Improving Executive Capacities: Strategies to Change the Brain and Change Behavior

Presented by

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georgemcc@pcom.edu

Newberg's Best Ways to Exercise Your Brain

- Yawn
- Consciously Relax
- Stay Intellectually Active
- Smile

Benefits of Yawning

- Stimulates alertness & concentration
- Optimizes brain activity and metabolism
- Improves cognitive functioning
- Increases memory recall
- Enhances consciousness and introspection
- Lowers stress
- Relaxes every part of your body
- Improves voluntary muscle control
- Enhances athletic skills
- Fine tunes your sense of time
- Increases empathy and social awareness
- Enhances pleasure and sensuality

Newberg's Best Ways to Exercise Your Brain

- Maintain Faith (Positive Belief System)
- Dialogue with Others
- Engage in Aerobic Exercise
- Meditate
- Yawn
- Consciously Relax
- Stay Intellectually Active
- Smile

"A fresh perspective . . . offers plenty to challenge
believers alike." —MICHAEL GERSON, *The Wall*

HOW GOD

CHANGES YOUR BRAIN

Breakthrough Findings from a
Leading Neuroscientist

ANDREW NEWBERG, M.D.
Co-author of *Why God Won't Go Away*
and MARK ROBERT WALDMAN

o know more about the deeply human
parts of your brain, read this book."
AMEN, MD, founder of Amen Clinics
Change Your Brain, Change Your Life

cience of Transformation
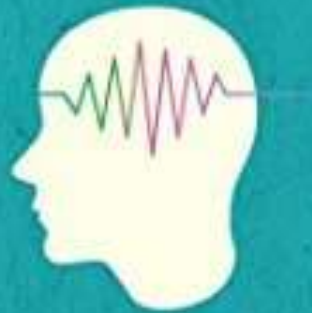
HOW ENLIGHTENMENT CHANGES YOUR BRAIN

ANDREW NEWBERG, MD,
AND MARK ROBERT WALDMAN
AUTHORS OF *How God Changes Your Brain*

"Reliable information on how to minimize cognitive decline with age . . . I highly recommend." —JANE BRODY, *THE NEW YORK TIMES*

Staying Sharp

9 KEYS for a YOUTHFUL BRAIN through MODERN SCIENCE and AGELESS WISDOM

HENRY EMMONS, MD,
Author of *The Chemistry of Joy* and *The Chemistry of Calm*,

and **DAVID ALTER, PhD**

The Wisdom of Kurt Lewin

"There is nothing more practical than a good theory."

Known for his *field theory of behavior* that posits that human behavior is a function of an individual's psychological environment.

Are these Executive Functions?

- Inhibition
- Working Memory
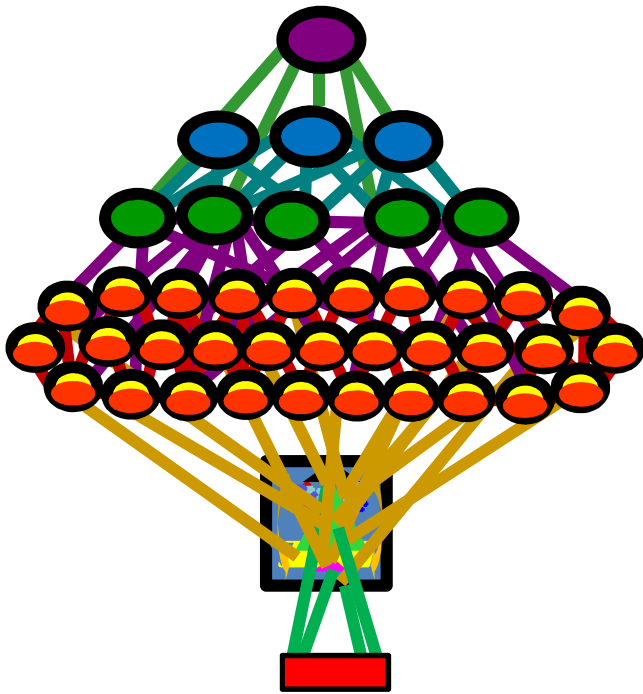- Shifting
- Planning
- Organization
- Problem-solving

Not Really
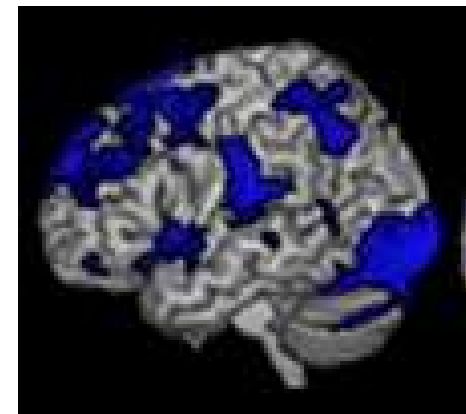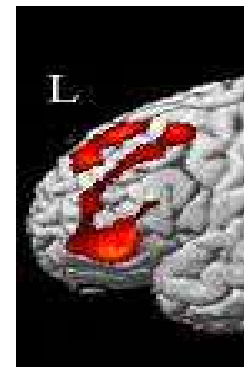
Executive Capacity as the CEO of the brain

Key Concept
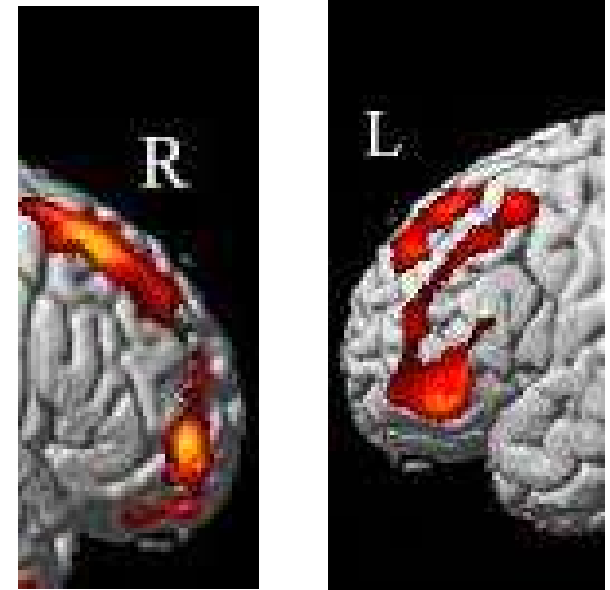
It is important to distinguish between

Executive Functions

and

Executive Skills.

Self Regulation Executive Functions

Executive Functions are the parts of the executive network that are used to become aware of what to do and when to do it (e.g., knowing when to make a plan, when to inhibit)

Self Regulation Executive Skills

Executive Skills are the "how" parts of the executive network that are used to cue the rest of the neural network needed to perceive, feel, think and act effectively (e.g., knowing the parts of the brain to activate to make a plan.
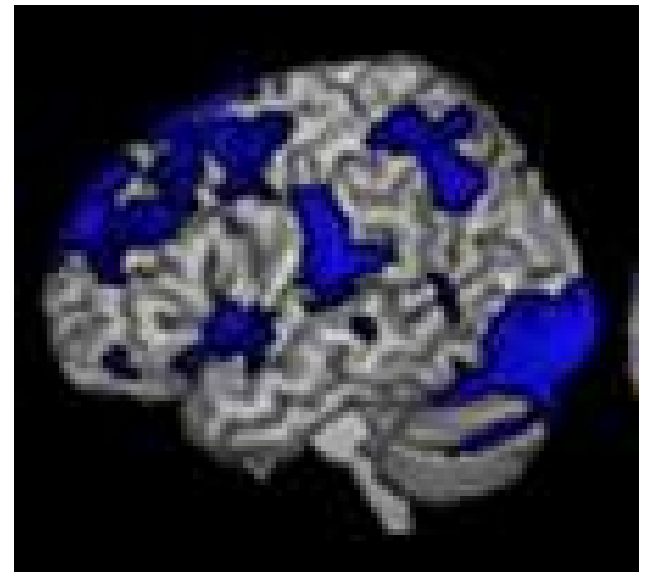
Management Structure within a Holarchical Model of EC

Executive Function

Executive Capacities

EF

ES
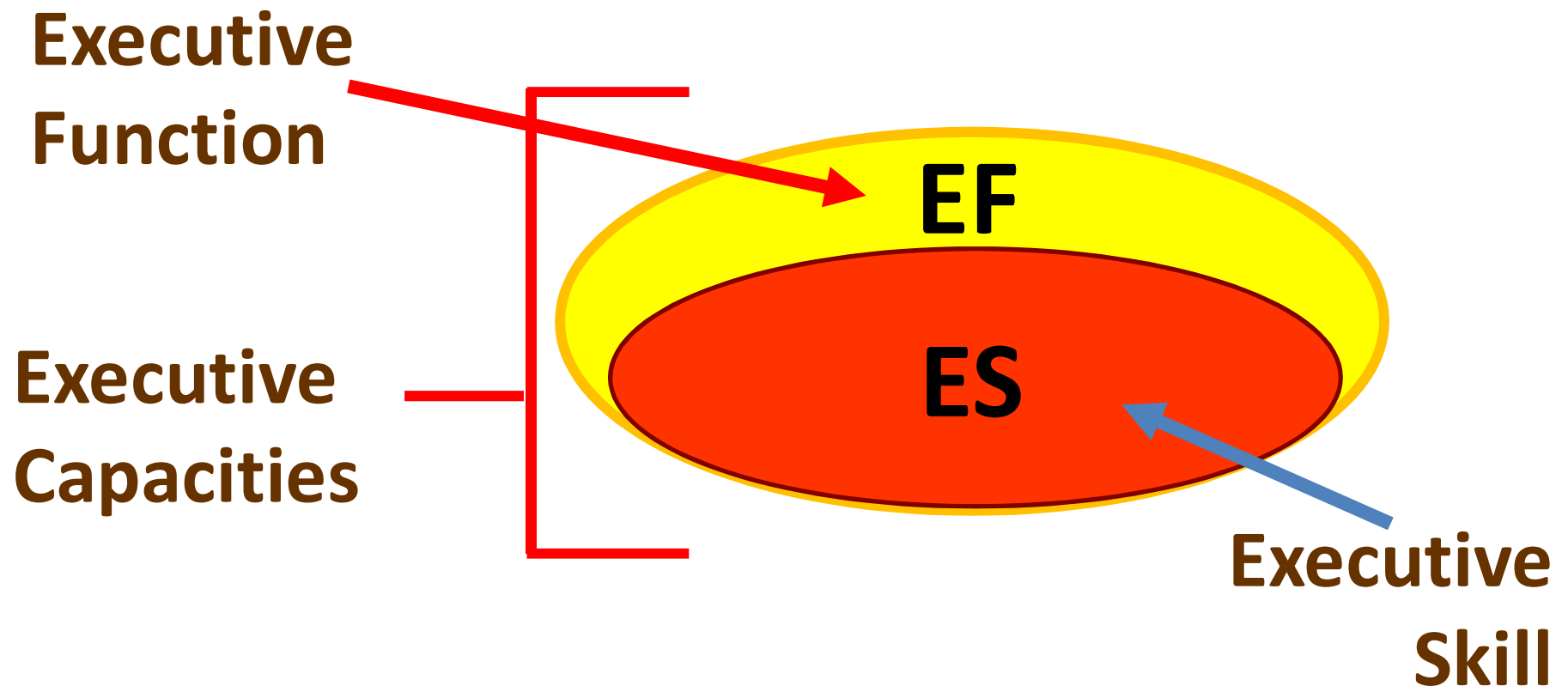
Executive Skill

Executive Capacities aren't just the CEO

They are the CEO and all the other managers in the company
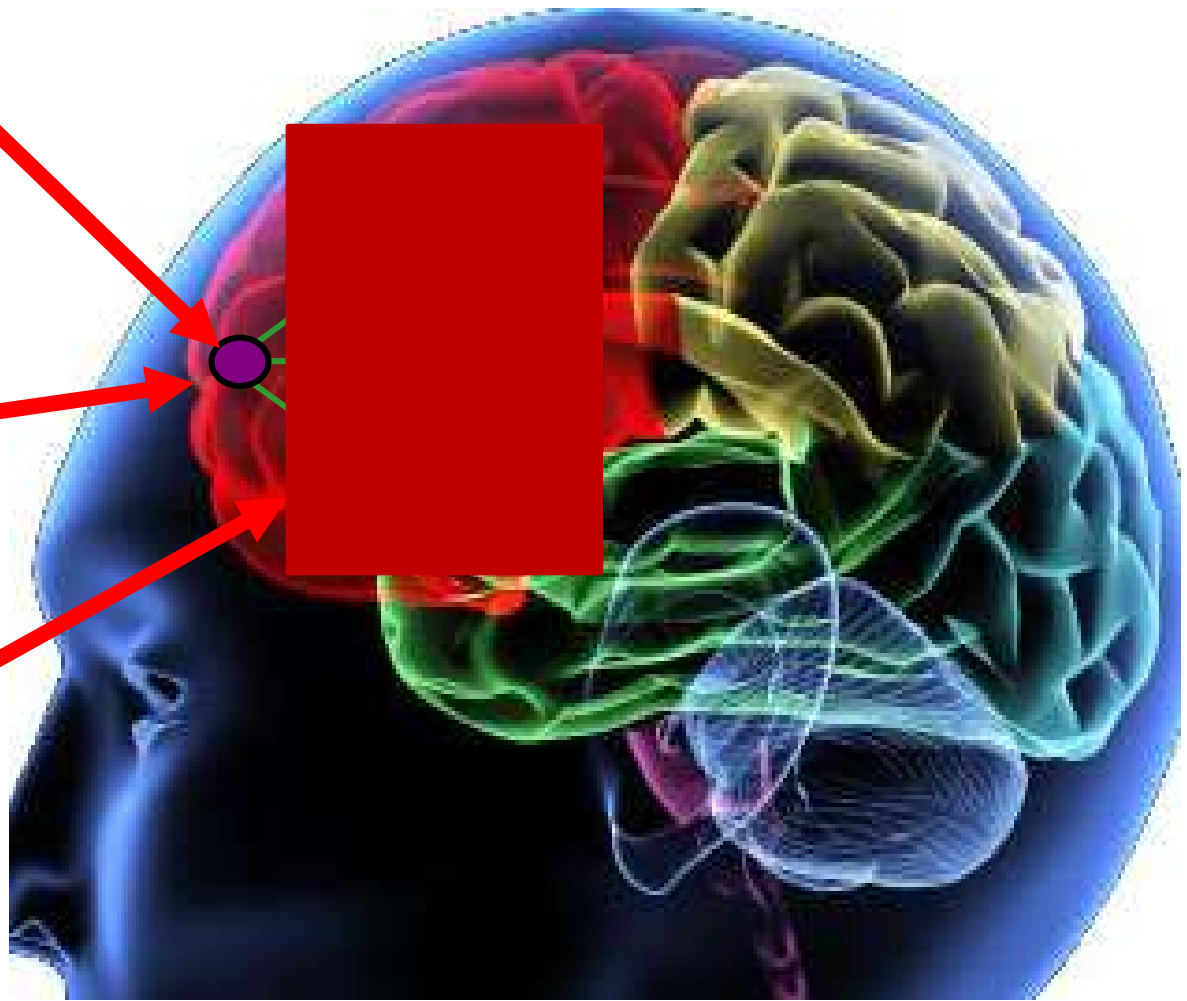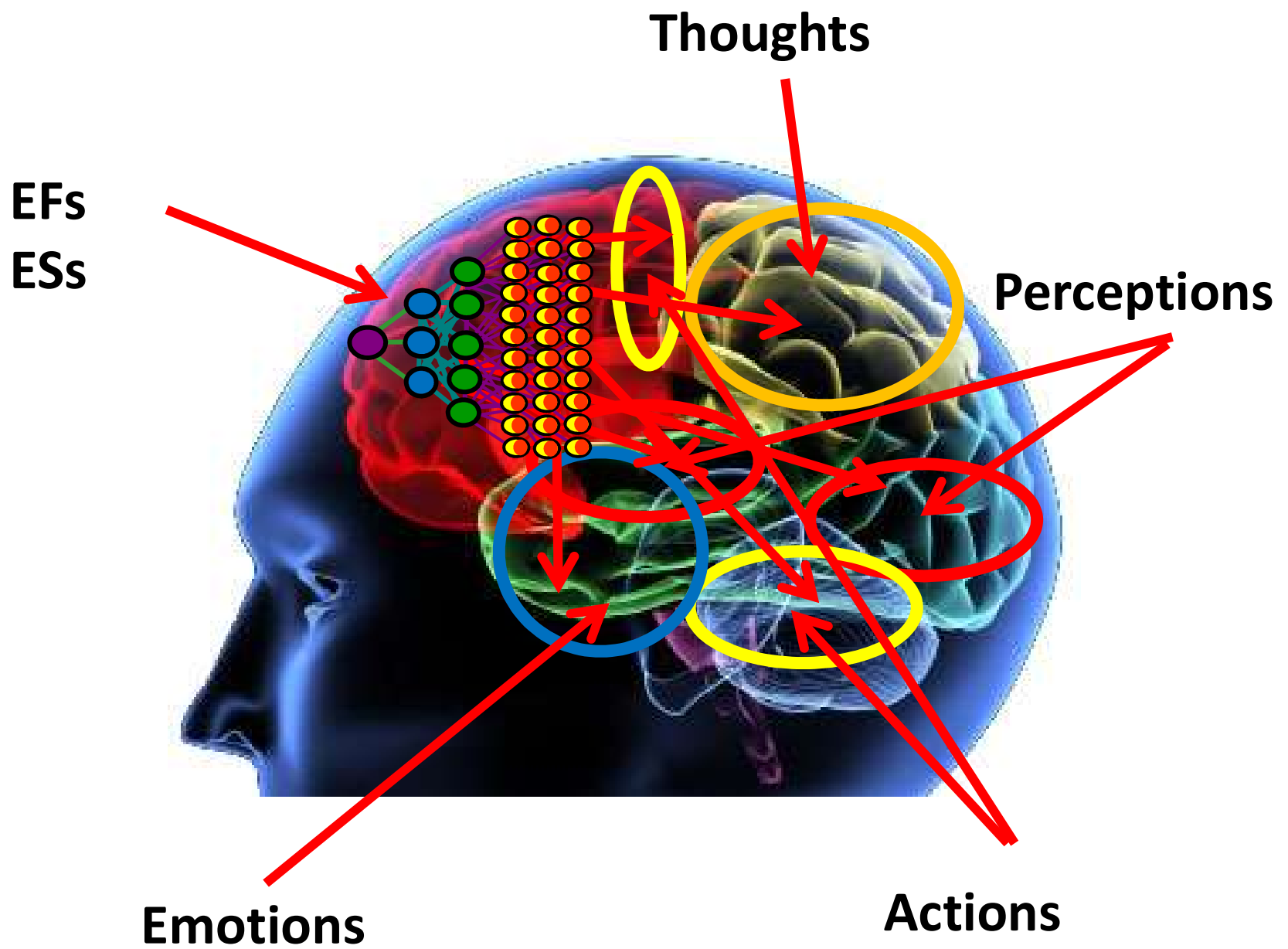
The Managers

The Workers

The Management Structure of the Brain's Executives

Trans-Self Integration

Self-Generation

Self-Realization

Self-Determination

Self-Regulation

Self-Activation

Activation
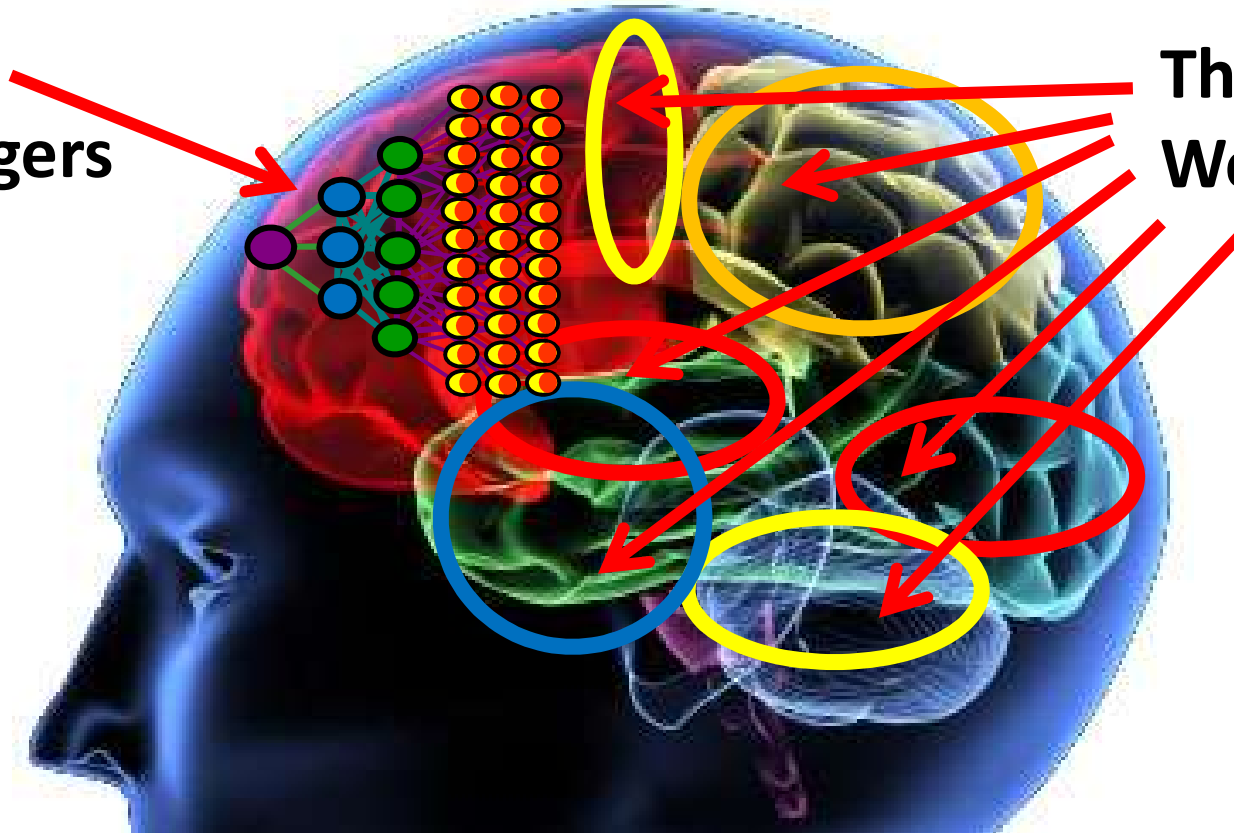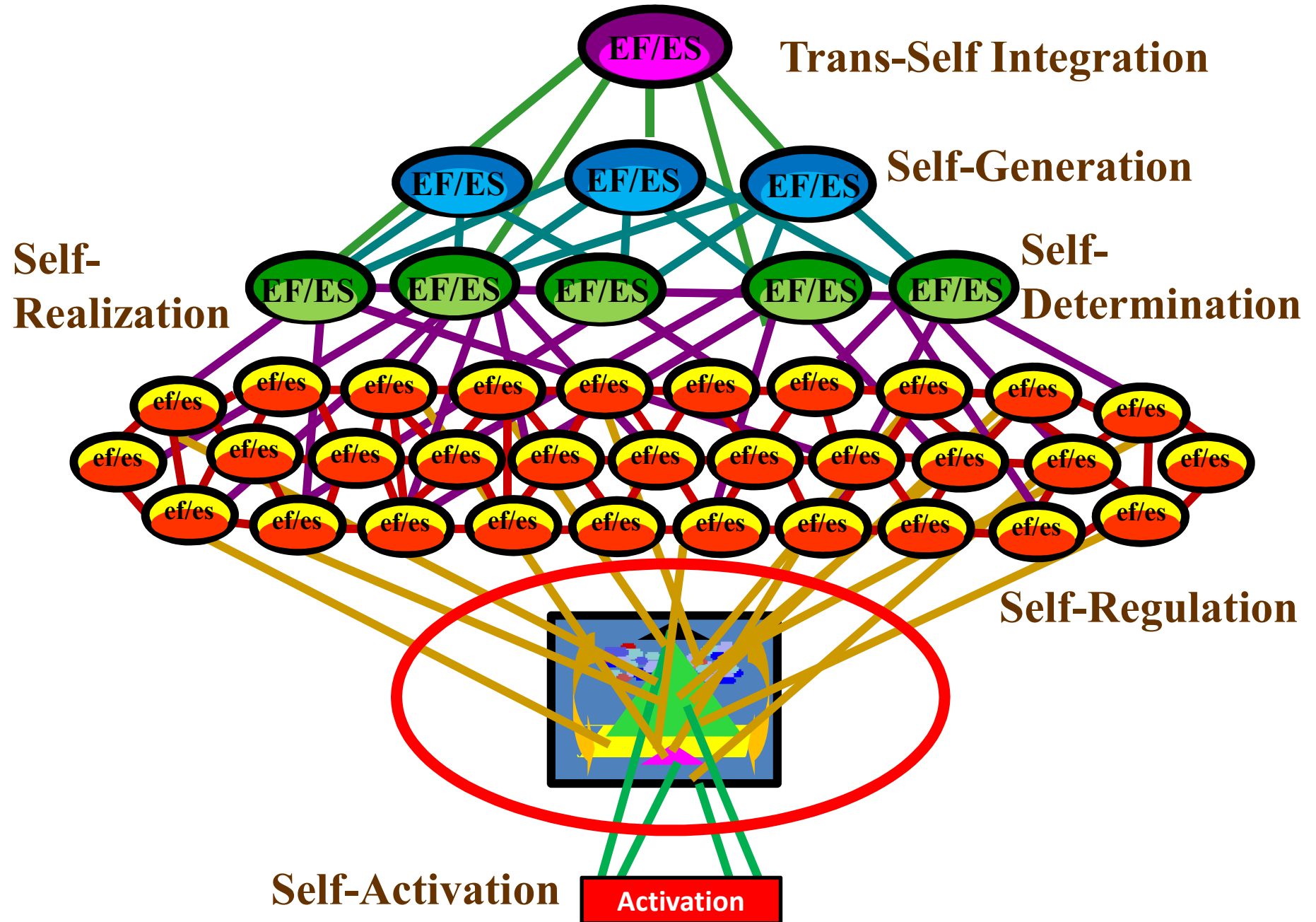
Domains of Functioning Directed by Executive Capacities
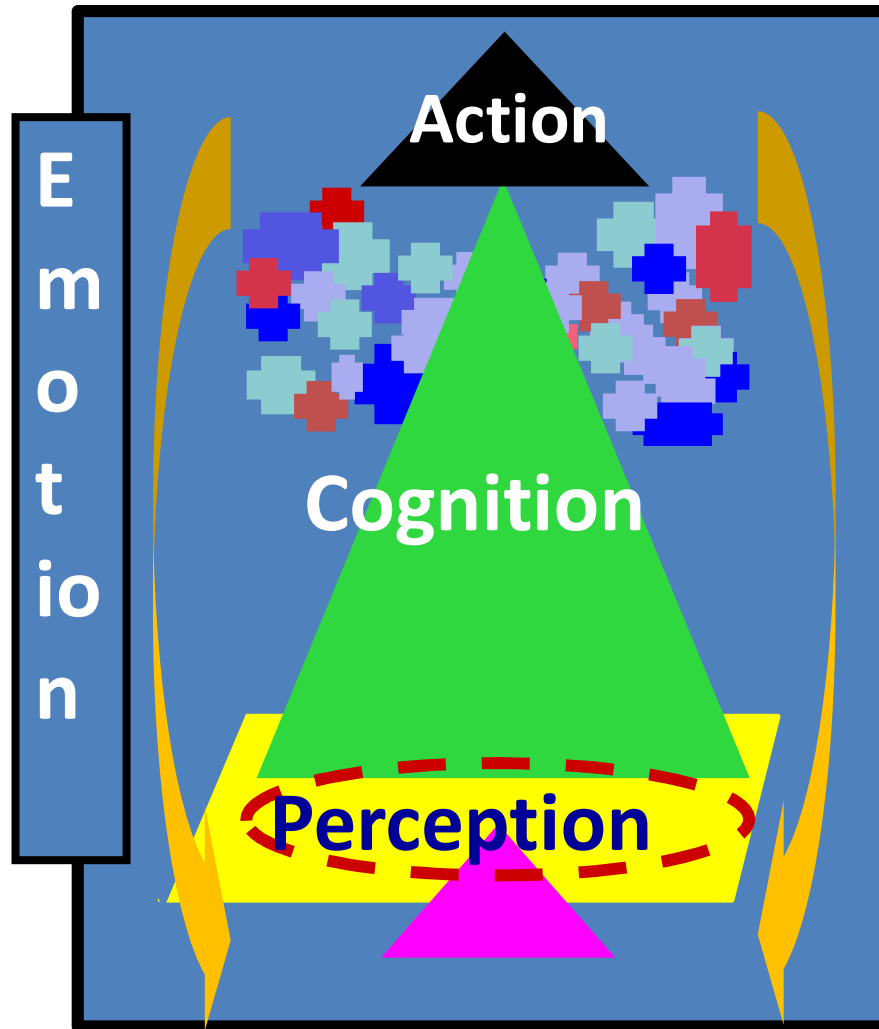
Action
Executive control of modes of output including behavior in the external world and storage and retrieval of internal representations

Cognition
Executive control of thoughts and thought processing
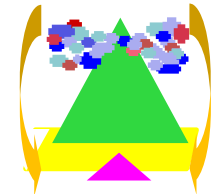
Perception
Executive control of modes of perceptual input including external sensory stimuli (visual, auditory, kinesthetic) and internal (representational) stimuli

Emotion
Executive control of moods, feelings, and the processing of emotions
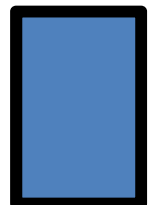
The Two Kinds of Executive Managers

Executive Function Managers

Executive Skill Managers

EF
ES

EF
ES

EF
ES

EF
ES
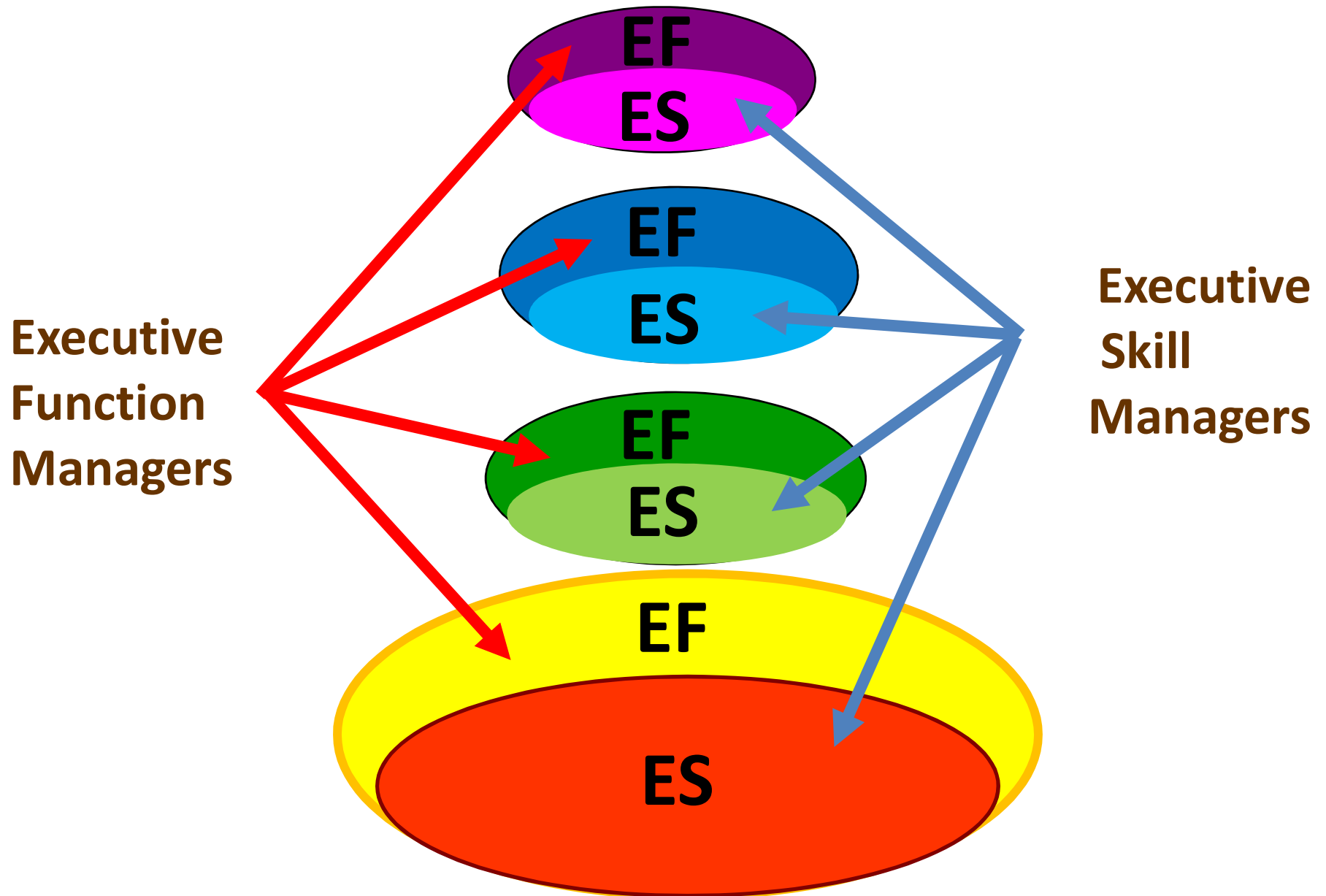
Executive Function Managers Know WHEN
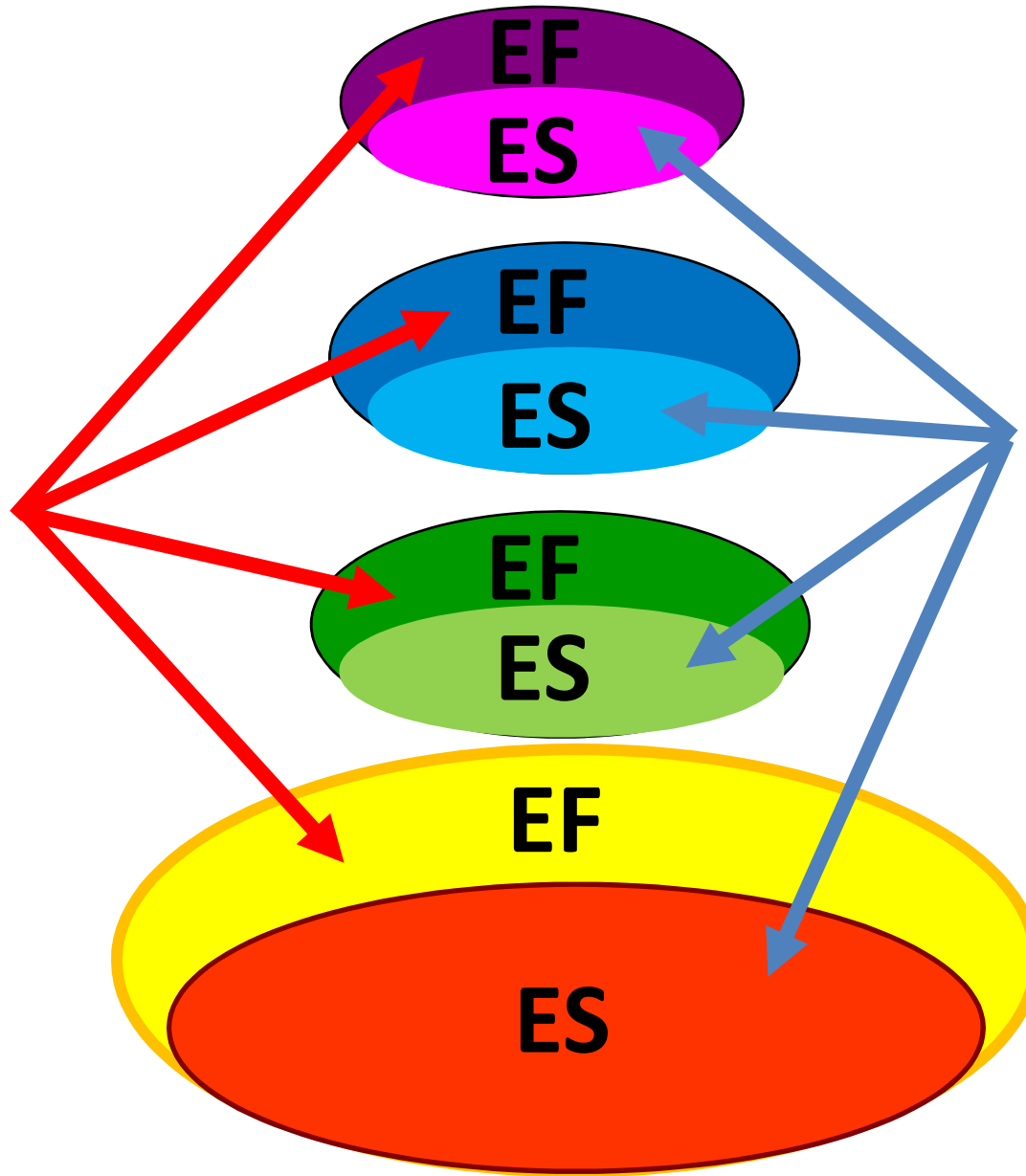
ExecutiveSkill Managers Know HOW

