

We Have a Plan for That!

**Making Sense of Evidence-based Practice
When Teaching Executive Functioning Skills**

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HSP Behaviour Consulting



A little bit about us... 🙌



■ Clinical Dilemma

Multiple advanced learners in EIBI programs. A pattern of difficulty emerging across skill repertoires, including adaptive behaviour, self-regulation, planning and flexibility

■ Professional Development

A review of the scholarly and professional literature on autism, executive function and childhood development. Professional workshop, Sarah Ward., M.S., CCC/SLP.

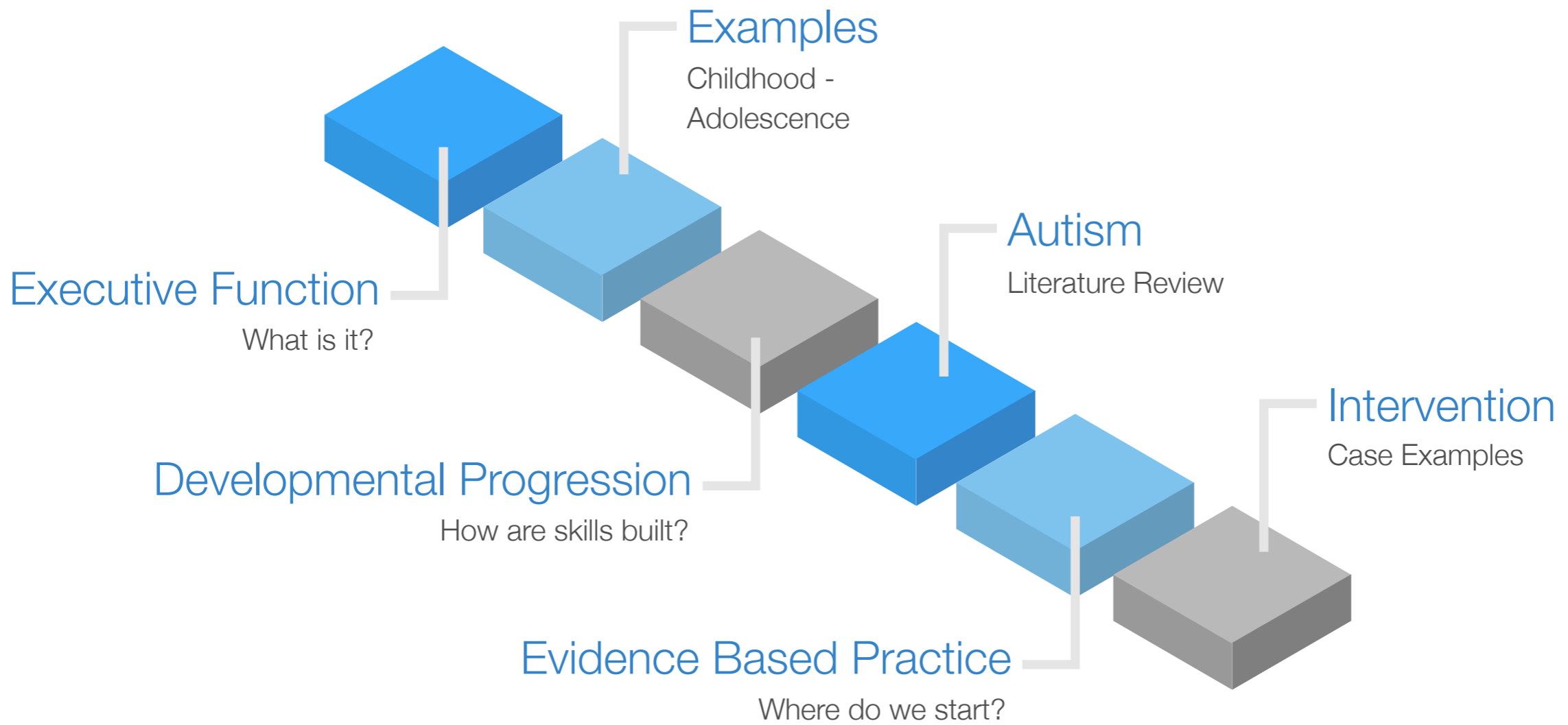
■ Assessment & Programming

Parent report and direct observation to explore difficulties in executive function. Development of programming with the goal of strengthening a variety of executive function skills

Acronyms

- EF = Executive Functioning
- ASD = Autism Spectrum Disorder
- HFASD = High Functioning Autism Disorder
- ADHD = Attention Deficit Hyperactivity Disorder
- NLD = Nonverbal Learning Disorder
- TD = Typically Developing
- DSM = Diagnostic and Statistical Manual

Overview



But first...



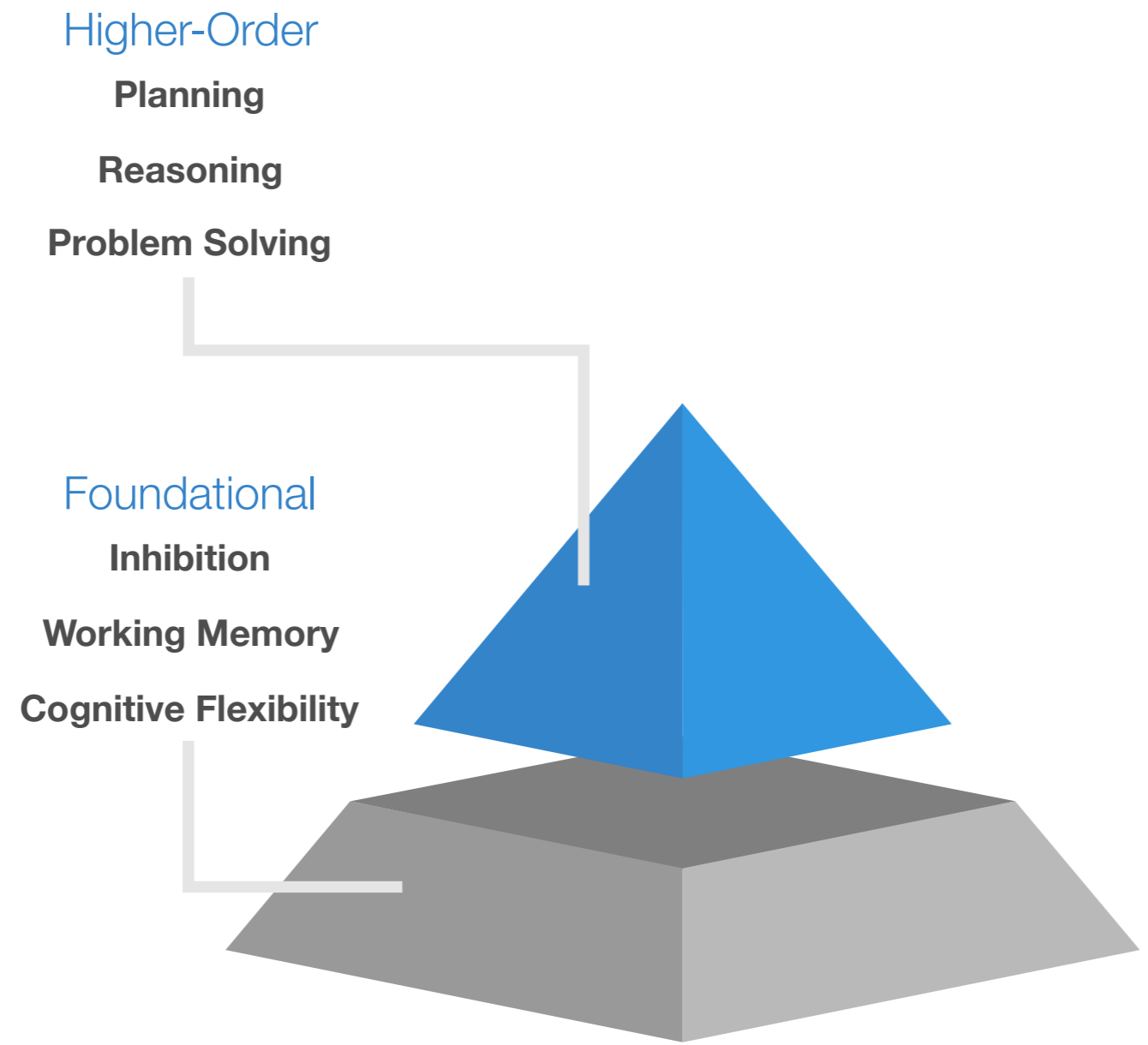
Stroop Interference Test



Executive Function: what is it?

