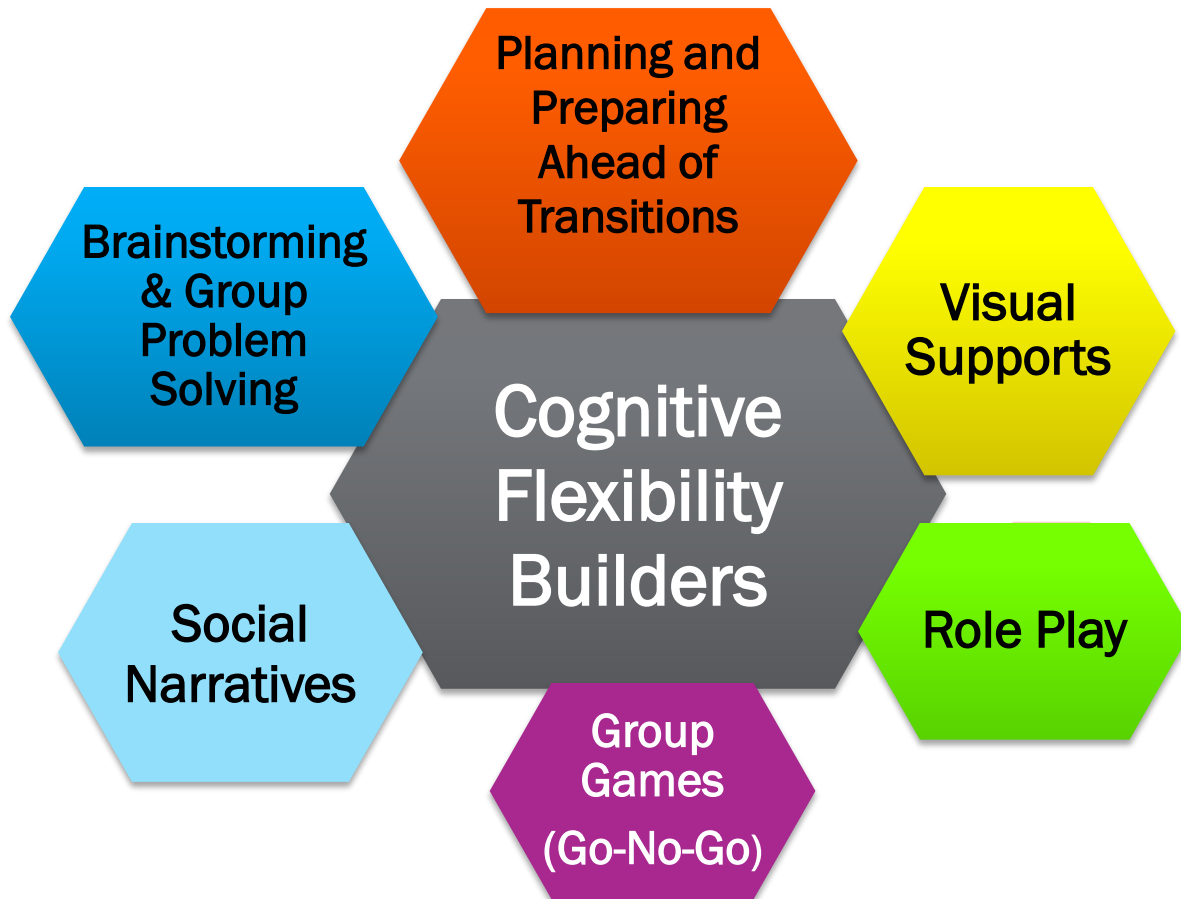
- Understanding of student-specific needs, strengths and preferences and offering:
  - Environmental Support
  - Instructional Support
  - Visual Support
  - Social Support
  - Self-regulation support
  - Communication and assistive technology support
- Gradually fade/eliminate supports as the student gains EF skills.