EF
ES

EF
ES

EF
ES

EF
ES

The Management Structure of the Brain's Executives

EF Tiers within the Holarchical Model of Executive Capacities

EF

EF **EF** **EF**

ef **ef** **ef** **ef** **ef**

ef/os **ef/os** **ef/os** **ef/os** **ef/os** **ef/os** **ef/os** **ef/os** **ef/os** **ef/os**

Activation

Trans-Self Integration

Self-Generation

Self-Realization
Self-Awareness
Other-Awareness
Self-Analysis

Self-Determination
Goal setting
Long-range Planning &
Foresight

Self-Regulation

Perceive	Monitor	Plan
Focus	Correct	Evaluate/Compare
Sustain	Balance	Decide
Energize	Gauge	Sense Time
Initiate	Anticipate	Pace
Inhibit	Estimate Time	Sequence
Stop	Analyze	Execute
Interrupt	Generate	Hold
Flexible	Associate	Manipulate
Shift	Organize	Store
Modulate	Prioritize	Retrieve

Self-Activation

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Self-Activation

Activation

Self Regulation ECs

- A set of control capacities that cue and direct functioning across the domains of perception, emotion, cognition, and action

- The current model posits 33 self-regulation executive capacities
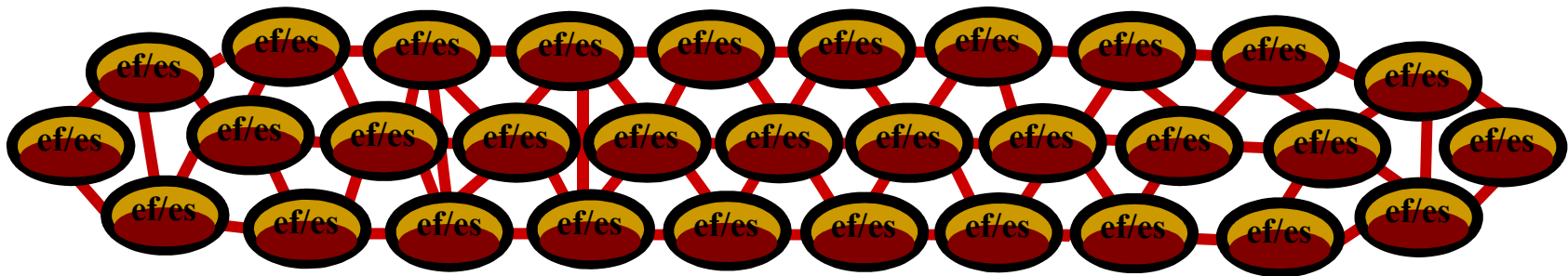
33 Self-Regulation ECs

- Perceive
- Focus
- Sustain
- Energize
- Initiate
- Inhibit
- Stop
- Interrupt
- Flexible
- Shift
- Modulate

- Balance
- Monitor
- Correct
- Gauge
- Anticipate
- Est Time
- Analyze
- Generate
- Associate
- Plan
- Organize

- Prioritize
- Compare/Eval
- Decide
- Sense Time
- Pace
- Sequence
- Execute
- Hold
- Manipulate
- Store
- Retrieve

Key Concept
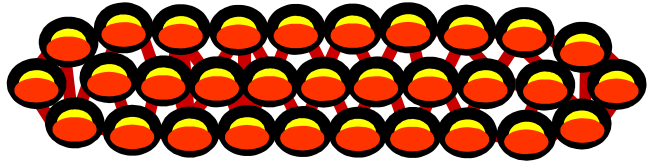
Self-regulation Executive Capacities can be organized into 7 basic clusters.
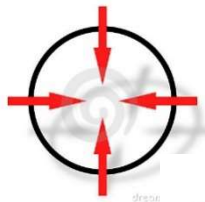
Self Regulation Executive Capacity "Clusters"

ATTENTION

Perceive
Focus
Sustain

ENGAGEMENT

Energize
Initiate
Inhibit
Stop
Pause
Flexible
Shift
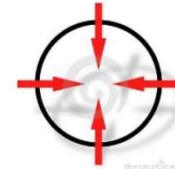
OPTIMIZATION

Monitor
Modulate
Balance
Correct

EFFICIENCY

Sense Time
Pace
Sequence
Execute

MEMORY

Hold
Manipulate
Store
Retrieve

INQUIRY

Anticipate
Gauge
Analyze
Estimate Time
Compare

SOLUTION

Generate
Associate
Prioritize
Plan
Organize
Decide

Executive Capacity Demands Increase Gradually by Cluster Across the Pre-K to Grade 12 Educational Program

Solution

Inquiry

Memory

Efficiency

Optimization

Engagement

Attention

Pre-K   K   1   2   3   4   5   6   7   8   9   10   11   12
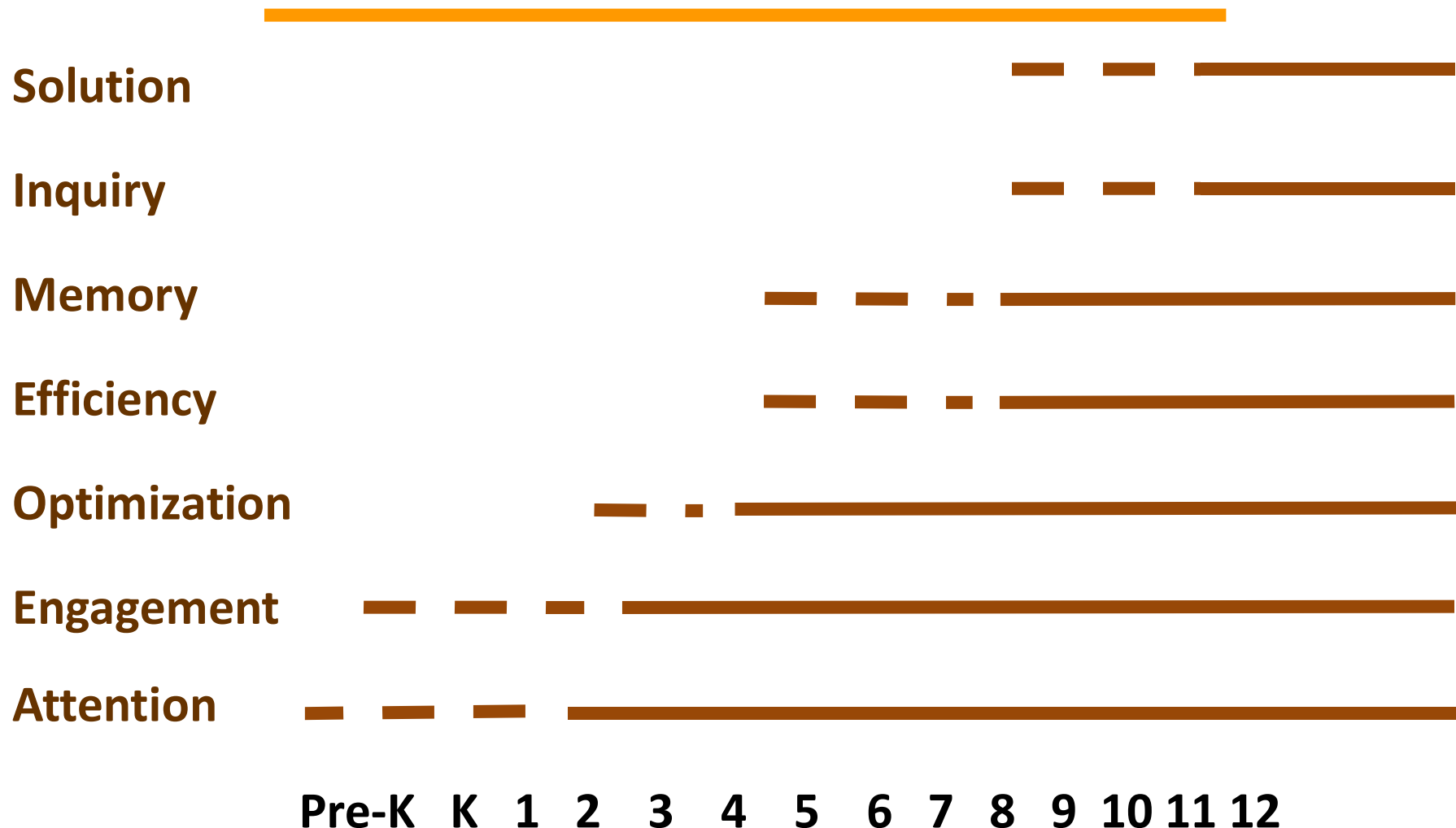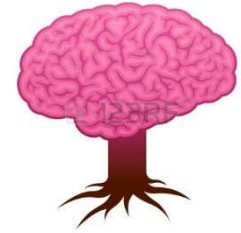
Executive Skill Interventions

- Practice and rehearsal are best suited to strengthening executive skills in the Attention, Engagement, Optimization Clusters and some Efficiency Cluster ECs

- Cognitive Strategy Instruction is best suited to enhance executive skills in the Memory, Inquiry, Solution Clusters and some Efficiency Cluster ECs

Holarchy vs Hierarchy

Hierarchy
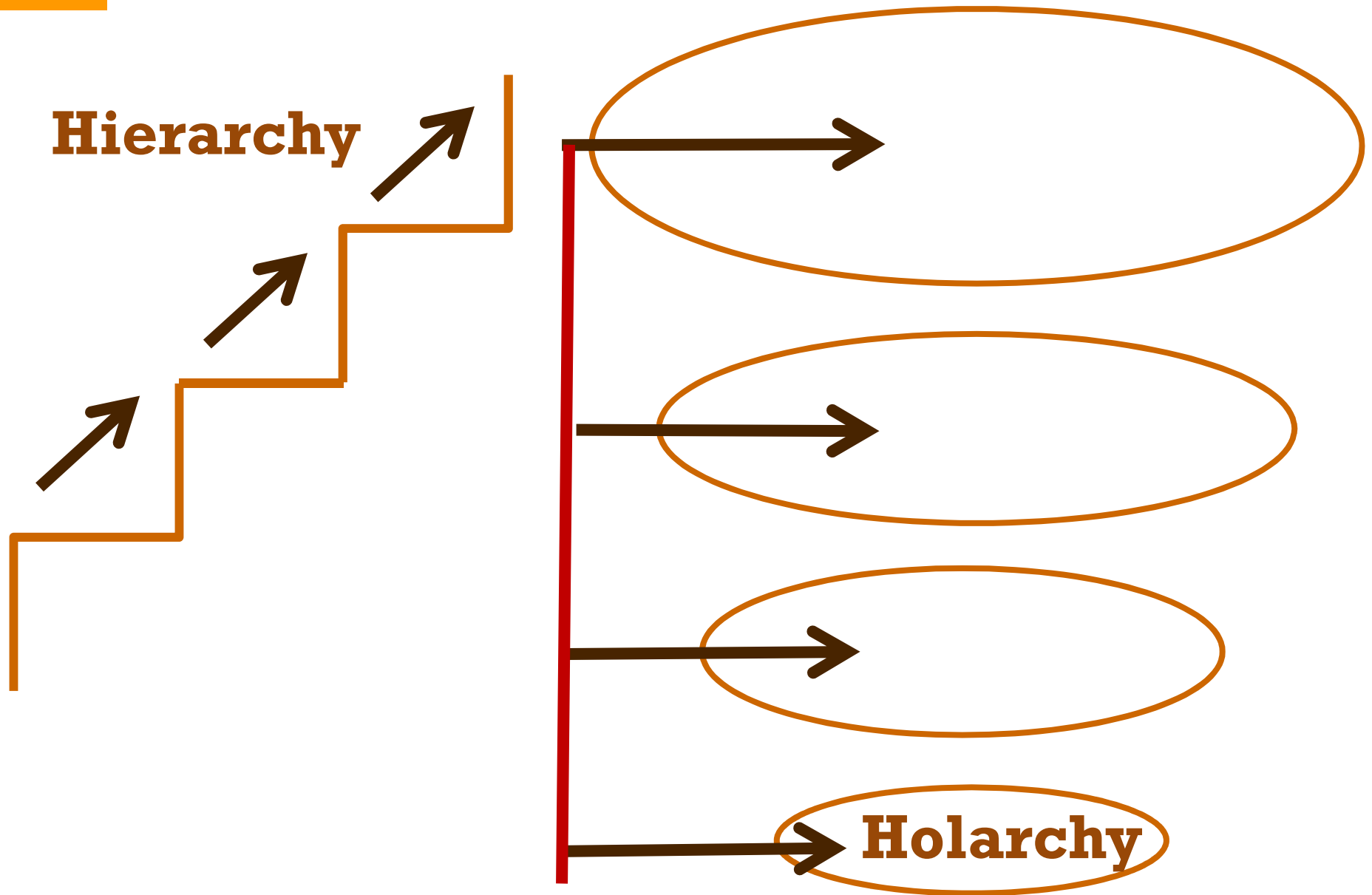
Holarchy

Holoarchy vs Hierarchy

- Within a hierarchy, the next stage of development does not begin until the stage preceding it is complete.

- Within a holarchy, additional stages of development can begin before earlier stages are completed; earlier stages can continue to develop after later stages begin; multiple stages may be developing at the same time; later stages may be better developed than earlier stages.
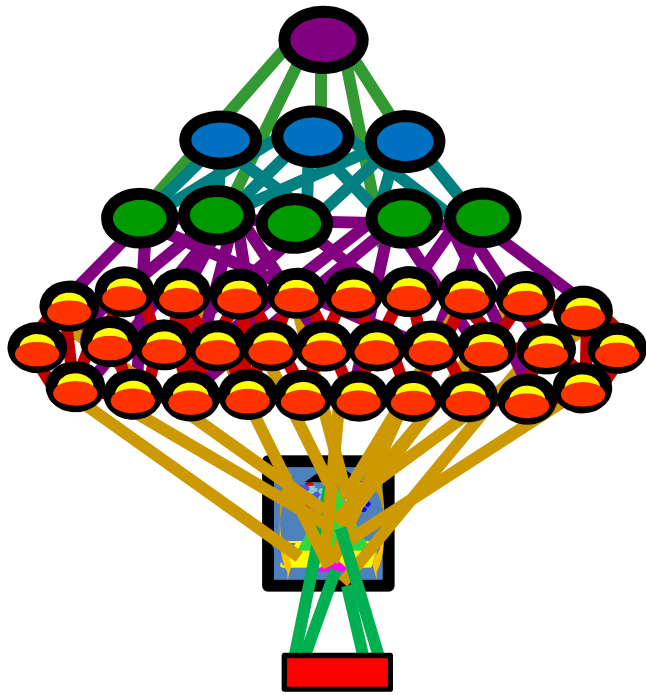
Key Concept

Executive capacity development unfolds in a holoarchical manner.

32
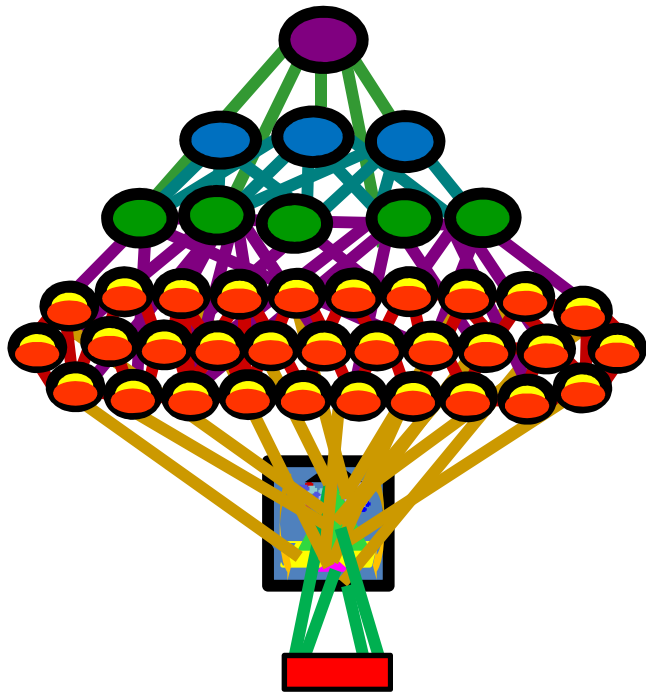
Key Concept

Executive Capacities cue and direct in different ways at different levels.

Age *of* Opportunity

LESSONS FROM THE

NEW SCIENCE OF ADOLESCENCE

Laurence Steinberg, Ph.D.
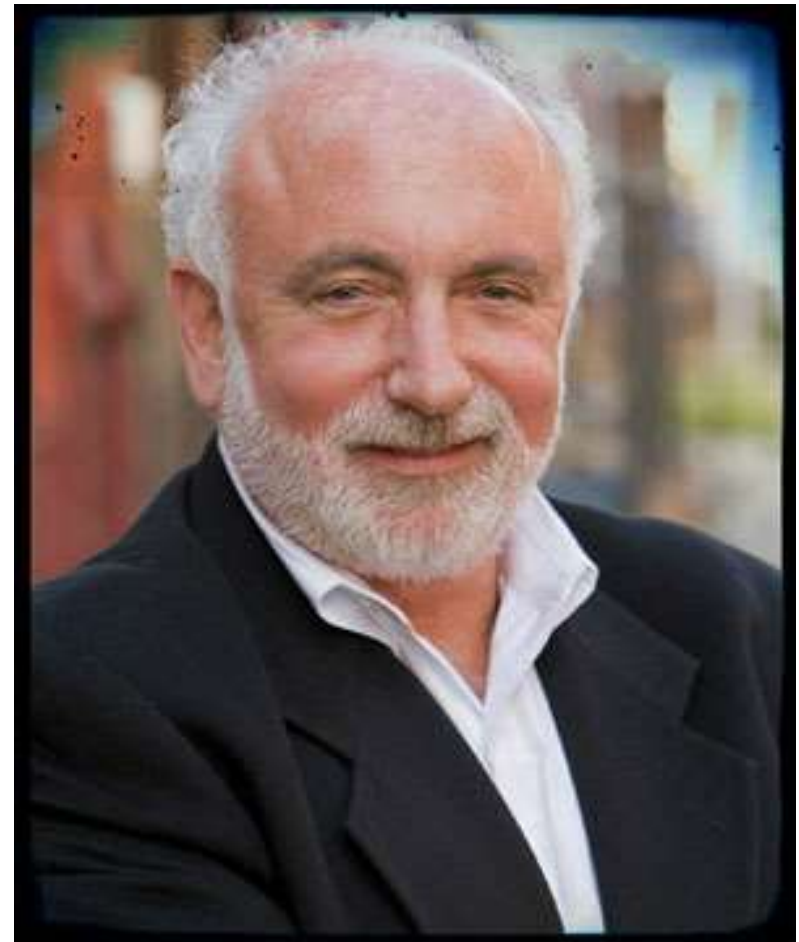
FRANCES E. JENSEN M.D.

with AMY ELLIS NUTT

THE

TEENAGE

BRAIN

A NEUROSCIENTIST'S SURVIVAL

GUIDE TO RAISING ADOLESCENTS

AND YOUNG ADULTS

EF Tiers within the Holarchical Model of Executive Capacities

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Self-Realization
Self-Awareness
Other-Awareness
Self-Analysis

Self-Determination
Goal setting
Long-range Planning & Foresight

Self-Regulation

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Modulate	Prioritize	Retrieve

Self-Activation

Activation

Self Determination

- Foresight/Long-Term Planning and Goal Generation

- Directs the use of cognitive processes to construct visions of the future and plans for action over longer periods of time.

- Attempts to align daily self-regulation with long-term goals and strengthen delayed-gratification.

Chapter 21

Motivational Interviewing with Adolescents and Young Adults

John S. Baer and Peggy L. Peterson

Motivational Interviewing with Adolescents and Young Adults

Sylvie Naar-King

Mariann Suarez

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Self-Activation

Activation
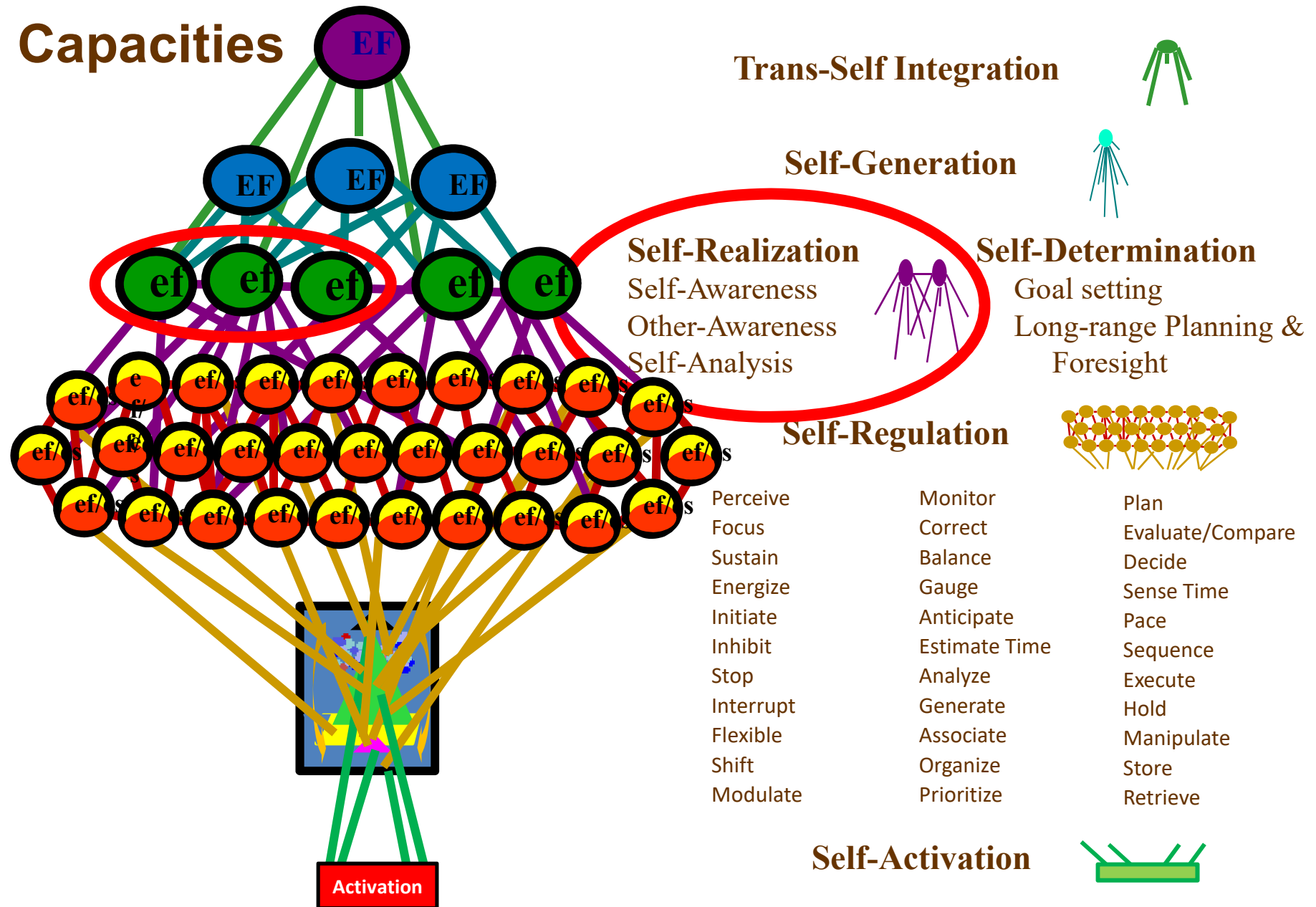
Self Realization (of self & others)

- Directs neural networks that engage in awareness of self and others, reflection about self and others and self-analysis.

- Cues the accessing of accumulated information about self so it can be applied in specific situations.

EF
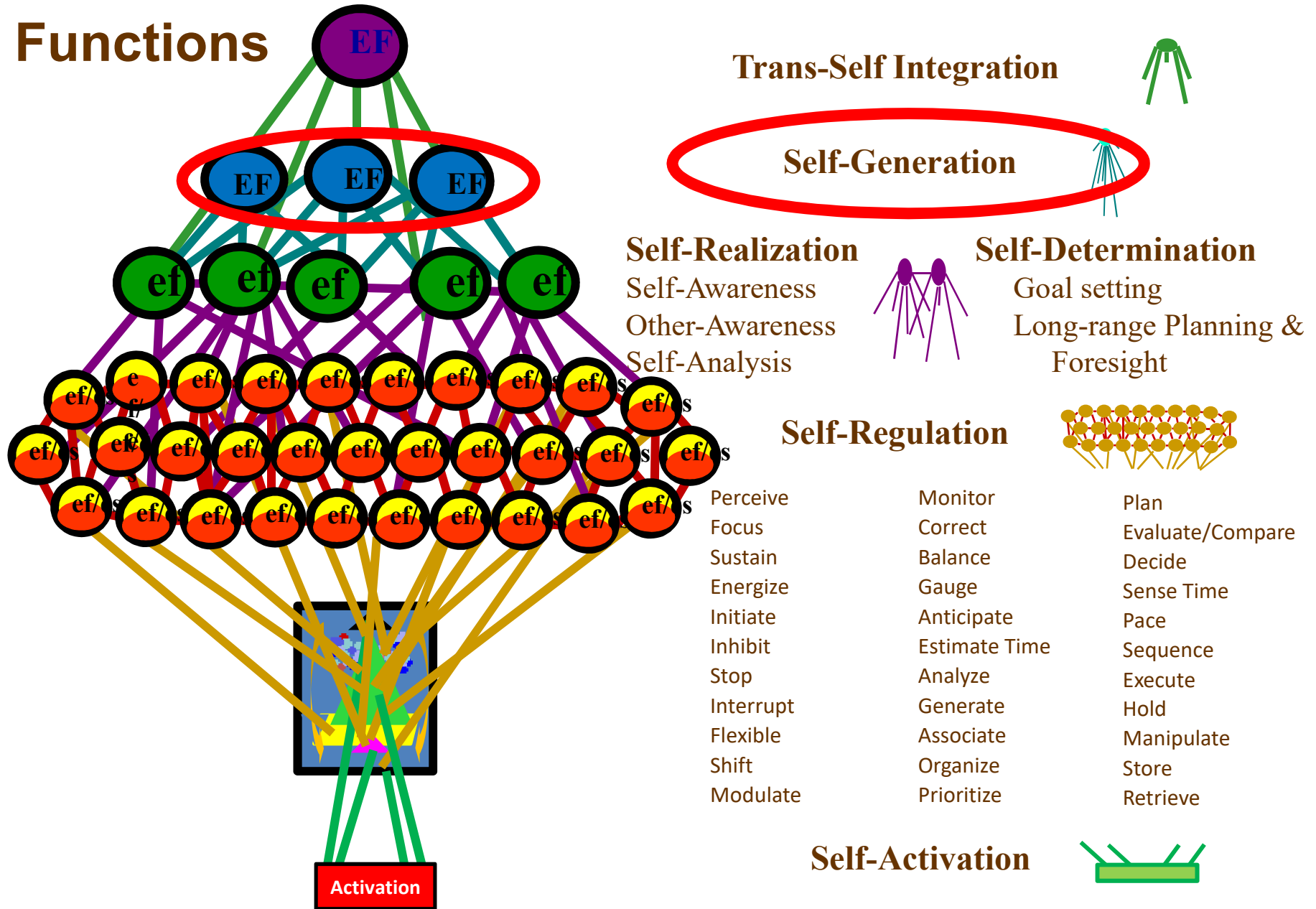
EF Tiers within the Holarchical Model of Executive Functions

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Self-Activation

Activation

Self Generation

- Directs the posing of speculative questions related to the meaning and purpose of life and/or the ultimate source(s) of reality and physical existence, mind-body relationships, spirit, and soul; contemplates existence beyond the physical plane.

- Directs the generation of a philosophy of life used to guide self-awareness, self-realization and the other levels of executive function processes; serves as a basis for an ultimate source of intentional behavior direction.

EF Tiers within the Holarchical Model of Executive Functions

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Self-Activation

Activation

Trans-Self Integration

- Directs the engagement of mental processes that enable realization and experiencing of a trans-self state of ultimate or unity consciousness.

- In most spiritual traditions, this state is considered the highest achievement of human consciousness and therefore very different from the maladaptive states characteristic of clinical diagnoses of dissociative states.

IMAGES OF MIND

MICHAEL I. POSNER
MARCUS E. RAICHLE
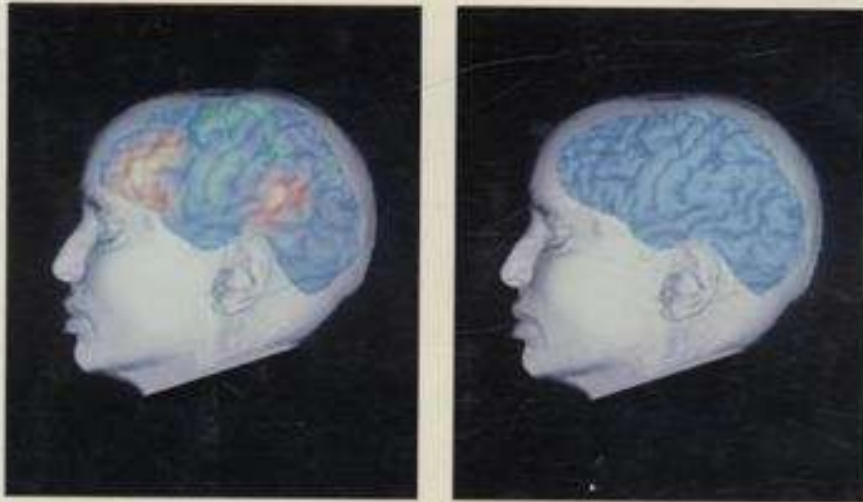
Michael Posner
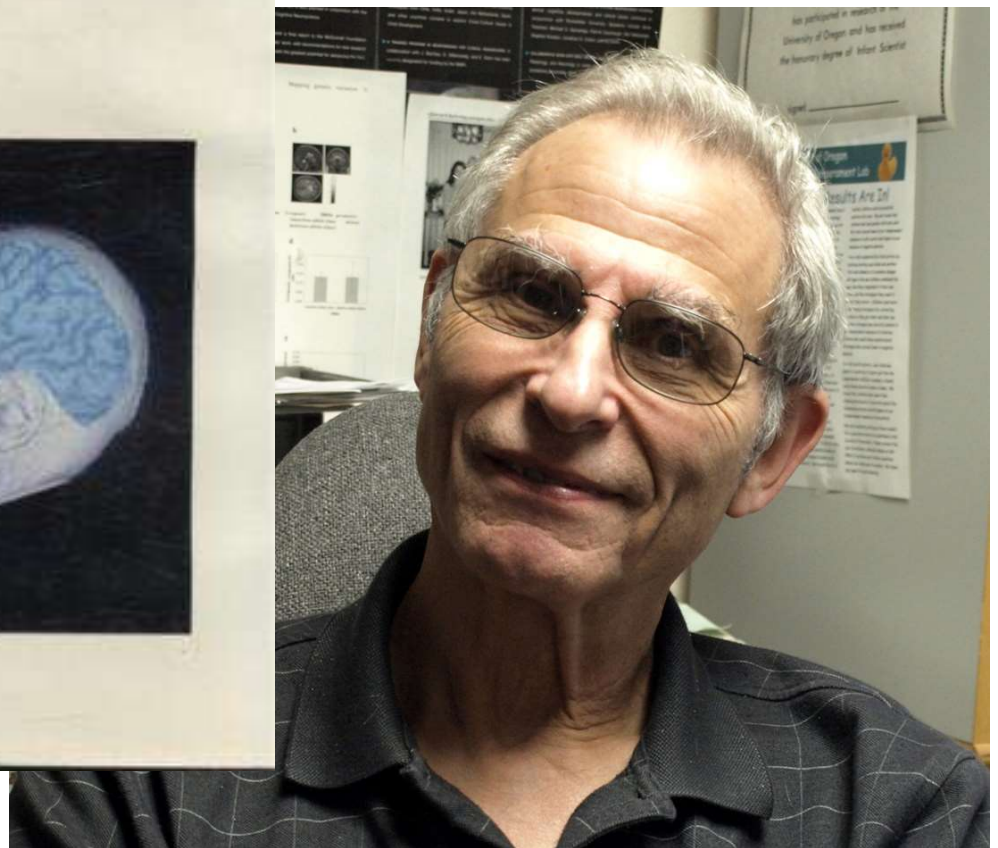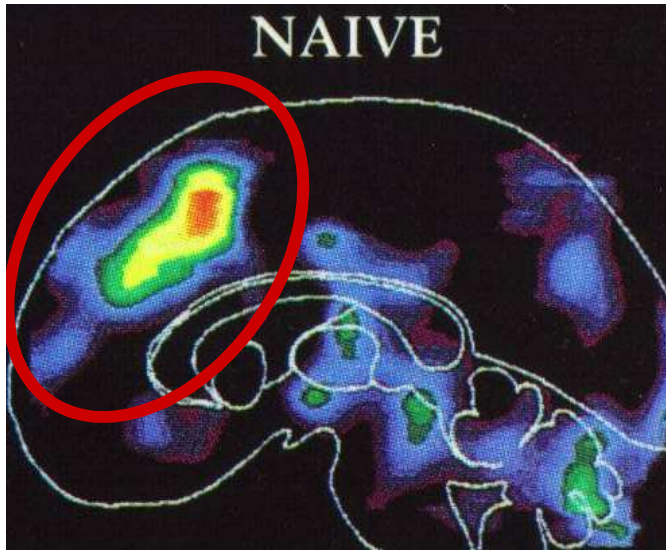
NAIVE

– Naïve: First exposure to the task; responses required immediately.