“Many definitions and descriptions of EF exist, generally stating that they are a collection of interconnected processes, which are **responsible for planning and executing goal-directed behaviour ...**”

–Granader et al., 2014 p. 3057

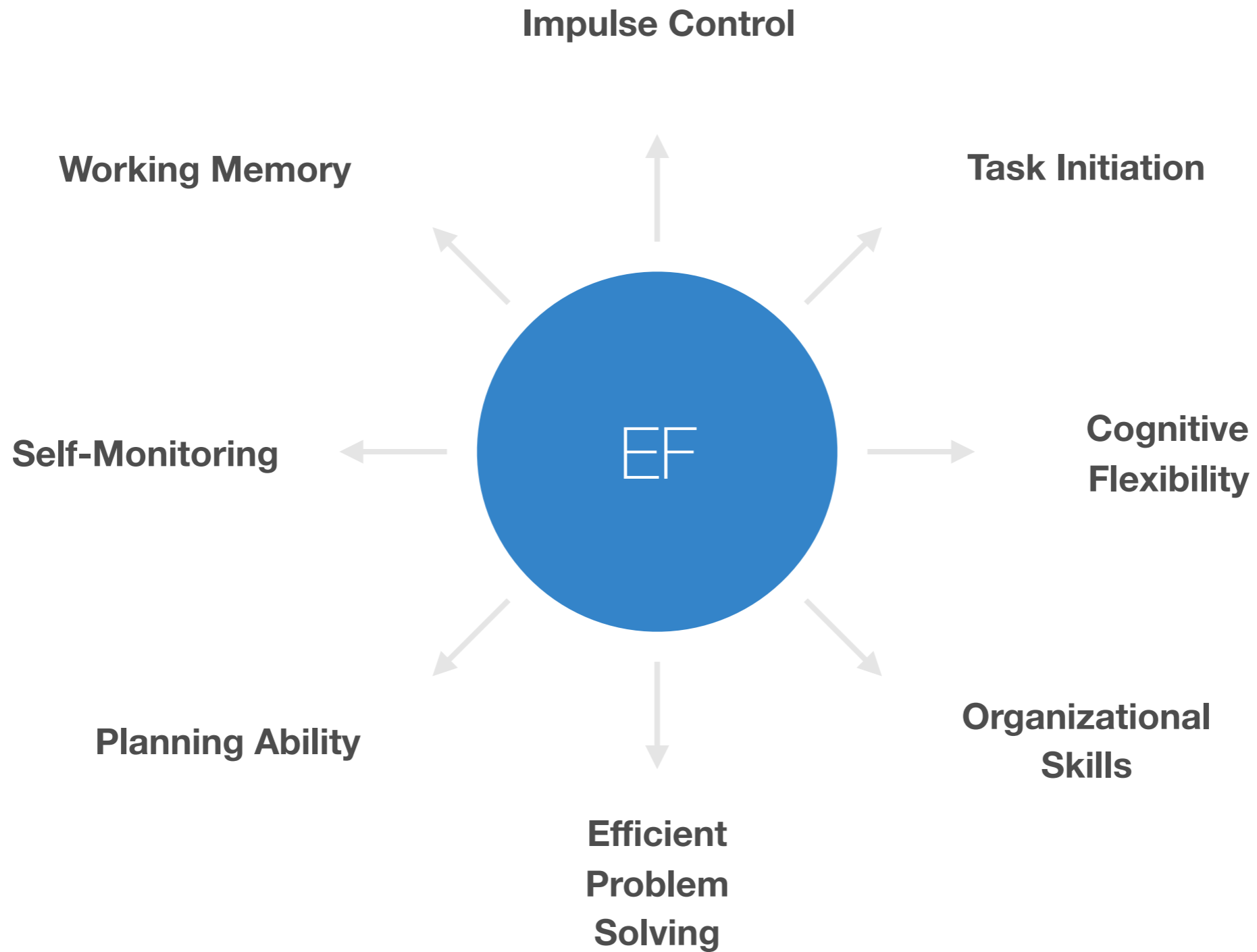


Executive Function Framework

Development of Executive Functions: Implications for Educational Policy and Practice

Serpell & Esposito, 2016

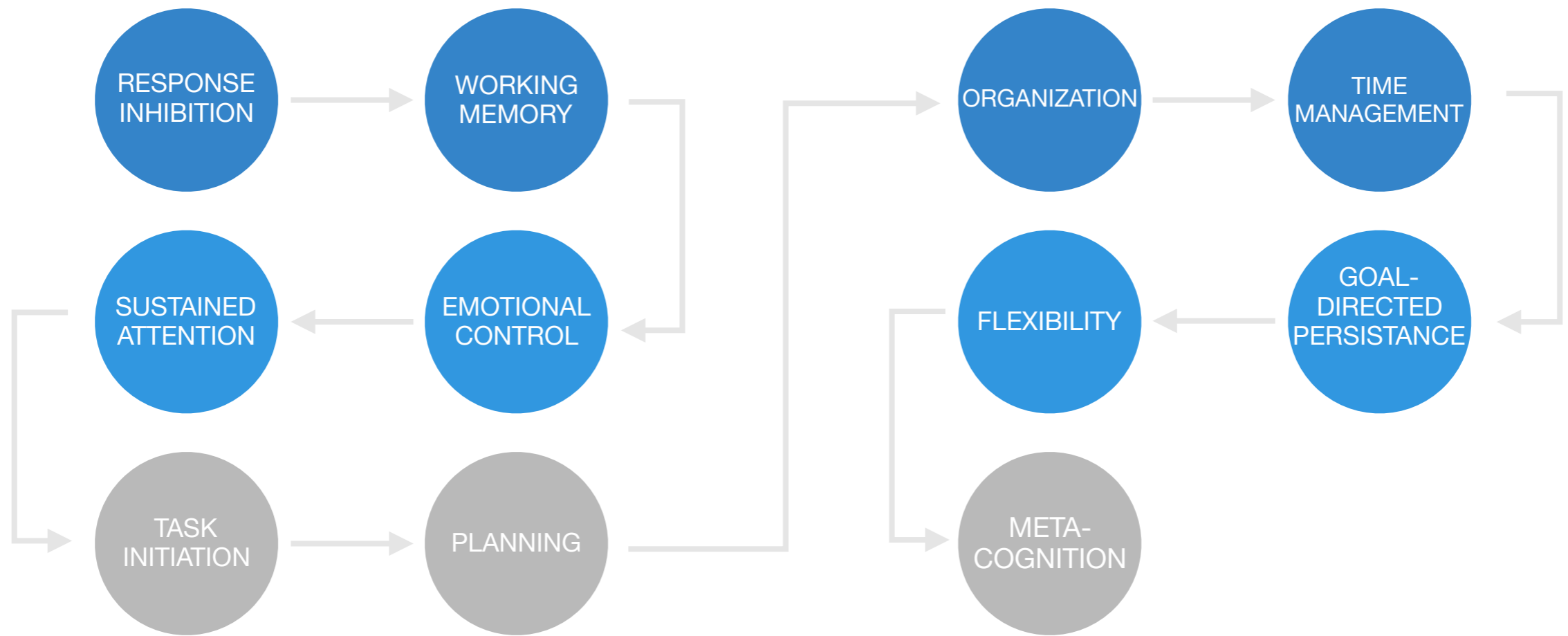
Major components...



Developmental progression...

Infancy

Adolescence



InBrief:
Executive Function:
Skills for Life and Learning



Examples: childhood-adolescence



INHIBITION



INHIBITION:

controlling behavior, attention, thoughts, emotions

'thinking before you act'

INHIBITION: early childhood

Example:

A young child waits for a teachers cue before starting to eat the food in front of him/her at snack time

Non-Example:

A young child notices a friend has a toy they would like and immediately grabs it from them



INHIBITION:

elementary years

Example:

A student suppresses the urge to blurt out an answer and raises his/her hand instead

Non-Example:

A student working on an assignment hears a conversation going on near by and joins in



INHIBITION: adolescence

Example:

A teenager suppresses the urge to check a text message while driving

Non-Example:

A teenager decides to stop studying to check a Facebook notification instead



A close-up photograph of a woman's face, showing her eyes and hair. She is looking upwards towards a thought bubble. The thought bubble is a white cloud shape with a black outline, containing a yellow rectangular box with a black border. Inside the yellow box, the words "WORKING MEMORY" are written in large, bold, black, sans-serif capital letters.

**WORKING
MEMORY**

WORKING MEMORY:

simultaneously holding and using information

'hold that thought'

WORKING MEMORY:

early childhood

Example:

Mum tells her child “eat one more piece of broccoli before you get dessert” the child eats a piece and promptly requests dessert

Non-Example:

A child decides to get some water but before making it 5 steps to the snack table sees a toy and becomes distracted



WORKING MEMORY: elementary years

Example:

A student is told to find a list of materials and collects those items from around the classroom without reminders

Non-Example:

A student goes to the bathroom and then immediately walks out forgetting to wash hands



WORKING MEMORY: adolescence

Example:

A teenager remembers his employers expectations for work attire and dresses accordingly

Non-Example:

A teenager forgets she is picking up her brother from school and drives to the mall instead



The image features two coiled metal springs. The one on the left is painted in a rainbow gradient from green at the bottom to blue at the top. The one on the right is painted in a rainbow gradient from yellow at the bottom to red at the top. A bright yellow rectangular box with a black border is centered over the intersection of the two springs. Inside this box, the words "COGNITIVE" and "FLEXIBILITY" are written in large, bold, black, sans-serif capital letters, stacked vertically.

**COGNITIVE
FLEXIBILITY**

COGNITIVE FLEXIBILITY:

(1) effectively switching between tasks, (2) applying novel strategies to an old task

'thinking outside the box'

COGNITIVE FLEXIBILITY: early childhood

Example:

A young child who learned to tie laces 'Bunny Ears' style later switches to 'Squirrel and the Tree'

Non-Example:

A young child playing with preferred toys is told by the teacher to "clean up for circle time" and begins to cry



COGNITIVE FLEXIBILITY: elementary years

Example:

During a writing task a student shifts between organizing thoughts, choosing words, and checking for spelling mistakes

Non-Example:

A student is unable to shift between word problems and equations on a math sheet



COGNITIVE FLEXIBILITY: adolescence

Example:

A teenager learns that he has been rejected from his school of choice and flexibly pursues another

Non-Example:

A teenager is talking with friends, when the topic suddenly shifts to basketball he continues to comment on baseball scores



Let's review...



Developmental Progression: how are skills built?