Adapted from Sarathy, 2015



# COGNITIVE FLEXIBILITY: SUPPORT STRATEGIES

- Provide visual supports – schedules, task list, rule cues, etc. for students with ASD – they have strengths in visual learning (Smith, 2008).
- Instructional Support
  - Adjust task demands and complexity level to accommodate to the cognitive and behavioral needs.
  - Ensure that there are built-in breaks in the schedule.
  - Instruct and guide students to use multiple approaches to solve a problem aided with a mind- mapping/ brainstorming tool (can be adapted to match diverse cognitive functioning levels).



# PREVENTION - PLANNING AND PRIMING

- **Prevention is one of the best intervention strategies. Provide the necessary scaffolds to prevent transition challenges (and meltdowns) and gradually build cognitive flexibility.**
  - Prepare in advance for:
    - Transitions between activities/environments
    - Changes in routine
    - Change of personnel
- Providing advance warning to alert students of any sudden changes to scheduled activities or routines.

# PRIMING BEFORE A TRANSITION

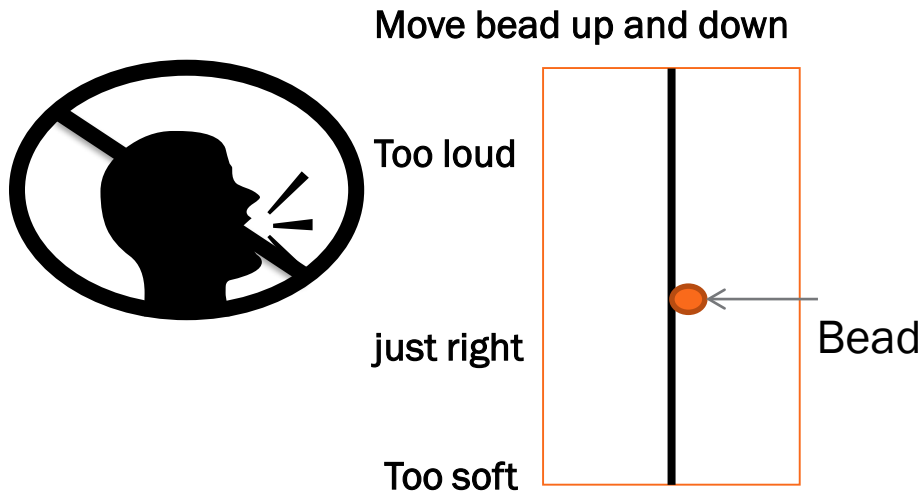
Research has also shown that priming is effective in helping individuals with ASD during times of transition. There are several ways to prime the student for an upcoming transition:

- **Prime through video-based instruction** (autism internet modules) before a class trip or to prepare a student for fire drill, school assembly program, etc.
- **Prime through picture supports**
- **Prime through relevant scenarios/stories using role play and power point presentations**

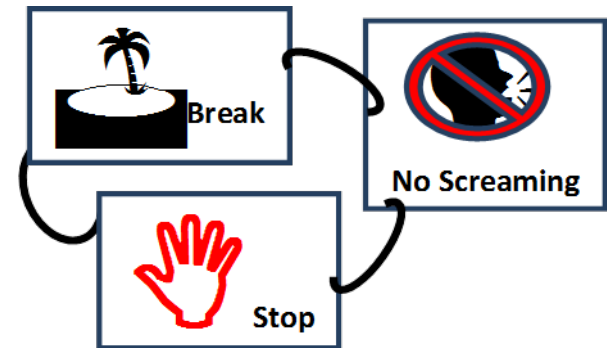
*Adapted from Sarathy, 2014 & 2015*

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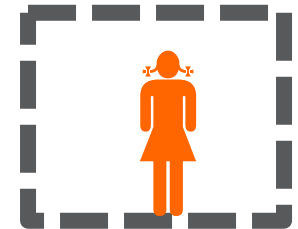
# VISUAL SUPPORT STRATEGIES



