Executive Functioning Issues in Autistic Teens and Adults

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What is Executive Functioning?

Managing oneself and one’s resources in order to achieve a goal
Involves mental control and self-regulation

Any road will get you there if you don’t know where you are going.

A List of Executive Functions

1. Inhibition: the ability to stop one’s own actions and thoughts at the appropriate time (without it = impulsivity)

2. Shift: the ability to move freely from one situation to another and to think flexibly in order to respond appropriately to the situation (without it = stuck)

A List of Executive Functions

3. Emotional Control: the ability to modulate emotional responses by bringing rational thought to bear on feelings (without it = over/under reactive)

Initiation: the ability to begin a task or activity and to independently generate ideas, responses, or problem-solve (without it = inertia)

A List of Executive Functions

5. Working Memory: the capacity to hold information in mind for the purpose of completing a task (without it = lost)

6. Planning/Organization: the ability to manage current and future-oriented task demands (without it = fragmented)

A List of Executive Functions

7. Organization of Materials: the ability to impose order on work, play, and storage spaces (without it = chaotic)

8. Self-Monitoring: the ability to monitor one’s own performance and to measure it against some standard of what is needed or expected (without it = clueless)

A List of Executive Functions

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Development of Executive Functions

- Pre-school years:
  - Can work toward a goal but easily distracted;
  - Quite impulsive; wants immediate gratification
  - With acquisition of language more able to think and plan.

- Elementary school:
  - Expected to complete tasks and control impulses
  - Begins to think more flexibly and problem solve
  - Beginning organization of materials
Development of Executive Functions

- **Middle School**
  - Independent in daily routine at home/school
  - Develops time management, sequencing more complex tasks, organizing tasks, keeping track of lots of information

- **High School**
  - Fine-tuning skills in independent planning and organization
  - Work become more automatic and faster
  - More flexible thinking to manage more demanding academic work
How Does Executive Functioning Impact on Daily Performance?
Factors That Impact on Performance


- Sensory Processing & Movement Differences
- Motivation & Self-Efficacy
  - Reason for the action; that which gives purpose
  - Belief that one is capable of performing in a certain manner to attain certain goals.
- Executive Functioning
  - Emotional control
  - Attention and Impulsivity
  - Memory & Organization
Performance vs. Skill

- **Skill** – an ability that has been acquired through training, or the learned capacity to carry out pre-determined results effectively & efficiently.

- **Compensatory Skill** – using a device or method that offsets the motor or cognitive challenges of a specific task.

- **Performance** - act of doing something successfully; using knowledge as distinguished from merely possessing it.
Performance vs. Skill

- **Examples of Skills**
  - Applying toothpaste to a toothbrush
  - Greeting a friend or family member
  - Writing your name so others can read it
  - Telling time on an analog clock/watch

- **Examples of Performance**
  - Brushing your teeth
  - Inviting friends to a party
  - Writing a book report
  - Getting to class on time
Level of Skill Acquisition Underlies Performance

- **Novice** — requires a lot of cognitive effort and attention to complete a task; vulnerable to distraction and often need prompts; performance is slow; frequent errors.

- **Intermediate** — more independent but still needs a great deal of cognitive energy to complete a task; performance is inconsistent.

- **Mastery** — completes tasks with little or no cognitive energy, requiring very little attention to the task; allows for multitasking; performance is often errorless and fluid.
Sensory Processing & Motor Differences Impact on both Skill and Performance

- **Sensory Processing Differences - input**
  - Body awareness (tactile, proprioception, vestibular)
  - Extremes in processing through all senses (under- over sensitive; seeking vs. avoidance)
  - Difficulties with connections (ease, speed, memory)

- **Motor control - output**
  - Motor memory for planning actions
  - Organization of movements for execution of actions
  - Coordination between senses for effectiveness
  - Gradation (too hard; too soft) needed for control

*Building Bridges Through Sensory Integration*, E. Yack, P. Aquilla, S. Sutton
Impact of Sensory-Motor Differences on Motivation & Self-Efficacy

- **Motivation** = Reason for performing a task
  - What if you are unaware of the reason?
  - What if your perception of the reason is not how others perceive it?
- **Self-Efficacy** = Feelings about self or others that make you perform a task again
  - What if you can’t figure out or remember how to perform a task?
  - What if performing the task is difficult or uncomfortable for you?
Motivation & Self-Efficacy

- **Self-interest** – safety, security, well-being
- **Common interest** – wants to do/have what sees others doing/possessing
- **Curiosity** – desire to learn, explore new skills
- **Pleasure** – outcome or process feels good
- **Success** – sense of control & mastery over self, others, or environment
- **Social recognition** – desire for praise or attention from others