“The building blocks of children’s capacities to retain and use new information, focus attention, control impulses, and make plans are **acquired during early childhood**, but the full range of executive function skills continues to develop into the adolescent years”

–Shonkoff et al., 2011, p. 4

By the end of the first year
rudimentary signs of capacity
for EF begin to emerge



First Year of Life

Rudimentary signs of the capacity to retain and use new information, focus attention, control impulses and even plan begin to emerge towards the end of the first year of life

Cognitive Flexibility

By age three, most children can organize themselves to complete tasks involving two rules

1

Inhibitory Control

Maintain focus in the face of distractions

2

Working Memory

Hold rules “on line” mentally as they figure things out

3

Conscious Problem-Solving

ability to shift attention from one rule to another that is incompatible with the first, and back again

1

Inhibit Inappropriate Responses

capacity to inhibit inappropriate responses even if desirable or habitual

2

Execute Multi-Step Plans

ability to execute multi-step deliberate plans

3

Large Individual Differences

heavily dependent on situation and child experience

5

Require Considerable Practice

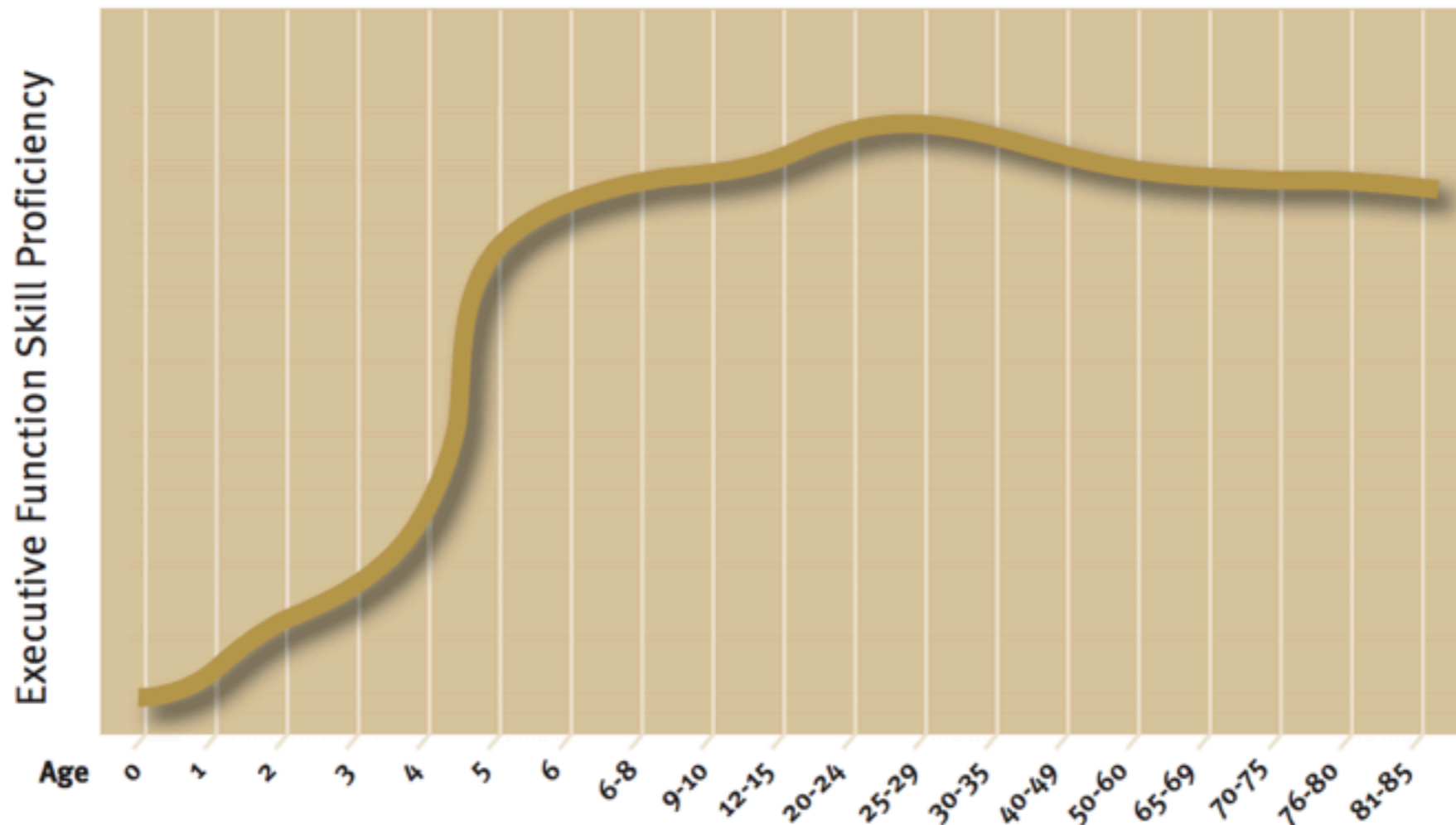
at age 5 skills are just emerging and still require considerable practice

4

“By age 7, some of the capabilities and brain circuits underlying executive function skills are remarkably similar to those found in adults”

–Shonkoff et al., 2011, p. 4

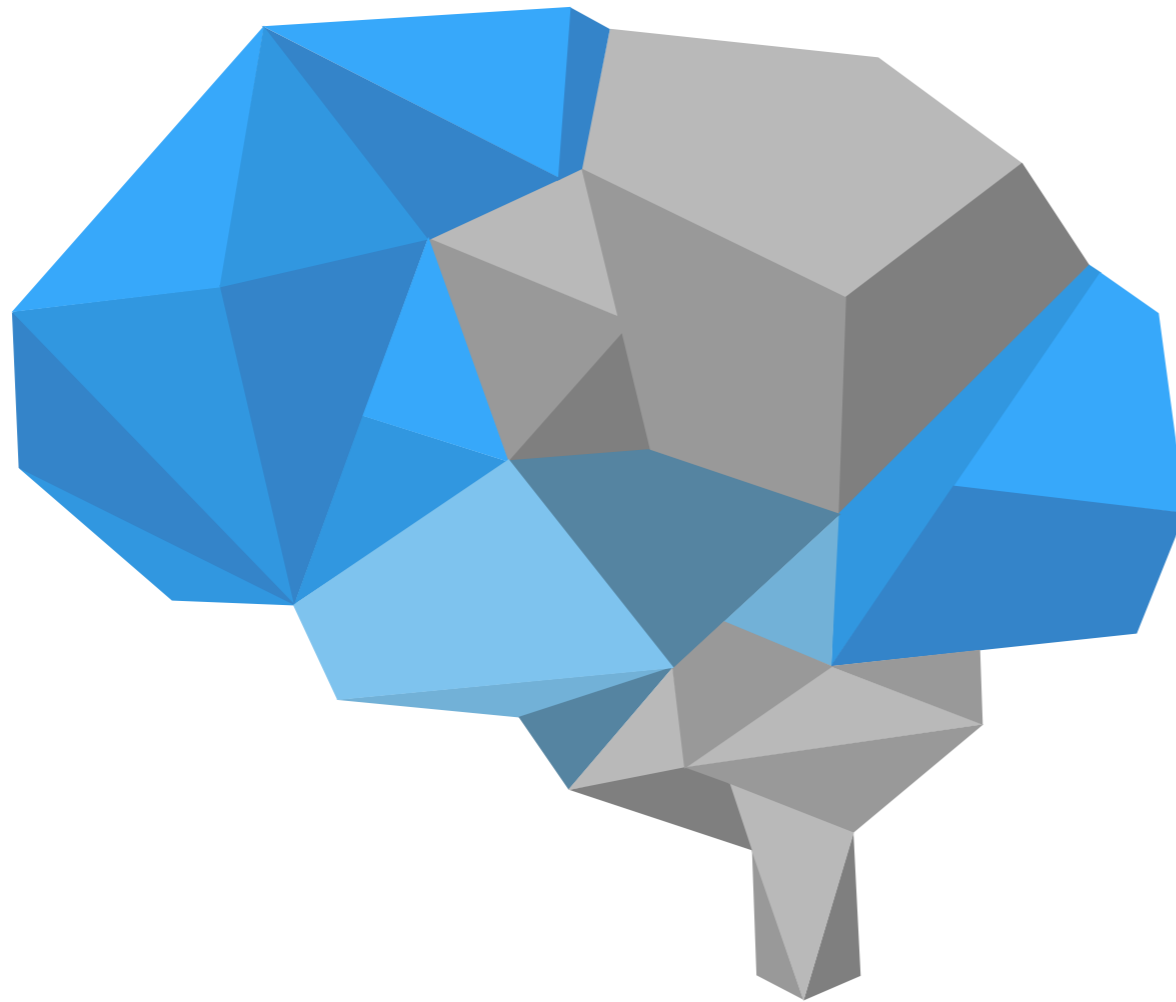
Executive Function Skills Build Throughout Childhood and Adolescence



A range of tests measuring different forms of executive function skills indicates that they begin to develop shortly after birth, with ages 3 to 5 providing a window of opportunity for dramatic growth in these skills. Growth continues throughout adolescence and early adulthood; proficiency begins to decline in later life.

Source: Weintraub et al. (In Press).⁹⁹

What do we know about
neural development?



1

Prefrontal Cortex

circuits and systems primarily involve the prefrontal cortex

2

Early Childhood

formative development occurs during childhood

3

Adolescence

circuits are refined and made more efficient

4

Deep Brain

regions and circuits have extensive interconnections with deeper brain structures

5

Stress & Threats

extended exposure to threatening situations can compromise the development and deployment of executive function skills

Are there effective interventions
targeting EF in children?

[Science](#). Author manuscript; available in PMC 2011 Aug 23.

Published in final edited form as:

[Science](#). 2011 Aug 19; 333(6045): 959–964.

doi: [10.1126/science.1204529](https://doi.org/10.1126/science.1204529)

PMCID: PMC3159917

NIHMSID: NIHMS310326

Interventions shown to Aid Executive Function Development in Children 4–12 Years Old^{*}

[Adele Diamond](#)¹ and [Kathleen Lee](#)¹

[Author information](#) ► [Copyright and License information](#) ►

Diamond & Lee, 2011

Scientifically supported approaches for improving EFs in the early school years:

1. Computerized training
2. Hybrid of computer and non computer games
3. Aerobic Exercise
4. Martial Arts & Mindfulness Practices
5. Classroom Curricula
6. Add-Ons to Classroom Curricula

Autism & EF: literature review

“Difficulty with **flexibility, organization and planning** are specifically described as features of ASD in the Diagnostic and Statistical Manual of Mental Disorders-Fifth Edition (DSM-5)...”