– Practiced: Time given to rehearse responses to the task; responses delivered after rehearsal period.
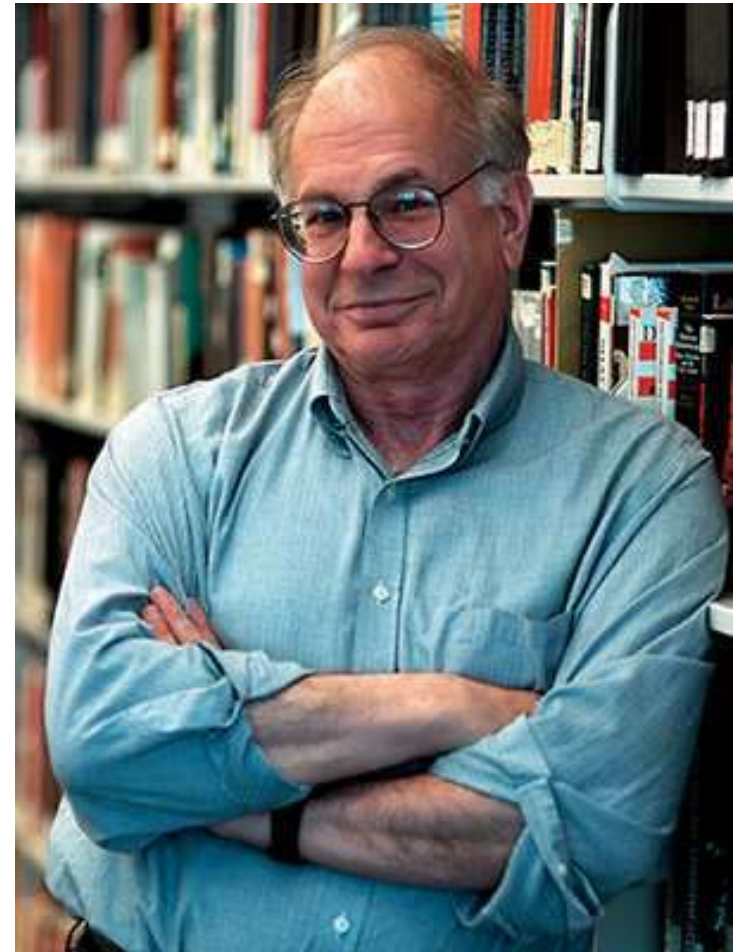
System 1 – Fast, effortless, automatic
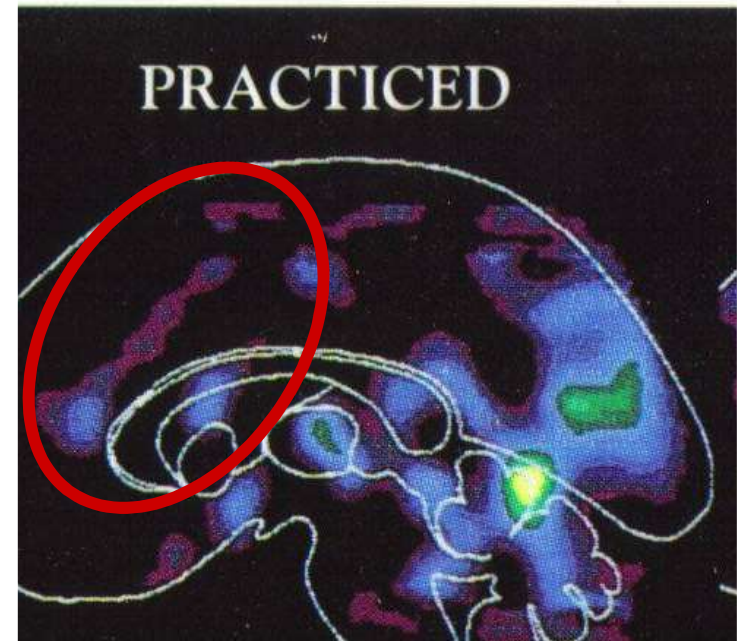
System 2 – Slow, effortful, non-automatic
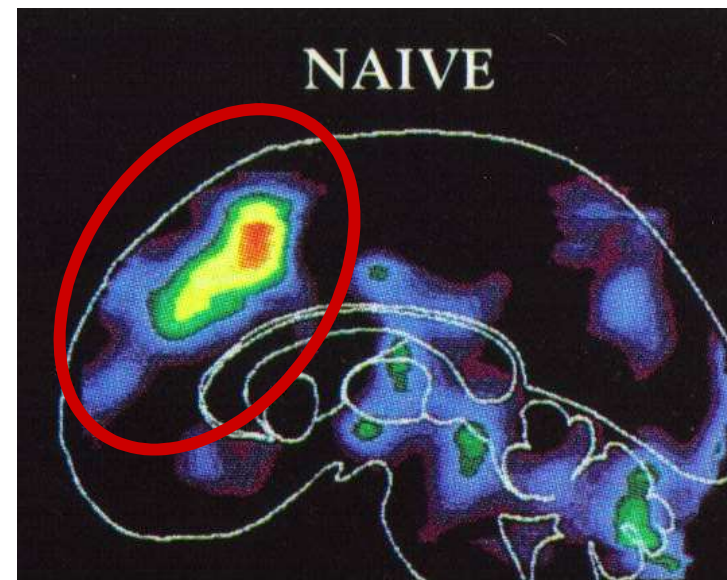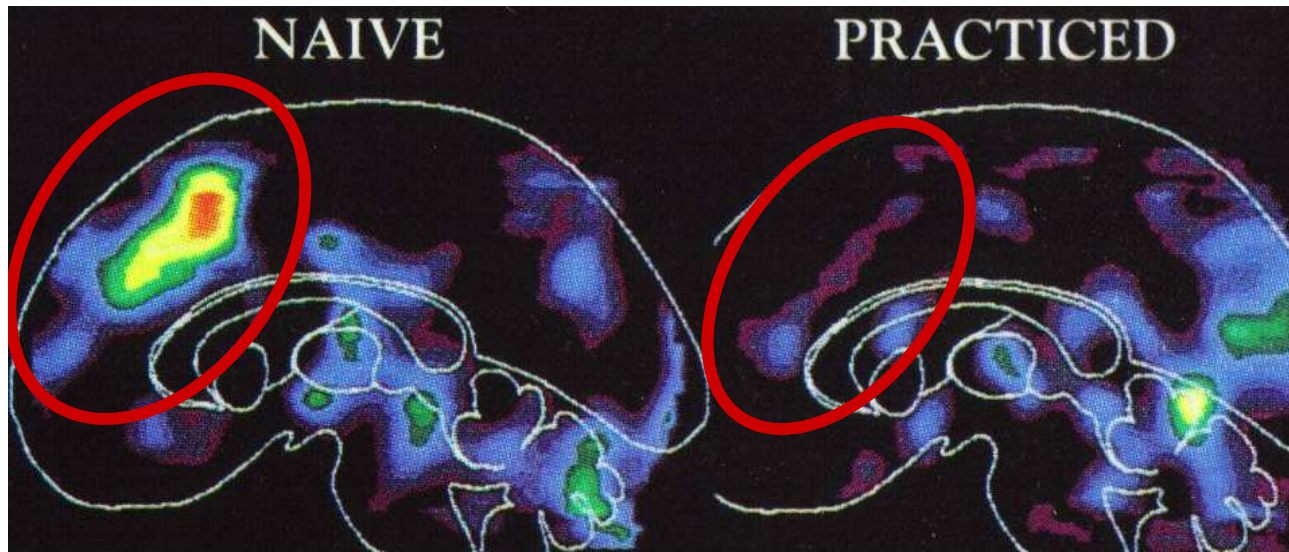
NAIVE   PRACTICED

– Novel: Second exposure to the   task, but responses required immediately to a set of all new items.

- Naïve: First exposure to the task; responses required immediately; high demand for executive functions (EFs)
- Practiced: Time given to rehearse responses to the task; minimal demand for EFs
- Novel: Second exposure to the task, but responses required immediately to a set of all new items; moderate demand for Efs

- Source:
  Posner, M.I. & Raichle, M.E. (1994). *Images of   Mind.*

Executive Capacities and Intelligence

- The concept of executive capacities is not synonymous with the traditional concepts of intelligence or "IQ"

- Executive capacities are not directly assessed with standard intelligence tests

IQ = EF?
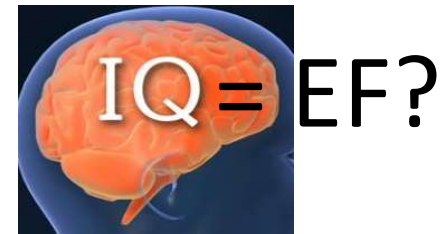
Executive Capacities and Intelligence

- Executive Functions and Skills are used to answer the questions: What? When? and How?

- Standardized test directions provide the answers to the questions What? When? and How?

IQ=EF?
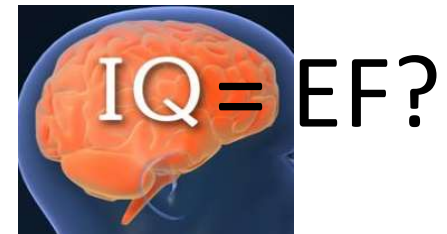
Executive Capacities and Intelligence

- The use of standardized directions and the one-to-one format of test administration make it difficult to identify the extent that executive capacities are or are not involved in task performance.

- As a result of this, assessment of the use of executive capacities during test performance usually hinges on careful observation of response behaviors.

IQ = EF?
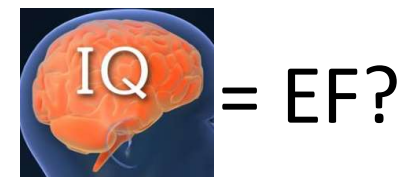
Measuring Executive Capacities
with a Reasoning Task

Unlike most standardized tests, The Wisconsin Card Sorting Test (WCST) is an example of a standardized test that effectively assesses the use of executive functions.

IQ=EF?
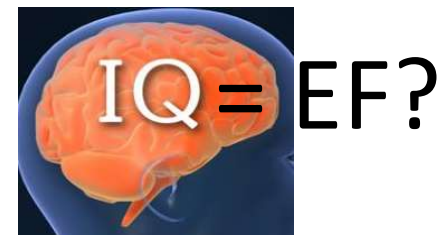
Measuring Executive Capacities with a Reasoning Task

Directions for the Wisconsin Card Sorting Test (WCST):

I can't tell you much about how to do this task. Which of these do you think this one goes with? I'll tell you if your answer is right or wrong.

IQ = EF?
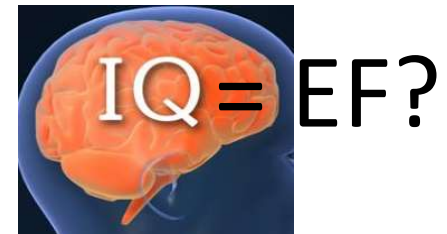
Executive Capacities and School

The more classroom instruction resembles tests of executive functions like the Wisconsin Card Sorting Test (figure out what we're learning, I'll tell you whether you are right or wrong), the more executive difficulties are going to impact classroom learning and performance.
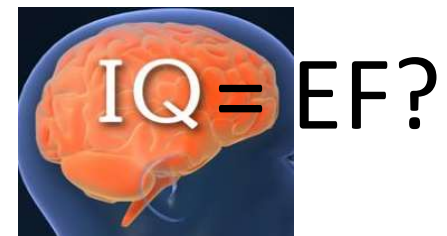
IQ=EF?
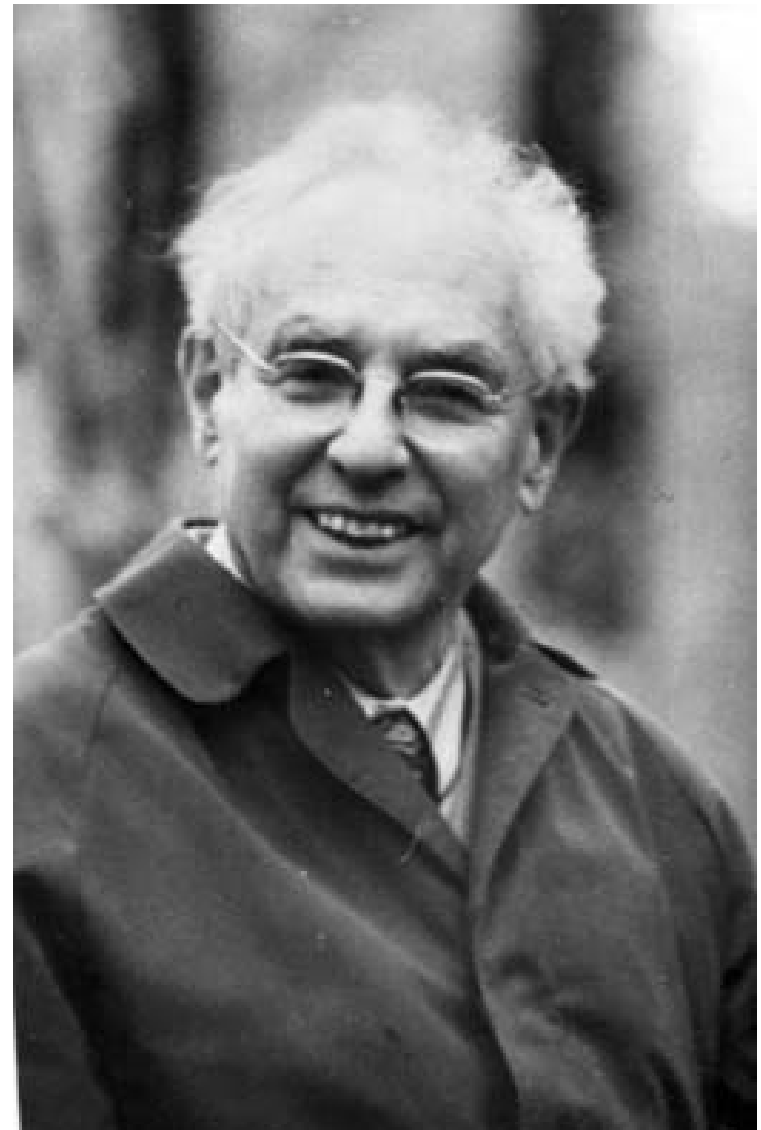
Key Concept

Assessment of the Use or Disuse of Executive Capacities Hinges on Careful Observation of Behavior.

Kaplan, E. (1988). A process approach to neuropsychological assessment. In T. Boll & B.K. Bryant (Eds.) *Clinical neuropsychology and brain functions: Research, measurement, and practice* (pp. 125-167). American Psychological Association.

Assessing Executive Capacities

The Process Approach requires a clear understanding of what a task measures so that performance can be effectively task analyzed to characterize a person's cognitive capacities as accurately as possible.

Behavior Observation and Inferences about Brain Function

What's the difference between a Similarities Scaled Score of 12 (75th percentile) …

…and a Similarities Scaled Score of 12 (75th percentile)?

Subtest/Item Level Interpretation
Process Approach Example

Retrieval of verbal information from long-term storage

vs

Reasoning with verbal information

Subtest/Item Level Interpretation Process Approach Example

Performance on Similarities also may or may not involve the engagement of one or more executive capacities (e.g., gauge, flexible, shift, associate).

mindset
THE NEW PSYCHOLOGY OF SUCCESS

HOW WE CAN
LEARN TO FULFILL
OUR POTENTIAL

*parenting
*business
*school
*relationships

"Will prove to be one of the most influential books ever about motivation."
—Po Bronson, author of NurtureShock

CAROL S. DWECK, Ph.D.
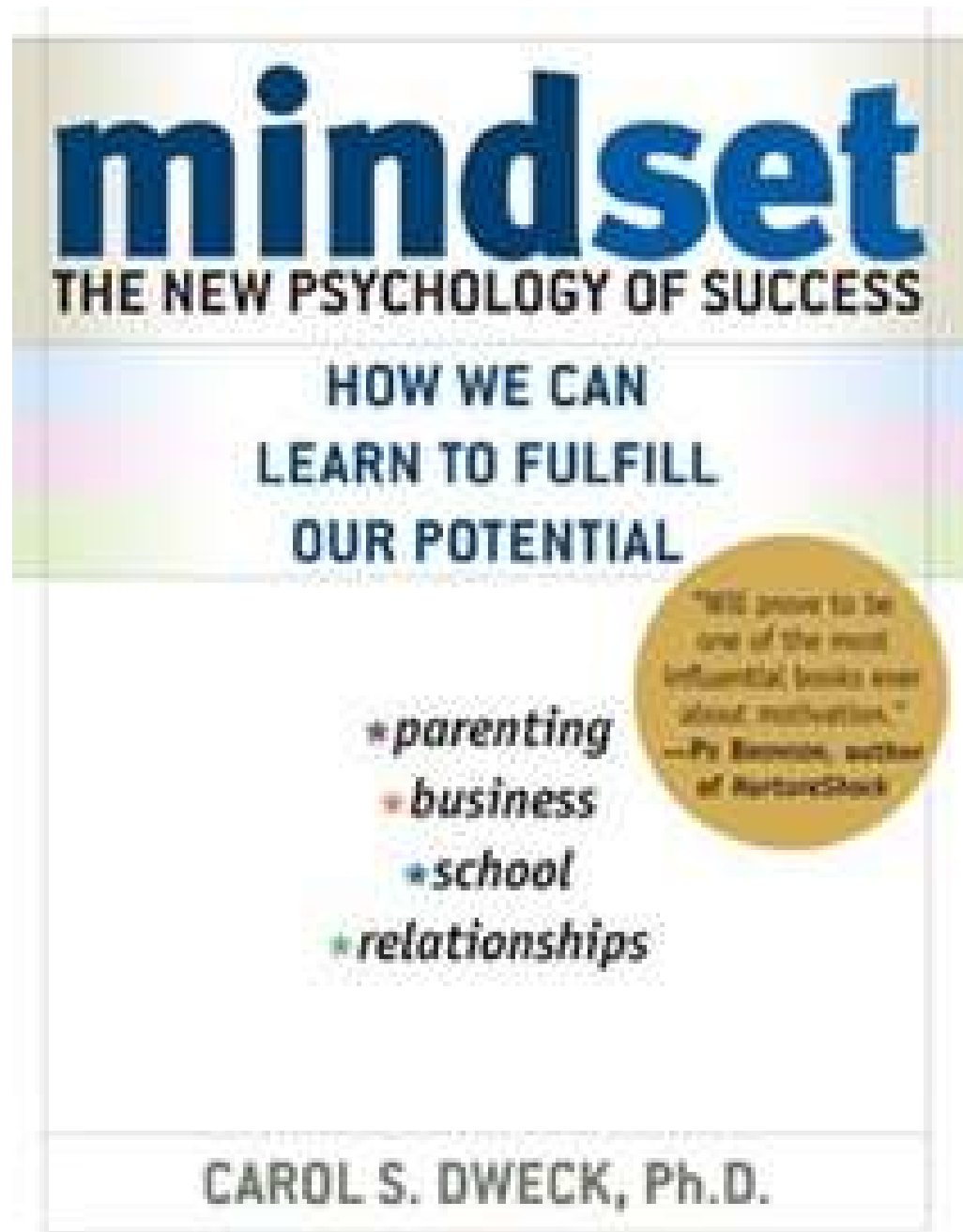
Ability Deficits

- The conventional wisdom regarding ability deficits represents a fixed mindset.

- What is needed is a new perspective that embraces a growth mindset.

- A growth mindset suggests that abilities are not innate; they can be changed.

From Ability to Skill
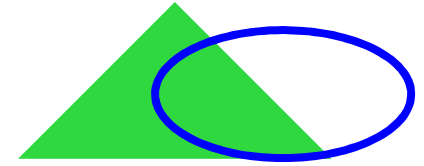
The most critical shifts in educational thinking involve:

1) engendering a strong belief in the growth mindset that asserts that ability IS malleable.

From Ability to Skill
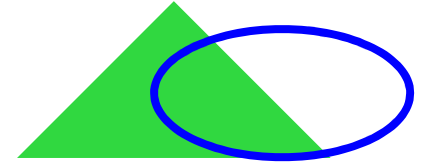
2) implementing and refining the techniques needed to change abilities into skills so that they are taught instead of merely measured.

From Ability to Skill
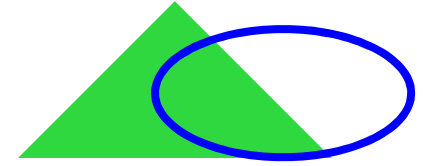
Marzano, Pickering & Pollock provided a blueprint for turning abilities into skills in their book "Classroom Instruction That Works: Research-based Strategies for Increasing Student Achievement." (2001)

Marzano, Pickering & Pollock (2001)

CERI B. DEAN
ELIZABETH ROSS HUBBELL
HOWARD PITLER
Bj STONE

Classroom Instruction *that* *Works*

RESEARCH-BASED STRATEGIES FOR INCREASING STUDENT ACHIEVEMENT
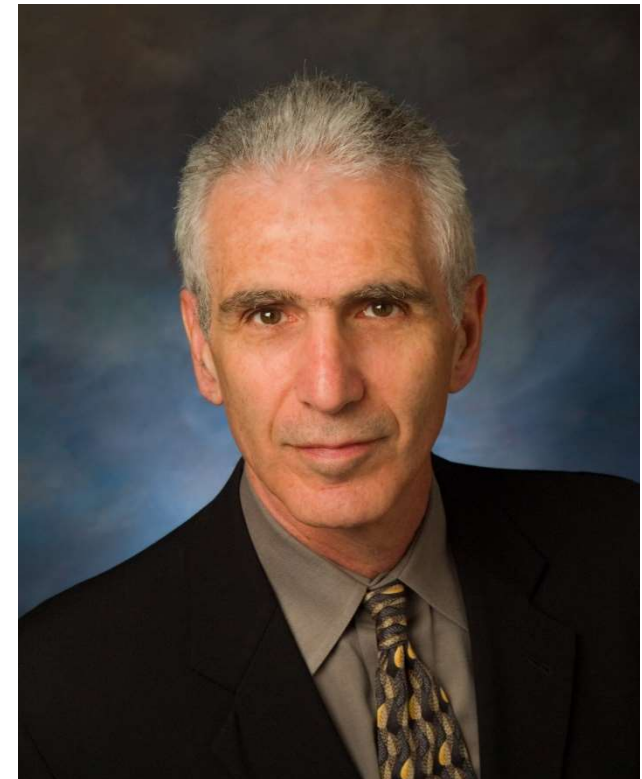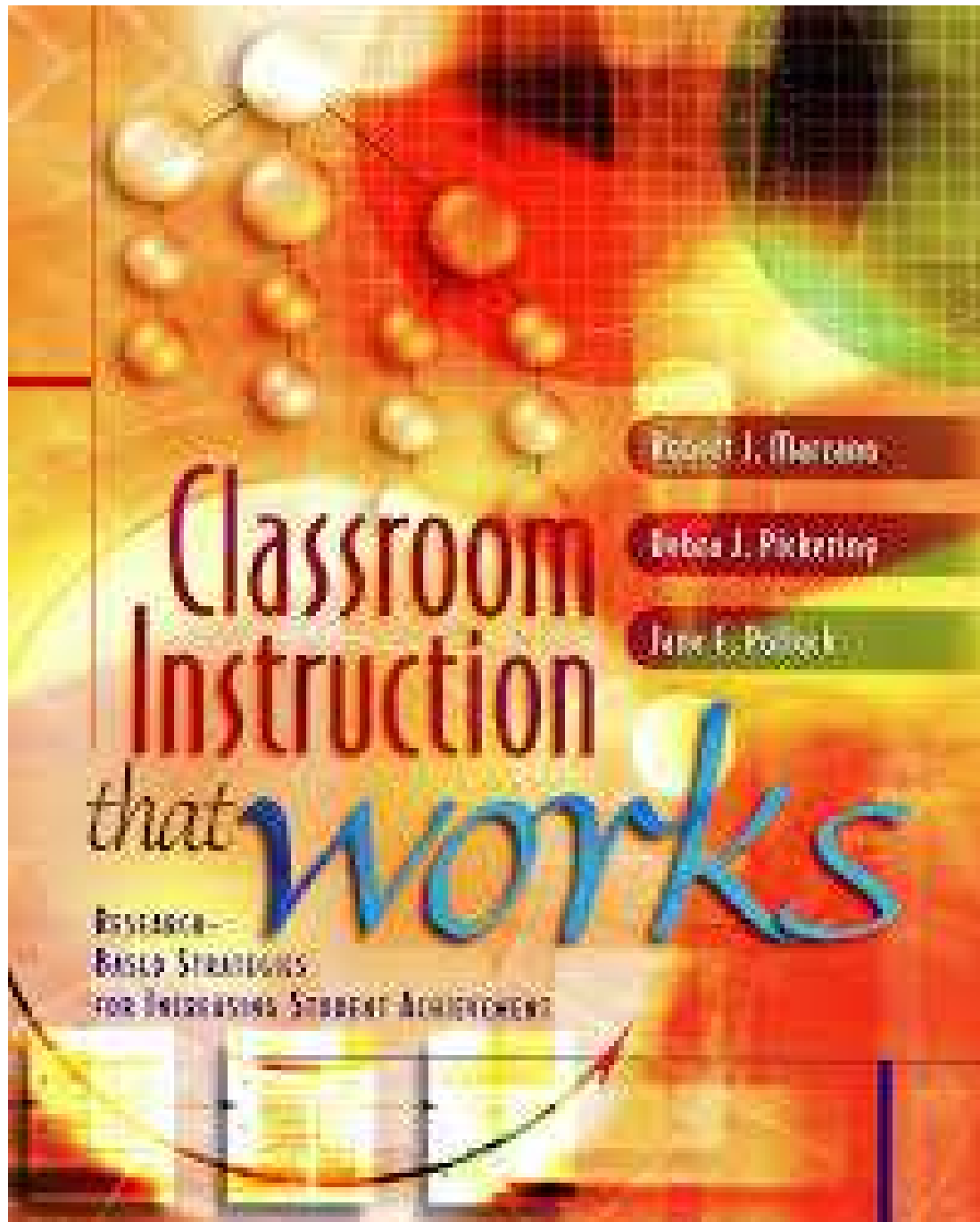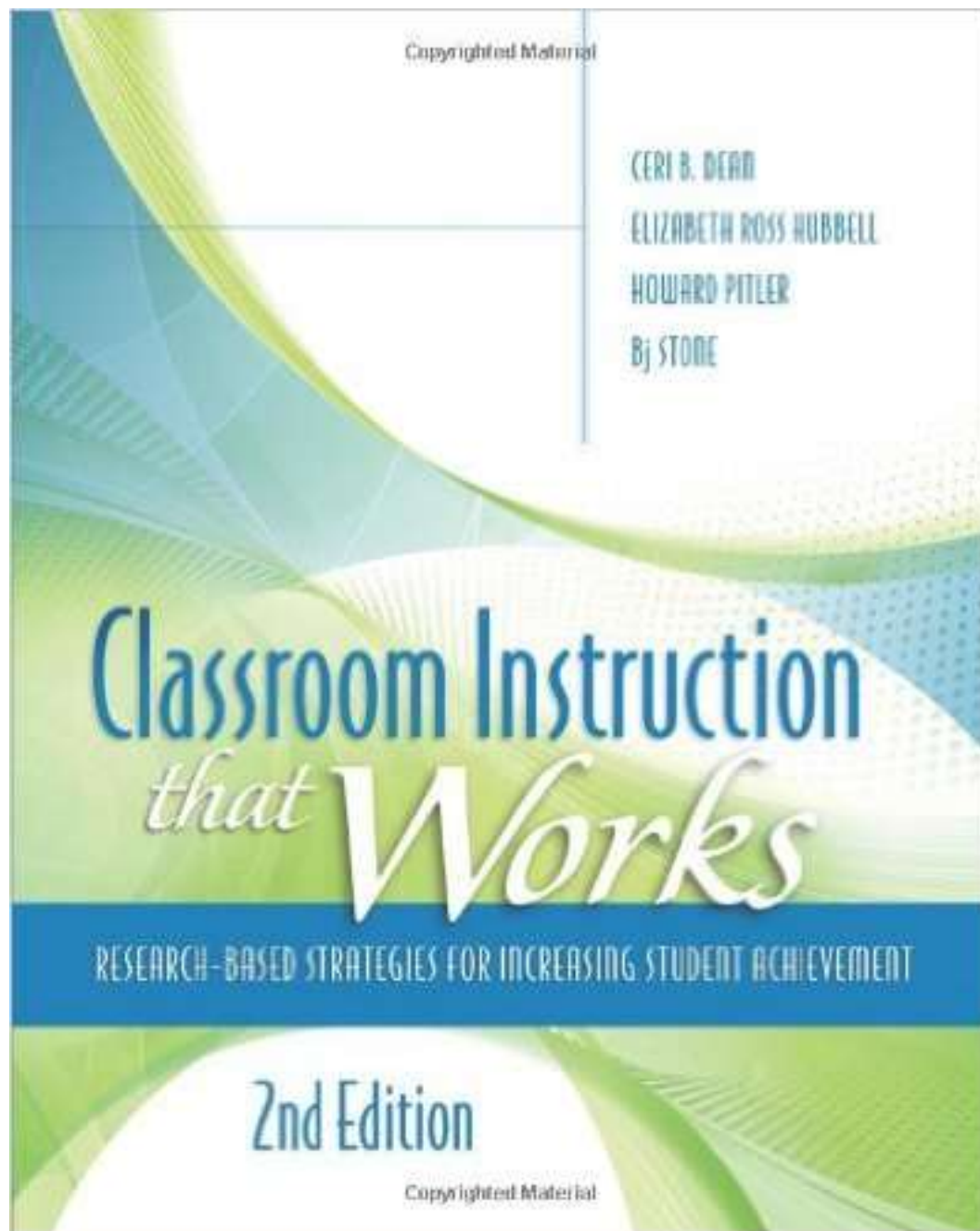
2nd Edition

2nd Edition

Dean, Hubbell, Pitler, & Stone (2012)

From Ability to Skill
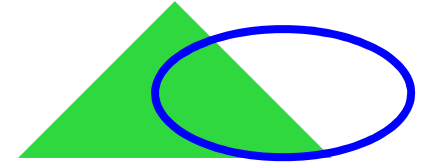
Strategies discussed include:

– Teaching Similarities and Differences

– Teaching Hypothesis Testing

– Teaching Vocabulary

From Ability to Skill
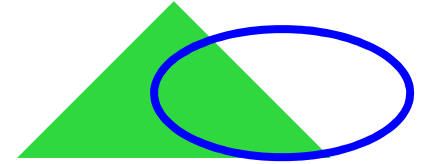
If these research-based strategies have been shown to work, why would it not be commonplace to expect to be able to increase "verbal ability" with good teaching practices?

Martin's WISC Score Changes

	11/2010	4/2013	9/2015
FSIQ	**70**	**99**	**103**
GAI	83	105	108
VCI	73	95	106
PRI/FRI	94	117	112
VSI	--	--	111
WMI/AWMI	62	97	94
PSI	68	85	98

Martin's Achievement Score Changes

	11/2010	4/2013	9/2015
Wd Reading	**71**	**94**	**98**
Wd Decoding	81	97	98
Rdg Fluency	66	95	100
Rdg Comp	--	87	82
Rdg Vocab	--	93	112

Key Concept

Task Performance is directed by Executive Capacities or an Executive Capacity substitute.

The neural networks used to perform a task depend on perceptions about how the task should be done.
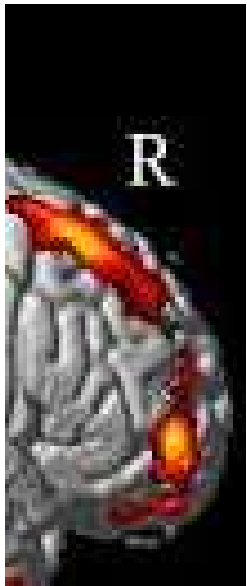
Key Concept

Most of what a teacher, therapist, or work supervisor says to student, client, or worker is intended to activate specific neural networks within that person's brain.
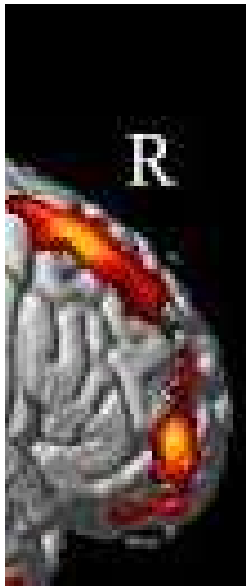
Key Concept

The more specific the language used by a teacher, therapist or supervisor the more likely it is that the student, client or worker will be activating the brain networks needed for effective performance.

The Language of External Control

Pay attention!

Can you be more specific?

Self Regulation Executive Capacity "Clusters"

ENGAGEMENT

ATTENTION

Perceive
Focus
Sustain

Energize
Initiate
Inhibit
Stop
Pause
Flexible
Shift
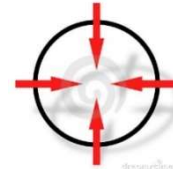
OPTIMIZATION

Monitor
Modulate
Balance
Correct

EFFICIENCY

Sense Time
Pace
Sequence
Execute

SOLUTION

MEMORY

INQUIRY

Hold
Manipulate
Store
Retrieve

Anticipate
Gauge
Analyze
Estimate Time
Compare

Generate
Associate
Prioritize
Plan
Organize
Decide

Pay Attention, specificly speaking

Prompts for attention should include a call to Perception, as well as a cue for Focusing and a cue for Sustaining:

- Listen (P) to me (F) until I'm finished talking (S).

- Look (P) at the board (F) until we are done with this problem (S).

- Touch (P) the blocks (F) while you are solving this one (S).

504 Accommodation Plans

When specially designed instructional strategies are implemented, whose frontal lobes are engaged?

