

EXECUTIVE FUNCTION

FOR STUDENTS WITH AUTISM AND INTELLECTUAL DISABILITIES

PADMAJA SARATHY

Educational Consultant and Author

www.infinitepossibilities-sped.com

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

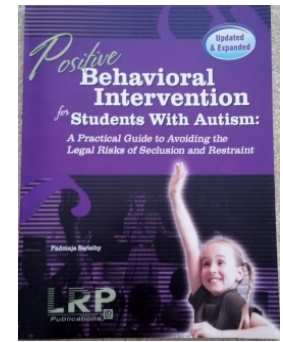
PARTICIPANT POLL

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



Author & Educational Consultant

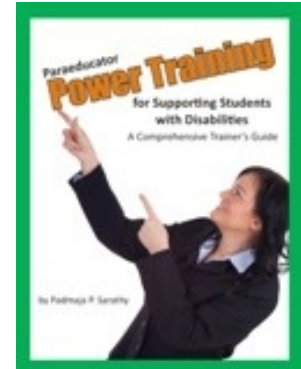
www.infinitepossibilities-sped.com



- **Positive Behavior Strategies for Students with ASD: A Practical Guide to Avoiding the Legal Risks of Aversives, 2013.** Publisher: LRP Publications, (www.shoplrp.com)
- **Autism Spectrum Disorders: Seven Steps of Support, 2015.** A quick reference laminated guide; Publisher: National Professional Resources, Inc. (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)
- **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)
 - 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)
- **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
- **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

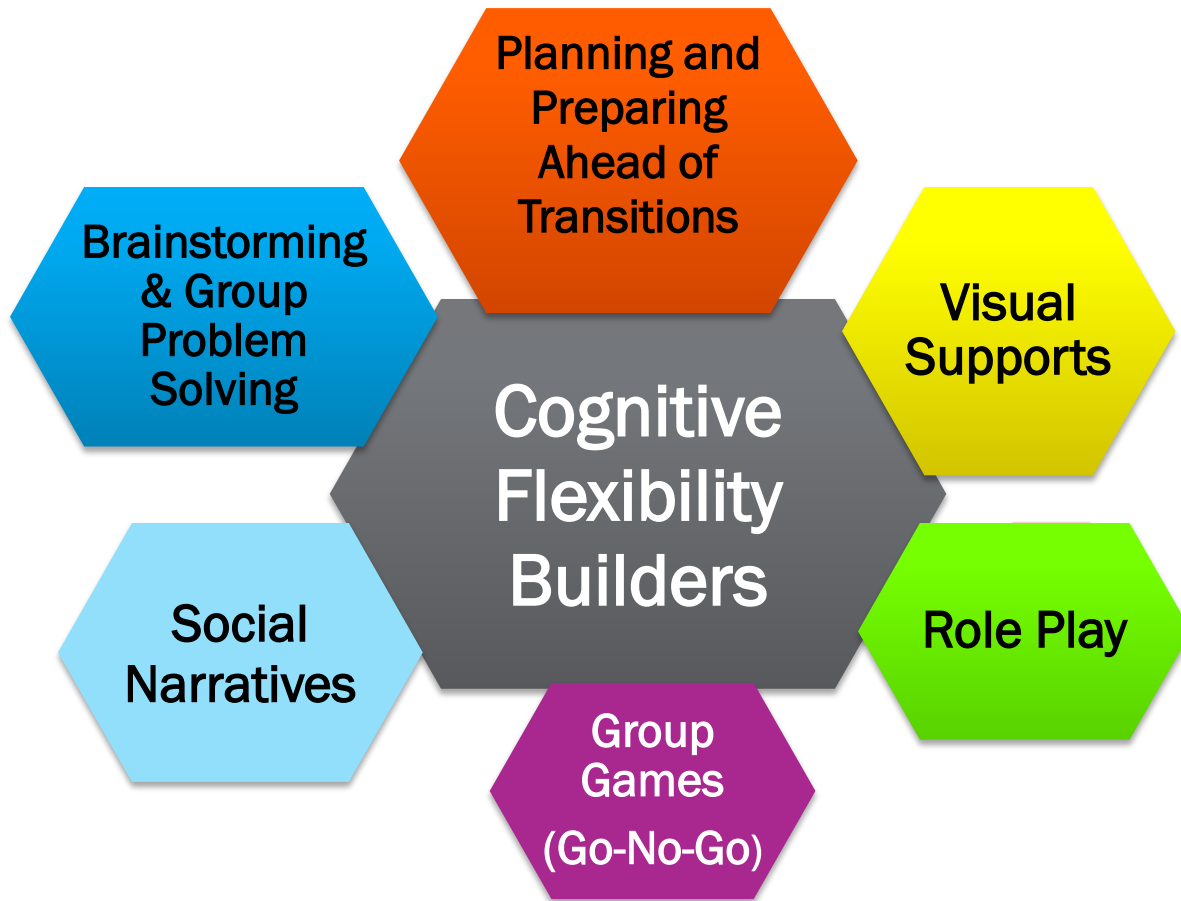
COGNITIVE FLEXIBILITY: WHAT HELPS?