“In addition, impaired planning and organizational skills are now explicitly referenced in the **DSM-5 severity levels for ASD**, which indicate that “problems of organization and planning hamper independence” in this population

Are EF challenges and
ASD associated?

Core Symptoms

01



Challenges in Adaptive Behaviour

02



Poor Outcomes in Adulthood

03



EF: ASD, NLD, TD



[Journal of Autism and Developmental Disorders](#)

February 2014, Volume 44, [Issue 2](#), pp 331–342

Comparison Among Children with Children with Autism Spectrum Disorder, Nonverbal Learning Disorder and Typically Developing Children on Measures of Executive Functioning

Authors

[Authors and affiliations](#)

Margaret Semrud-Clikeman , Jodene Goldenring Fine, Jesse Bledsoe

Original Paper

First Online: 29 June 2013

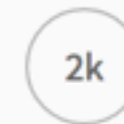
DOI: [10.1007/s10803-013-1871-2](https://doi.org/10.1007/s10803-013-1871-2)

Cite this article as:

Semrud-Clikeman, M., Fine, J.G. & Bledsoe, J. J Autism Dev Disord (2014) 44: 331. doi:10.1007/s10803-013-1871-2



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Semrud-Clikeman et al., 2013

Participants:

1. ASD Group: N=36
2. NLD Group: N=31
3. Control Group: N=38
4. ages 8-17.5

Hypothesis:

1. ASD group would show more difficulty on measures of cognitive flexibility and problem solving compared to controls
2. ASD group would perform worse on measures of verbal fluency where switching was required

Measures:

1. Delis-Kaplan Test of Executive Function- sorting, verbal fluency, and trail making
2. Fluid reasoning cluster from the Woodcock-Johnson Test of Cognitive Abilities III

Results:

- I. ASD group scored significantly lower in cognitive flexibility than controls
- II. NLD group had more problems with visual sequencing, not significantly
- III. ASD groups scored lower on almost all tests when IQ was not covaried

EF: Adaptive Skills



[Journal of Autism and Developmental Disorders](#)

June 2015, Volume 45, [Issue 6](#), pp 1579–1587

Increasing Adaptive Behavior Skill Deficits From Childhood to Adolescence in Autism Spectrum Disorder: Role of Executive Function

[Authors](#)

[Authors and affiliations](#)

Cara E. Pugliese , Laura Anthony, John F. Strang, Katerina Dudley, Gregory L. Wallace, Lauren Kenworthy

Original Paper

First Online: 15 November 2014

DOI: [10.1007/s10803-014-2309-1](https://doi.org/10.1007/s10803-014-2309-1)

Cite this article as:

Pugliese, C.E., Anthony, L., Strang, J.F. et al. J Autism Dev Disord (2015) 45: 1579. doi:10.1007/s10803-014-2309-1

15

Citations

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“Well-developed adaptive behavior skills are essential to independent functioning.”

“Adaptive behavior describes the typical performance of daily activities and represents the ability to translate cognitive potential into real-world skills”

– Pugliese et al., 2014, p. 1579

Pugliese et al., 2015

Participants: **447 individuals with HFASD** between the ages of 4 and 23 years

Measures:

1. Adaptive Behavior (VABS)

I. Communication

II. Daily Living Skills

III. Socialization

2. Executive Function (BRIEF)

I. Behavioural Regulation Index (BRI): initiation, emotional control, shifting

II. Metacognition Index (MCI): inhibition, organization/planning, organization of materials, working memory, monitoring

Pugliese et al., 2015

Results:

1. Adaptive Behavior (VABS)

- I. lower socialization and daily living skills compared to communication
- II. lower adaptive skills than intellectual ability
- III. age related decline (not drive by IQ)

2. Executive Function (BRIEF)

- I. negative relationship between EF and ABS
- II. 4% variance in communication driven by metacognitive abilities
- III. 12.3% variance in daily living skills driven by metacognitive abilities
- IV. 13% variance in socialization skills driven be behavioural regulation skills

Pugliese et al., 2015

Results:

1. Executive Function

- I. **Initiation:** difficulties were associated with lower scores across all domains
- II. **Working Memory:** difficulties were associated with lower scores in communication and daily living skills
- III. **Organization:** difficulties were associated with lower scores in daily living skills
- IV. **Shifting:** difficulties were associated with lower scores in socialization

EF: Co-Morbid Anxiety & Depression



[Journal of Autism and Developmental Disorders](#)

March 2016, Volume 46, [Issue 3](#), pp 1071–1083

Real-World Executive Functions in Adults with Autism Spectrum Disorder: Profiles of Impairment and Associations with Adaptive Functioning and Co-morbid Anxiety and Depression

[Authors](#)

[Authors and affiliations](#)

Gregory L. Wallace , Lauren Kenworthy, Cara E. Pugliese, Haroon S. Popal, Emily I. White, Emily Brodsky, Alex Martin

Original Paper

First Online: 16 November 2015

DOI: [10.1007/s10803-015-2655-7](https://doi.org/10.1007/s10803-015-2655-7)

Cite this article as:

Wallace, G.L., Kenworthy, L., Pugliese, C.E. et al. J Autism Dev Disord (2016) 46: 1071. doi:10.1007/s10803-015-2655-7

11

Citations

4

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Wallace et al., 2016

Participants: **35 adults with ASD** between ages 18 and 40

Measures:

1. Executive Functioning: BRIEF-A
2. Adaptive Functioning: ABAS-II
3. Co-Morbid Internalizing Psychopathology: ABCCL

Results:

- I. Prominent EF deficits in flexibility and metacognition
- II. EF difficulties were strongly associated with adaptive functioning deficits and co-morbid symptoms of depression and anxiety

EF: Play Skills

Autism Research [Explore this journal >](#)

RESEARCH ARTICLE

Executive function predicts the development of play skills for verbal preschoolers with autism spectrum disorders

[Susan Faja](#) , [Geraldine Dawson](#), [Katherine Sullivan](#), [Andrew N. Meltzoff](#), [Annette Estes](#), [Raphael Bernier](#)

First published: 18 February 2016 [Full publication history](#)

DOI: [10.1002/aur.1608](https://doi.org/10.1002/aur.1608) [View/save citation](#)

Cited by: 0 articles  [Citation tools](#)

 score 2



[View issue TOC](#)
Volume 9, Issue 12
December 2016
Pages 1274–1284

Faja et al., 2016

Participants: **66 children with ASD** between the ages of 34 - 52 months at first time point and 68 to 82 months at second time point

Measures:

1. Cognitive Ability: MSEL, DAS
2. Executive Function: Neurocognitive Battery
3. Play Skills: Pre-Symbolic and Symbolic Play

Results:

- I. Higher Language Ability Group
 - I. EF ability at 3-4 years significantly predicted later play ability
 - II. Early play ability did not predict later EF
- II. Lower Language Ability Group
 - I. Earlier cognitive ability and play predicted later play ability
 - II. Later EF was best predicted by earlier cognitive ability

EF: ASD, ADHD

A review of executive function deficits in autism spectrum disorder and attention-deficit/hyperactivity disorder.

Craig F¹, Margari F², Legrottaglie AR¹, Palumbi R¹, de Giambattista C¹, Margari L¹.

+ Author information

Abstract

Executive dysfunction has been shown to be a promising endophenotype in neurodevelopmental disorders such as autism spectrum disorder (ASD) and attention-deficit/hyperactivity disorder (ADHD). This article reviewed 26 studies that examined executive function comparing ASD and/or ADHD children. In light of findings from this review, the ASD + ADHD group appears to share impairment in both flexibility and planning with the ASD group, while it shares the response inhibition deficit with the ADHD group. Conversely, deficit in attention, working memory, preparatory processes, fluency, and concept formation does not appear to be distinctive in discriminating from ASD, ADHD, or ASD + ADHD group. On the basis of neurocognitive endophenotype, the common co-occurrence of executive function deficits seems to reflect an additive comorbidity, rather than a separate condition with distinct impairments.