Functional Behavior Assessment

The focus of a traditional FBA:

"Behavior support plans are designed to alter patterns of problem behavior. The process by which this is done, however, involves change in the behavior of family, teachers, staff, or managers in various settings. Plans of behavior support define what *we* will do differently. It is the change in our behavior that will result in improved behavior of the focus person." (O'Neill, Horner, Albin, Sprague, Storey, & Newon, 1997, p. 65).

Functional Behavior Assessment

A ⟶ B ⟶ C

In traditional functional behavior assessments antecedents are said to TRIGGER the behavior that results in the consequences, but the reasons WHY the antecedents trigger the behavior is not really addressed.

FBA: Is A-B-C Enough?

- Since the antecedent does not trigger the same undesirable behaviors in ALL students in the same situation, there must be something about the students that differs in an important way.

- Functional behavior assessment ignores internal considerations (i.e., perceptions, emotions, thought) and focuses on applying external control to effect change in behavior.

The EF Driven FBA

Informed by knowledge of executive capacities, the functional behavior assessment model can be revised as follows:

A

B

C

Key Concept

An EF-Driven FBA enables problems to be clearly stated in terms of perceptions, emotions, thoughts or actions that can be changed through intervention.

88

Case Example:

Billy

Lack of Inhibition?

Self Regulation Executive Capacity "Clusters"

ATTENTION

Perceive
Focus
Sustain

ENGAGEMENT

Energize
Initiate
Inhibit
Stop
Pause
Flexible
Shift

OPTIMIZATION

Monitor
Modulate
Balance
Correct

EFFICIENCY

Sense Time
Pace
Sequence
Execute

MEMORY

Hold
Manipulate
Store
Retrieve

INQUIRY

Anticipate
Gauge
Analyze
Estimate Time
Compare

SOLUTION

Generate
Associate
Prioritize
Plan
Organize
Decide

Key Concept

The more specific the language used by a teacher, therapist or supervisor the more likely it is that the student, client or worker will be activating the brain networks needed for effective performance.

Key Concept

Tools of the Mind (Bodrova & Leong) is an effective preschool /kindergarten curriculum that helps young children improve self-regulation executive capacities.
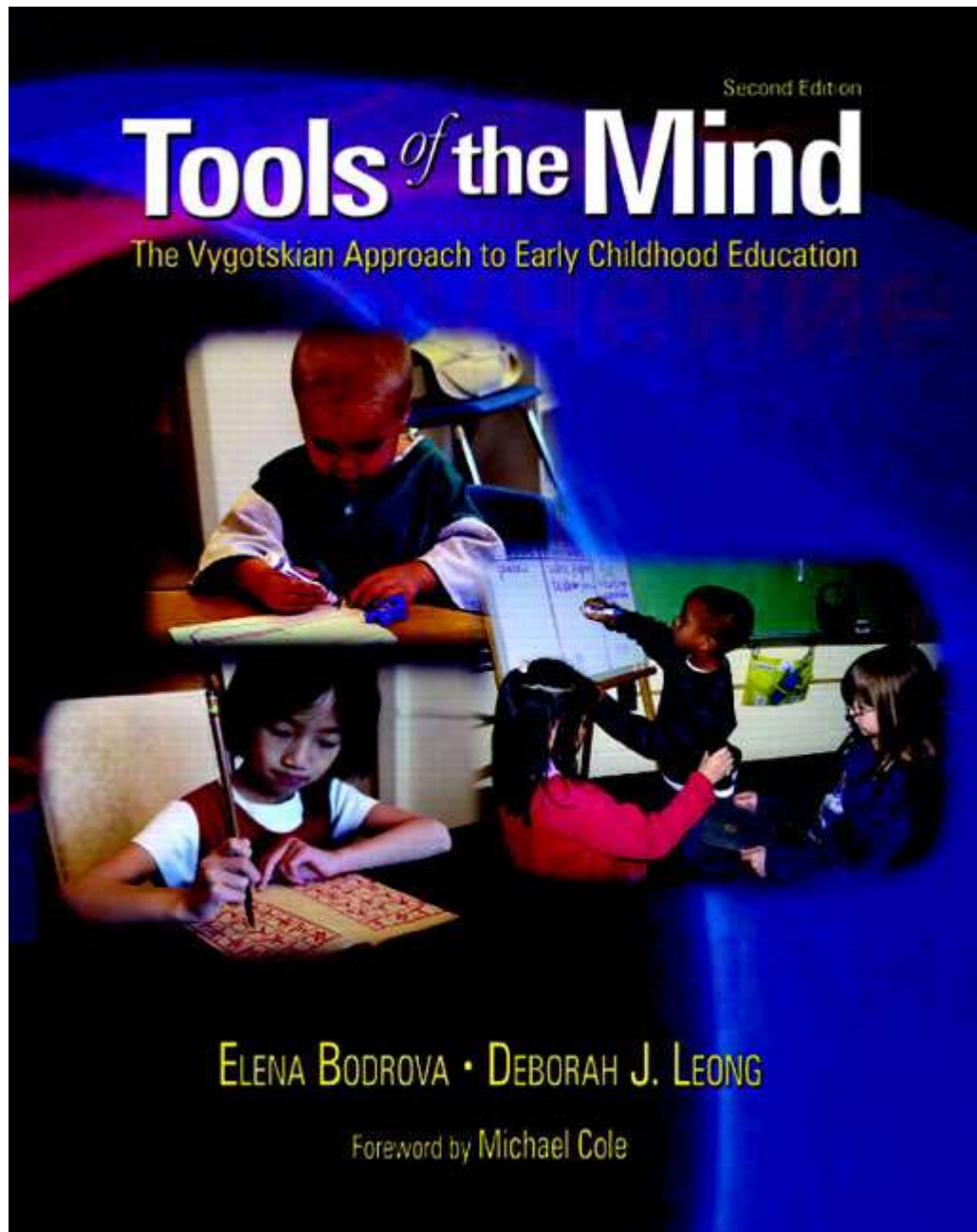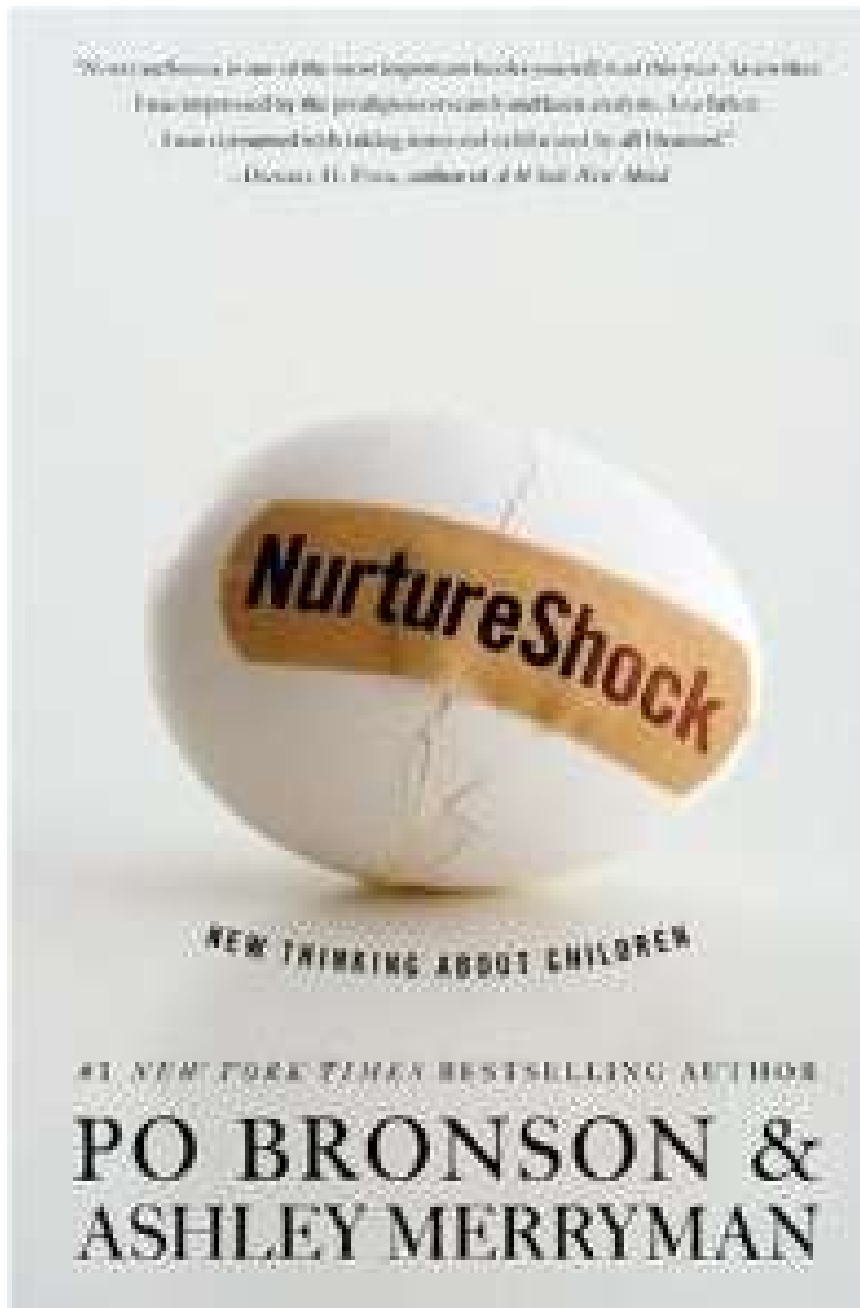
Bronson & Merryman discuss their observations of the Tools of the Mind curriculum in Chapter 8

Can Self-Control Be Taught?

Executive Capacity Interventions

- The techniques used in the Tools of the Mind curriculum to teach preschoolers and kindergartners are adaptations of Vygotsky's theories about learning.

- These techniques can be adapted and used with students in elementary grades to strengthen executive capacities.

Engagement of Self-Regulation

External Demand Pathway

External Demand

Executive Functions

Internal Command

Nucleus Accumbens

???

Extrinsic Rewards & Punishments

Internal Command Pathway: Intrinsically Rewarding
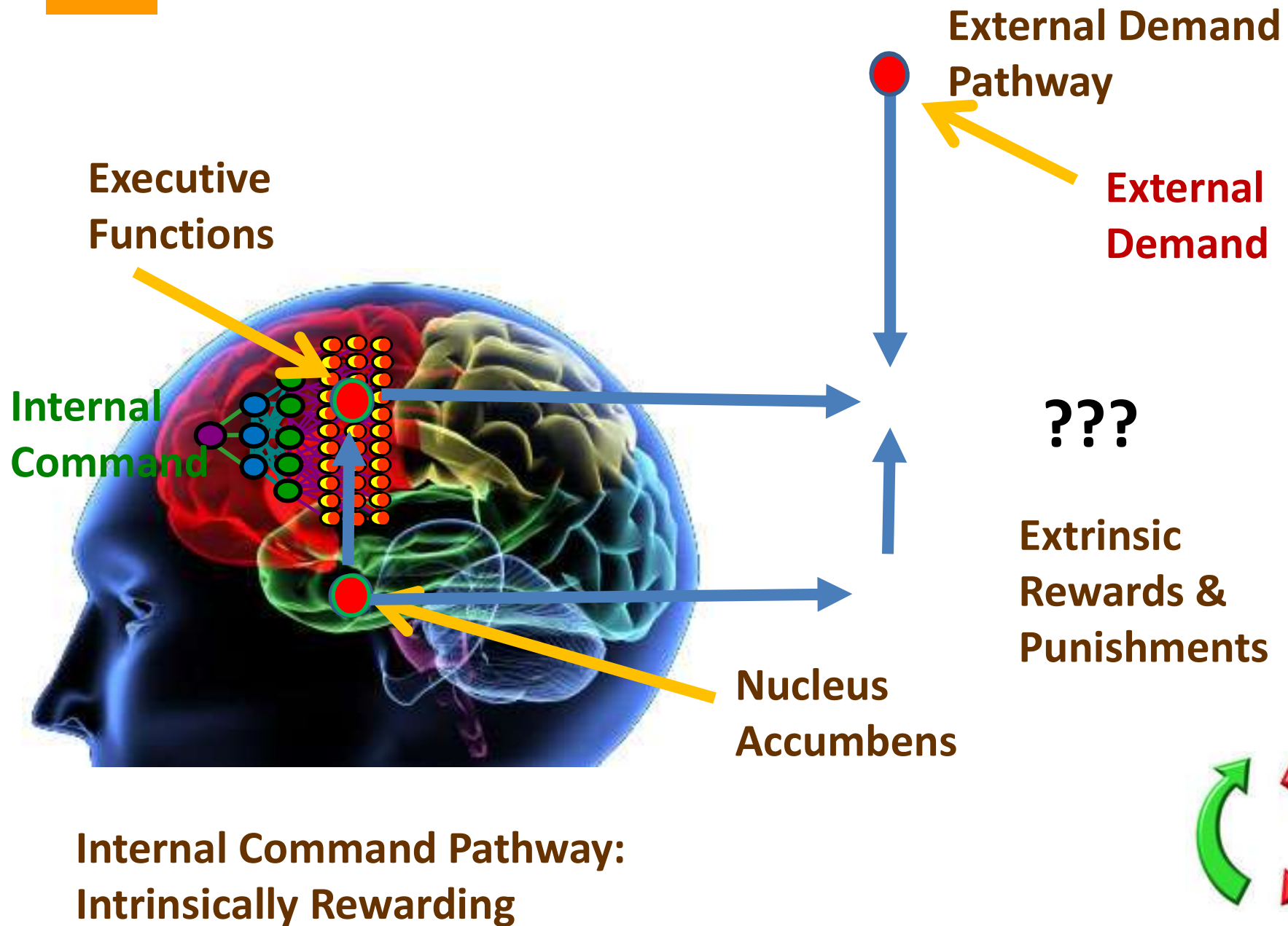
Daniel H. Pink

author of the *New York Times* bestseller
A Whole New Mind

DRIVE

The Surprising Truth
About What Motivates Us

Engagement of Self-Regulation
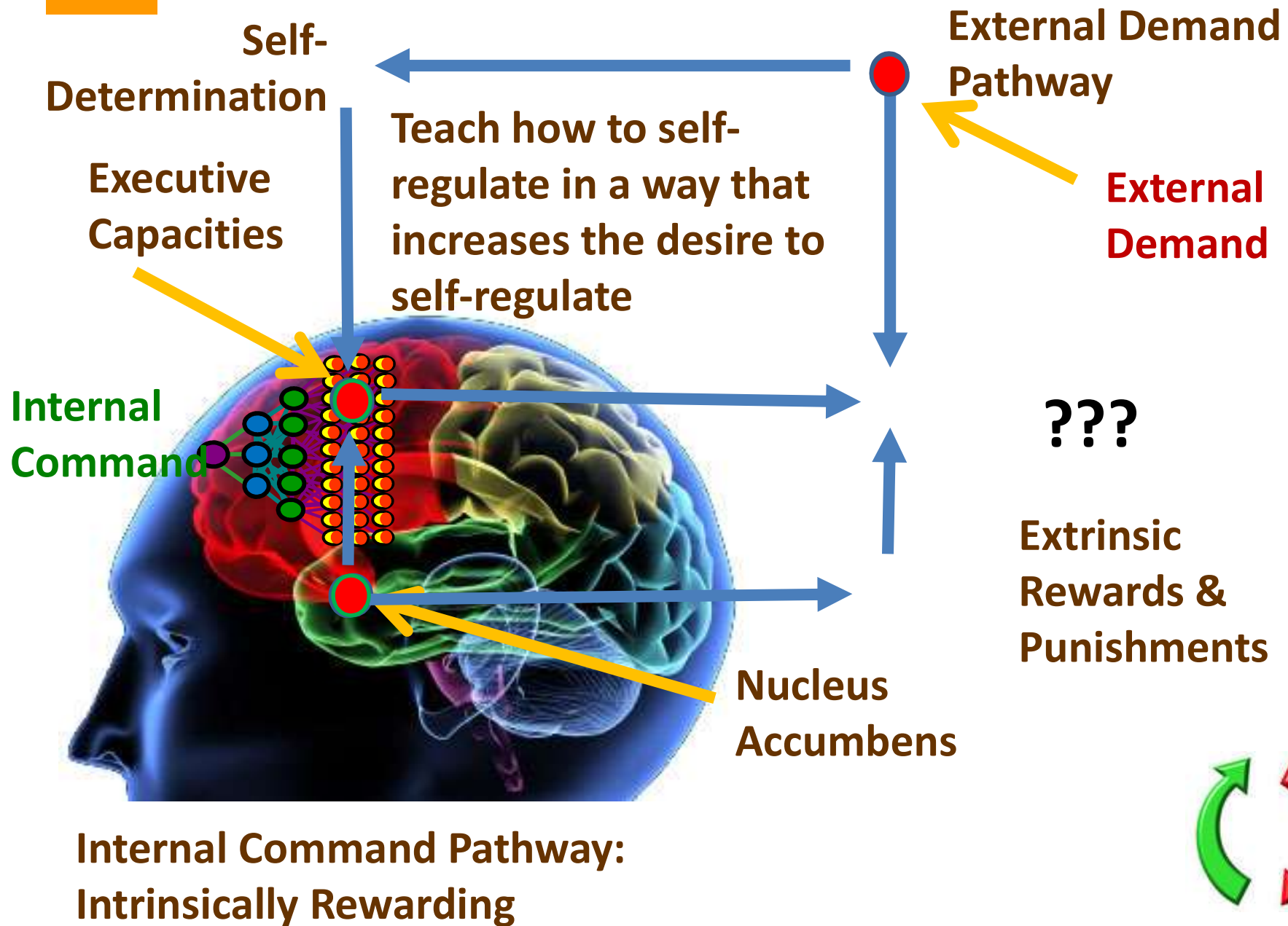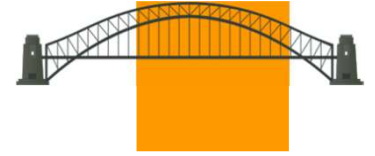
Self-Determination

Executive Capacities

Internal Command

External Demand Pathway

External Demand

Teach how to self-regulate in a way that increases the desire to self-regulate

???

Extrinsic Rewards & Punishments

Nucleus Accumbens

Internal Command Pathway: Intrinsically Rewarding

Key Concept

Bridging strategies effect the gradual transition from external control to self-regulated internal control.

Bridging Strategies

Encourage the engagement of executive capacities through the use of reflective questioning

Bridging Strategies

Practice and rehearsal of the use of executive capacities. This is the single best way to increase engagement and efficiency of the use of executive skills.

Bridging Strategies

Provide immediate and frequent feedback about the effectiveness of attempts to engage self-regulation executive capacities. Providing individuals with feedback about their performance enables them to engage executive capacities more effectively to learn from their mistakes and improve future performance.

Bridging Strategies

Model appropriate use of self-regulation executive capacities

Bridging Strategies

Whenever possible, use game formats and game strategies to practice the use of executive capacities.

Bridging Strategies

Align external demands with internal desires to maximize motivation.

- Allow self-selection or choice of assignments whenever possible

- Use high interest material to illustrate application of new knowledge and skills

Bridging Strategies

Develop a common vocabulary and set of nonverbal symbols for describing or signifying self-regulation capacities and signaling their use (e.g., cueing flexibility with "The Coconut Story")

Bridging Strategies

Teach self-regulation capacities with specific skill routines using Cognitive Strategy Instruction approaches (e.g. Graham & Harris Self-Regulated Strategy Development approach for Written Expression).

Five Stages of Strategy Instruction

1. Explain the purpose of self-regulation strategies in general and describe and discuss the specific steps of the strategy that will be taught.

Strategies

Five Stages of Strategy Instruction

2. Model the use of the strategy using language and examples that connect with the students.

Strategies
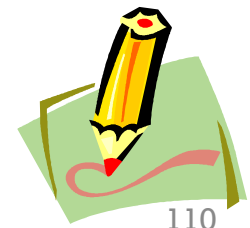
Five Stages of Strategy Instruction

3. Students memorize the steps in the strategy as well as any mnemonics that are used as part of the strategy.

Strategies

Five Stages of Strategy Instruction

4. Teacher supports the implementation of the strategy by the students, scaffolding as necessary to help the students to master the use of the strategy.

Strategies

Five Stages of Strategy Instruction

5. Students independently apply the self-regulated strategy covertly (in their own minds). Students and teacher collaboratively evaluate the effectiveness of student self-directed strategy application.

Strategies

113
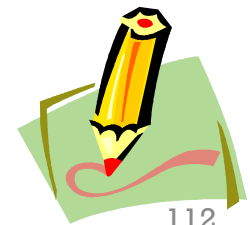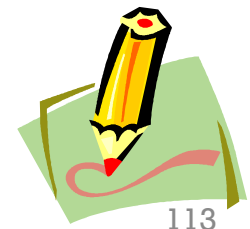
Cognitive Strategy Instruction

Case Example:

Teaching Study Skills Through Cognitive Strategy Modeling
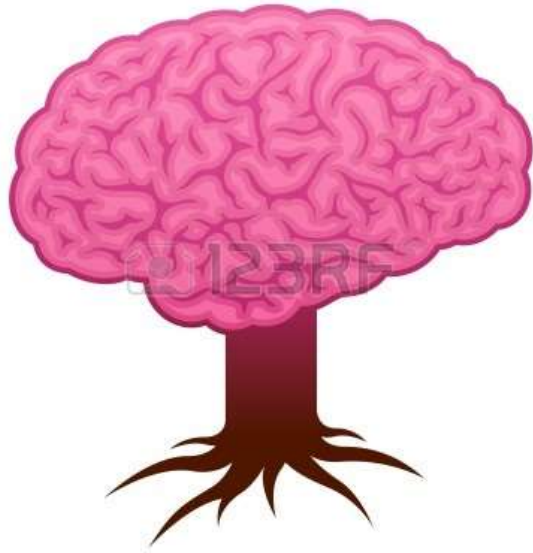
Key Concept

Executive Capacities are developing from birth; maturational delays can cause difficulties.
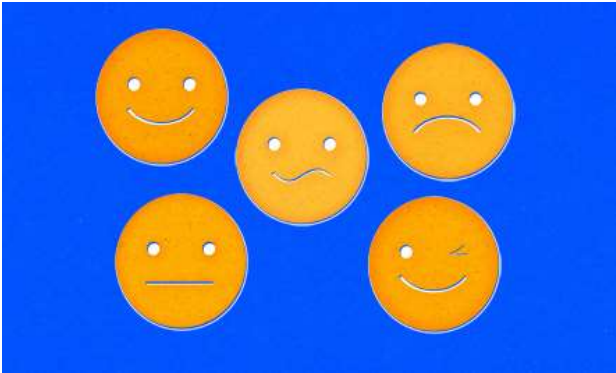
Key Concept

Personality is the result of outgrowing temperamental presets through the development of the frontal lobes as they interact with and learn from personal, social and environmental experiences.

Executive Capacity Development

Some EF-based clinical syndromes, such as ADHD, demonstrate clear patterns of delayed developmental progression. Barkley (1998) estimates developmental delays of about 30% associated with various EC processes such as Inhibit, Manipulate, Shift, Sustain, Time Monitor, Correct.

Developmental Progression with a 30% Delay

EF AGE

Chronological Age

118
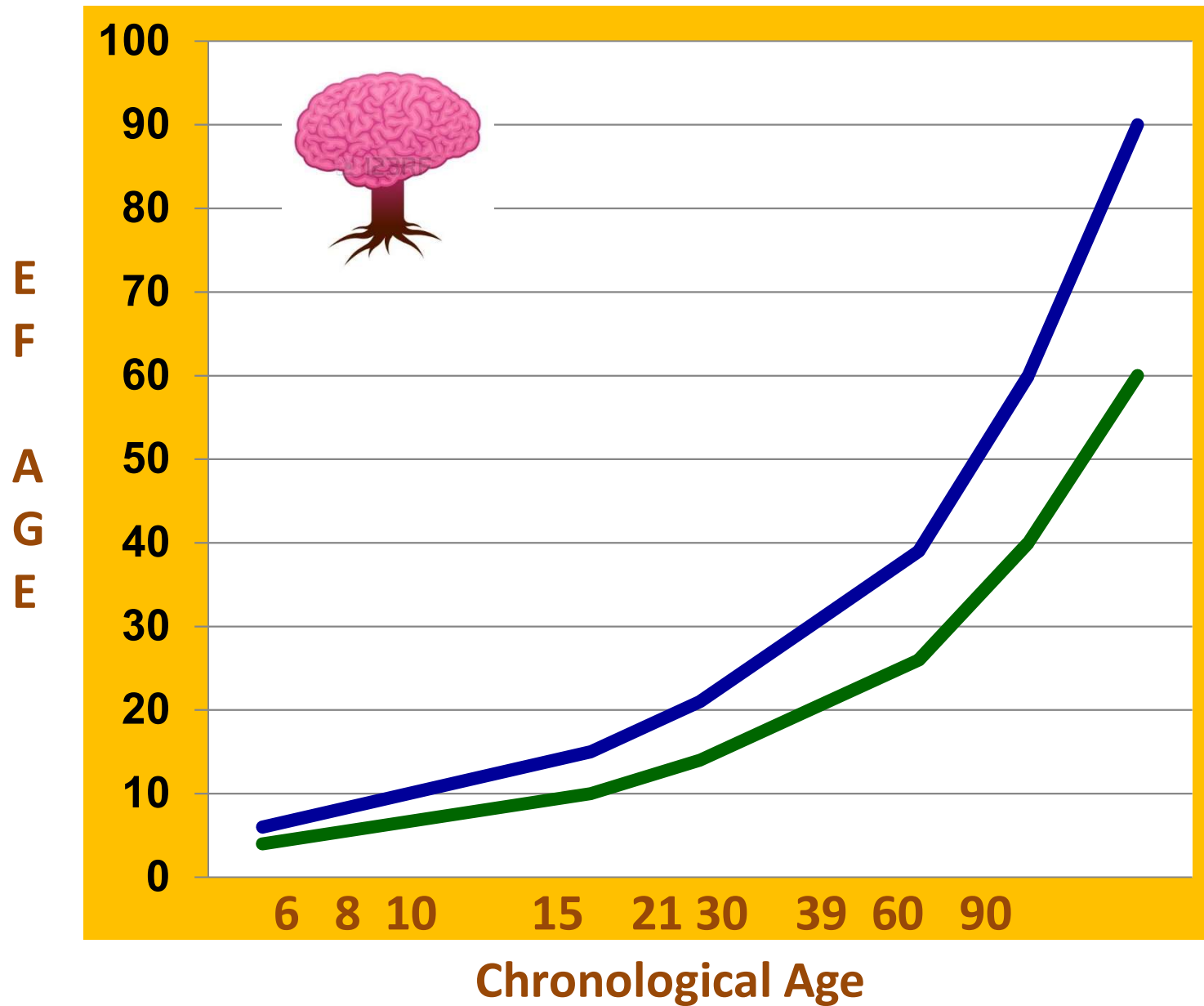
EF Development does not progress by continuous equal intervals
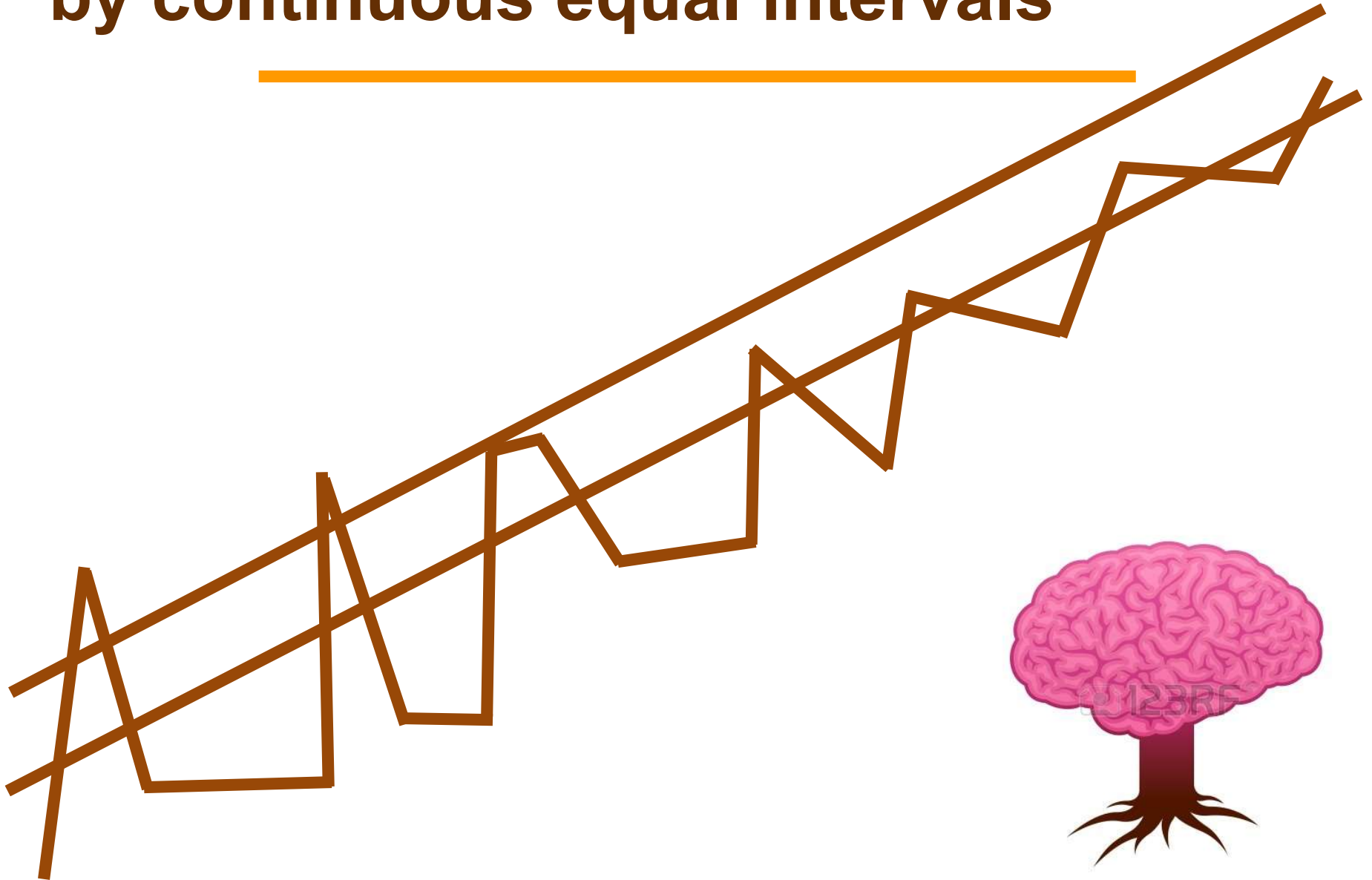
EF Development
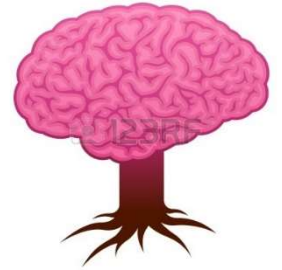
- EF development does not progress in a smooth, continuous upward slope; there are many peaks and valleys along the way. Periods of increased use may be followed by even longer periods of regression or lack of use.

- The goal of intervention therefore cannot be to "turn on" an EF that is "off"; but rather to strive for a cumulative effect of "more on than off" over a prolonged period of time.

EF **Development does not progress by continuous equal intervals**

DAILY PROGRESS BY CLASS

ENGAGEMENT	WEEK 1					WEEK 2					WEEK 3					WEEK 4				
	4-Feb	5-Feb	6-Feb	7-Feb	8-Feb	11-Feb	12-Feb	13-Feb	14-Feb	15-Feb	19-Feb	20-Feb	21-Feb	22-Feb	23-Feb	25-Feb	26-Feb	27-Feb	28-Feb	1-Mar
Math	3	3	3	3	2	0	2	0	0	1	1	0	3			0	3	2	2	3
Science	3			3	3	0	2	0	0	0		0	3			0	2	2	0	2
Social Studies	3	3	3	3	2	0	3	2	3	3	3	3	2			3		1		
English	3	2	3	3	0	3	3	0	3	0	0	0	3					3	3	3
Reading	3	3	3	3	0	0	3	3	3	3	3	3	3					3	3	3
Math Facts		0	3	3	3	0	3	0	3	0	3					3	0	3	3	3

ENGAGEMENT	WEEK 5					WEEK 6					WEEEK 7					WEEK 8				
	4-Mar	5-Mar	6-Mar	7-Mar	8-Mar	11-Mar	12-Mar	13-Mar	14-Mar	15-Mar	18-Mar	19-Mar	20-Mar	21-Mar	22-Mar	25-Mar	26-Mar	27-Mar	28-Mar	29-M
Math	3	3	3	1	3	3		2		1	0	0	1	0	3	1	0			
Science	0		2	1	3	3				0	0	0	0	0	3	1	3			
Social Studies	3	3	2	1	3	3				3	3	3	3	3	3	3				
English	2	2	3	1	3			3		3	3	3	0	3	3	3		3		
Reading		3	3	2	3			3		3	3	3	3	3	3	3	3	3		
Math Facts	0	3	0	3	3	3		3		3	3	3		3	0	3		3		

ENGAGEMENT	WEEK 9					WEEK 10					WEEK 11					WEEK 12				
	1-Apr	2-Apr	3-Apr	4-Apr	5-Apr	15-Apr	16-Apr	17-Apr	18-Apr	19-Apr	22-Apr	23-Apr	24-Apr	25-Apr	26-Apr	29-Apr	30-Apr	1-May	2-May	3-May
Math		2	2			3	0	0	3		0		0				3	0	0	3
Science		3	3			3	0	0	0	3	3		3				3	2	2	
Social Studies		3				3	1	3	3	3	3		3				1	2	2	0
English		3	3			2	0	1	3	3	0		3			3	0	3	3	
Reading		3	3			3	2	3	3	3	1		3			3	3	3	3	3
Math Facts		3	3			0		3	3	3	1						3	2	3	3

ENGAGEMENT	WEEK 13					WEEK 14				
	6-May	7-May	8-May	9-May	10-May	13-May	14-May	15-May	16-May	17-May
Math	0	1	0	1	2		0		1	1
Science	2	3	2	3	2	2	1		1	0
Social Studies	3	3	3	0		0			0	0
English		3	3	3	3	0	3		2	0
Reading		3	3	3	3	2	3		2	3
Math Facts		3			3					3

END OF YEAR SUMMARY ALL CLASSES

	%
ENGAGEMENT	%
Rated 3, 2, or 1	78%
Rated 0	22%
ATTENTION	%
Rated 3, 2, or 1	78%
Rated 0	22%
WORK COMPLETION	%
Rated 3, 2, or 1	70%
Rated 0	30%

EF Tiers within the Holarchical Model of Executive Functions

Trans-Self Integration

Self-Generation

Self-Realization
Self-Awareness
Other-Awareness
Self-Analysis

Self-Determination
Goal setting
Long-range Planning & Foresight

Self-Regulation

Perceive	Monitor	Plan
Focus	Correct	Evaluate/Compare
Sustain	Balance	Decide
Energize	Gauge	Sense Time
Initiate	Anticipate	Pace
Inhibit	Estimate Time	Sequence
Stop	Analyze	Execute
Interrupt	Generate	Hold
Flexible	Associate	Manipulate
Shift	Organize	Store
Modulate	Prioritize	Retrieve

Self-Activation

Activation

Self Activation

Initiation and "ramping up" of basic executive functions related to an awakened state of mind and to overcoming sleep inertia.