Impact of Low Motivation/Self-Efficacy on Daily Living Performance

- **Self-care... if only motivation is...**
  - What feels good to self then others’ opinions unimportant (e.g. won’t get out of shower)
  - For social/tangible rewards then won’t do it for self when rewards not present
  - None (because unpleasant or too hard) then avoids

- **Work/chores...if only motivation is...**
  - What feels good (lacks reason for doing tasks that don’t feel good)
  - Own safety/security then only does tasks that provide that.
  - None because:
    - Lacks energy to perform, low tone, depression - avoids work
    - Unsuccessful/too hard - gives up quickly and avoids in future
    - Attributes success to others - will only do if others are there (learned dependence)
Impact of Low Motivation/Self-Efficacy on Social Performance

• Valuing Self… if feels…
  ◦ Self-worthless — doesn’t think own actions/effort have value
  ◦ Depressed — isolates self from others, avoidance of socialization
  ◦ Selfish (others not worth it) — performs only if feels like doing it
  ◦ Distrust — focus is on own security, safety (hostile world)

• Valuing Social Interactions
  ◦ Low social recognition — performs only to avoid punishment
  ◦ Limited pleasure — doesn’t see value in pursuing
  ◦ Limited success without effort — fatigues, limits contact
  ◦ Lacks common interests — limited curiosity re: what others do
The Keys to Motivation & Self-Efficacy

- Success...
  - In real life experiences increases both motivation and self-efficacy
  - In a task too easy does little to raise either one
  - Increased motivation & self-efficacy leads to harder work & more persistence & more success (and vice versa)

- Success requires...
  - Attitude — beliefs one holds about oneself as valued person
  - Drive — desire to & belief one can attain a valued outcome
  - Strategy — technique(s) used to gain desired outcome (success)
What You Can Do to Increase Motivation & Self-Efficacy

- **Improve attitude and drive via…**
  - A sensory diet to
    - Enhance body (and oral) awareness…a sense of self
    - Explore pleasurable sensory experiences (and find acceptable ways to avoid what is painful)
  - Building on and shaping current motor and cognitive strengths to show social value
  - Development of problem-solving (executive functioning) skills needed to…
    - Control of one’s self & one’s environment
    - Share control of shared environments/situations

- **Use strategies that ensure success!**
What You Can Do to Increase Motivation and Self-Efficacy

- **Sensory diet** for self awareness
  - Part of daily routines
  - Gets self to “just right” state for next task (calms when worked up; energizes when tired)
  - Feels good to perform so self-motivating

- **Building on strengths**
  - Using what can do to perform successfully
  - Show daily or social applications for current knowledge/interests
Impact of Weak Executive Functioning on Daily Living Performance

- Problems at home:
  - Difficulties following daily routines
  - Performing chores
  - Difficulties getting started/winding down

- Problems at school/work:
  - Attention, memory and following instructions
  - Forgetting assignments, following schedules
  - Getting tasks done efficiently and on time
  - Not having materials to complete assignments
Impact of Weak Executive Functioning on Social Performance

- Problems in social settings:
  - Impulsive, inflexible, poor self-monitoring interfere with peer relationships
  - Not knowing when to stop, ends up in trouble
  - Difficulties with turn-taking; often interrupts or is insensitive to others’ feelings

- Problems with self image:
  - Self-esteem often affected
  - May develop “I don’t care” attitude or very pessimistic view of the world
How to Help Build Executive Competence

- **Help** individual manage demands in the short run
  - Lighten the load on the executive system
  - Define the problems to decide where to start

- **Build** independent skills for long-term self-management
  - Strengthen executive functions
  - Build a repertoire of effective skills that compensate for the weaknesses
Step 1: Short-Term Goals

- Provide external support, limits and supervision
Systems Put Information Where It is Most Needed

- Communication and Social/Sensory Processing Tools must be mobile
  - Binders/bookbags/shoulder bags
  - Wallets/purses/fanny packs/money belts
  - Key rings/badges/vests/electronic devices

- School/Work/Task Organizers can be stationary
  - On Walls/clip boards/desks/computer/cupboards
  - Inside drawers/files/shoeboxes/cupboards
What Might be Included Inside/Within these Books/Systems

- Helpful social reminders
- Schedules and time/memory aids
- People identification/locator list
- To-do and step-by-step checklists
- Sensory survival reminders for self-regulating
- Self-Monitoring Charts
Short-Term Goals

- Modify the nature of the task and/or provide support
Keychain Organizer

- 90 record
- Phone/email directory
- Personal password
- Calculator
- World clock
- 4 daily alarms with 16 melodies
Organizational Aids: Time-Related Memory aids

Visual only

Auditory/visual
Auditory/Visual/Tactile-Motor Memory Aid

Invisible Clock

Multi-function timer beeps or silently vibrates to discreetly signal a set time. Ideal to cue repetitive tasks or multiple personal reminders. Set up to 12 different alarms per day. Adjustable vibration intensity and beep volume, number of beeps, illuminated display and auto button lock to prevent timer cancellations. Includes removable clip, AAA battery. Size: 2 1/8" x 1 5/8" x 5/8".