KEYWORDS: ASD + ADHD; attention-deficit/hyperactivity disorder; autism spectrum disorder; executive function; neurocognitive endophenotype

Craig et al., 2016

Literature Review: **36 articles**

Inclusion Criteria:

- (1) compared ASD vs ADHD
- (2) standardized EF skills assessment
- (3) child/adolescent participants between 3-18 years of age
- (4) published in english
- (5) published in peer-reviewed journal

Participants: **646 children with ASD**, 789 children with ADHD

Aim of review:

1. Examine similarities and differences in executive functioning between ASD and ADHD

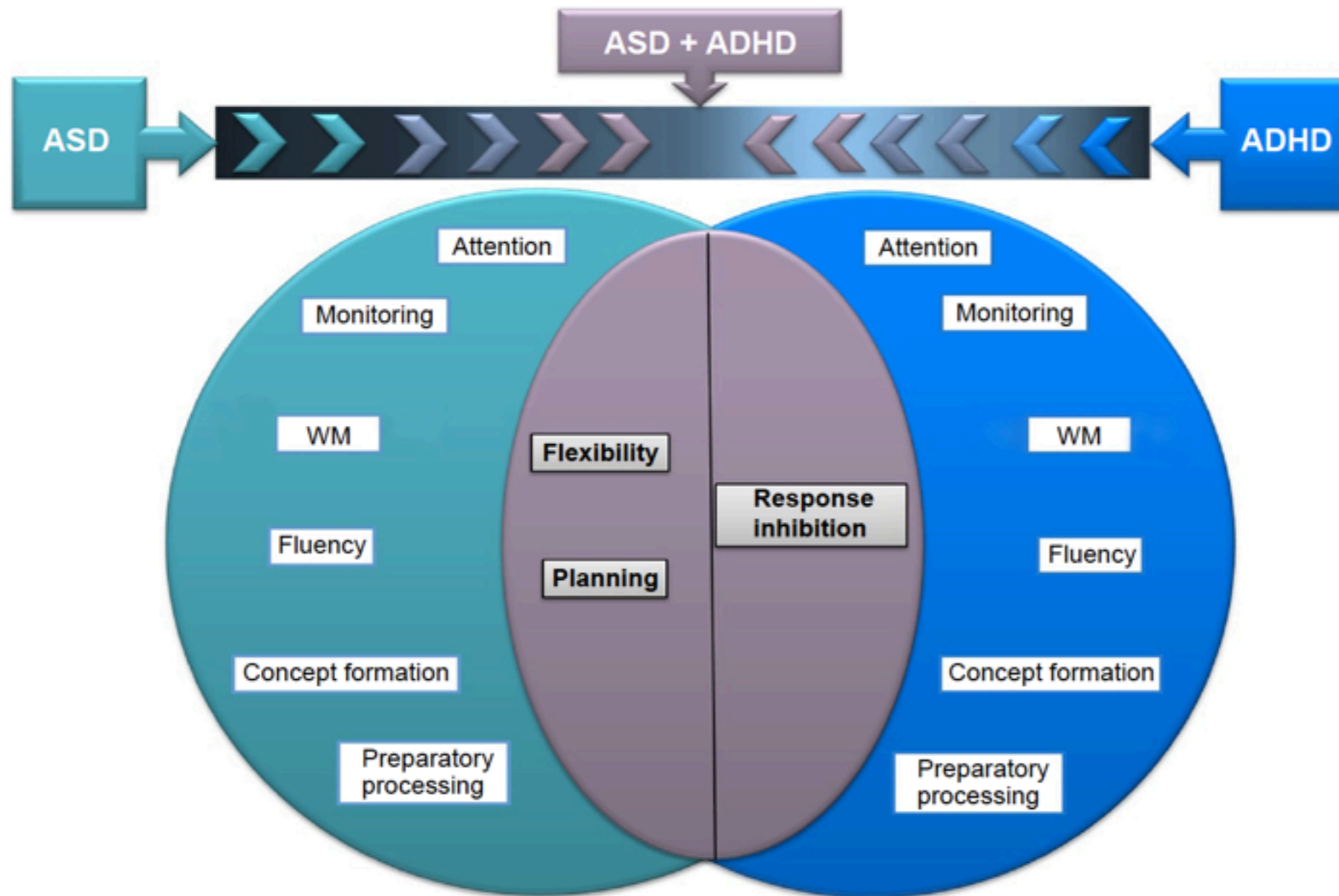


Figure 1 Similarities and differences in executive functioning between ASD, ADHD, and ASD + ADHD groups.

Notes: The ASD + ADHD group appeared to share impairment in the flexibility and planning with the ASD group, while it shares the response inhibition deficit with the ADHD group. Conversely, deficit in attention, WM, preparatory processes, fluency, and concept formation does not appear to be distinctive in discriminating from ASD, ADHD, or ASD + ADHD group.

Abbreviations: ASD, autism spectrum disorder; ADHD, attention-deficit/hyperactivity disorder; WM, working memory.

EF: Quality of Life




[Journal of Autism and Developmental Disorders](#)

September 2015, Volume 45, [Issue 9](#), pp 2734–2743

Influence of Autism Traits and Executive Functioning on Quality of Life in Children with an Autism Spectrum Disorder

Authors

[Authors and affiliations](#)

Marieke de Vries , Hilde Geurts

[Open Access](#) | Original Paper

First Online: 03 April 2015

DOI: [10.1007/s10803-015-2438-1](https://doi.org/10.1007/s10803-015-2438-1)

Cite this article as:

de Vries, M. & Geurts, H. J Autism Dev Disord (2015) 45: 2734.

[doi:10.1007/s10803-015-2438-1](https://doi.org/10.1007/s10803-015-2438-1)

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“QoL is often defined as **an individual’s subjective perceptions of both positive and negative dimensions of functioning...** evaluations of functioning...and personalized evaluations of functioning on multiple domains (physical, psychological and social)...”

– Vries & Geurts, 2015

Vries & Geurts, 2015

Participants: **120 children with ASD** and 76 typically developing children, between the ages of 7 and 12 years

Measures:

1. ADI-R
2. SRS
3. IQ
4. BRIEF
5. PedsQL

Vries & Geurts, 2015

Results:

1. More problems in social communication and motivation
 - I. Parents reported **lower physical QoL**
2. More problems in social motivation, poorer cognitive flexibility and more difficulties in emotional control
 - I. Parents reported **lower emotional QoL**
3. More communication problems, poorer inhibitory control, poorer flexibility, and a lower tendency to initiate behavior
 - I. Parents reported **lower social QoL**
4. More problems reported in working memory, planning and organizing skills
 - I. Parents reported **lower school QoL**

EF: Unstuck & OnTarget

J Child Psychol Psychiatry. 2014 Apr;55(4):374-83. doi: 10.1111/jcpp.12161. Epub 2013 Nov 21.

Randomized controlled effectiveness trial of executive function intervention for children on the autism spectrum.

Kenworthy L¹, Anthony LG, Naiman DQ, Cannon L, Wills MC, Luong-Tran C, Werner MA, Alexander KC, Strang J, Bal E, Sokoloff JL, Wallace GL.

[+](#) **Author information**

Kenworthy et al., 2014

Evaluated the effectiveness of UOT compared to a SS intervention

Participants: 3rd - 5th graders, UOT n=47, SS n=20

Measurement: pre and post classroom observations, parent reports and direct child measures of problem-solving, EF and social skills

Results: UOT improved classroom behaviour, flexibility and problem solving, equivalent improvements in social skills across groups

Should we target EF?

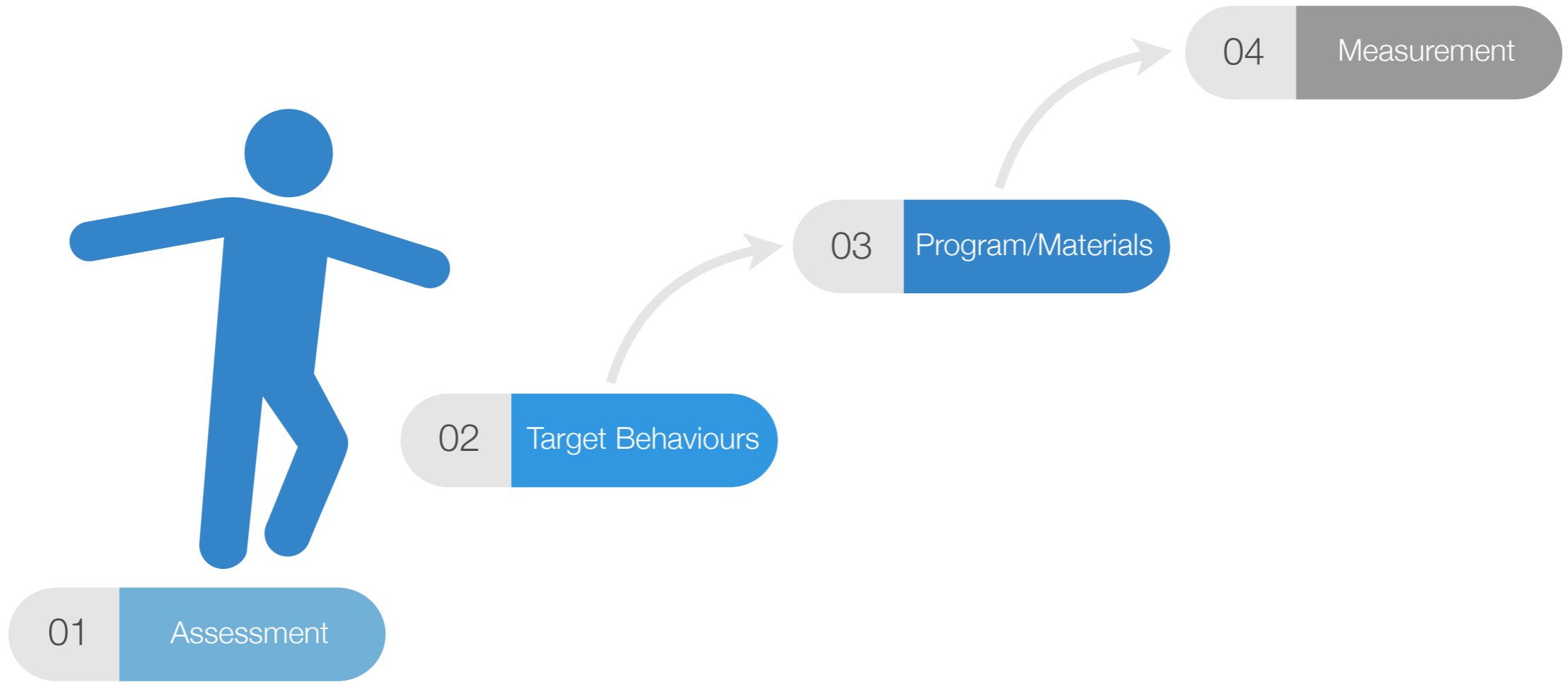
Evidence-Based Practice: where do we start?

BACB

- 1.01 Reliance on Scientific Knowledge
- 2.09 Treatment/Intervention Efficacy



How do we program for
EF skill development?