Self-Activation

Self Activation Interventions

- How do you take control of a brain whose control center is not awake?

Self-Activation

Executive Functions and Language

- It is important to recognize that language does not necessarily connote consciousness

- Language can be used by executive functions as a form of conscious expression and as a tool to modify brain function

THINKING,
FAST and SLOW

DANIEL
KAHNEMAN

WINNER OF THE NOBEL PRIZE IN ECONOMICS
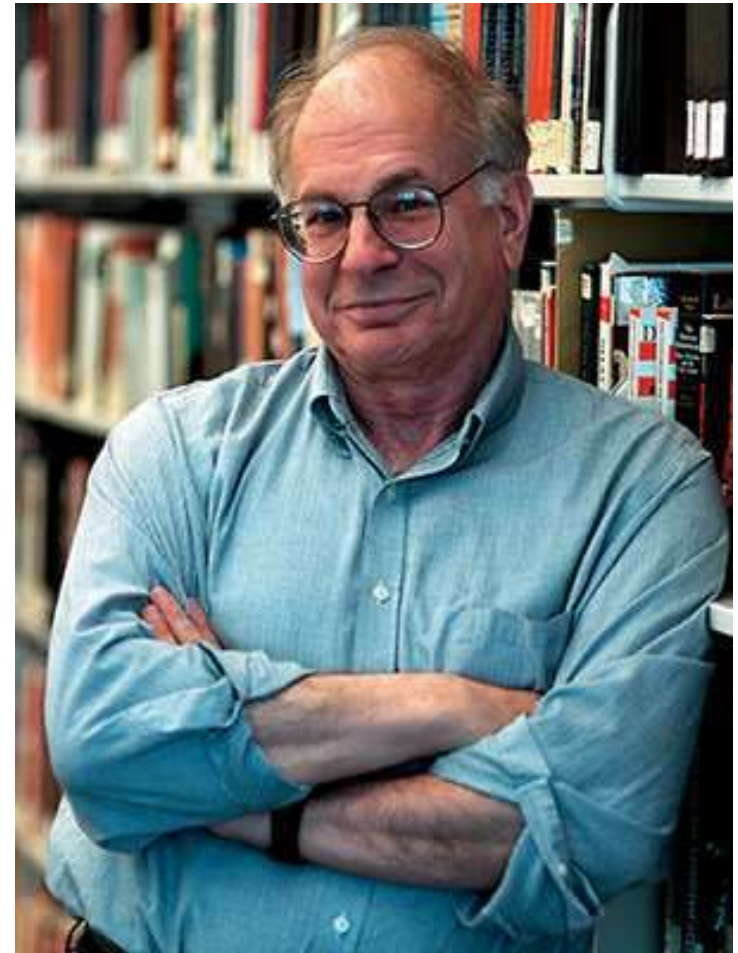
System 1 – Fast, effortless, automatic
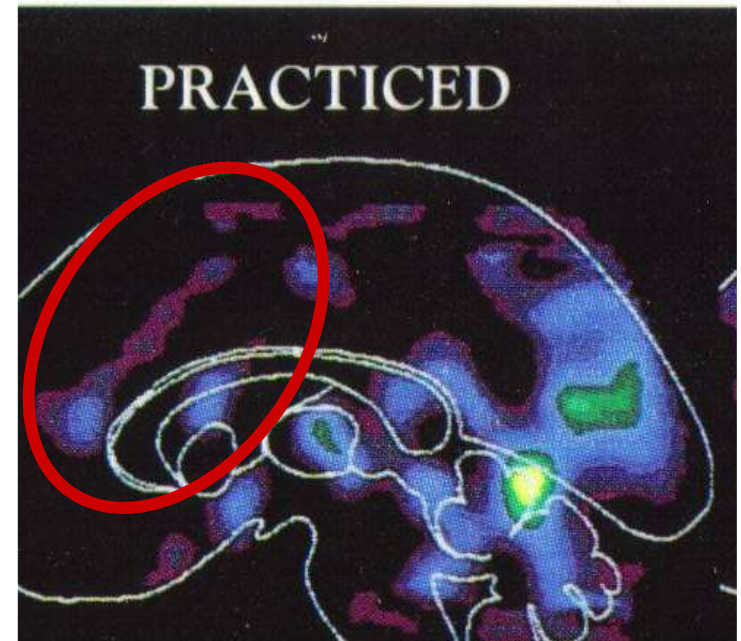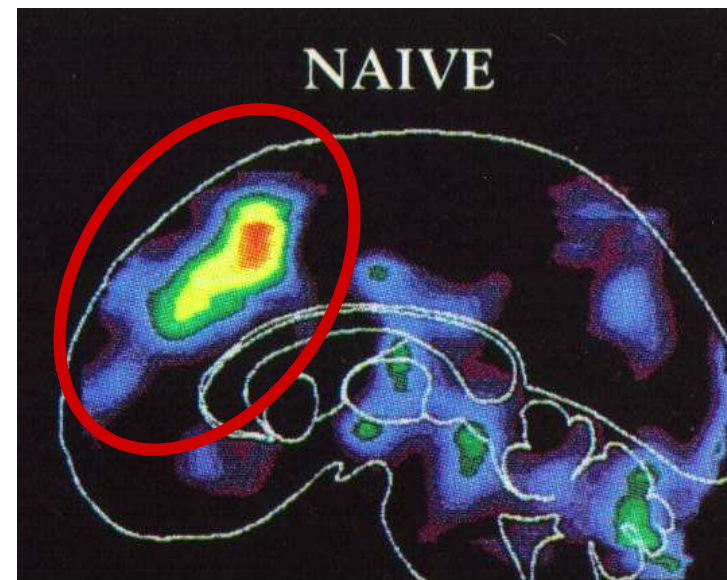
System 2 – Slow, effortful, non-automatic

Self Activation Interventions

- How do you take control of a brain whose control center is not awake?

- Use behavioral conditioning to create an automatically activated stimulus-response routine (alarm rings, get out of bed, turn on lights, get in the shower)

Self-Activation

DAILY PROGRESS BY CLASS

ENGAGEMENT	WEEK 1					WEEK 2					WEEK 3					WEEK 4				
	4-Feb	5-Feb	6-Feb	7-Feb	8-Feb	11-Feb	12-Feb	13-Feb	14-Feb	15-Feb	19-Feb	20-Feb	21-Feb	22-Feb	23-Feb	25-Feb	26-Feb	27-Feb	28-Feb	1-Mar
Math	3	3	3	3	2	0	2	0	0	1	1	0	3			0	3	2	2	3
Science	3			3	3	0	2	0	0	0		0	3			0	2	2	0	2
Social Studies	3	3	3	3	2	0	3	2	3	3	3	3	2			3		1		
English	3	2	3	3	0	3	3	0	3	0	0	0	3					3	3	3
Reading	3	3	3	3	0	0	3	3	3	3	3	3	3					3	3	3
Math Facts		0	3	3	3	0	3	0	3	0	3					3	0	3	3	3

ENGAGEMENT	WEEK 5					WEEK 6					WEEEK 7					WEEK 8				
	4-Mar	5-Mar	6-Mar	7-Mar	8-Mar	11-Mar	12-Mar	13-Mar	14-Mar	15-Mar	18-Mar	19-Mar	20-Mar	21-Mar	22-Mar	25-Mar	26-Mar	27-Mar	28-Mar	29-M
Math	3	3	3	1	3	3		2		1	0	0	1	0	3	1	0			
Science	0		2	1	3	3				0	0	0	0	0	3	1	3			
Social Studies	3	3	2	1	3	3				3	3	3	3	3	3	3				
English	2	2	3	1	3			3		3	3	3	0	3	3	3		3		
Reading		3	3	2	3			3		3	3	3	3	3	3	3	3	3		
Math Facts	0	3	0	3	3	3		3		3	3	3		3	0	3		3		

ENGAGEMENT	WEEK 9					WEEK 10					WEEK 11					WEEK 12				
	1-Apr	2-Apr	3-Apr	4-Apr	5-Apr	15-Apr	16-Apr	17-Apr	18-Apr	19-Apr	22-Apr	23-Apr	24-Apr	25-Apr	26-Apr	29-Apr	30-Apr	1-May	2-May	3-May
Math		2	2			3	0	0	3		0		0				3	0	0	3
Science		3	3			3	0	0	0	3	3		3				3	2	2	
Social Studies		3				3	1	3	3	3	3		3				1	2	2	0
English		3	3			2	0	1	3	3	0		3			3	0	3	3	
Reading		3	3			3	2	3	3	3	1		3			3	3	3	3	3
Math Facts		3	3			0		3	3	3	1						3	2	3	3

ENGAGEMENT	WEEK 13					WEEK 14				
	6-May	7-May	8-May	9-May	10-May	13-May	14-May	15-May	16-May	17-May
Math	0	1	0	1	2		0		1	1
Science	2	3	2	3	2	2	1		1	0
Social Studies	3	3	3	0		0			0	0
English		3	3	3	3	0	3		2	0
Reading		3	3	3	3	2	3		2	3
Math Facts		3			3					3

Key Concept

Effective use of Executive Functions can vary by Arena of Involvement as well as by Domain of Functioning.

Arenas of Involvement

Intrapersonal
Control of Self in
Relation to Self

Interpersonal
Control of Self in
Relation to Others

Environment
Control of Self in
Relation to
Surroundings

Symbol System
Control of Self in
Relation to Academics
(Reading, Writing, Math)

Key Concept

Virtually all individuals who struggle with psychological disorders exhibit executive control difficulties.

Executive Capacities and Clinical Diagnoses

"Deficits in PFC [prefrontal cortex, aka frontal lobes] function are evident in every neuropsychiatric disorder (indeed, the term "psychiatric problem" seems synonymous with PFC dysfunction)."

Arnsten & Robbins 2002 in *Principles of Frontal Lobe Function*

Executive Capacities and Clinical Diagnoses

- Most of the clinical conditions described in the DSM-V reflect some form of Executive Dysfunction

- The DSM-V can be thought of as "A User's Guide to All the Things That Can Go Wrong With the Frontal Lobes"

Executive Capacities and Clinical Diagnoses

- A sampling of conditions involving EF deficits:
  - Autism Asperger's Syndrome
  - ADHD and ADD
  - Conduct Disorder
  - Oppositional Defiant Disorder
  - Depression and/or Anxiety
  - Obsessive-Compulsive Disorder
  - Fetal Alcohol Syndrome

Key Concept

Executive Function Deficits

ADHD

All individuals with ADHD exhibit EF deficits but not all individuals that exhibit EC deficits are ADHD.

138

Executive Capacities and ADHD?

All individuals with ADHD have executive capacity deficits…

Executive Capacity Deficits
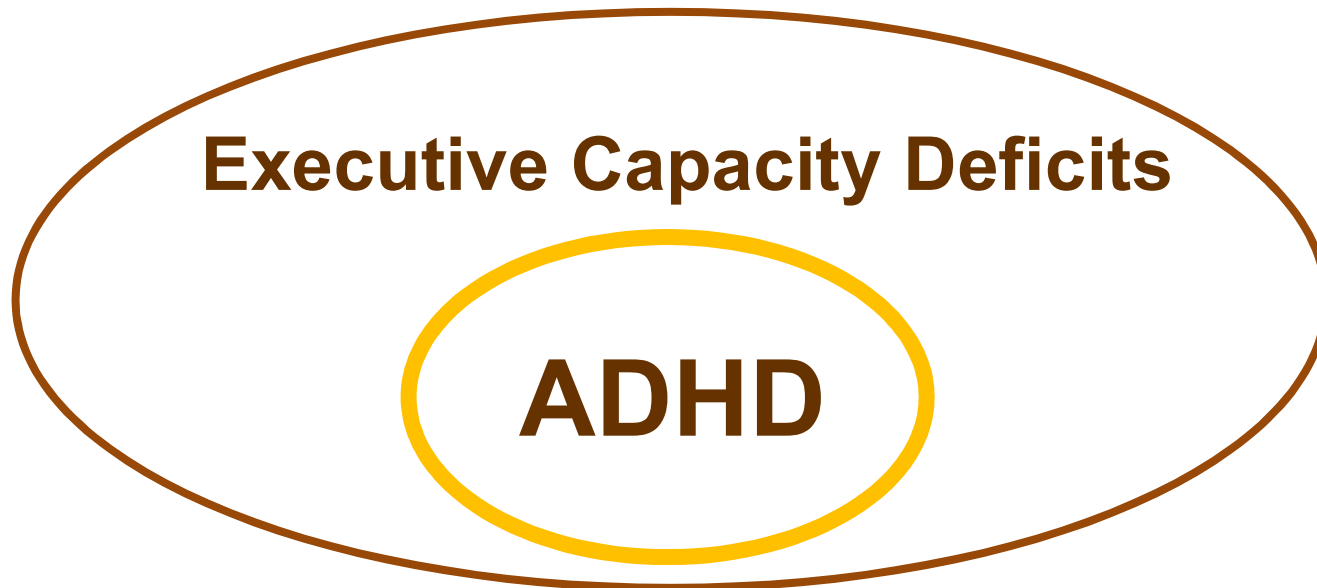
ADHD

…but not all individuals with executive capacity deficits have ADHD.

Executive Capacity and ADHD

- EF and ADHD are not synonymous terms; rather ADHD is a condition involving EF deficits in:

    - Focus/Select, Sustain, Inhibit, Modulate

- Nearly all persons with ADHD also have additional self-regulation EC difficulties; the nature of these additional difficulties is what makes ADHD so variable from one person to the next and what causes confusion in diagnosis.

Different Constellations

Perceive	Energize	Shift	Monitor		Est Time	Organize	Sense Time	Hold
Initiate	Flexible	Correct	Anticipate	Analyze	Plan	Sequence	Manipulate
Stop			Associate	Evaluate		Pace	Store
Interrupt	Balance	Gauge	Generate	Decide	Execute	Retrieve

Same Core

Focus — **Sustain** — **Modulate** — **Inhibit**   **Alan Age 10**

Focus — **Sustain** — **Modulate** — **Inhibit**   **Katie Age 11**

Perceive	Energize	Shift	Monitor		Est Time	Organize	Sense Time	Hold
Initiate	Flexible	Correct	Anticipate	Analyze	Plan	Sequence	Manipulate
Stop			Associate	Evaluate		Pace	Store
Interrupt	Balance	Gauge	Generate	Decide	Execute	Retrieve

Different Constellations

Executive Capacities and ADHD

- Pharmacological treatment of ADHD usually only addresses the problems associated with the ECs specific to ADHD (Inhibit, Modulate, Focus/Select, Sustain)

- Most persons with ADHD will require additional interventions to assist with the additional self-regulation EC difficulties that persist even when medication is being used effectively to treat the primary ADHD problems.

Executive Capacities and School

- Although executive capacities are used to guide cognitive processing involved in new learning, many new learning situations are structured in ways that reduce the need for the use of executive capacities.

- In contrast, demonstrating what has been learned usually requires significant involvement of one or more executive capacities.

Key Concept

vs
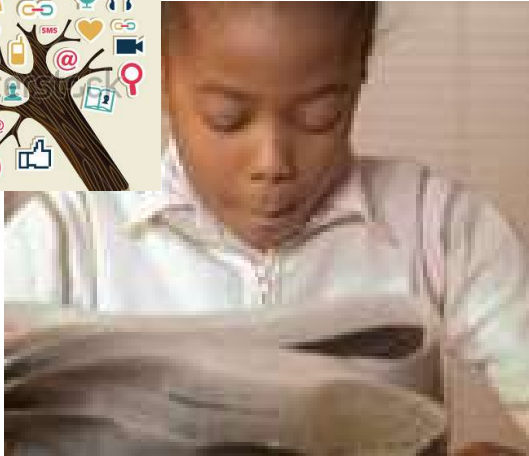
Producing difficulties are different from learning difficulties; producing difficulties reflect poor use of executive functions.

Producing versus Learning

Executive Capacity difficulties of a severe nature (especially in the Symbol System Arena) do not result in Learning Difficulties; they result in Producing Difficulties.

vs

A General Model for Conceptualizing Learning and Producing Difficulties

Learning Difficulties Only

Learning Difficulties And Producing Difficulties

Producing Difficulties Only

Often NOT recognized as a Learning Disability, even when severe, unless an evaluation involving process assessment is done

Recognized fairly quickly as a Learning Disability

When severe, typically attributed to lack of motivation, character flaws, or behavior/personality problems

Key Concept

Intervention efforts require a therapeutic perspective that emphasizes a Growth Mindset over a Fixed Mindset and a patient belief in the idea that EF difficulties "won't last forever; but probably longer than you would like."
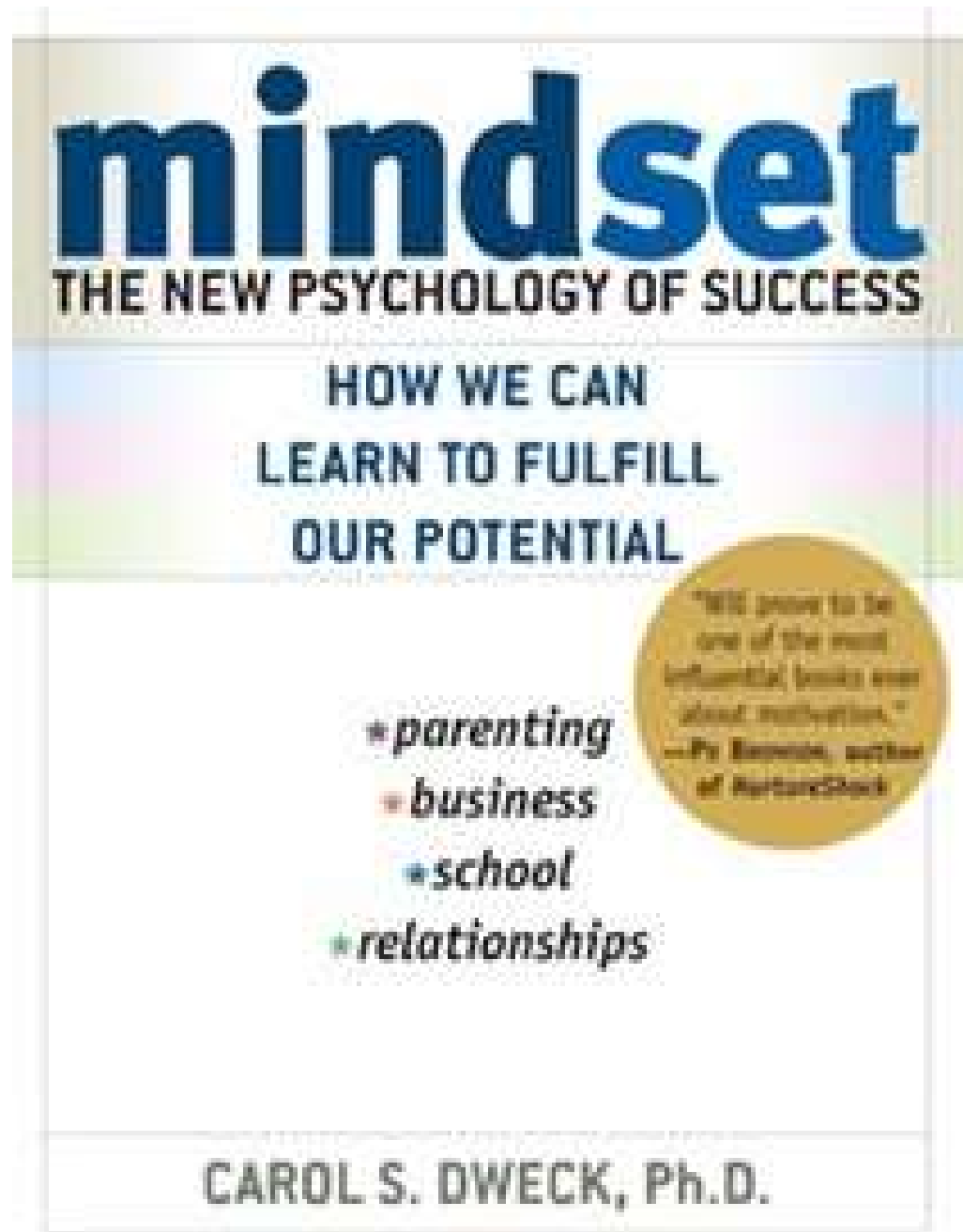
mindset
THE NEW PSYCHOLOGY OF SUCCESS

HOW WE CAN
LEARN TO FULFILL
OUR POTENTIAL

* parenting
* business
* school
* relationships

"Will prove to be one of the most influential books ever about motivation."
—Po Bronson, author of NurtureShock

CAROL S. DWECK, Ph.D.

Zeno's Paradox

- An arrow is released at a target.
- At any point in the arrows flight toward the target, the distance between the arrow and the target can be halved.
- Mathematically, the distance between the arrow and the target therefore can be halved infinitely such that the arrow never really reaches the target.

Zeno's Paradox
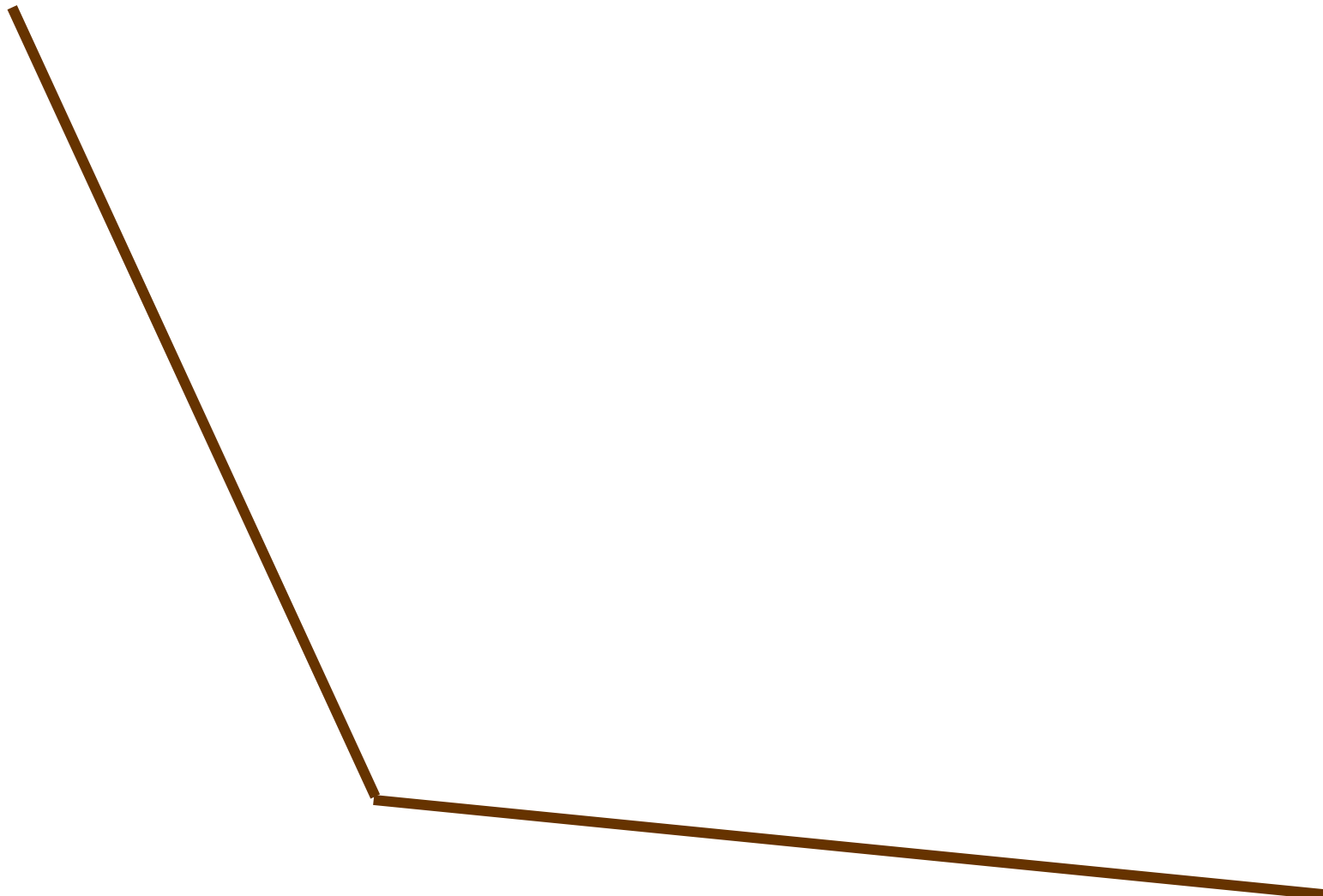
Langer: Reverse Zeno's Paradox

- Every intervention starts with an infinitely small step toward positive growth.
- Each successive step doubles in impact.
- Response to intervention therefore may not be noticeable until long after the intervention has started.
- Once positive change is detectable, it seems to increase dramatically in a short period of time.

152

Langer: Reverse Zeno's Paradox
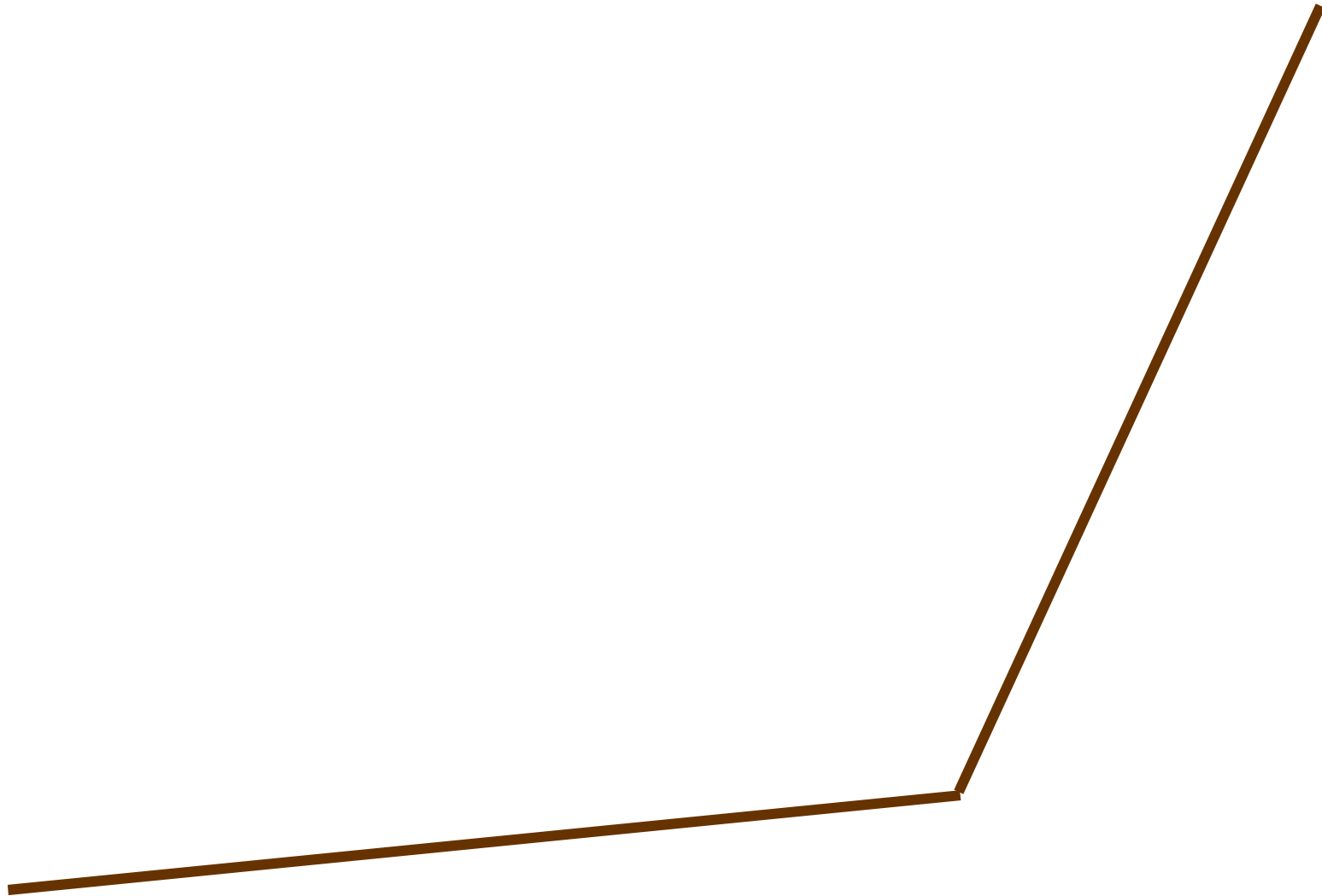
Reverse Zeno's Paradox: Jake's Case

- Neurodevelopmental complications due to Polygyria

- At age 7 Jake was self-regulating at a 5 month level.

- With intensive intervention, at age 14 Jake was self-regulating at a 5 ½ year level.

- Nearly all of Jake's improvements in self-regulation occurred between ages 12 ½ and 14

- 7 years of intervention with gains realized only in the last 18 months of that time period.

154

Key Concept

Executive Capacities activation can be internally or externally driven; EFs can cue the use of learned strategies.

Internal versus External Control

The neural circuits for executive function activation are routed differently depending on whether the activation is based on an internally driven desire or command versus an external demand.

Internal versus External Control

Because internally driven production is much easier to accomplish than externally demanded production for children with "producing difficulties" their lack of production on demand often stands in stark contrast to their seemingly effortless production "when the spirit moves them."

Internal versus External Control

The on-demand deficiencies observed by others are often attributed to negative personal characteristics such as lack of responsibility, apathy, passive aggressive stance, or oppositional defiance.

Production based on External Demand:
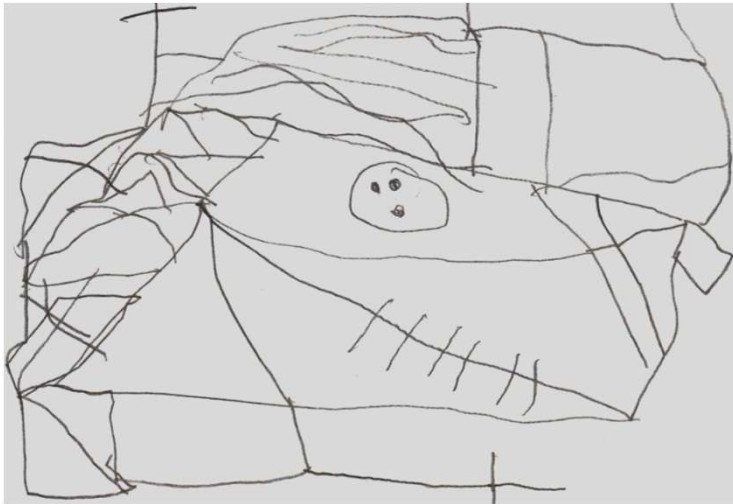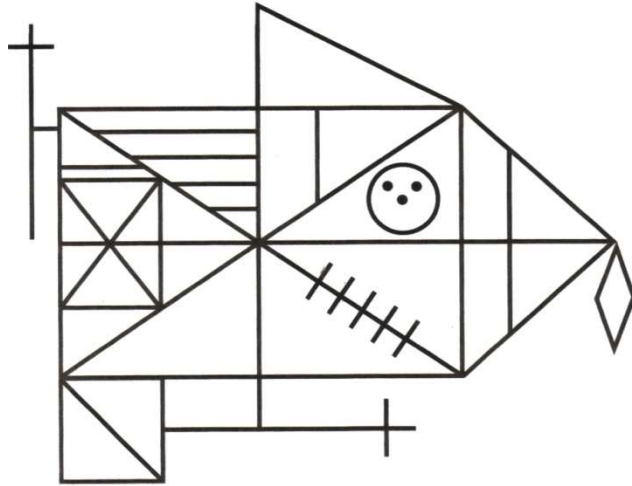
Production based on Internal Command:
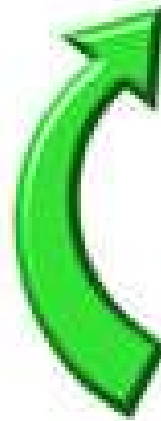
James Age 10, Rey Complex Figure Copy:
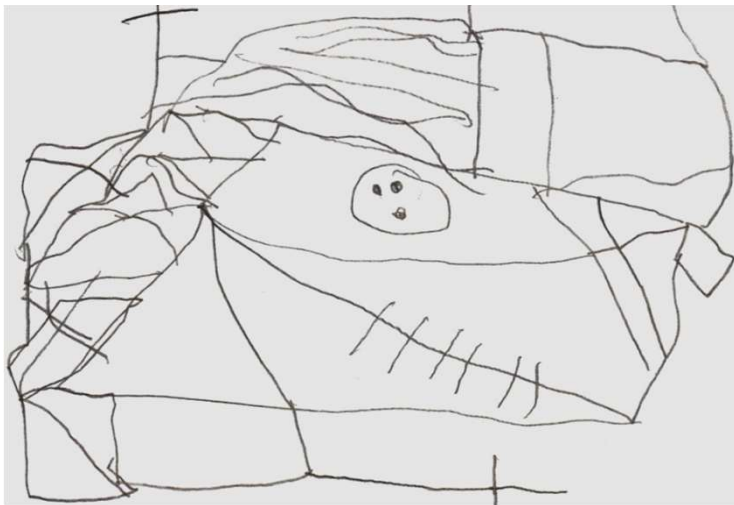
Self-initiated

Verbally Mediated
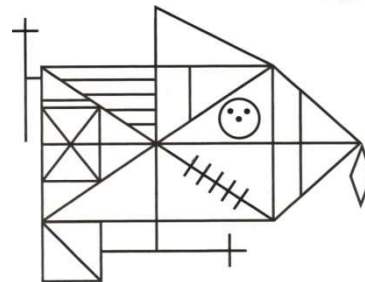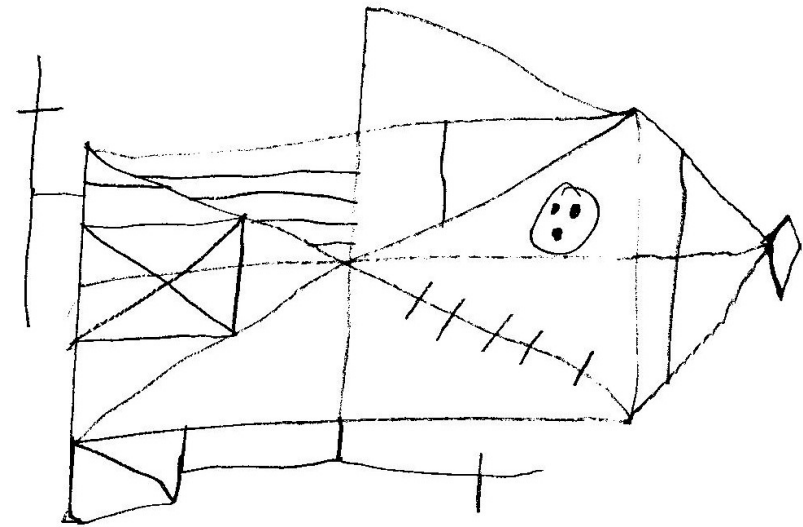
Martin Age 9, Rey Complex Figure Copy:

**Self-initiated
Nov, 2010**
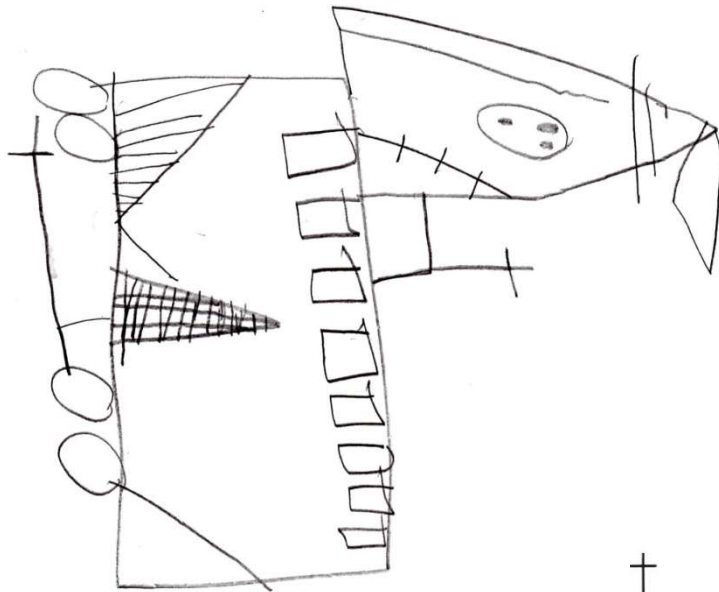
**Verbally Mediated
August, 2011**
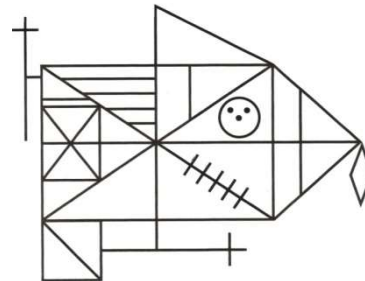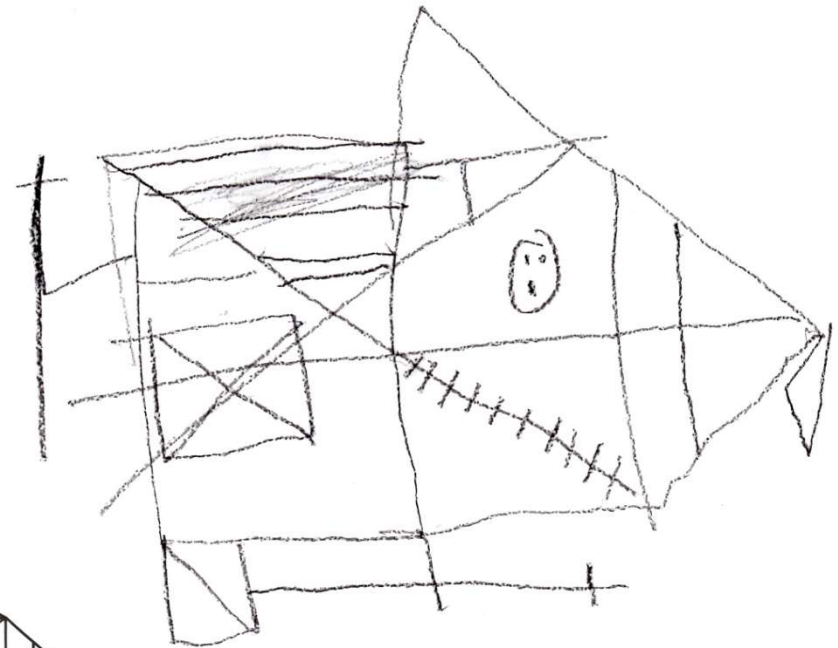
Questions about Intelligence

- Do you believe it is possible to raise a child's FSIQ from 70 to 100 through intervention?