Invisible Clock IC-01E $49.00
More Multisensory Memory Aids

**VoiceCue**

Verbal reminders whenever they’re needed

Voice Cue is an all-new discrete auditory cueing device. Record up to five messages (60 seconds total recording time) and set the clock to play back messages at pre-set times. Each message can be assigned two playback times. For example, record “Time to take your medication,” and set the clock to play the message at 7 a.m. and again at 6 p.m. If the message catches you off guard and you’re not sure what it said, just press the “replay” button within one minute to repeat the last message.

Features a digital clock, volume control, and non-volatile memory. Includes a clip-on holder and two AA batteries.

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**StepPAD**

Works like a tape recorder—only better.

Ideal for recording step-by-step instructions. Users press “PLAY” to hear the cue as often as needed. Press “FF” for the next step or “REW” for the previous one. Instructors can change one step without affecting others within the sequence.

Total 72 seconds of recording time. Batteries and clip included.

Size: 2 1/8” x 3 1/2” x 1/2”

**StepPAD AT-S01E** $29.00

**Ideas**

- Community-Based Instruction:
  - “take a break,” “meet at the mall entrance,” “see your supervisor,” “phone home,” “get ready for pickup.”

- School-Based:
  - “get ready for math,” “recess is over,” “move on to the next task.”
Reading/ Writing Aids

**QuickLink Pen**
Handheld text scanner for efficient and easy note-taking
- Students take notes from any reference material
- Students improve their written research papers

*By Wizcom Technologies*
Hand-writing notes from various reference materials

**Reading Pen II**
Word support without interrupting reading
- Students improve reading fluency
- Students understand new content

*By Wizcom Technologies*
When students who struggle come across words they do not know, it interferes with their reading practice and comprehension. They must stop reading and attempt to decode the word. If they don’t understand the word, students must also look up a word in a traditional dictionary. Many students find these tasks difficult and overwhelming, so they give up the words they do not know.

**Tutor**
Study aid for talking books
- Students follow the words in books on tape
- Students develop independent study skills
Writing Aids

Handwriting

Pencil Toppers
These "cool" tactile pencil toppers are perfect for classroom fidgeting. Pencil not included.

AP 486 SpiderWriter Pencil Topper.................. $2.50 ea.
AP 502 Porcupine Ball Toppers, pkg 12........... $6.95
AP 501 Wacky Troll Toppers, pkg 12.............. $6.95
AP 485 Silly Smiling Toppers, pkg 24............. $7.95

Pencil Weights
These weights slide easily onto standard size pencils and pens. They provide proprioceptive input when writing and assist children with handwriting challenges. The 1.5 oz. weights can be placed anywhere on the pencil and can be used with any pencil grip. Pencil not included.

AP 446 pkg 3........................................$11.95

Pen Again
The most comfortable writing instrument ever designed! The natural weight of your hand holds the pen in place. No need to tightly grip the pen. Assorted colors.

AP 448 Pen Again....................................$4.99
AP 448-1 Pen Again Refills, pkg. 2.............$1.99

Vibrating Pen Set
Unique pen provides even, continuous, soothing vibrations. A great way for working on handwriting skills. The pen has a chewable green top for calming input. Includes 5 different colored pen tips (blue, black, red, teal and green) and 5 chewable tops.

AP 447 Vibrating Pen Set.........................$46.00
AP 447-1 Replacement Pen Tips, pkg 5........$7.99
AP 447-2 Replacement Chew Tips, pkg 5.......$7.99

Fidget Pencils
Children stay alert and keep on task when they fidget with these popular colorful pencil toppers that can be transferred to other pencils. Assorted fun fidgety styles. Pencils included.

AP 508 pkg 4........................................$6.95
Co-Writer

Worksheet #1

Tim and two rabbits, two turtles, and one donkey. Please answer the following 14 questions about Tim’s animals.

Organizing Ideas

Frankenstein

- The Doctor
- Victor
- The Monster

Map View

Frankenstein

The Doctor

Inventor

Victor
When All Else Fails

- My Back-up Plan
  - Who to call or ask for help
  - What can be put off, what can’t
  - Who to swap strengths with to get things done (trading what I do well for things others don’t; in exchange for doing things I don’t do well, but others do)
  - Negotiate for extension of time
Air cushion seats  trampoline
Stretch bands/tubing  Swings
Pencil grips and toppers
Pressure vests therapy balls
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Resources - Books

- Williams & Shellenberger, *How Does Your Engine Run?*, Therapy Works
- *Asperger Syndrome and Sensory Issues* by Myles, Cook, Miller, Rinner, & Robbins (2000)