## Rule Cue Cards



## Personal Space



First... (Math) Work

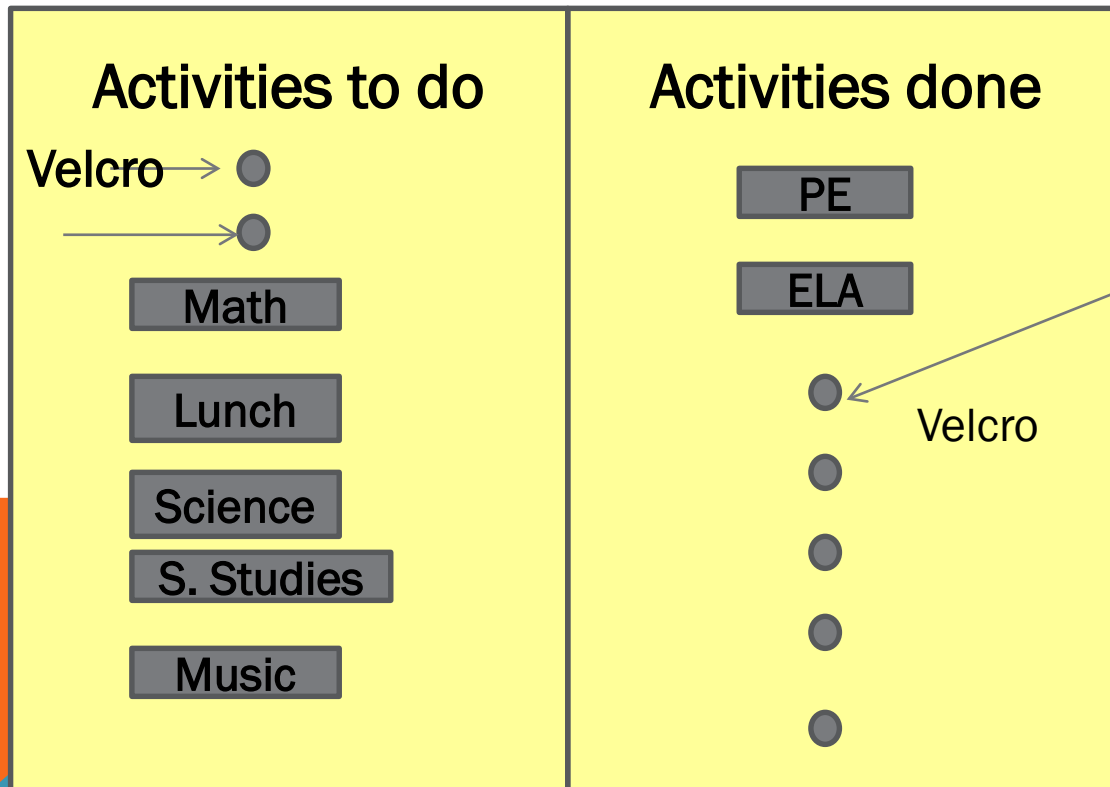


Then ... Computer or Feed Fish

# Visual Supports (continued)

## Activity Schedule Inside a Folder

The student moves the cards paired with photos from the left to the right side of the folder when it is finished. The schedule inside a folder is more age-appropriate for a student in secondary settings.



## Task Completion Chart

- Read instructions
- Gather materials
- Ask for help with instructions (if needed)

Task 1 of project

Task 2 project

Task 3 of project

Task 4 of project

Check and hand-in work

Voila!

Finished!

# TRANSITIONS CHALLENGES: SUPPORTS

- Signal upcoming transitions.
- Provide five minutes warning; use timers. Verbally cue before transition occurs.
- Communicate clearly (with the aid of visual support) when activities will begin and when they will end.
- Provide specific instructions on how students are expected to transition from one activity and move to the next.