- Can it be done in 6 months? A year? Two years?

Martin's WISC Score Changes

	11/2010	4/2013	9/2015
FSIQ	**70**	**99**	**103**
GAI	83	105	108
VCI	73	95	106
PRI/FRI	94	117	112
VSI	--	--	111
WMI/AWMI	62	97	94
PSI	68	85	98

Martin's Achievement Score Changes

	11/2010	4/2013	9/2015
Wd Reading	71	94	98
Wd Decoding	81	97	98
Rdg Fluency	66	95	100
Rdg Comp	--	87	82
Rdg Vocab	--	93	112

The Multidimensional Nature of Executive Capacities

- Use of Executive Capacities varies depending on:
  - the arena(s) of involvement in which the EF(s) are operating,
  - the domain(s) being directed by the EF(s)

The Multidimensional Nature of EC Assessment

- The Multidimensional Nature of the use of Executive Capacities necessitates a Multidimensional approach to their assessment.

- Assessment of Executive Capacities needs to address the use of ECs within all four domains of functioning and across all four arenas of involvement
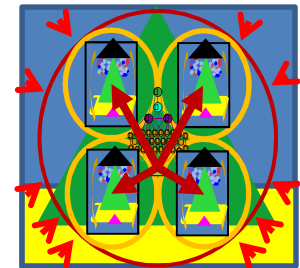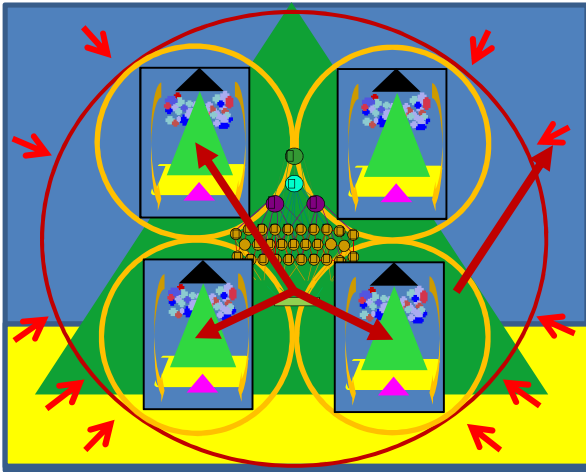
Key Concept

Effective EC assessment is multidimensional in nature and addresses the use of ECs within **all** four domains of functioning and across all four arenas of involvement.

EC Assessment Perspective x Method

Assessment Perspective	Assessment Method	
	Formal Methods – Using interviews, records reviews, and observation and interpretation methods that make use of standards established through normative comparisons	Informal Methods – Using interviews, records reviews, and observation and interpretation methods that do not make use of standards established through normative comparisons
Indirect Perspective – Collecting information in a manner that does not require direct contact with, or observation of, the client	Behavior Rating Scales Parent & Teacher Behavior Rating Scales Self-Report Rating Scales (e.g., BRIEF or MEFS Parent, Teacher and Self Rating forms)	Interviews of Parents, Teachers (e.g., use of the EFSO) Review of School Records Process-oriented Interpretation of Parent and Teacher Ratings and Self Reports
Direct Perspective – Collecting information through direct interactions with, or through direct observations of, the client	Individually-Administered Standardized Tests (e.g., D-KEFS, NEPSY-II, WCST, BADS, BADS-C)	Child Interview Systematic and Nonsystematic Behavioral Observations (e.g., use of the EFSO and EFCO) Process-oriented Interpretation of Standardized Test Performance and Classroom Work Samples
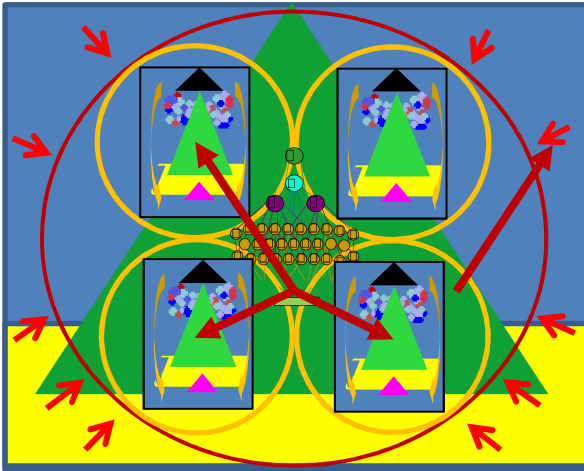
Key Concept

The most effective approach to EC assessment involves
1) Clinical interview(s)
2) Use of additional data collection methods to test hypotheses generated from the interview(s)

Assessment of Executive Capacities

Norm-referenced assessments of executive capacities are currently available, including:

- Individually-administered tests
- Behavior rating scales
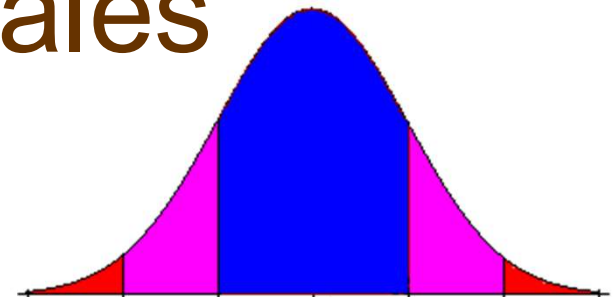
Assessment of Executive Capacities

The limitations of the current methods available need to be understood and taken into account when conducting an assessment.
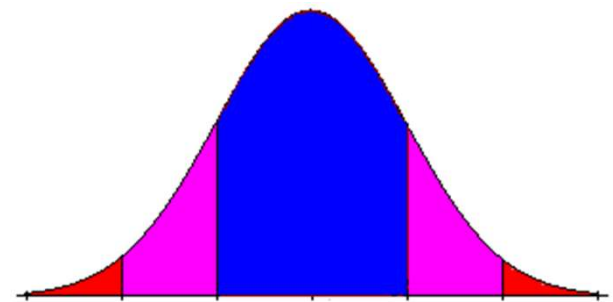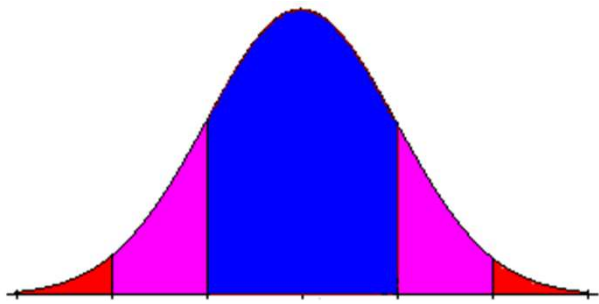
Key Concept

Standardized, individually-administered measures of executive functions only assess the use of executive capacities within the Symbol System Arena.

EC Assessment Using Individually Administered Tests
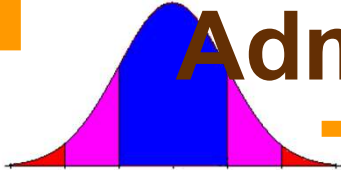
	Perception	Emotion	Cognition	Action
Self				
Others				
Environ-ment				
Symbol Systems	X		X	X
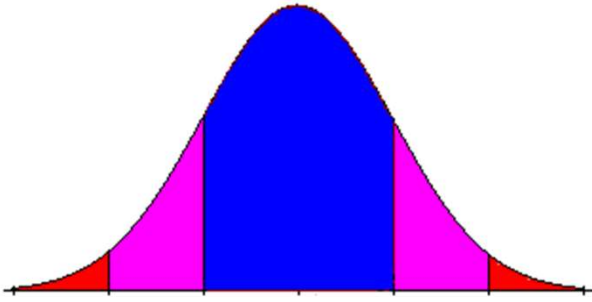
Key Concept

Although limited in scope, individually-administered assessment of executive capacities can provide valuable information about the clients ability to self-regulate perception, cognition and action within the Symbol System arena, especially in school.

174

The Multidimensional Nature of EC Assessment

The most effective approach to EC assessment involves:

- Conducting a thorough clinical interview(s)

- Using additional data collection methods to test hypotheses generated from the interview(s)

The Multidimensional Nature of EC Assessment

Conducting a thorough clinical interview:

- Identify arenas of involvement that are of concern.
- Within the arenas of concern:
  - Identify domains of functioning that are of concern
  - Identify the specific executive capacity levels that are of concern
  - Identify the specific executive capacities that are of concern within the level

The Multidimensional Nature of EF Assessment

Use additional data collection methods to test hypotheses generated from the clinical interview:

- Parent, Teacher, Self Report and Adult Inventories

- Background information/Records review

- Individually-administered standardized testing (for Symbol System arena concerns)

Parent, Teacher, Child & Adult Inventories

BRIEF (Behavior Rating Inventory of Executive Functions; 1996)

D-REFS (Delis Rating of Executive Function; 2012)

BDEFS-CA (Barkley Deficits in Executive Functioning Scale; 2012)

CEFI (Comprehensive Executive Functions Inventory; 2013)

Check List

Parent, Teacher, Child & Adult Inventories

Ideally, behavior rating inventories would offer coverage of a broad array of executive capacities across all 4 domains within all 4 arenas of involvement.

Check List

Advances in the Assessment of ECs Using Rating Scales

Parent, Teacher, Self-Report Inventories

The McCloskey Executive Function Scales (MEFS) assess 33 self-regulation executive functions across multiple domains of function within multiple arenas of involvement:

- School (Symbol System)
- Social (Interpersonal)
- Self (Intrapersonal)

MEFS Interpretive Levels Framework 1

7 Self-Regulation
Executive Function Clusters

31 Self-Regulation
Executive Functions

87 Self-Regulation
Executive Function
Items
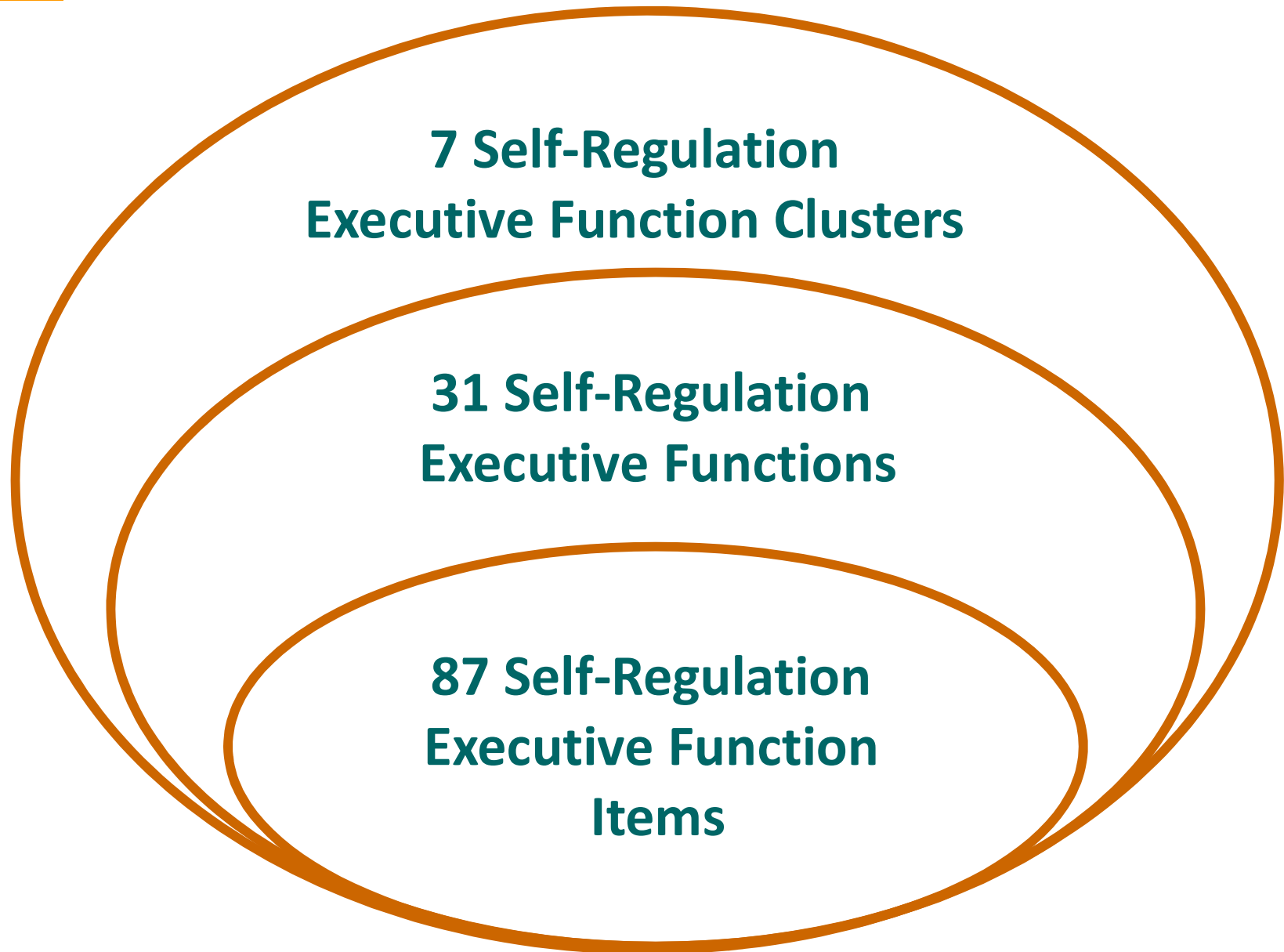
MEFS Interpretive Levels Framework 2

7 Self-Regulation
Executive Function Clusters

7 Self-Regulation
Executive Function Clusters
Within 2 Arenas

31 Self-Regulation
Executive Functions
Within 2 Arenas

87 SREF Items
Within 2 Arenas

MEFS Parent, Teacher, Self-Report Forms

Raters make judgments about level of competency as well as frequency:

- Frequency of EC Strength (ECS)
- Frequency of Executive Function Deficit (EFD)
- Frequency of Executive Skill Deficit (ESD)

MEFS Parent, Teacher, Self-Report Forms

5	AA	Always or almost always does this on his or her own. Does not need to be prompted or reminded (cued) to do it.
4	F	Frequently does this on own without prompting
3	S	Seldom does this on own without being prompted, reminded, or cued to do so.
2	AP	Does this only after being prompted, reminded, or cued to do it.
1	DA	Only does it with direct assistance. Requires much more than a simple prompt or cue to be able to get it done in situations that require it.
0	UA	Unable to do this, even when direct assistance is provided.

MEFS Parent, Teacher, Self-Report Forms

Attention Cluster

BECOMING AWARE
Knows what he or she should be doing for school tasks and knows when to do it.
Makes eye contact with, listens to, and touches others in an appropriate way in social situations.
FOCUSING ATTENTION
Focuses attention on school tasks.
Focuses attention on others in social situations.
SUSTAINING ATTENTION
Sustains attention for school tasks until a task is completed.
Sustains attention to others in social situations.

MEFS Parent, Teacher, Self-Report Forms

Engagement Cluster

INHIBITING
Waits for turn.
Considers the consequences before saying or doing things he or she may regret.
Refrains from acts of physical aggression.
Does not make inappropriate or thoughtless comments (for example, name-calling, insulting, inappropriately tattling on others).
Controls emotional reactions well in frustrating situations.
Maintains emotional control when disagreeing with others.

MEFS Parent, Teacher, Self-Report Forms

Optimization Cluster

MODULATING OR ADJUSTING
Physical activity level fits the situation when doing school tasks (Not hyperactive or inactive).
Physical activity level fits the situation when working in a group (Not hyperactive or inactive).
Emotional response fits the situation when working on school tasks (Doesn't overreact or underact).
Emotional response fits the situation when interacting with others (Doesn't overreact or underreact).
Avoids being overstimulated or understimulated by sights, sounds, or touches.

MEFS Teacher Inventory

Clinical Group Mean Item Ratings by Cluster

CLUSTER	NONE	S/L	LD	ADHD -M	ADHD -N	ID	ASD	ED
Attention	4.2	4.1	3.4	3.3	3.0	2.8	2.3	2.7
Engagement	4.3	4.2	3.6	3.3	3.1	2.9	2.5	2.1
Optimization	4.1	3.9	3.3	2.9	2.7	2.4	2.2	1.8
Efficiency	4.0	3.8	2.9	3.1	2.9	2.2	2.4	2.2
Memory	4.1	3.9	2.8	3.4	3.2	2.5	2.4	2.1
Inquiry	3.9	3.6	2.8	2.7	2.5	1.8	1.9	1.7
Solution	3.9	3.6	2.7	2.8	2.6	1.9	1.7	1.9

Table 3.8 Percentages of Non-identical Executive Capacity Level Classifications between Ratings within the Academic Arena and the Self/Social Arena

Self-Regulation Cluster	Non-clinical Standardization		Clinical Samples (Clinical Standardization and Additional Cases)					
	Female (*n*=442)	Male (*n*=371)	Speech/ Language (*n*=34)	Learning Disability (*n*=48)	ADHD Medicated (*n*=47)	ADHD Nonmed (*n*=56)	Autism (*n*=38)	Emotional/ Behavioral (*n*=21)
	Percent of Cases with Non-identical Classifications across Arenas							
Attention	17%	27%	15%	31%	36%	43%	32%	48%
Engagement	14%	20%	9%	17%	23%	23%	13%	24%
Optimization	13%	20%	38%	42%	17%	30%	29%	29%
Efficiency	17%	24%	21%	42%	21%	18%	10%	71%
Memory	20%	22%	18%	54%	43%	25%	21%	43%
Inquiry	20%	21%	32%	44%	28%	25%	18%	24%
Solution	16%	24%	26%	52%	30%	29%	18%	38%

190

Table 3.9 Percentages of Students Rated as Exhibiting Executive Function or Executive Skill Deficits

Self-Regulation Cluster/Arena	Non-clinical Standardization		Clinical Samples (Clinical Standardization and Additional Cases)					
	Female (*n*=442)	Male (*n*=371)	Speech/ Language (*n*=34)	Learning Disability (*n*=48)	ADHD Medicated (*n*=47)	ADHD Nonmed (*n*=56)	Autism (*n*=38)	Emotional/ Behavioral (*n*=21)
	Percentages of Students with Executive Function and/or Executive Skill Deficits							
Attention-Acad.*	25%	38%	41%	67%	77%	86%	84%	76%
Attention-Se/So*	16%	23%	22%	50%	57%	54%	87%	76%
Engage-Acad.	24%	38%	35%	65%	81%	87%	87%	100%
Engage-Se/So	19%	34%	26%	50%	68%	75%	89%	90%
Optimize-Acad.	31%	51%	56%	87%	85%	93%	87%	95%
Optimize-Se/So	24%	37%	38%	62%	81%	80%	92%	95%
Efficiency-Acad.	34%	46%	53%	90%	79%	89%	87%	100%
Efficiency-Se/So	35%	41%	53%	77%	70%	77%	89%	90%
Memory-Acad.	33%	33%	38%	97%	70%	73%	87%	80%
Memory-Se/So	18%	23%	41%	70%	47%	54%	87%	71%
Inquiry-Acad.	40%	53%	62%	90%	87%	96%	95%	90%
Inquiry-Se/So	34%	49%	50%	73%	83%	87%	95%	95%
Solution-Acad.	45%	52%	65%	92%	81%	96%	92%	100%
Solution-Se/So	38%	45%	53%	81%	68%	79%	97%	90%

Table 3.10 Percentages of Students Rated as Exhibiting Executive Skill Deficits

Self-Regulation Cluster/Arena	Non-clinical Standardization		Clinical Samples (Clinical Standardization and Additional Cases)					
	Female (*n*=442)	Male (*n*=371)	Speech/ Language (*n*=34)	Learning Disability (*n*=48)	ADHD Medicated (*n*=47)	ADHD Nonmed (*n*=56)	Autism (*n*=38)	Emotional/ Behavioral (*n*=21)
	Percentages of Students with Executive Skill Deficits							
Attention-Acad.	2%	4%	0%	21%	11%	20%	34%	19%
Attention-Se/So	1%	1%	0%	6%	4%	7%	37%	10%
Engage-Acad.	1%	3%	0%	8%	15%	23%	40%	48%
Engage-Se/So	1%	1%	0%	6%	13%	13%	29%	33%
Optimize-Acad.	1%	3%	6%	15%	26%	29%	40%	48%
Optimize-Se/So	0%	2%	3%	6%	17%	14%	47%	38%
Efficiency-Acad.	3%	5%	9%	31%	17%	21%	37%	48%
Efficiency-Se/So	1%	3%	6%	13%	6%	14%	34%	19%
Memory-Acad.	3%	5%	9%	35%	15%	13%	34%	38%
Memory-Se/So	1%	2%	3%	10%	4%	11%	42%	14%
Inquiry-Acad.	4%	6%	15%	38%	32%	30%	50%	48%
Inquiry-Se/So	1%	4%	15%	19%	17%	21%	42%	43%
Solution-Acad.	4%	7%	12%	42%	32%	27%	47%	57%
Solution-Se/So	1%	4%	9%	19%	17%	20%	53%	29%

MEFS Teacher Inventory

EF Deficit Percentages within the Attention Cluster

Attention Cluster SREF	NONE n=813 %	S/L n=34 %	LD n=48 %	ADHD -M n=47 %	ADHD -N n=56 %	ASD n=38 %	ED n=21 %
Percieve -A	17	27	54	38	71	71	67
Percieve -S	14	24	35	36	43	79	62
Focus -A	25	27	65	68	71	78	71
Focus -S	13	15	33	45	34	82	57
Sustain -A	28	32	65	79	84	76	76
Sustain -S	14	21	35	49	48	87	62

MEFS Parent & Teacher Cluster Strengths & Deficits

Cluster		Arena					
		Academic			Self/Social		
		Parent	Teacher	Isaac	Parent	Teacher	Isaac
EFS = EF Strength		EFD = Executive Function Deficit			ESD = Executive Skill Deficit		
Attention	EFS			1	3	3	1
	EFD	1	2	2			2
	ESD	2	1				
Engagement	EFS	2	2	4	14	15	13
	EFD	1	5	3	1		2
	ESD	4					
Optimization	EFS	1	3	3	6	7	6
	EFD	2	3	3	1	1	2
	ESD	3			1		
Efficiency	EFS	3	5	1	3	3	2
	EFD	2	5	9	1	1	2
	ESD	5					
Memory	EFS	1	2	2	4	3	4
	EFD	2	1	1		1	
	ESD						
Inquiry	EFS	1		2	3	6	6
	EFD		4	3	2		
	ESD	4	1		1		
Solution	EFS	1	1	3	5	7	5
	EFD		5	2	1		2
	ESD	5		1	1		
TOTAL	EFS	9	13	17	38	44	37
	%	22%	32%	42%	81%	94%	79%
	EFD	8	25	22	6	3	10
	%	20%	63%	55%	13%	6%	21%
	ESD	23	2	1	3	0	0
	%	58%	5%	3%	6%	0%	0%

Key Concept

EFs in the Symbol System arena are best assessed by using methods that can reveal Cascading Production Decrements or Cascading Production Increments

Cascading

Production

Decrement

Construct

Start here

Construct + EF

Construct + + EF

Construct+ + + EF

Progressive deterioration of performance is observed as executive function demands (+ EF) become greater.
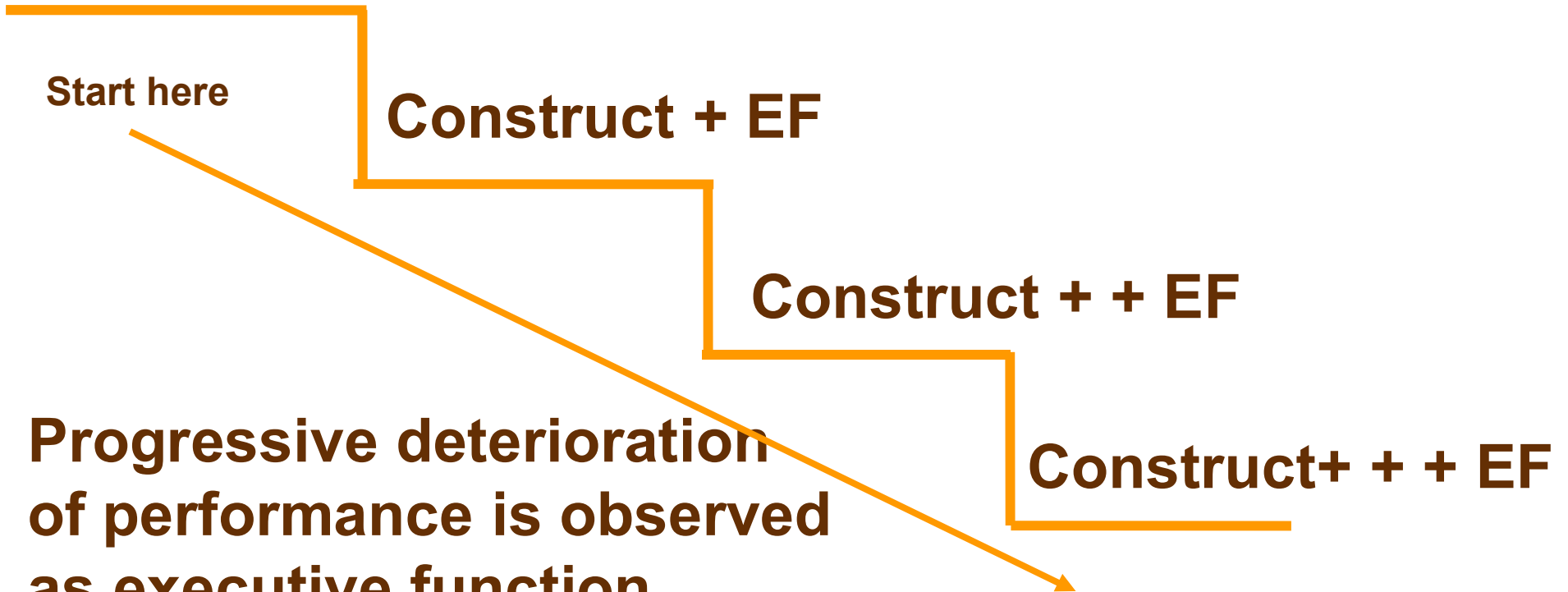
Individually-administered Assessments of EF

- Identify a specific cognitive construct baseline using a measure that minimizes EF involvement.

- Select and use a measure that adds executive function demands to the baseline construct and observe the results.

- Continue to add additional EF demands and observe results.

Cascading

Production

Decrement

Visuo-motorAbility: Design Copying

Ability + EF: BVMGT

Ability + + EF

Ability + + + EF: RCFT

Start here

Progressive deterioration of performance is observed as executive function demands (+ EF) become greater.
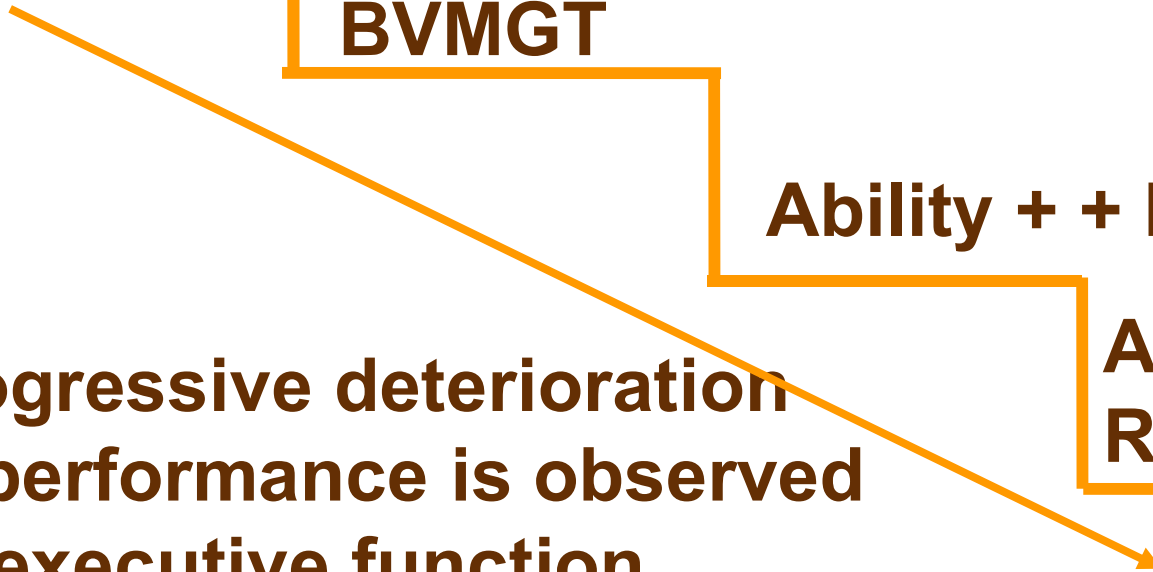
Assessing Retrieval Fluency

Examples:

- Naming animals in 60 seconds
- Naming foods in 60 seconds
- Naming words that begin with the letter "s" in 60 seconds
- Naming words that begin with the letter "f" in 60 seconds

Assessing Retrieval Fluency

Examples of response patterns:

- Semantic "Flooding" – Retrieval with minimal executive direction; uncontrolled flow of words

- Controlled Access – Executive Functions used to organize retrieval of words by semantic clusters

Assessing Retrieval Fluency

Examples of response patterns:

- Semantic "Flooding" results in uneven performance across a 60 second interval with decreased production in each successive 15 second interval.