- 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

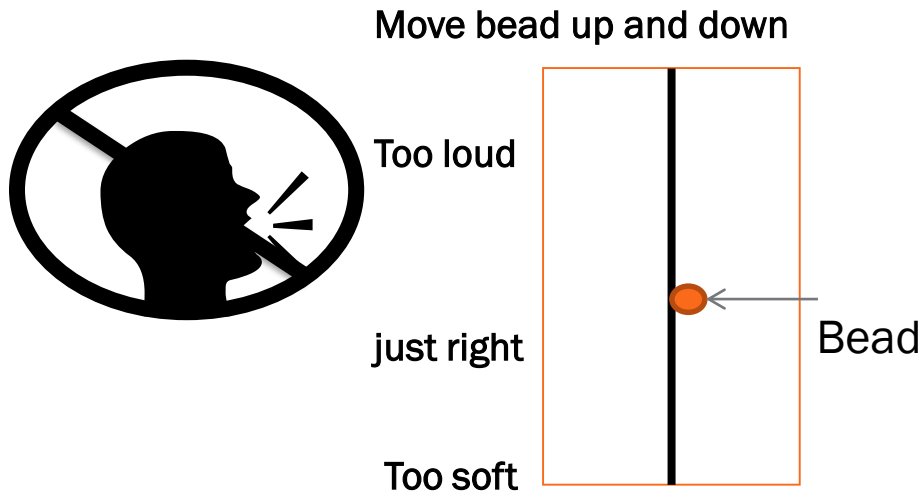
Research has also shown that priming is effective in helping individuals with ASD during times of transition. There are several ways to prime the student for an upcoming transition:

- **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**

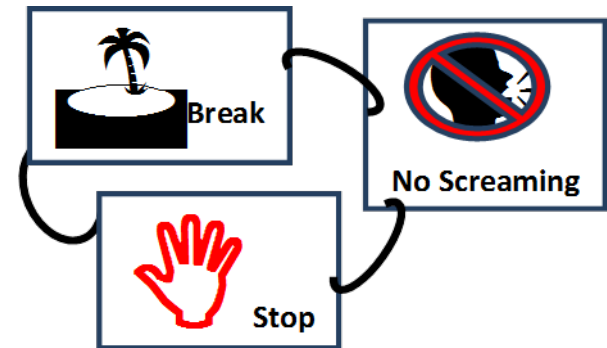
Adapted from Sarathy, 2014 & 2015

ALL RIGHTS RESERVED

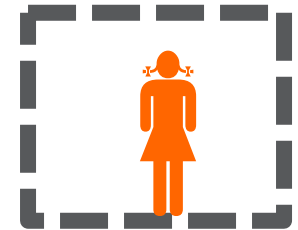
VISUAL SUPPORT STRATEGIES



Rule Cue Cards



Personal Space



First... (Math) Work

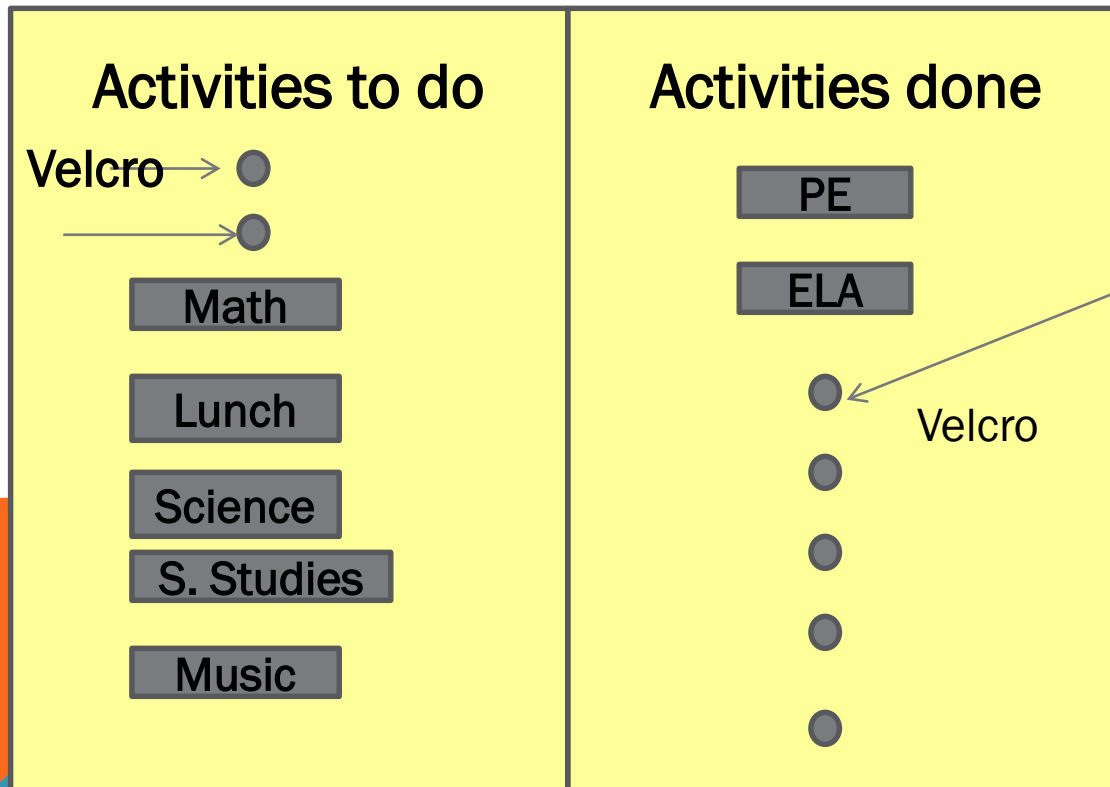


Then ... Computer or Feed Fish

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

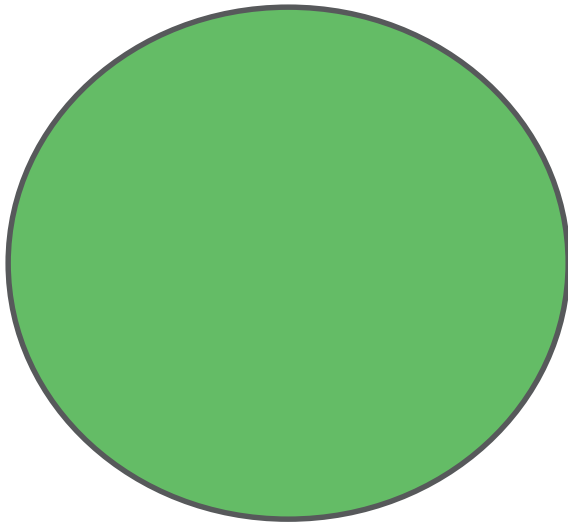
- Use music to transform transition tantrums to calm-down (Magical Musical Transitions by Law and Sarathy, 2009):
 - Designed with the application of principles of ‘Music Therapy’.
 - Songs (mini-songs) provide guidance and directions musically to assist children during transitions.
 - These songlets 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