PROGRAMMING:

1. Assessment

a. Parent/Teacher Report

b. Direct Observation

2. Identification of target behaviour(s)

3. Program design & material development

4. Measurement of specific and generalized outcomes

PROGRAMMING:

1. Assessment

2. Identification of target behaviour(s)

a. Based on assessment results

b. Observable & measurable targets

**I. Inhibition, Cognitive Flexibility, Working Memory,
Planning, Problem Solving**

3. Program design & material development

4. Measurement of specific and generalized outcomes

PROGRAMMING:

1. **Assessment**
2. **Identification of target behaviour(s)**
3. **Program design & material development**
 - a. **Naturalistic/Developmental**
 - b. **Technically Sound**
 - c. **Engaging & Individualized Materials**
4. **Measurement of specific and generalized outcomes**

PROGRAMMING:

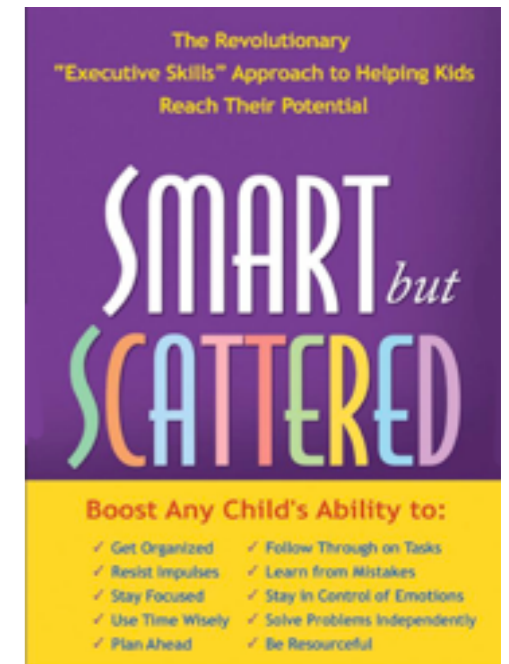
1. Assessment
2. Identification of target behaviour(s)
3. Program design & material development
4. Measurement of specific and generalized outcomes
 - a. Specific Outcomes
 - I. Target behaviour within the context of therapy
 - II. Target behaviour outside the context of therapy
 - b. Generalized Outcomes
 - I. General improvement in targeted EF skill

Intervention: case examples

John:

- **5-year-old boy with HFASD**
- **Receiving approximately 12 hours of one-on-one ABA therapy per week plus 5 afternoons of preschool**
- **Home program consisted of direct intervention, play dates, community outings and school support**
- **started EF programming in April of 2016, in ABA home-program since spring 2014**
- **Completed the Smart But Scattered interview assessment with ABA team and parents**

Smart But Scattered Preschool Assessment



- 33 questions
- scored on a Likert Scale- 5 strongly agree, 3 neutral, 0 strongly disagree
- divided into 11 EF skill sets
- 3 questions for each EF skill set

John Continued

EF Skill	Score	Objective
Task Initiation	5/15	<ol style="list-style-type: none"> 1. Begin a task when asked 2. Begin a task at a predetermined time Task Initiation
Flexibility	7/15	<ol style="list-style-type: none"> 1. Follow lead of his play partner and being an active participant
Working Memory	8/15	<ol style="list-style-type: none"> 1. State beginning/middle/end of short story after reading 2. state beginning/middle/end of short video after watching 3. Using pictures state beginning/middle/end of session events Working Memory
Planning & Prioritization	8/15	<ol style="list-style-type: none"> 1. act out a simple known story or play scenario in sequence where the steps are written out for support (min 5 steps)
Response Inhibition	9/15	<ol style="list-style-type: none"> 1. remain calm and in control when waiting for a turn 2. use appropriate responses when faced with a decision that is not preferred Response Inhibition
Emotional Control	9/15	Not current targets at this time
Time Management	9/15	not current targets at this time Time

John Continued

- Attended a 2-day workshop on EF intervention by Dr. Sara Ward in September 2016
- Lots of useful and practical ideas
- Not yet empirically-validated strategies
- What do we do?

John Continued

- Updated program objectives in October 2016
- Adapted some strategies from Dr. Ward's presentation
- Collected data on the results

Get Ready

D 

Done

Get Done



Get Ready

- water ✓
- yogurt ✓
- apples ✓
- glass ✓
- knife
- spoon
- plate
- cup ✓

Do

- get water, yogurt
- apples
- pour our drink
- cut the apples
- scoop the yogurt





Monday, Nov 21

ROIPDOWN AT THEATER
SAID WITH RELAS FROM
IN E CLASSROOM







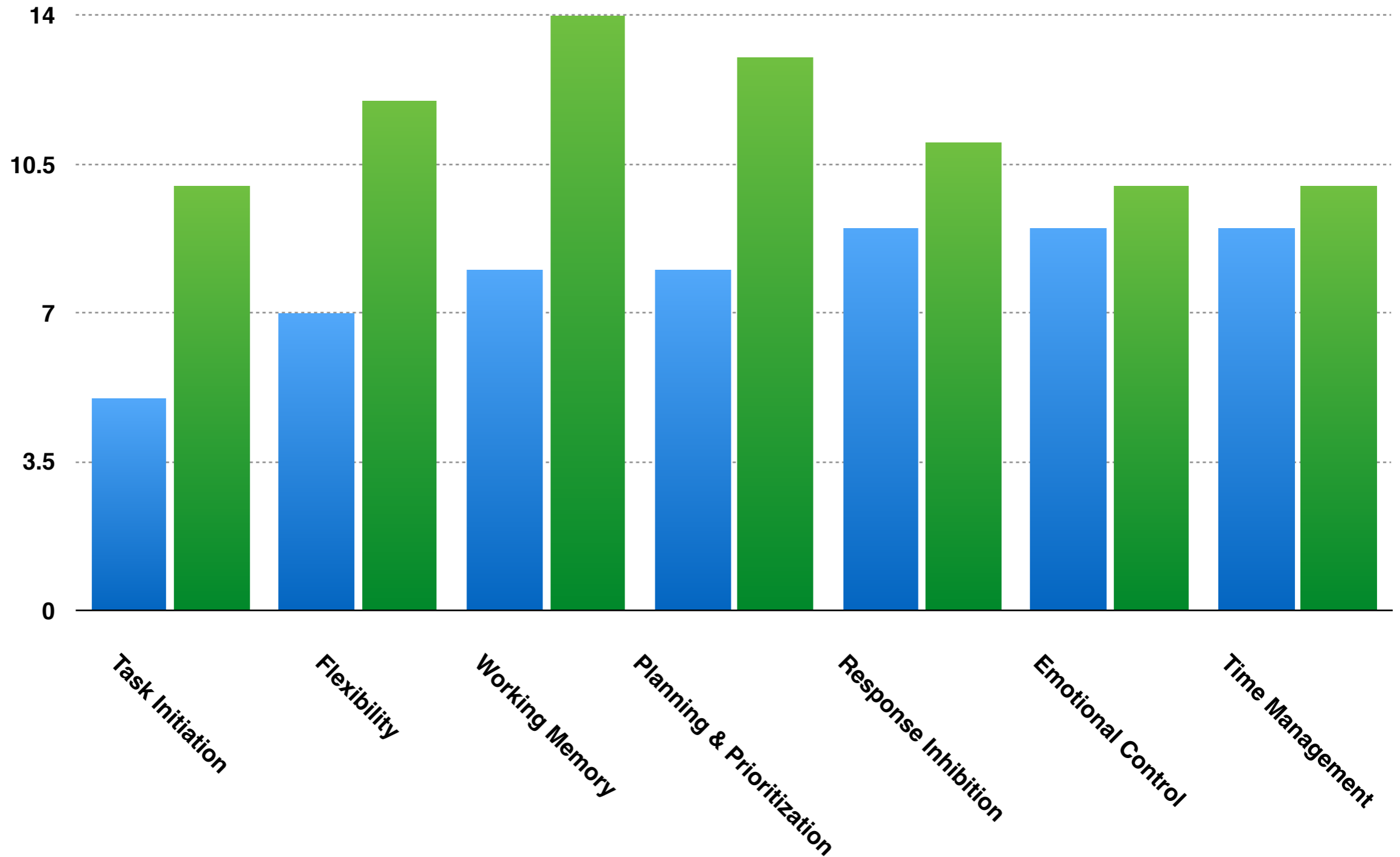
John Continued

EF Skill	Updated Objective
Task Initiation	1. Use a written schedule on an analog clock throughout session
Flexibility	targeted throughout other objectives: taking other's perspective, changing clock schedule without incident, finding alternative solutions when J got stuck
Working Memory	1. state the known features of an event from various points of view with pictures- adding in details and using gestures as story is told 2. state events that occurred during the session, or will occur in the immediate future, using a visual and writing out steps for support
Planning & Prioritization	1. complete the plan for making a simple craft starting with the finished craft and working backward to make the plan, than work the plan (Get Ready-Do-Done) 2. To be able to describe how to draw a picture to another person where that person cannot see the model
Response Inhibition	1. DRO for absence of crying during a session- 15 minute periods. Needed 80% earned at end of session to receive an extra .25 cents in his allowance 2. Family weekly meeting to review chore list, distribute allowance for appropriate behaviour 3. Electronic device time was limited and needed to be bought
Emotional Control	
Time Management	1. initiate transitions to next event listed on clock when time indicates it is time to move on