Assessing Retrieval Fluency

Time	Description	Responses
1" – 15"	Largest number of responses	15 responses
16" – 30"	Reduced number of responses	4 responses
31" – 45"	Reduced number of responses	1 response
46" – 60"	Few, if any, responses	0 responses
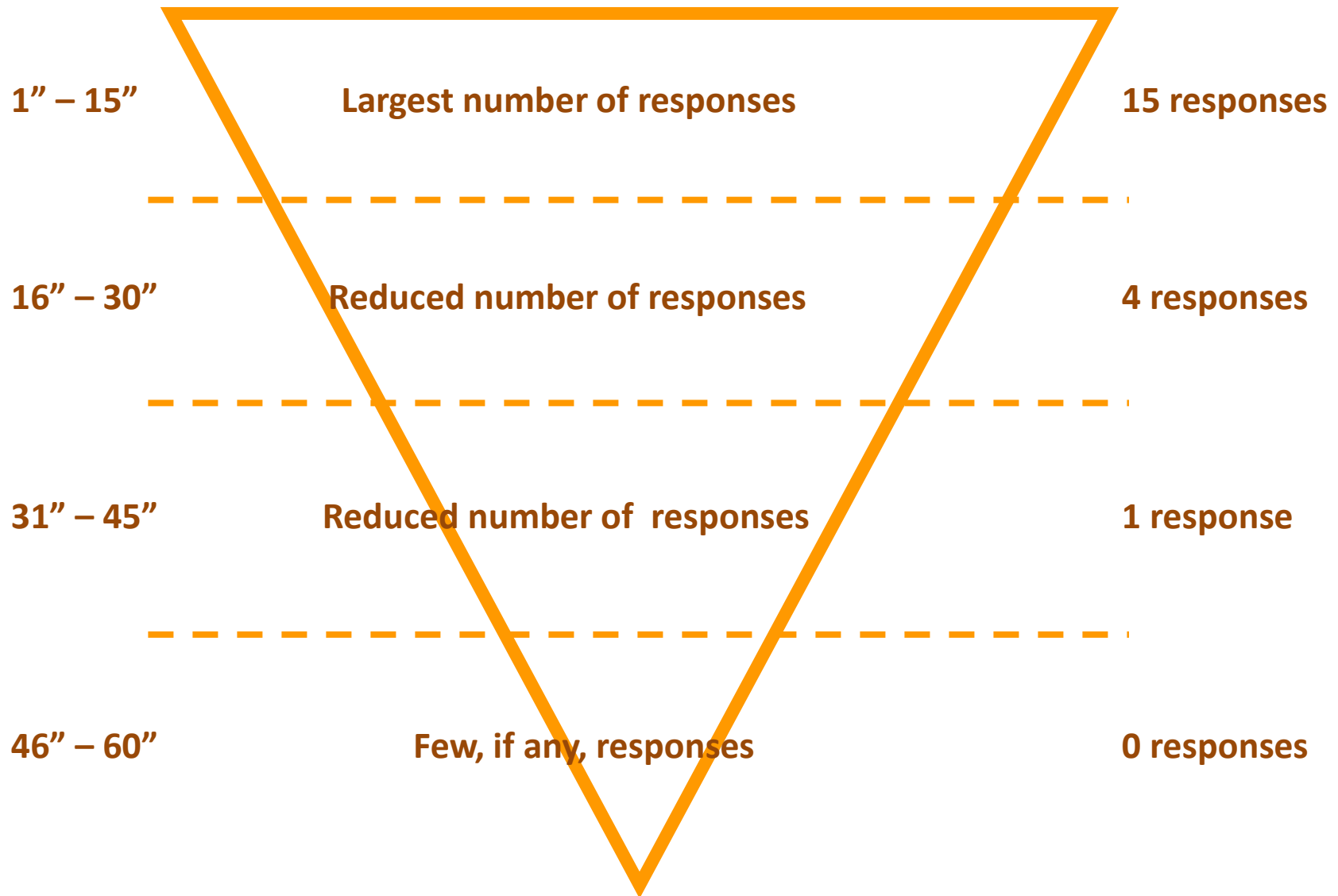
Assessing Retrieval Fluency

Examples of response patterns:

- Controlled Access typically results in a more even distribution of responses across a 60 second interval. Responses are often reflect organized, sequential access of various subcategories (e.g., water animals; flying animals; farm animals; forest animals; jungle animals;

Assessing Retrieval Fluency

1" – 15"	Similar	6 responses
16" – 30"	numbers of	6 responses
31" – 45"	responses for	5 responses
46" – 60"	each interval	5 responses

Cascading

Production

Decrement

Start here

**Retrieval Ability:
Semantic Fluency**

**Retrieval
Ability + EF:
Initial Letter Fluency**

**Progressive deterioration
of performance is observed
as executive function
demands (+ EF) become
greater.**

Functional Behavior Assessment

The focus of a traditional FBA:

"Behavior support plans are designed to alter patterns of problem behavior. The process by which this is done, however, involves change in the behavior of family, teachers, staff, or managers in various settings. Plans of behavior support define what *we* will do differently. It is the change in our behavior that will result in improved behavior of the focus person." (O'Neill, Horner, Albin, Sprague, Storey, & Newon, 1997, p. 65).

Functional Behavior Assessment

A ⟶ B ⟶ C

In traditional functional behavior assessments antecedents are said to TRIGGER the behavior that results in the consequences, but the reasons WHY the antecedents trigger the behavior is not really addressed.

FBA: Is A-B-C Enough?

- Since the antecedent does not trigger the same undesirable behaviors in ALL students in the same situation, there must be something about the students that differs in an important way.

- Functional behavior assessment ignores internal considerations (i.e., perceptions, emotions, thought) and focuses on applying external control to effect change in behavior.

The EF Driven FBA

Informed by knowledge of executive capacities, the functional behavior assessment model can be revised as follows:

A

Key Concept

An EF-Driven FBA enables problems to be clearly stated in terms of perceptions, emotions, thoughts or actions that can be changed through intervention.

B

C

211

EF- Driven FBA

The goals of an EF-driven FBA are:

1) to help the child, the parents, and professionals to understand the nature of the deficit and

2) through proper intervention, to assist the child or adolescent in changing the behavior from a negative to positive.

Progress Monitoring

Progress monitoring techniques for interventions targeting the improvement of the use of executive functions.

Self Regulation Capacity: Focusing and sustaining attention when working independently on tasks.

Duration	Frequency						
	1 Never 0% of the time.	2 Occasionally Approximately 10% of the time.	3 Sometimes Approximately 20%-40% of the time.	4 Often Approximately 50%-70% of the time.	5 Very Often Approximately 80% of the time.	6 Almost Always Approximately 90% of the time.	7 Always 100% of the time.
1 Unable to focus and sustain attention for more than a few seconds when independently working on tasks.							
2 Able to focus and sustain attention for about 1 minute when working independently on tasks.							
3 Able to focus and sustain attention for about 2-3 minutes when working independently on tasks.							
4 Able to focus and sustain attention for about 5 minutes when working independently on tasks.							
5 Able to focus and sustain attention for about 10 minutes when working independently on tasks.							
6 Able to focus and sustain attention for about 15 minutes when working independently on tasks.							
7 Able to focus and sustain attention for 20 or more minutes when working independently on tasks.							

Goal 1: Managing Frustration and Engagement

3	**Fully engaged without frustration**	Maintained positive engagement throughout class and no frustration was apparent.
2	**Frustration managed with self cued strategy**	Frustration was apparent but was effectively managed and positive engagement occurred likely due to self-cued use of strategies.
1	**Frustration managed with teacher cue or Reset**	Frustration was apparent but was effectively managed and positive engagement occurred after teacher provided a cue for strategy use Or Zach returned after using the Reset strategy.
0	**Frustration not managed**	Frustration was apparent and strategy use was cued by teacher but positive engagement did not occur and student left class.

215

Executive Capacity Difficulties

- Are they the result of:
- Disuse through Nonconscious Choice
- Maturational Delay
- Innate Deficiency
- Disuse through Conscious Choice

Cognitive Strategy Instruction

Case Example: Zach

Chapter 21
Motivational
Interviewing with
Adolescents
and Young Adults

*John S. Baer and Peggy
L. Peterson*

Page 320 - 332
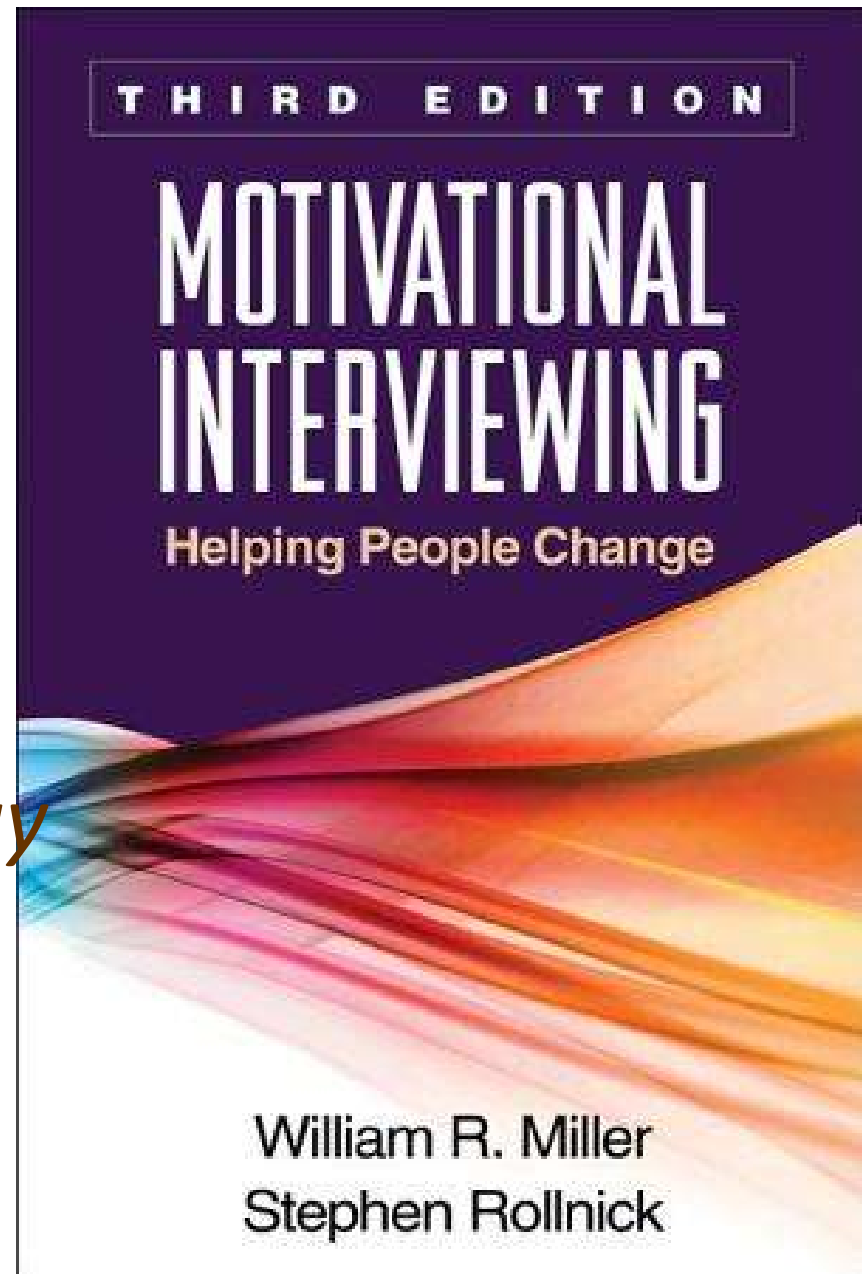
Motivational Interviews with Zach

"I'm here to help you get what you want, but in order to do that I need to know what it is that you want."

Goal Setting with Zach

Zach's self-selected long-term goals:

- Pass all classes in 8th grade

- Get promoted to 9th grade and attend 9th grade at the district Senior High School

Ross Greene's Collaborative Problem Solving

lost at school

Why Our Kids with **Behavioral Challenges** Are Falling Through the Cracks and How We Can Help Them

Ross W. Greene, Ph.D.
author of The Explosive Child
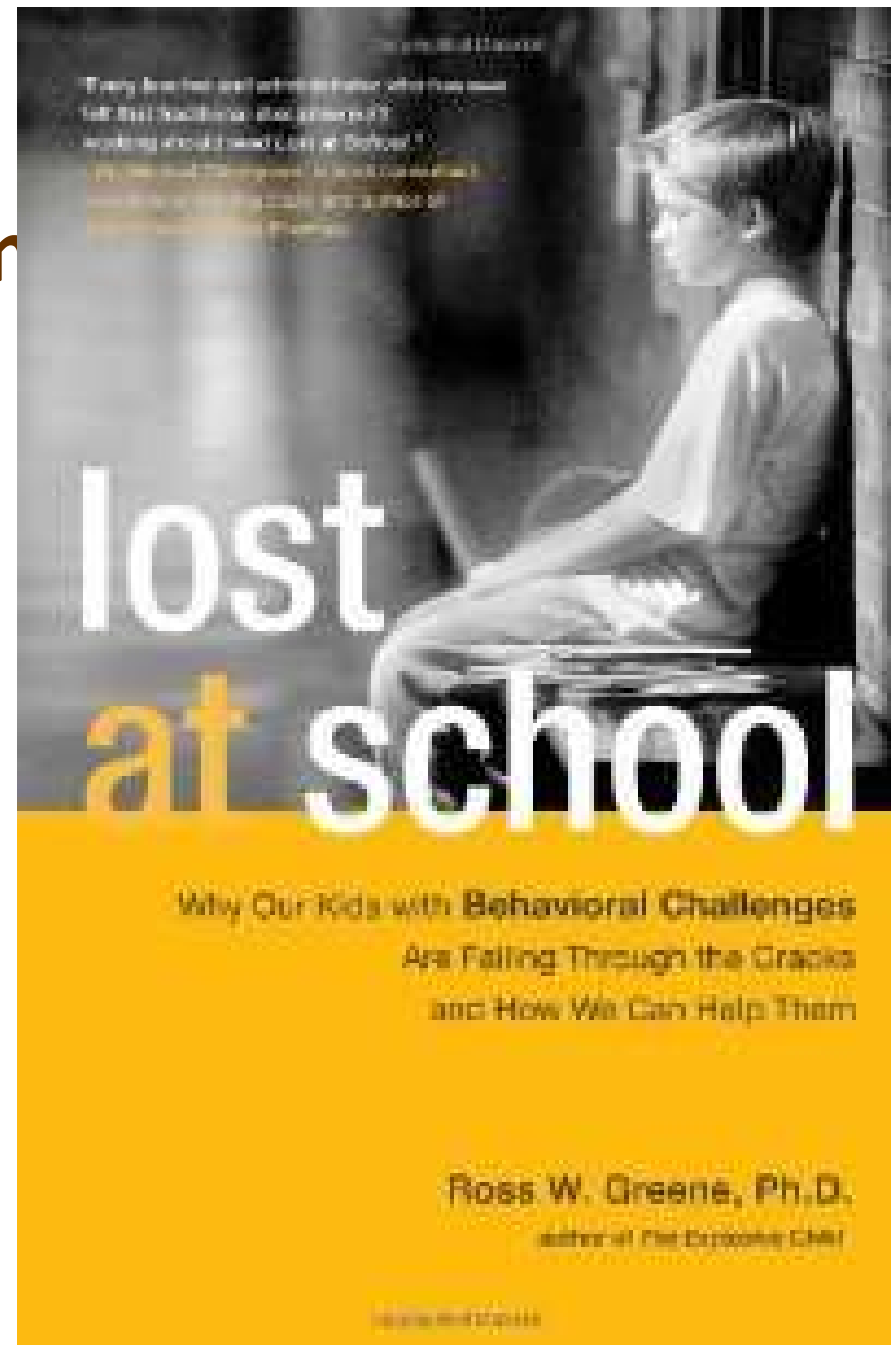
Collaborative Problem-Solving with Zach

"When I was observing you in Science class, I saw that you just put your head down on the desk and stayed that way for most of the class. What happened?"

Collaborative Problem-Solving with Zach

When asked specifically about his refusal to do classwork that day in Science class (as observed by the psychologist), Zach offered that he was not purposefully refusing to do the work, but that he was unable to get himself to do it, stating: "It feels like I am hitting a wall and the harder I try, the more it hurts."

Collaborative Problem-Solving with Zach

Using Zeke's own descriptive metaphor, the psychologist explained to Zach that he was going to teach Zach strategies that would enable him to stop hitting the wall, step back and find the door in the wall, open the door and go through it; "Once inside the door, you are now in the control room of the brain and you can take control and make your brain do the things you want to achieve your goals."

Goal Setting with Zach

Goals developed through discussion with Zach about how to achieve his long-term goals:

- **Improve my mood; get engaged with class**

- **Pay attention in class**

- **Complete class work and home work**

Cognitive Behavior Therapy

It was also explained to Zach that it is possible to improve the capacity to respond on demand, especially if he were to have a strategy worked out that he could use in situations where demands were being made of him, such as the demands for participating in class and doing homework.

Cognitive Strategy Instruction

The Psychologist met with Zach and his mother to come up with strategies that he could use to achieve his immediate goals. After the strategies were developed, the psychologist summarized them in a powerpoint file.

Cognitive Strategy Instruction

The Powerpoint file was used to teach Zach how to use the strategies and used with school staff to help them understand how Zach was going to work on improving his behavior.

Cognitive Strategy Instruction

Zach's Cognitive Strategy Powerpoint

Long-term Goals

Get passing grades in all subjects

Get promoted to 9th grade

Immediate Goals

Improve my mood; get engaged with class

Pay attention in class

Complete class work and home work

Ask: How am I doing right now?
Do I feel good?
Am I doing what I need to do for class?

Say: I need to use the Purple Elephants Strategy
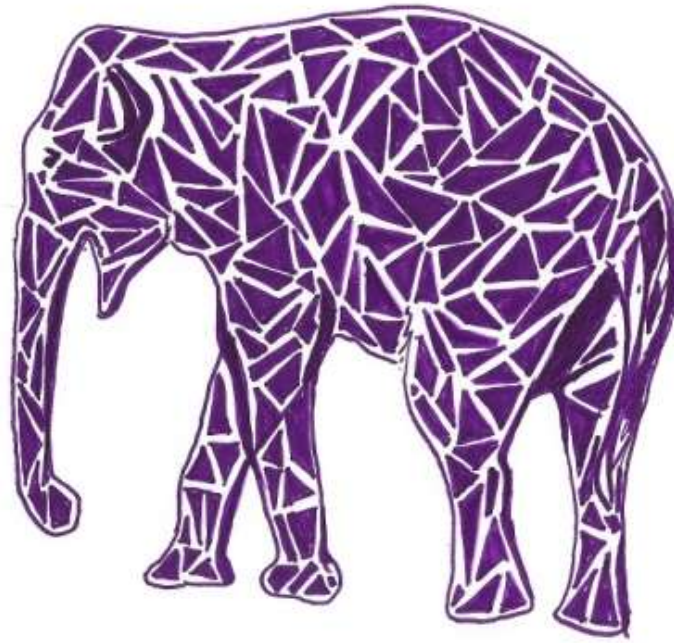
Take a deep breath and relax.

**Say: I need to adjust my attitude
so I can have a good day.**

**Say: Looking at my Purple Elephants file
will help me feel better.**
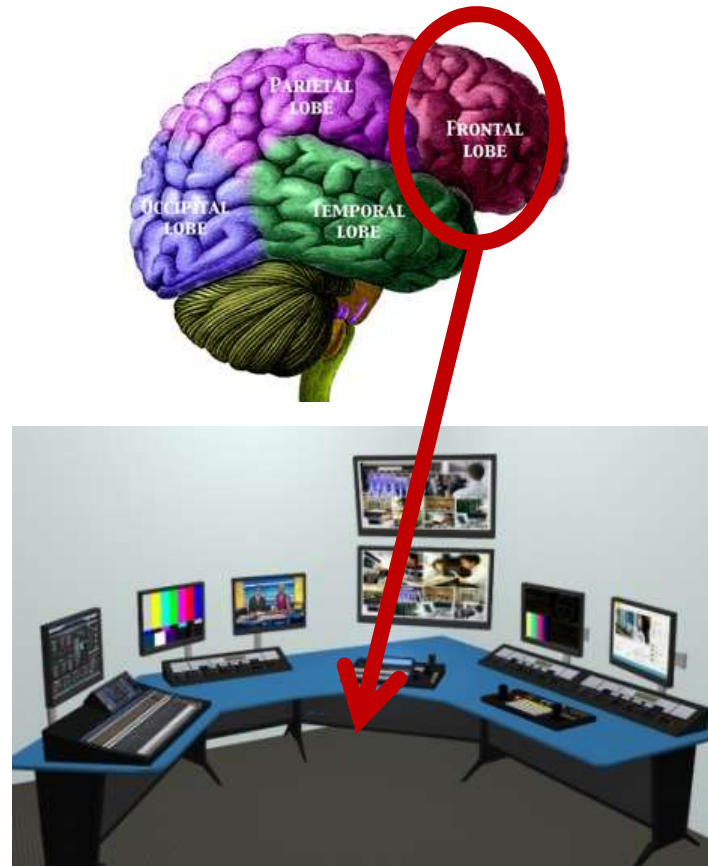
Say: I am in control now!

**Say: I feel better.
I'm ready to do what
I need to do for class.**

Ask: What should I be doing for class?

Say: OK, I'm on it.
or
Say: I'm not sure.
I will ask for help.

How am I doing right now?
Do I feel good?
Am I doing what I need to do for class?

I need to use the
Purple Elephants Strategy

I need to adjust my attitude
so I can have a good day.
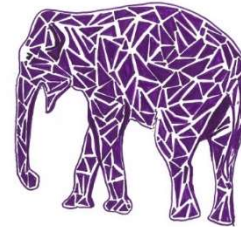
Looking at my Purple Elephants file
will help me feel better.

I am in control now!

OK, I feel better.
I'm ready to do what
I need to do for class.

What should I be doing for class?

OK, I'm on it.

I'm not sure.
will ask for help.

Ask: Am I paying attention right now?
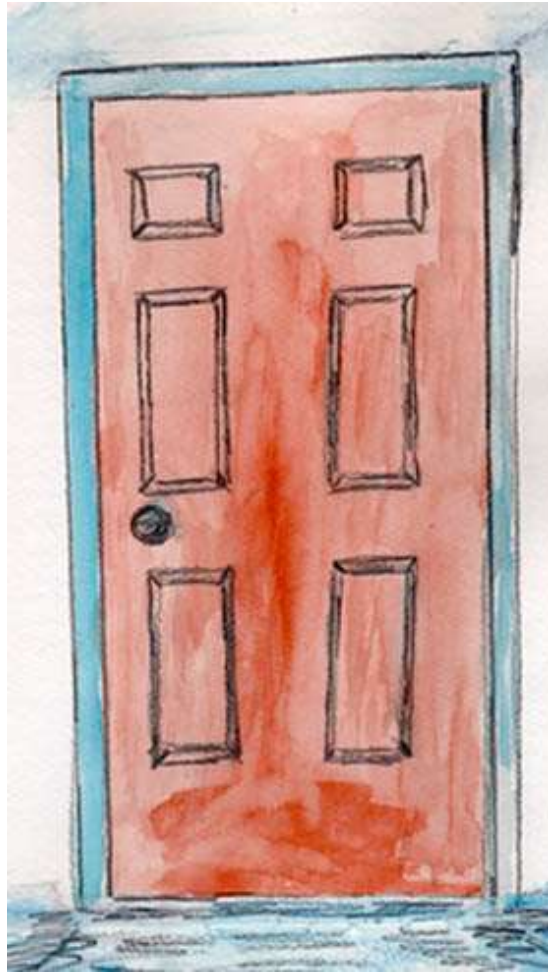
Say: I need to use the Focus Strategy
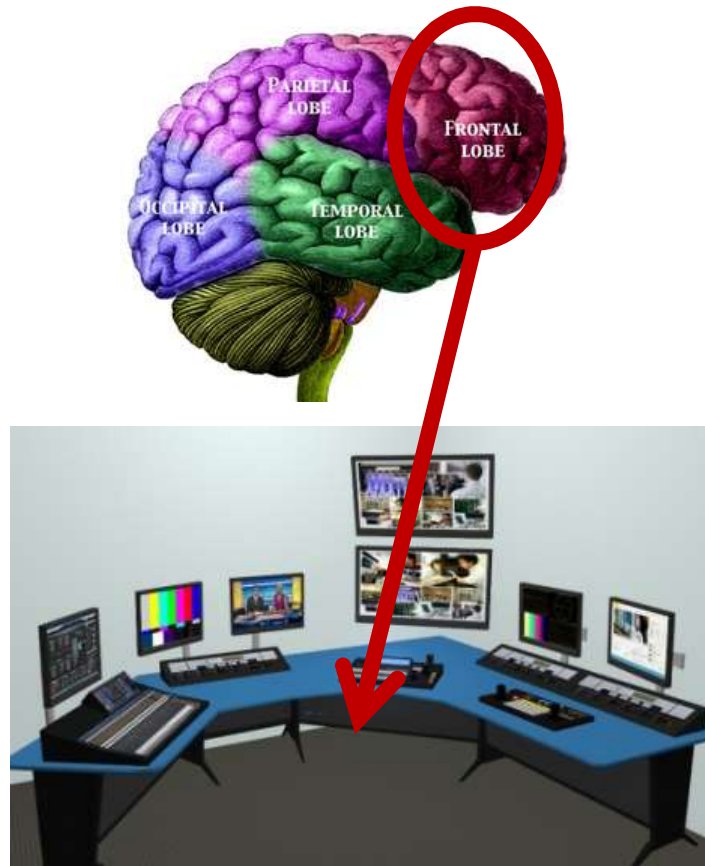
Yawn and Stretch.

Say: I am in control now!

Say: I am energized and ready to pay attention!

Say: What should I be doing for class?

Say: OK, I'm on it.
or
Say: I'm not sure.
I will ask for help.

Am I paying attention right now?

I need to use the Focus Strategy

Yawn and Stretch.

I am in control now!

I am energized and ready
To pay attention!

What should I be doing for class?

OK, I'm on it.

I'm not sure.
will ask for help.

Ask: Am I doing my class work?

**Say: I need to use the
Just Do It Strategy**
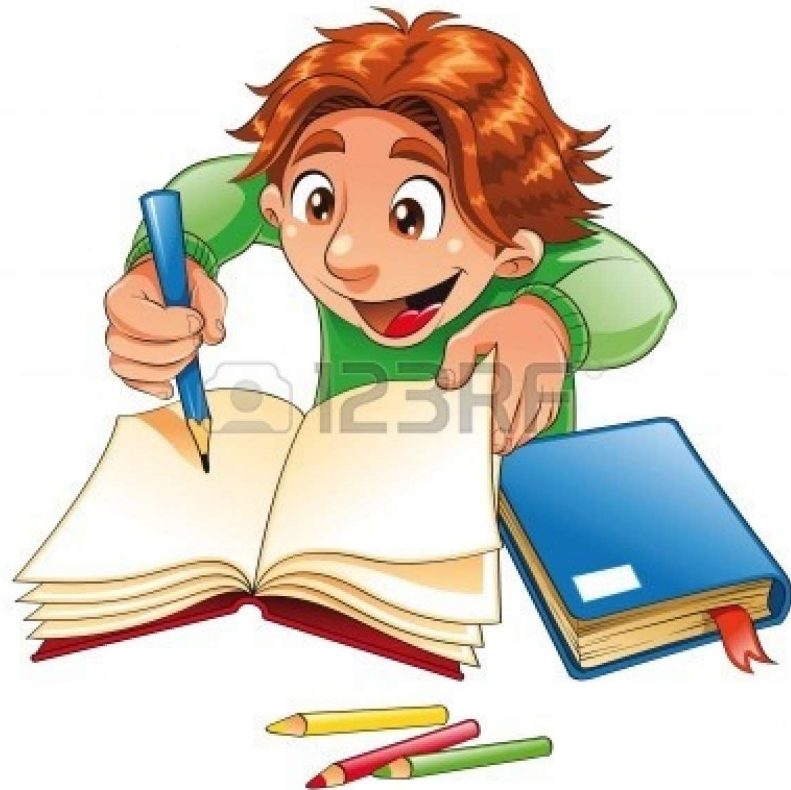
**Say: I need to do my class work
so I can earn a passing grade
and go on to 9ᵗʰ grade next year.**
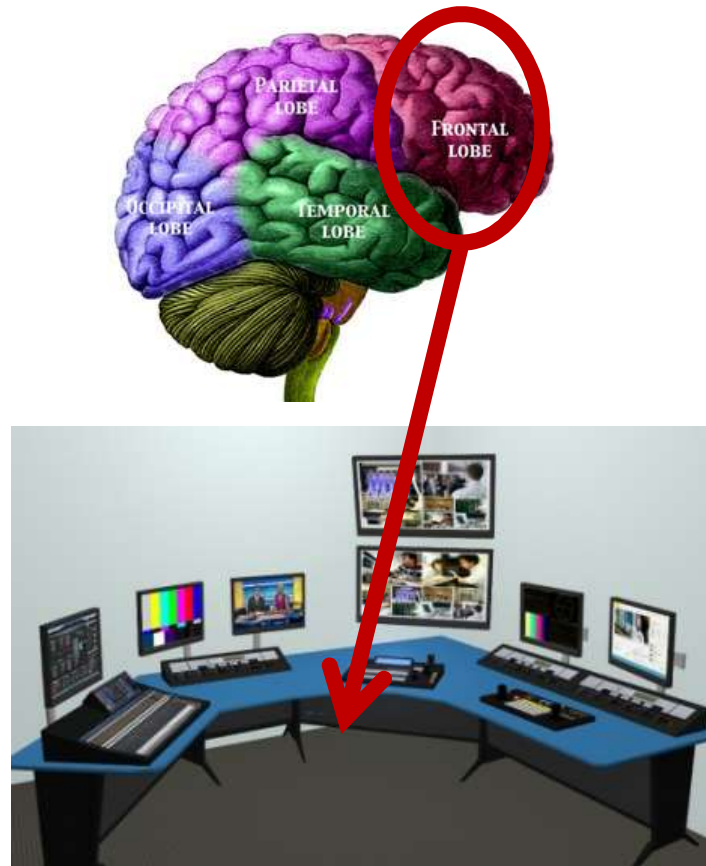
Say: I am in control now!

Say: I am energized and ready to work!

Say: I can complete my class work if I know what I need to do and how to do it.
Ask: Do I know how to do this work?"

Say: OK, I'm on it.
or
Say: I'm not sure.
I will ask for help.

Am I doing my class work?

I need to use the
Just Do It Strategy

I need to do my class work
so I can earn a passing grade
and go on to 9th grade next year.

I am in control now!

I am energized and
ready to work!

I can complete my class work if I know what I
need to do and how to do it.
Do I know how to do this work?"

OK, I'm on it.

I'm not sure.
will ask for help.

Cognitive Behavior Therapy

The psychologist created a list of cognitive distortions and related cognitive corrections that was used with Zach to discuss how he could change his thinking about school and academic tasks. The list was shared with Zach's counselor who also worked with Zach on cognitive

Cognitive Distortion	**Cognitive Correction**
Dichotomous Thinking: "I'm either a good student or a failure."	**Contextual Thinking:** "Sometimes I perform poorly but many times I perform well."
Overgeneralizing: "I hit the wall in class today and couldn't find the door. I have no control over my emotions."	**Specifying**: "I hit the wall today and couldn't find the door. The next time I hit the wall, I will use my Purple Elephant strategy and find the door.
Mindreading: "I didn't do all of the assigned work. I know the teacher is disappointed with me."	**Mindsharing**: "I didn't do all my work. I'll let the teacher know that I plan to finish all of it if that is ok with him/her."

YOU ARE IN CONTROL!
Cognitive Distortions and
Counteracting Cognitive Corrections Worksheet
Developed by George McCloskey, Ph.D. Philadelphia College of Osteopathic Medicine

Cognitive Distortion	Cognitive Correction

Teacher Training

Zach's teacher's met with the psychologist for 90 minutes to receive training on how to use a series of prompts to cue Zach to use the strategies he was learning to improve his engagement, attention and work completion during classes.

Teacher Training

- Deliver 1-3 prompts during class
- Provide daily ratings of engagement, attention and work completion based on need for and response to prompts

Teacher Training

- Prompt 1: Self-awareness cueing (Zach, you seem to be having some trouble with…)
- Prompt 2: Zach, you need to use your _ strategy.
- Prompt 3: Zach you need to use your reset strategy.

Cognitive Strategy Implementation

- Zach self-cues engagement, attention and work completion
- If prompt 1 is used: Zach realizes the need to use his strategies
- If prompt 2 is used: Zach, uses his strategy as suggested by teacher
- If prompt 3 is used: Zach leaves the room and uses his reset strategy.

Progress Monitoring Form for Zach T   Date: _____

Goal 1: Managing Frustration and Engagement

3   Fully engaged without frustration   Maintained positive engagement throughout class and no frustration was apparent.

2   Frustration managed with self cued strategy   Frustration was apparent but was effectively managed and positive engagement occurred likely due to self-cued use of strategies.

1   Frustration managed with teacher cue   Frustration was apparent but was effectively managed and positive engagement occurred after teacher provided a cue for strategy use.

0   Frustration not managed   Frustration was apparent and strategy use was cued by teacher but positive engagement did not occur and student left class.

Class: _____

	3	2	1	0		
Frustration Management	**3**	**2**	**1**	**0**	**Work Modified:** **Yes No**	**Comments:**
Attention	3	2	1	0	**Work completed with extended time?** **Yes No**	
Work Completion	3	2	1	0		

Progress Monitoring Form for Zach T   Date: _____

Goal 1: Managing Frustration and Engagement

3	Fully engaged without frustration	Maintained positive engagement throughout class and no frustration was apparent.
2	Frustration managed with self-cued strategy	Frustration was apparent but was effectively managed and positive engagement occurred likely due to self-cued use of strategies.
1	Frustration managed with teacher cue	Frustration was apparent but was effectively managed and positive engagement occurred after teacher provided a cue for strategy use.
0	Frustration not managed	Frustration was apparent and strategy use was cued by teacher but positive engagement did not occur and student left class.

Goal 2: Focusing and Sustaining Attention During Class

3	Attended the entire time	Attention was focused and sustained during the entire class period.
2	Attended most of the time	Attention was focused and sustained often during the class period.
1	Attended some of the time	Attention focused and sustained occasionally during the class period.
0	Attended none of the time	Attention was never focused or sustained during the class period.

Goal 3: Completing Assigned School Work

3	All work completed	All assigned class work and homework is fully completed during class time.
2	Most work completed	Most assigned class work and homework is completed during class time.
1	Some work completed	Some assigned school work and homework is completed during class time.
0	No work completed	No assigned school work and homework is completed during class time.

Class: __MATH__

					Work Modified:	Comments/Work not completed:
Frustration Management	(3)	2	1	0	Yes (No)	USED IPAD APPROPRIATELY ACTIVELY ENGAGED OFF TO GREAT START :)
Attention	3	(2)	1	0	Work completed with extended time?	
Work Completion	(3)	2	1	0	Yes (No)	

Class: __Science__

					Work Modified:	Comments/Work not completed:
Frustration Management	(3)	2	1	0	Yes No	Did well today
Attention	(3)	2	1	0	Work completed with extended time?	
Work Completion	(3)	2	1	0	Yes No	

Staff Collaboration/Consultation

- Staff requested to have the psychologist meet with Zach on a regular basis to reinforce the strategies and consult with teachers and staff.

Progress Monitoring

- Weekly ratings were summarized to help school staff monitor progress and provide Zach with feedback about his performance.