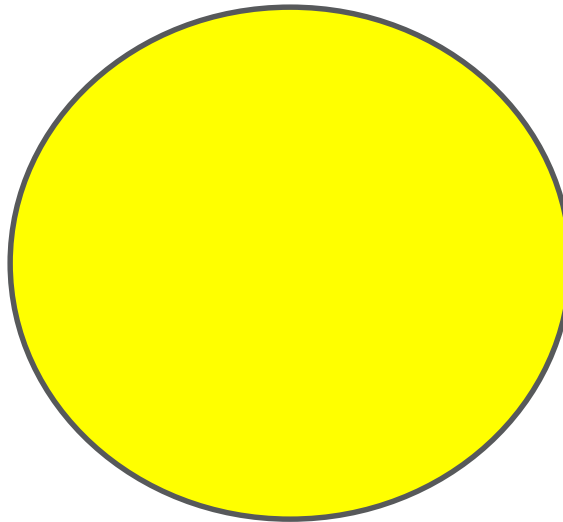
Support for ending a preferred activity and transitioning to a required activity

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

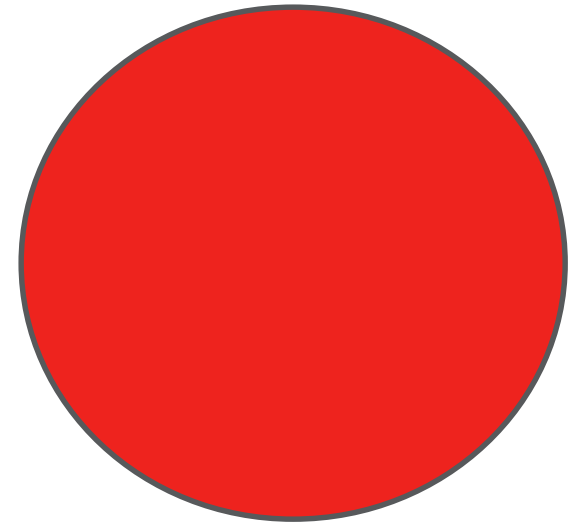


GO

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

- Aspy, R. (2012). Cognitive differences: Online training module (Plano, TX: The Ziggurat Group). In Ohio Center for Autism and Low Incidence (OCALI), *Autism Internet Modules*, Columbus, OH: OCALI www.autisminternetmodules.org.
- 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/)
- Flanagan, Ortiz and Alfonso (2013). Essentials of Cross-battery Assessment (provides a comprehensive list of standardized measures to assess working memory).

REFERENCES AND RESOURCES

- Galinsky, E. (2010). Mind in the making. Harper Collins Publishers, New York, NY.
- Gregory, G., & Kaufeldt, M., (2015). The Motivated Brain. ASCD. Alexandria VA.
- Law & Sarathy (2009). Magical Musical Transitions (Music CD). NPR, Inc. (<http://www.nprinc.com/magical-musical-transitions/>)
- Moffitt, T. E., Arseneault, L., Belsky, D., Dickson, N., Hancox, R. J., Harrington, H., & Caspi, A. (2011). A gradient of childhood self-control predicts health, wealth, and public safety. Proceedings of the National Academy of Sciences, USA, vol. 108 no. 7, 2693-2698.
- Sarathy, P. (2015). Seven Steps for Supporting Children with Autism Spectrum Disorders (ASD): A Quick Reference Guide (www.NPRinc.com)

REFERENCES AND RESOURCES

Sarathy, P. (2017). *Students with Significant Disabilities: At the Crossroads of IDEA and ESSA*, LRP Publications (www.lrp.com).

Sarathy, P. (2013). (First edition, 2009). *Positive Behavioral Intervention for Students With Autism: A Practical Guide to Avoiding the Legal Risks of Seclusion and Restraint*. LRP Publications.

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. Columbus, OH: OCALI.



THANKS.

**A special thanks to AbleNet university for
hosting the webinar**

Padmaja Sarathy

Author and Consultant

Infinite Possibilities

psarathy@earthlink.net

www.infinitepossibilities-sped.com

The Next Executive Function Webinar

will be on March 28th, 2017.