# MUSICAL SUPPORT FOR YOUNG LEARNERS

- Use music to transform transition tantrums to calm-down (Magical Musical Transitions by Law and Sarathy, 2009):
  - Designed with the application of principles of ‘Music Therapy’.
  - Songs (mini-songs) provide guidance and directions musically to assist children during transitions.
  - These songlets are short, piggybacked songs with lyrics (key words) specific to different transitions.
- Play a musical instrument (e.g., may be a Stir-xylophone) to signal all the students to line up at the end of recess.

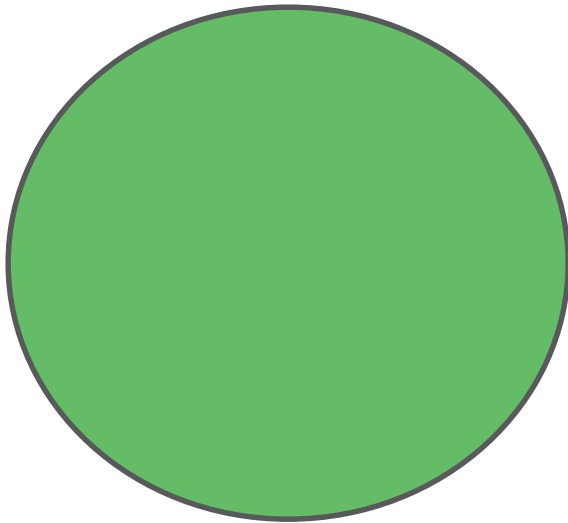
Adapted from Law & Sarathy, 2009)



# Advance Warning Card

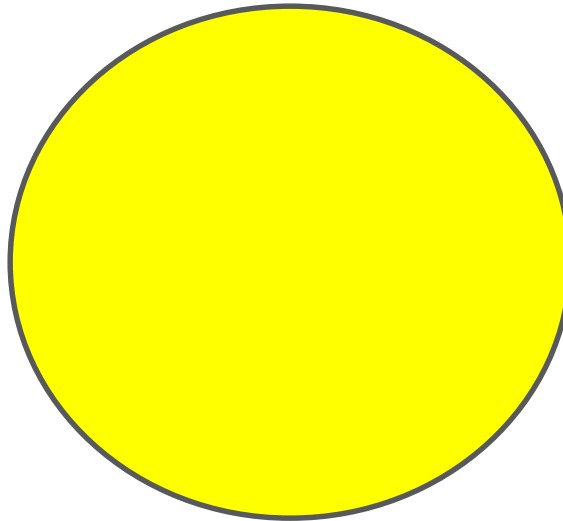
## Support for ending a preferred activity and transitioning to a required activity

Move paper clip to yellow 5 minutes before transition to next activity.

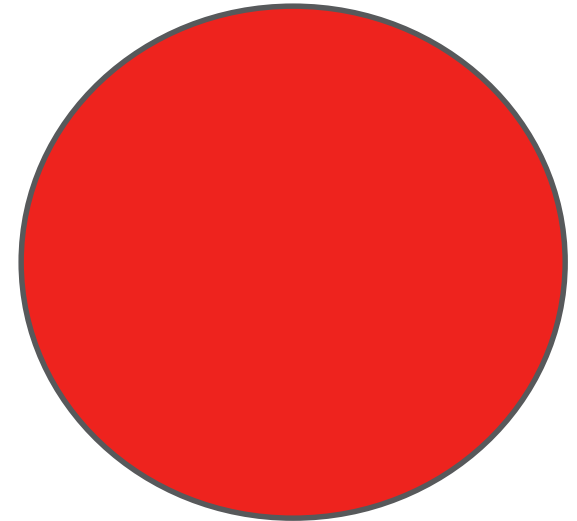


**GO**

Move paper clip



**Almost  
Done**



**Stop**

# BUILDING COGNITIVE FLEXIBILITY: SOCIAL NARRATIVES

- Use 'Social Narratives' and social scripts (Wragge, 2011).
  - Present concepts and situations in a visual format (aided with objects if needed) that may increase understanding for individuals with cognitive difficulties.
  - Teach (students with ASD) how to respond to social situations, to gain understanding of thoughts and feelings of others and see things from another person's perspective.