John Continued

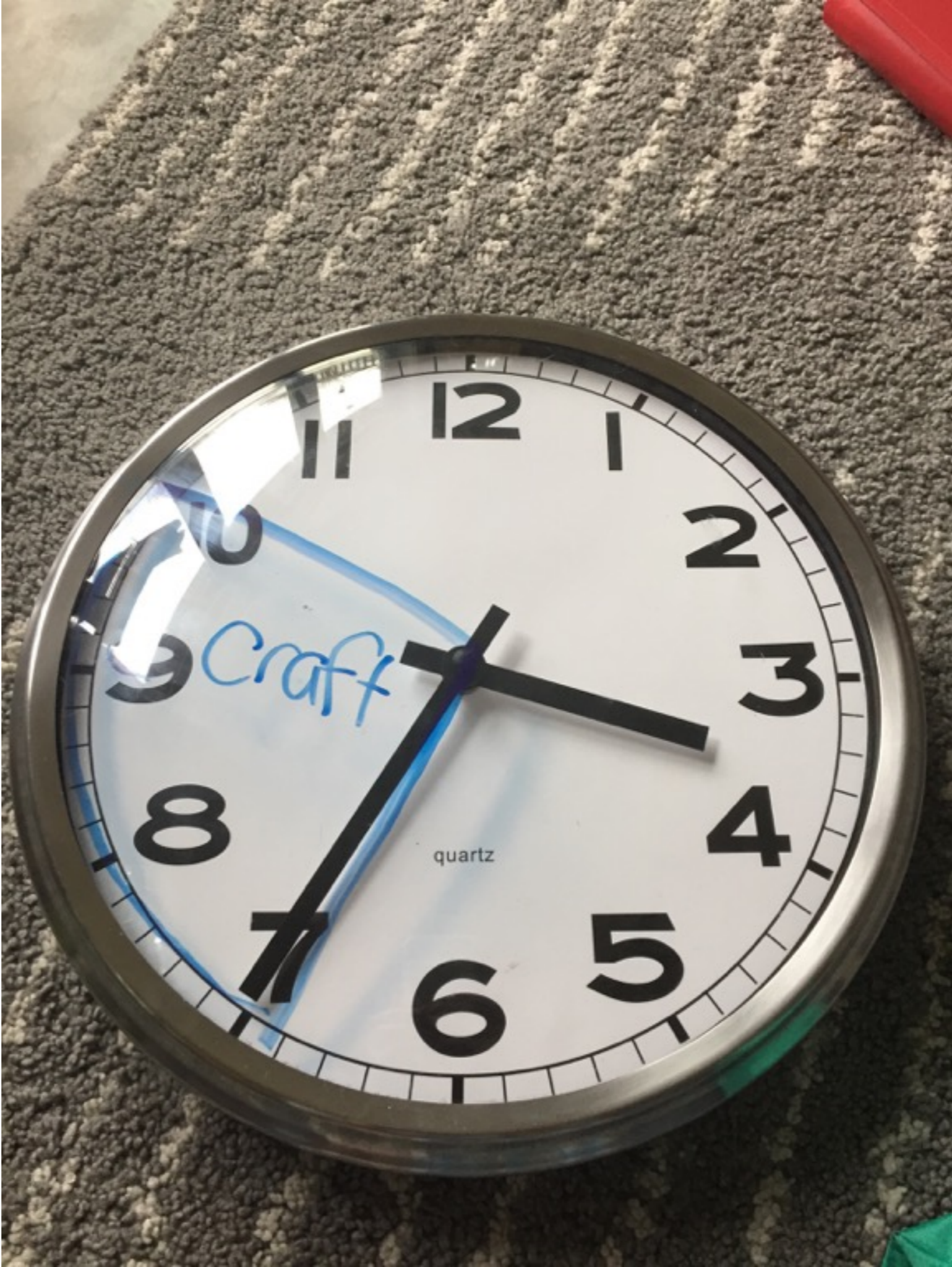
EF Skill	Initial Score	Current Level
Task Initiation	5/15	10/15
Flexibility	7/15	12/15
Working Memory	8/15	14/15
Planning & Prioritization	8/15	13/15
Response Inhibition	9/15	11/15
Emotional Control	9/15	10/15
Time Management	9/15	10/15

John Continued









Craft

quartz



10

11

12

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2

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8

9

quartz

10:10

10:10

10:10

Jake:

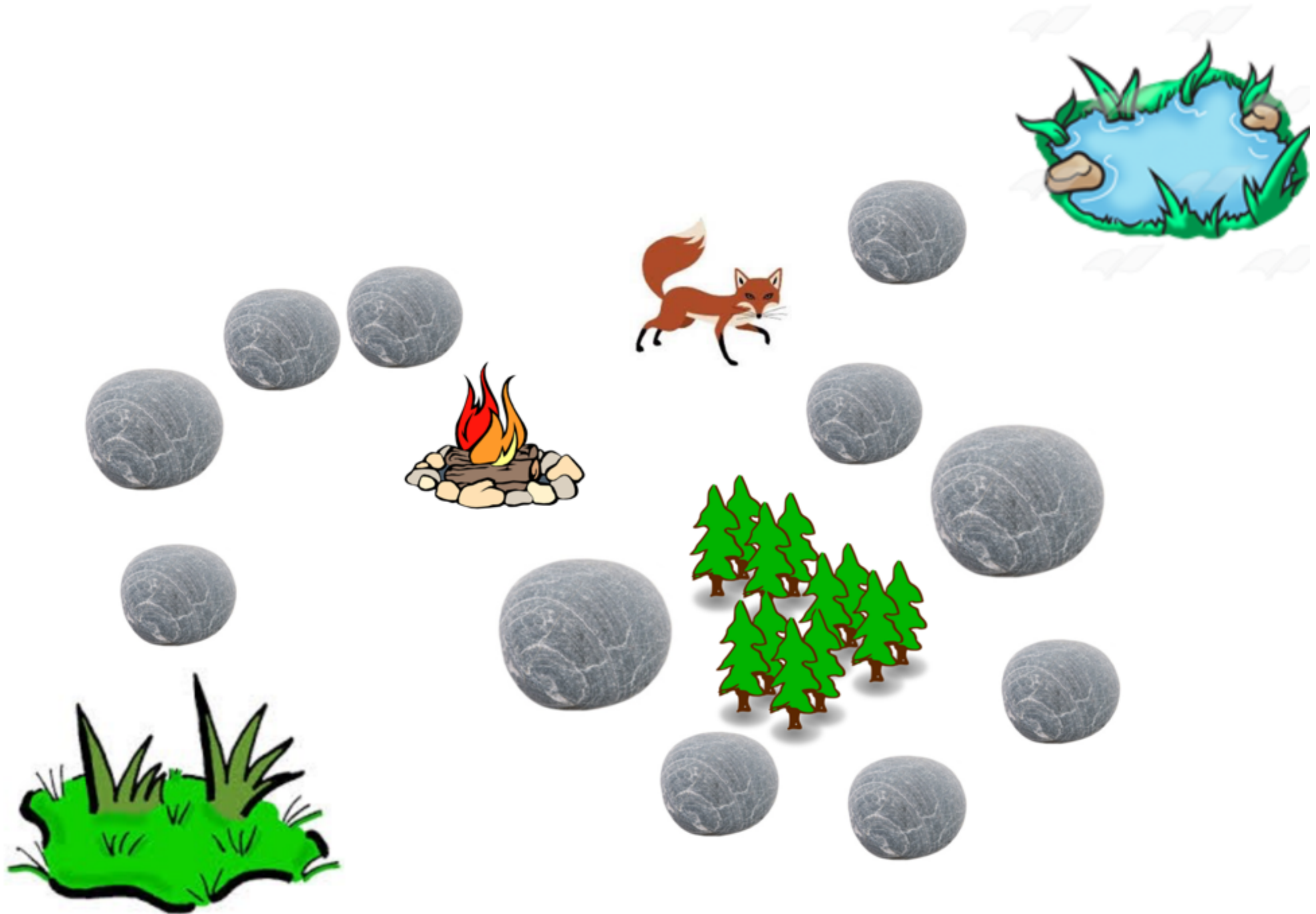
- **5-year-old boy with HFASD**
- **Receiving approximately 12 hours of ABA intervention per week plus 3 mornings of preschool**
- **Program up to 2016 consisted of behaviour management strategies, parent coaching, play skills, social skills, and school support**
- **Began EF programming in April 2016, in a home program since spring of 2014**
- **Completed Smart but Scattered assessment with ABA team and parents**

Jake Continued

EF Skill	Score	Objective
Task Initiation	5/15	No current targets at this time
Flexibility	7/15	1. during execution of a play activity J will independently follow ideas of his play partner - taking turns offering and following ideas
Working Memory	8/15	No current targets at this time
Planning & Prioritization	8/15	1. from a list of activities J will independently choose an activity, identify materials needed and steps to complete activity-gathering materials and completing the activity with support
Response Inhibition	9/15	No current targets at this time
Emotional Control	9/15	No current targets at this time
Time Management	9/15	No current targets at this time
Metacognition	10/15	1. J will independently choose a chore from his chore jar and follow steps to complete chore provided by BI-identifying problems as they arise and possible solutions 2. when reading a book or watching a short video J will identify the emotion of the character when asked- providing a model of the emotion and/or tone of voice of the emotion

Jake Continued

EF Skill	Updated Objective
Task Initiation	<ol style="list-style-type: none">1. Use a written schedule on an analog clock throughout session2. J to complete one close-ended activity identified on clock schedule using the 'get ready, do, done'' visual - identifying steps for 'do' section and executing plan independently
Flexibility	targeted throughout other objectives: taking other's perspective, changing clock schedule without incident, finding alternative solutions when J got stuck
Working Memory	<ol style="list-style-type: none">1. state the known features of an event from various points of view with pictures- adding in details and using gestures as story is told2. state events that occurred during the session, or will occur in the immediate future, using a visual and writing out steps for support
Planning & Prioritization	<ol style="list-style-type: none">1. J to clean up toys around the house using 'zone' bins of zones of house placing item to clean up into appropriate bin and then placing that bin in the correct zone of the house2. J will complete a homework routine using an in/out box system when provided with a schedule and provided support to complete the homework
Response Inhibition	<ol style="list-style-type: none">1. Using the Tucker the Turtle materials J will:<ol style="list-style-type: none">a. discriminate between desired and unhelpful responses to problem scenariosb. given a problem situation J will independently identify a desired response and execute solutionc. in a real-life problem situation J will identify and use a desired response and solution with support
Emotional Control	
Time Management	No current goals at this time



I don't want to stop
what I am doing now!

I'm worried!

I'm disappointed!

I don't like change!

I'm frustrated!

I feel scared!

I feel sad!

I need a break!

I'm disappointed!

I need to talk!

I'm angry!

I need to be alone a while

This is hard!

I'm angry!



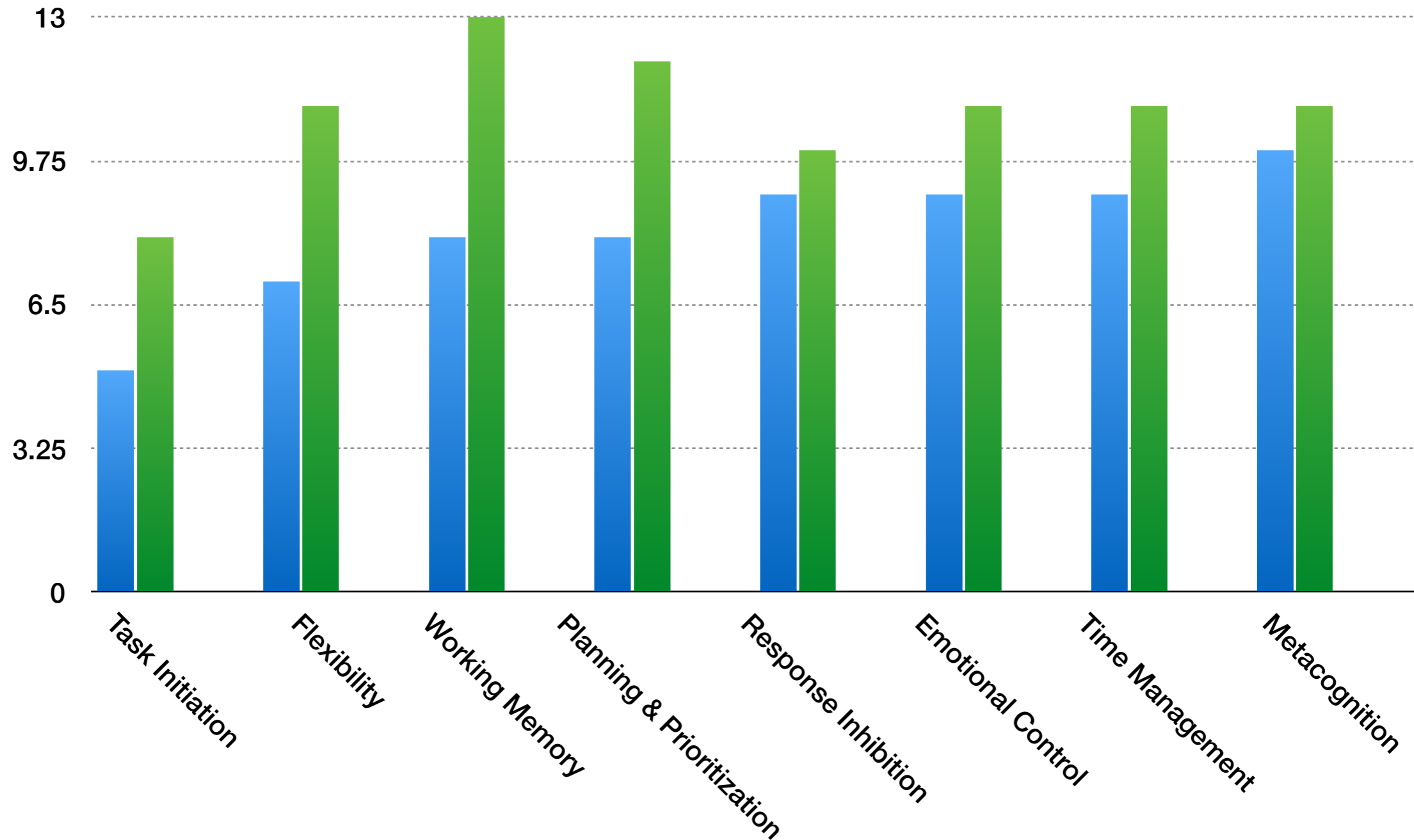
Tucker is walking a block after school when his baby brother starts to scream and cry. His dad and makes Tucker feel frustrated.

Tucker goes into his shell, swears L, E, S and then he...

Jake Continued

EF Skill	Initial Score	Current Level
Task Initiation	5/15	8/15
Flexibility	7/15	11/15
Working Memory	8/15	13/15
Planning & Prioritization	8/15	12/15
Response Inhibition	9/15	10/15
Emotional Control	9/15	11/15
Time Management	9/15	11/15
Metacognition	10/15	11/15

Jake Continued



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- ✓ Stay in Control of Emotions
- ✓ Solve Problems Independently
- ✓ Be Resourceful

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What our Lab does Research on:

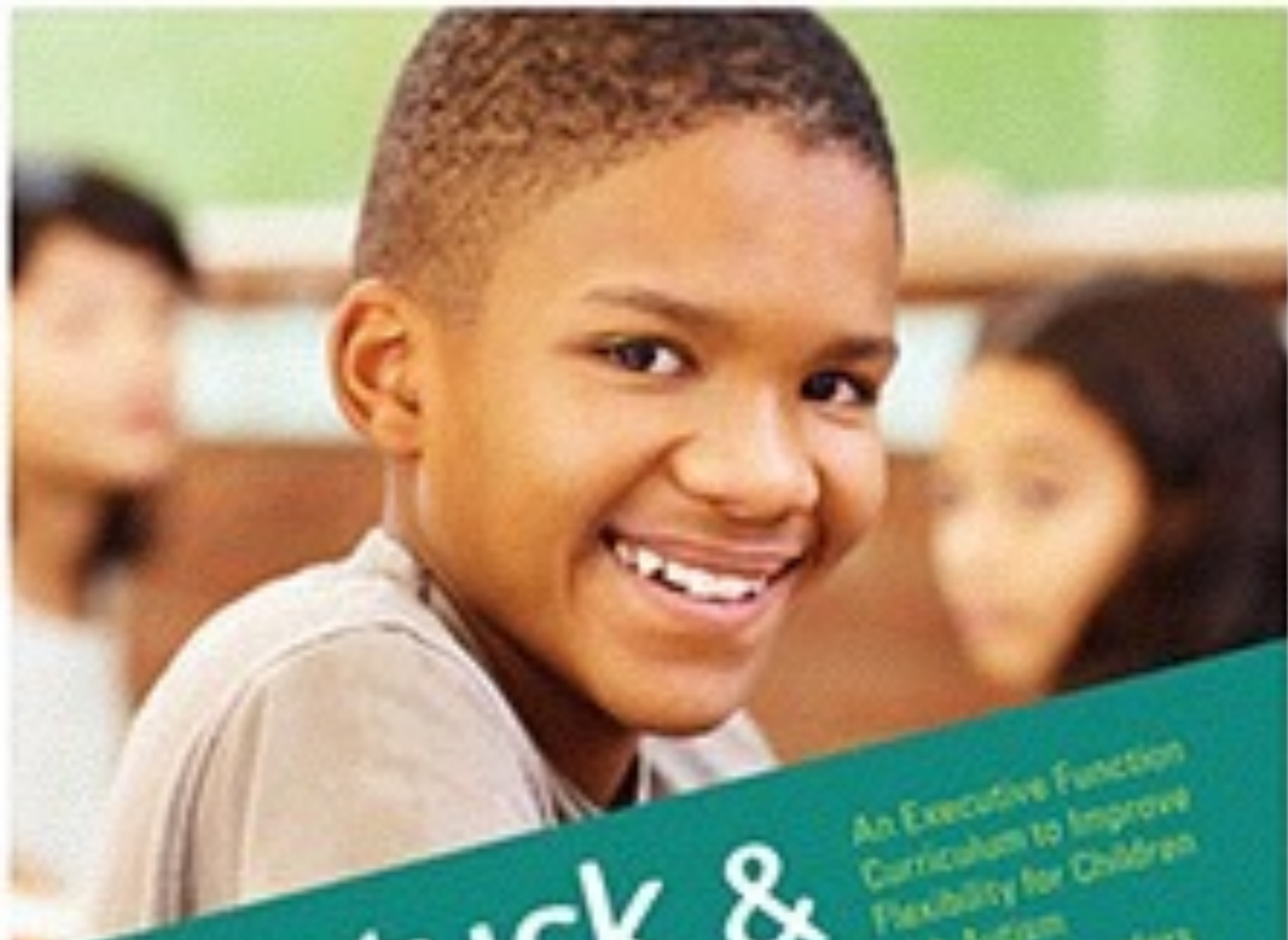


Key Concepts

Executive Function & Self-Regulation

 Watch the Overview Video

Executive function and self-regulation skills are the mental processes that enable us to plan, focus attention, remember instructions, and juggle multiple tasks successfully. Just as an air traffic control system at a busy airport safely manages the arrivals and departures of many aircraft on multiple runways, the brain needs this skill set to filter distractions, prioritize tasks, set and achieve goals, and control impulses.



Unstuck & On Target!

An Executive Function Curriculum to Improve Flexibility for Children with Autism Spectrum Disorders
RESEARCH EDITION

Lynn Cannon
Lauren Kenworthy
Katie C. Alexander
Monica Adler-Werner
Laura Anthony
Foreword by John Elder-Vasson



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Thank-you!

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