# BUILDING COGNITIVE FLEXIBILITY: GROUP PROJECTS

- **Use project-based activities (emphasized in ESSA)**
  - Requires small groups to cooperate and work together.
  - Sharing tasks and learning to adjust to diverse personalities and points of view will help develop cognitive flexibility.
  - Teach and model multiple ways to approach problems and solve them. Provide an agenda for each group member to offer input and feedback on others' contribution.
  - Help brainstorm and accept a diversity of solutions to solve a problem (none rejected). (Provide pictures/objects to facilitate comprehension, if needed ).

# BUILDING COGNITIVE FLEXIBILITY: WHAT ELSE HELPS?

## Group Games and Movement Activities

- **Student learns to adjust behavior to changing rules through playing group games and movement activities:**
  - Group games –waiting for a turn and taking turns–will aid in developing flexibility.
  - Play the opposite game (Go-no-go games)
  - Play Simon Says (also do the opposite of what Simon Says)

# BUILDING COGNITIVE FLEXIBILITY: WHAT ELSE HELPS?

## Group Games and Movement Activities

- **Music and Movement (paired with pictures)**
  - When music stops, do what the picture says
- **Freeze Dance paired with pictures**
- **Encourage pretend play and have children (younger learners) and plan ahead for it:**
  - Assume roles in the housekeeping/dramatic play center
- **Role Play**
  - Include activities that require students to assume different roles (e.g., role playing a story character)

# **A Helpful Resource for Building EFs**

**Mind in the Making by Ellen Galinsky  
The Seven Essential Life Skills Every Child Needs**

- **Focus and Self-control**
- **Perspective Taking**
- **Communicating**
- **Making Connections**
- **Critical Thinking**
- **Taking on Challenges**
- **Self-Directed Engaged Learning**

# GAMES FOR WORKING MEMORY AND COGNITIVE FLEXIBILITY

- Puzzles that require information to be held and manipulated in working memory can be terrific challenges.
- Crossword puzzles are available for all skill levels and draw on manipulation of letters and words in working memory as well as cognitive flexibility.
- Sudoku provides a similar challenge but works with numbers and equations rather than letters and words.

## REFERENCES AND RESOURCES FOR EXECUTIVE FUNCTIONING

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- Autism Internet Modules: This website offers a variety of modules providing valuable information to educators and families to support individuals with Autism Spectrum Disorders, <http://www.autisminternetmodules.org>
- Center on the Developing Child, Harvard University (2015). Key concepts: Executive Function. ([http://developingchild.harvard.edu/key\\_concepts/executive\\_function/](http://developingchild.harvard.edu/key_concepts/executive_function/))
- Flanagan, Ortiz and Alfonso (2013). Essentials of Cross-battery Assessment (provides a comprehensive list of standardized measures to assess working memory).



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# REFERENCES AND RESOURCES

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Sarathy, P. (2012). *Paraeducator Power Training for Supporting Students with Disabilities: (DVD)*. Austin, TX: Education 311.

<http://www.ed311.com/paraeducator-power-training-for-supporting-students-with-disabilities/> (offers an autism training unit for Paras)

Wilkins, S. & Burmeister, C. (2013). *Flipp the Switch: Strengthen Executive Function Skills*. Autism Asperger Publishing Company.

Wragge, A. (2011). *Social narratives: Autism Internet Modules*, [www.autisminternetmodules.org](http://www.autisminternetmodules.org). Columbus, OH: OCALI.



**THANKS.**

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Padmaja Sarathy

Author and Consultant

Infinite Possibilities

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**The Next Executive Function Webinar**

**will be on March 28<sup>th</sup>, 2017.**