DAILY PROGRESS BY CLASS

ENGAGEMENT	WEEK 1					WEEK 2					WEEK 3					WEEK 4				
	4-Feb	5-Feb	6-Feb	7-Feb	8-Feb	11-Feb	12-Feb	13-Feb	14-Feb	15-Feb	19-Feb	20-Feb	21-Feb	22-Feb	23-Feb	25-Feb	26-Feb	27-Feb	28-Feb	1-Mar
Math	3	3	3	3	2	0	2	0	0	1	1	0	3			0	3	2	2	3
Science	3			3	3	0	2	0	0	0		0	3			0	2	2	0	2
Social Studies	3	3	3	3	2	0	3	2	3	3	3	3	2			3		1		
English	3	2	3	3	0	3	3	0	3	0	0	0	3					3	3	3
Reading	3	3	3	3	0	0	3	3	3	3	3	3	3					3	3	3
Math Facts		0	3	3	3	0	3	0	3	0	3					3	0	3	3	3

ENGAGEMENT	WEEK 5					WEEK 6					WEEEK 7					WEEK 8				
	4-Mar	5-Mar	6-Mar	7-Mar	8-Mar	11-Mar	12-Mar	13-Mar	14-Mar	15-Mar	18-Mar	19-Mar	20-Mar	21-Mar	22-Mar	25-Mar	26-Mar	27-Mar	28-Mar	29-M
Math	3	3	3	1	3	3		2		1	0	0	1	0	3	1	0			
Science	0		2	1	3	3				0	0	0	0	0	3	1	3			
Social Studies	3	3	2	1	3	3				3	3	3	3	3	3	3				
English	2	2	3	1	3			3		3	3	3	0	3	3	3		3		
Reading		3	3	2	3			3		3	3	3	3	3	3	3	3	3		
Math Facts	0	3	0	3	3	3		3		3	3	3		3	0	3		3		

ENGAGEMENT	WEEK 9					WEEK 10					WEEK 11					WEEK 12				
	1-Apr	2-Apr	3-Apr	4-Apr	5-Apr	15-Apr	16-Apr	17-Apr	18-Apr	19-Apr	22-Apr	23-Apr	24-Apr	25-Apr	26-Apr	29-Apr	30-Apr	1-May	2-May	3-May
Math		2	2			3	0	0	3		0		0				3	0	0	3
Science		3	3			3	0	0	0	3	3		3				3	2	2	
Social Studies		3				3	1	3	3	3	3		3				1	2	2	0
English		3	3			2	0	1	3	3	0		3			3	0	3	3	
Reading		3	3			3	2	3	3	3	1		3			3	3	3	3	3
Math Facts		3	3			0		3	3	3	1						3	2	3	3

ENGAGEMENT	WEEK 13					WEEK 14				
	6-May	7-May	8-May	9-May	10-May	13-May	14-May	15-May	16-May	17-May
Math	0	1	0	1	2		0		1	1
Science	2	3	2	3	2	2	1		1	0
Social Studies	3	3	3	0		0			0	0
English		3	3	3	3	0	3		2	0
Reading		3	3	3	3	2	3		2	3
Math Facts		3			3					3

WEEK 1 – WEEK 4

ATTENTION	4-Feb	5-Feb	6-Feb	7-Feb	8-Feb	11-Feb	12-Feb	13-Feb	14-Feb	15-Feb	19-Feb	20-Feb	21-Feb	22-Feb	23-Feb	25-Feb	26-Feb	27-Feb	28-Feb	1-Mar
Math	2	2	3	3	2	0	2	0	0	0	1	0	2			0	3	2	2	3
Science	3			3	3	1	3	0	0	0		0	2			1	2	2	0	2
Social Studies	3	3	3	3	3	0	3	3	3	3	3	3	3			3		1		
English	3	3	2	2	0	3		0	3	0	0	0	3				2	3	3	3
Reading	3	3	3	1	0	0		3	3	0	3	3	3				3	3	3	3
Math Facts		0	3	3	3	0		0	3	0	2					2	0	3	3	2

WEEK 5 – WEEK 8

ATTENTION	4-Mar	5-Mar	6-Mar	7-Mar	8-Mar	11-Mar	12-Mar	13-Mar	14-Mar	15-Mar	18-Mar	19-Mar	20-Mar	21-Mar	22-Mar	25-Mar	26-Mar	27-Mar	28-Mar
Math	3	2	2	1	3	3		1		1	0	0	1	0	0	1	0		
Science	0		3	1	3	3				0	0	0	1	0	3	1	3		
Social Studies	3	2	2	1	3	3				3	3	3	3	2	3	3			
English	3	2	2	1	3			3		2	1	3	1	2	2	2			3
Reading		2	3	1	3			3		2	2	3	3	2	1	0	2		3
Math Facts	0	3	0	3	3	3		3		3	3	3		3	0	3			3

WEEK 9 – WEEK 12

ATTENTION	1-Apr	2-Apr	3-Apr	4-Apr	5-Apr	15-Apr	16-Apr	17-Apr	18-Apr	19-Apr	22-Apr	23-Apr	24-Apr	25-Apr	26-Apr	29-Apr	30-Apr	1-May	2-May	3-May
Math		2	2			3	0	0	3		0		0				0	0	0	3
Science		3	2			3	0	0	1	3	3		3				2	2	0	
Social Studies		3				3	0	3	3	3	3		3				2	2	2	0
English		2	3			2	0	2	3	3	1		3			2	3	3	1	
Reading		2	3			2	1	2	3	3	1		3				3	3	3	2
Math Facts		3	3			0		1	3	3	1						2	2	3	3

WEEK 13 – WEEK 14

ATTENTION	6-May	7-May	8-May	9-May	10-May	13-May	14-May	15-May	16-May	17-May
Math	0	1	1	1	2		0		1	1
Science	2	3	2	3	1	2	1		1	0
Social Studies	2	3	2	0		0			0	0
English		3	0	1	2	0	2		2	1
Reading		1	3	3	3	1	3		2	3
Math Facts		3			3					3

WEEK 1 – WEEK 4

WORK COMPLETION	WEEK 1 4-Feb	5-Feb	6-Feb	7-Feb	8-Feb	WEEK 2 11-Feb	12-Feb	13-Feb	14-Feb	15-Feb	WEEK 3 19-Feb	20-Feb	21-Feb	22-Feb	23-Feb	WEEK 4 25-Feb	26-Feb	27-Feb	28-Feb	1-Mar
Math	3	3	3	3	2	0	2	0	0	0	1	0	2			0	3	2	0	3
Science	3			3	3	0	2	0	0	0		0	3			0	2	0	0	1
Social Studies	3	3	3	3	0	0	3	3	2	0	2	0	0			1		1		
English	3	3	0	3	0	3	3	0	3	0	0	0	3				2	3	3	3
Reading	3	3	3	3	0	0	3	3	3	0	3	3	3					3	3	3
Math Facts		0	3	3	3	0	3	0	3	0	2					3	0	3	3	3

WEEK 5 – WEEK 8

WORK COMPLETION	WEEK 5 4-Mar	5-Mar	6-Mar	7-Mar	8-Mar	WEEK 6 11-Mar	12-Mar	13-Mar	14-Mar	15-Mar	WEEEK 7 18-Mar	19-Mar	20-Mar	21-Mar	22-Mar	WEEK 8 25-Mar	26-Mar	27-Mar	28-Mar
Math	3	1	2	1	3	3		0			0	0	0	0	0	1	0		
Science	0		2	1	3	0					0	0	0	0	3	0	3		
Social Studies	2	1	0	0	2	2					3	3	3	2	1	3			
English	3	2	2	1	3			3		2	1	3	0	2	1	2		3	
Reading		2	3	1	3			3		1	2	3	1	2	1	0	2	3	
Math Facts	0	3	0	2	2	3		3		3	3	3		3	0	3		3	

WEEK 9 – WEEK 12

WORK COMPLETION	WEEK 9 1-Apr	2-Apr	3-Apr	4-Apr	5-Apr	WEEK 10 15-Apr	16-Apr	17-Apr	18-Apr	19-Apr	WEEK 11 22-Apr	23-Apr	24-Apr	25-Apr	26-Apr	WEEK 12 29-Apr	30-Apr	1-May	2-May	3-May
Math		2	1			3	0	0	3		0		0				0	0	0	3
Science		3	2			3	0	0	1	3	3		3				2	2	0	
Social Studies		2				2	0	3	2	1	3		2				2	2	1	0
English		2	3			1	0	2	3	3	0		3			2	3	3	1	
Reading		3	3			2	1	2	3	3	2		3			3	3	3	3	3
Math Facts		3	2			0		0	3	3	3						2	2	3	3

Zach T. — WEEK 13 – WEEK 14

WORK COMPLETION	WEEK 13 6-May	7-May	8-May	9-May	10-May	WEEK 14 13-May	14-May	15-May	16-May	17-May
Math	0	0	0	0	1		0		0	1
Science	1	2	2	3	1	0	1		1	0
Social Studies	0	0	0	0		0			0	0
English		3	0	0	2	0	2		3	1
Reading		2	3	3	3	1	3		2	3
Math Facts		3			3					3

END OF YEAR SUMMARY ALL CLASSES

	%
ENGAGEMENT	
Rated 3, 2, or 1	78%
Rated 0	22%
ATTENTION	
Rated 3, 2, or 1	78%
Rated 0	22%
WORK COMPLETION	
Rated 3, 2, or 1	70%
Rated 0	30%

8th Grade Outcomes

- Zach passed all of his classes.
- Zach's progress toward behavior goals were judged as reflecting adequate improvement
- Zach was promoted to 9th grade at the high school instead of being transferred to an alternative program

Executive Capacity Intervention

For intervention purposes, it is best to assume that EF deficiencies are the result of disuse through nonconscious choice. The general intervention goal then becomes education to make the child conscious of the EFs needed and how to engage them.

Interventions for EF Difficulties

- EF Self-regulation skills eventually need to be just that—Self-regulated.

- During classroom instruction, it is necessary to find the balance between providing enough EF SR cueing to help students function, but not too much to prevent EF skill-development.

- It is easy to underestimate the multiplicity of EFs required and focus only on those related to attention and organization.

Executive Capacity References

- Promoting Executive Functions in the Classroom– Lynn Meltzer (2010)
- Executive Function Skills in Children and Adolescents 2nd Edition – Dawson & Guare (2009)
- Smart but Scattered – Dawson & Guare (2009)
- Late, Lost, and Unprepared – Cooper Kahn & Deitzel (2008)
- Assessment & Intervention for Executive Function Difficulties – McCloskey, Perkins & VanDivner (2009)
- Executive Functions in the Classroom – Chris Kaufman (2010)

EC Intervention Continuum

Orienting Strategies

External Control Strategies

Bridging Strategies

Internal Control Strategies

Interventions for EC Difficulties

Requires keeping in mind:

- The need to increase awareness and provide goals.
- The need to move from external control to internal control through bridging strategies.
- The environment in which intervention is happening: Requires those close to child to have reasonable EC capacities and be able to model those capacities.

Key Concept

Improving students' executive capacity starts with increased awareness and goal setting and progresses from external control to internal self-regulation
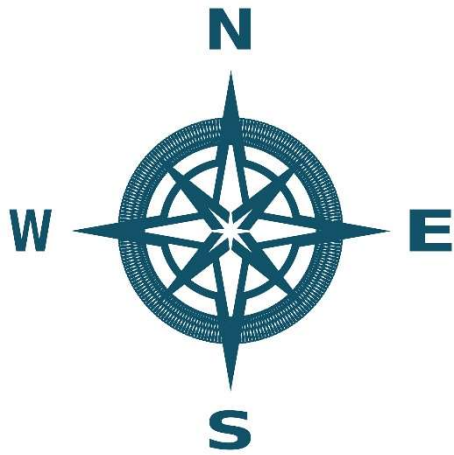
Key Concept

Orienting Strategies increase awareness of executive functions and expectations for their use and provide self-regulation goals for students.

Explanation of Executive Capacities

273
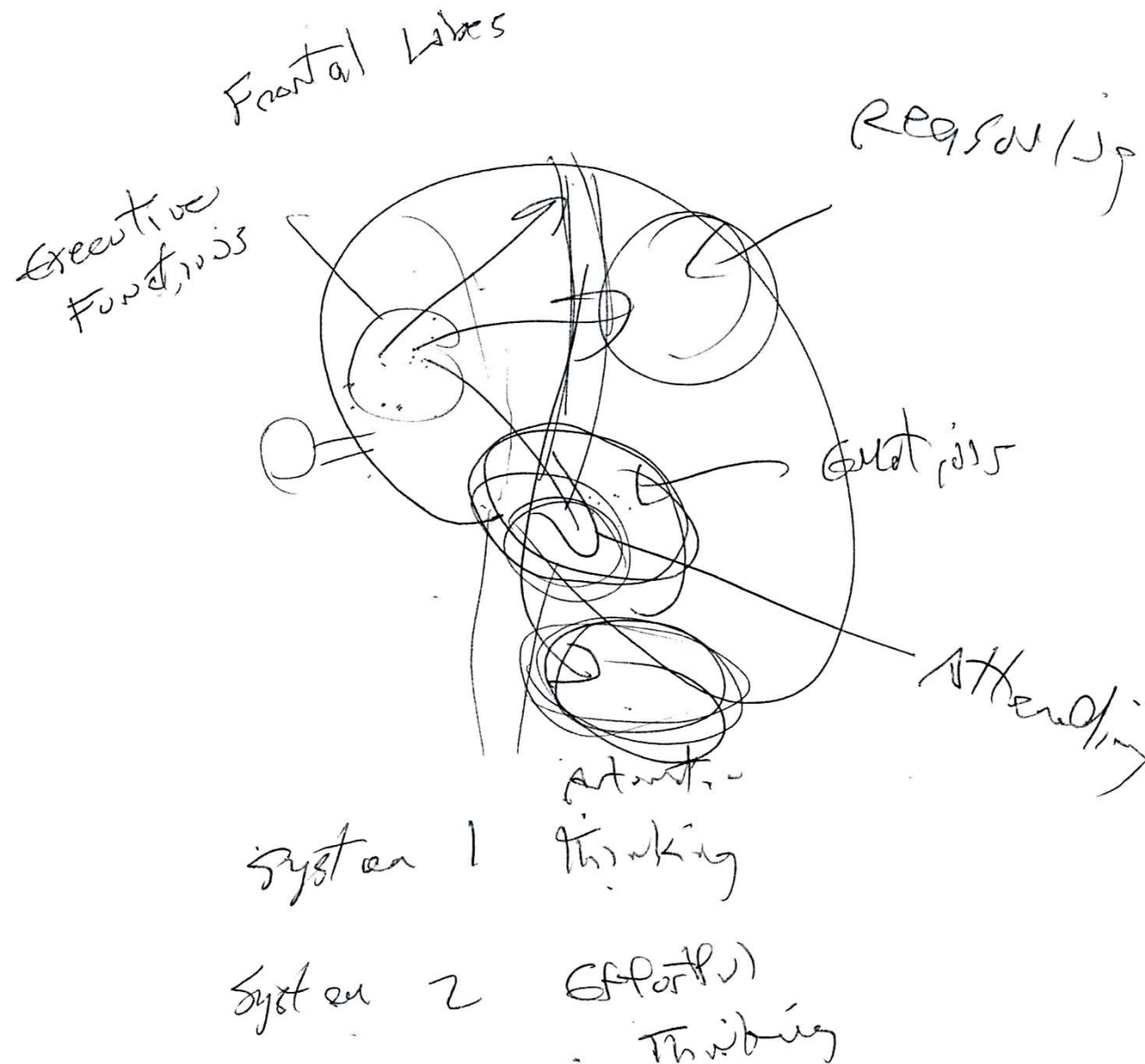
# Explanation of Internal Command/External Demand

Internal Command

But...

External Demand

Executive Functions

OK I can help you set that!

Nucleus accumbens
Reward!!
Go for it
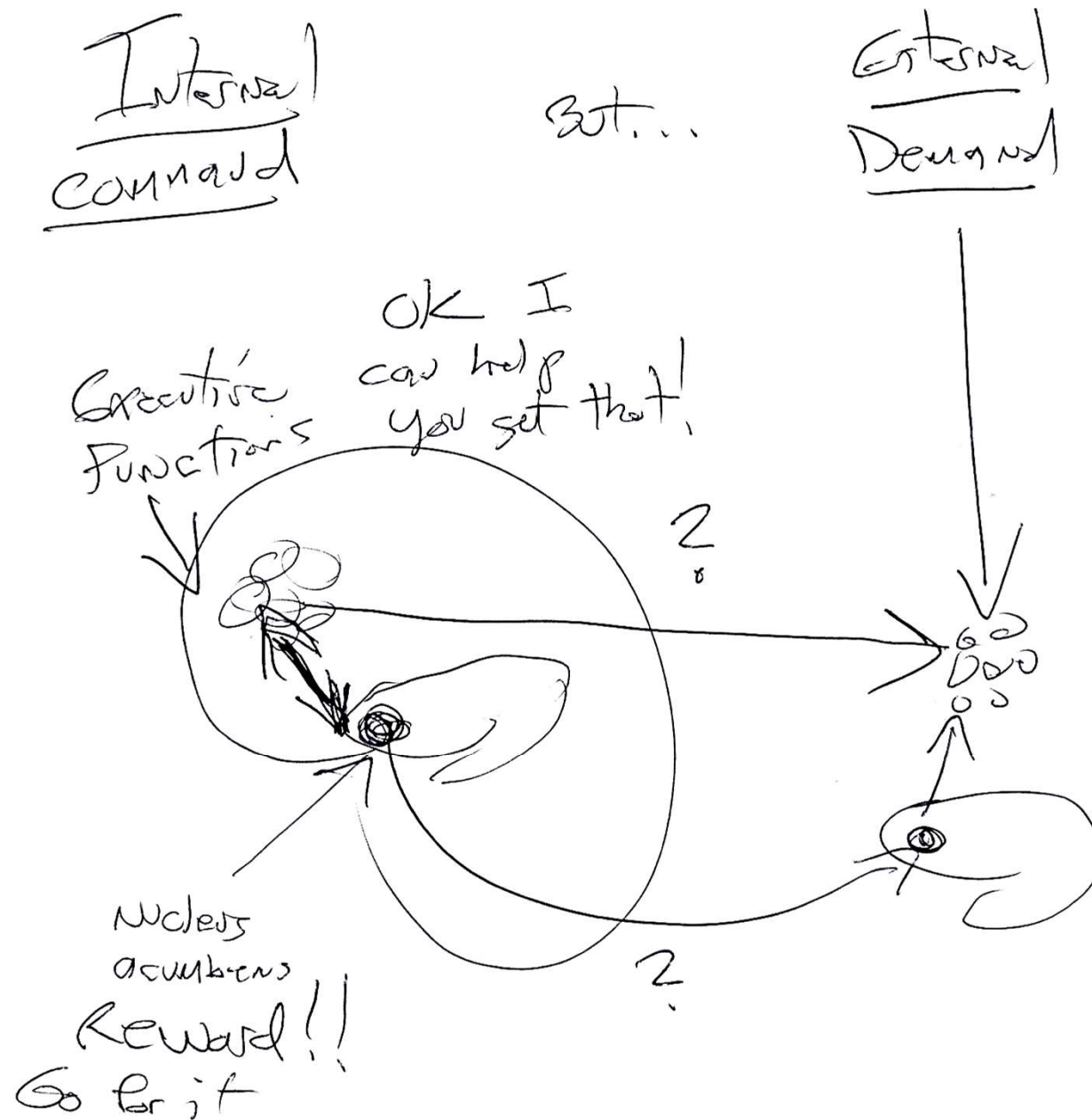
Engagement of Self-Determination and Self-Regulation
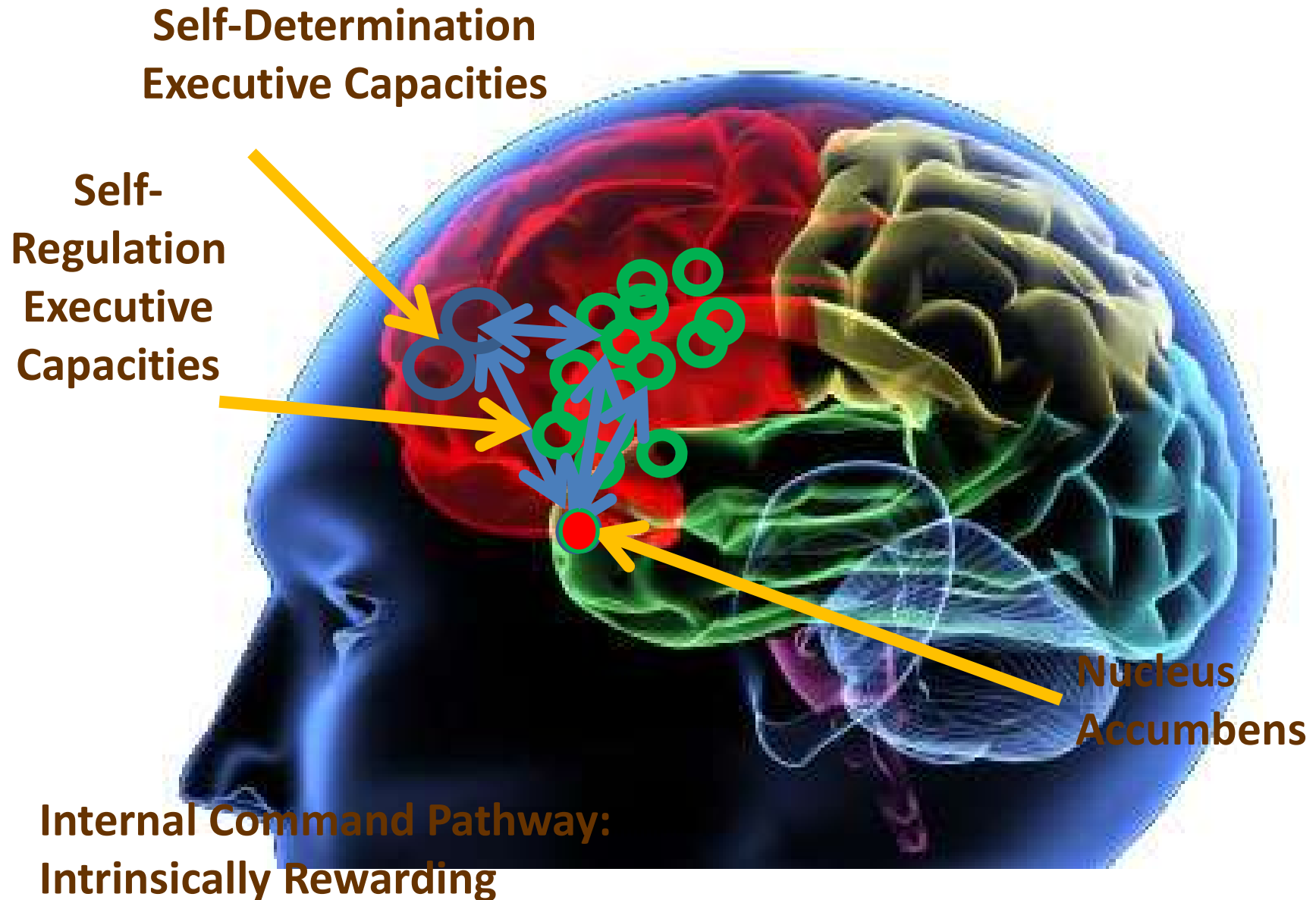
Self-Determination
Executive Capacities

Self-
Regulation
Executive
Capacities

Nucleus
Accumbens

Internal Command Pathway:
Intrinsically Rewarding

275

Chapter 21
Motivational
Interviewing with
Adolescents
and Young Adults

John S. Baer and Peggy
L. Peterson
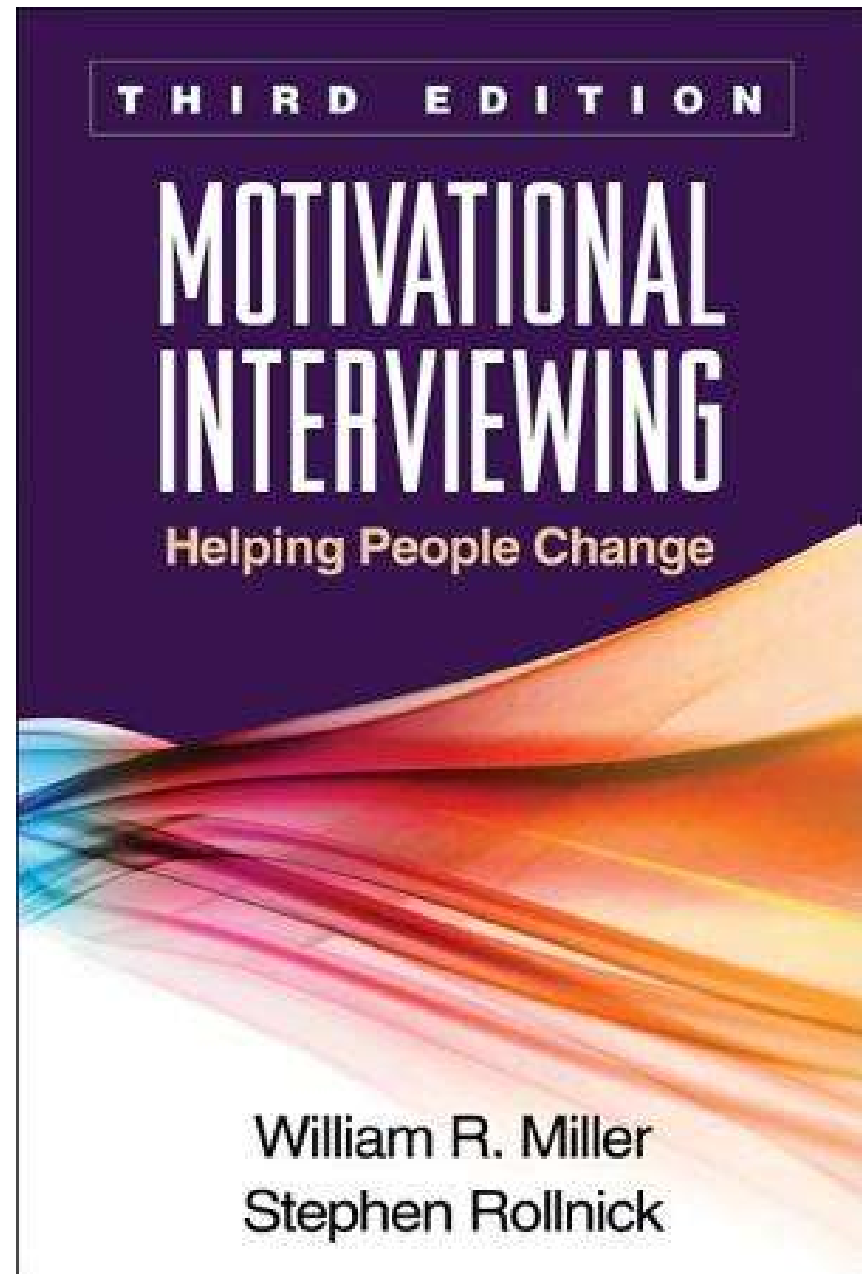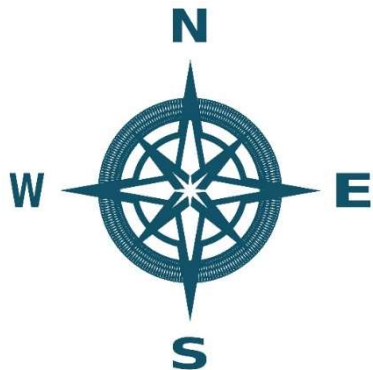
Motivational
Interviewing
with Adolescents
and Young
Adults

Sylvie Naar-King

Mariann Suarez

Key Concept

External Control strategies enable an individual to perform more effectively but do not necessarily help to improve an individual's capacity for self-regulated performance.

External Control Strategies

Rewards can be a tremendous benefit to an individual who has difficulty aligning internal desires with external demands. Use rewards, but heed the following cautions:
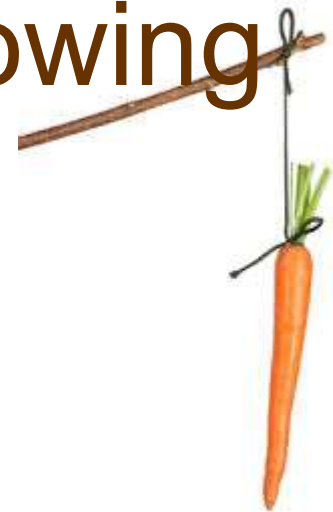
Using Rewards to Increase Production

- Rewards do not teach how to reflect on and alter perceptions, emotions, thoughts or actions, they simply reward the presence of desired behaviors.

- Reward programs imply that one can do it if he/she wants to or is motivated enough. This often leads away from the realization that many persons who are motivated and do want to change their behavior don't know what to do to change it.

External Control Strategies

Punishment in mild form can be an effective means of obtaining compliance with external demands. When choosing to use punishment, heed the following cautions:

Using Punishment to Increase Production

- Punishment does not teach how to reflect on and alter perceptions, emotions, thoughts or actions, they simply punish the presence of undesired behaviors.

- Punishment implies that a person can do it if he/she wants to or is motivated enough. This often leads away from the realization that many persons who are motivated and do want to change their behavior don't know what to do to change it.

External Control Strategies

Provide predictable, consistent structure to classroom environments and routines:

- Post and discuss class rules and schedules

- Review and rehearse routines

- Maintain basic room   arrangement

External Control Strategies

Provide external prompts and cues as a substitute for self-regulation.

Perceive

- <u>Perceive</u> cues the use of sensory and perception processes to take information in from the external environment or "inner awareness" to tune into perceptions, emotions, thoughts, or actions as they are occurring.

- Prompt examples: "Listen to this." "Look up at the board."

  "How are you feeling right now?"

Focus

- <u>Focus</u> cues the direction of attention and effort to the most relevant specifics (perceptions, emotions, thoughts, and/or actions) of a given environment, situation, or content while downgrading or ignoring the less relevant elements.

- <u>Prompt example</u>: "Pay attention to what happens to the baking soda after the vinegar is added."

Sustain

- <u>Sustain</u> cues sustained attention to the most relevant specifics (perceptions, emotions, thoughts, and/or actions) of a given environment, situation, or content.

- <u>Prompt example</u>: "You will need to watch the computer screen carefully for the entire 10 minutes."

Energize

- <u>Energize</u> cues the investment of energy to the level needed to achieve the desired results

- <u>Prompt example</u>: "This will require a lot of effort." "You'll need to focus all of your energy on task if you want to finish."

Initiate

- <u>Initiate</u> cues the initial engagement of perceiving, feeling, thinking, or acting.

- <u>Prompt example</u>: "Start walking now." "Begin work on the count of five."

Inhibit

- <u>Inhibit</u> cues resistance to, or suppression of, urges to perceive, feel, think, or act on first impulse.

- <u>Inhibit</u> prompts direct capacities to an alternate source rather than drawing attention to the perception, emotion, thought, or action that should be inhibited.

- <u>Prompt example</u>: "Don't start until I tell you to go."

Stop

- <u>Stop</u> cues the sudden, immediate discontinuation of perceiving, feeling, thinking, or acting.

- The <u>Stop</u> cue always precedes the Shift cue when altering problem-solving based on changing conditions, and switching or alternating attention.

- <u>Prompt example</u>: "Stop writing now."

Pause

- <u>Pause</u> cues the brief cessation of, and the return to perceiving, feeling, thinking or acting.
- Efficient use of the <u>Pause</u> cue enables a quicker return to a previous mental state or activity.

- <u>Prompt example</u>: "Pause for a moment and listen, then I want you to go back to what you were doing."

Flexible

- <u>Flexible</u> cues a willingness to alter the frame of reference for the direction and engagement of perceptions, emotions, thoughts or actions in reaction to what is occurring in the internal or external environments.

- <u>Prompt example</u>: "It doesn't need to be done exactly the same way each time."

Shift

- <u>Shift</u> cues a relatively quick change in the direction and engagement of perceptions, emotions, thoughts or actions in reaction to what is occurring in the internal or external environments.

- <u>Prompt example</u>: "The museum is closed for emergency repairs, so we won't be able to go on the field trip."

Monitor

- <u>Monitor</u> cues the activation of appropriate routines for checking the accuracy of perceptions, emotions, thoughts or actions.

- <u>Prompt example</u>: "Periodically check the task directions to see if you are following all of them."
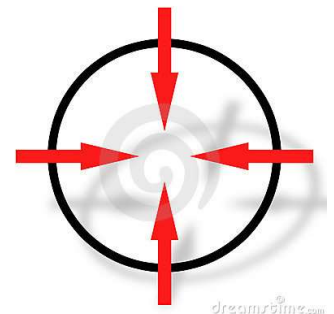
Modulate/Adjust

- **Modulate** cues the regulation of the amount and intensity of mental energy invested in perceiving, feeling, thinking, and acting.

- **Prompt example**: "Let's all use our indoor voices now."

  "Please tone it down a bit."
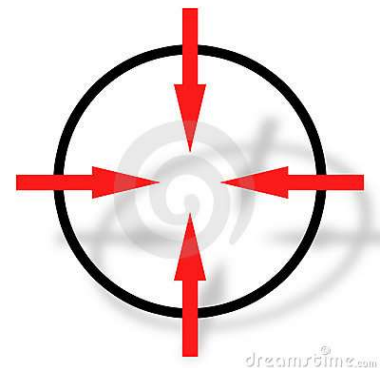
Balance

- <u>Balance</u> cues the regulation of the trade-off between opposing processes or states (e.g., pattern vs detail; speed vs accuracy; humor vs seriousness) to enhance or improve experiencing, learning, or performing.

- <u>Prompt example</u>: "Work as quickly as you can, but be careful not to make any mistakes."
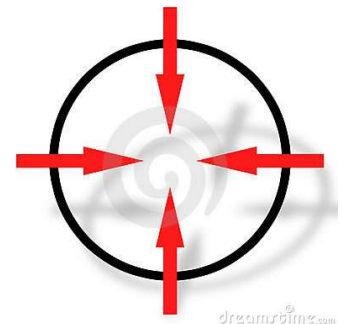
Correct

- <u>Correct</u> cues the use of appropriate routines for correcting errors of perception, emotion, thought, or action based on feedback from internal or external sources.

- <u>Prompt example</u>: "Correct any errors you find."
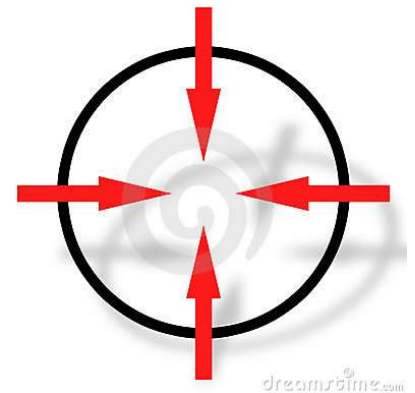
Sense Time

- Sense Time cues the monitoring of the passage of time (e.g., cueing the engagement of the mental functions that enable a person to have an internal sense of how long they have been perceiving, feeling, thinking or acting).

- Prompt example: "How long have you been working on that?"

Pace

- Pace cues the awareness of, and the regulation of, the rate at which perceptions, emotions, cognitions, and actions are experienced or performed.

- Prompt example: "You will need to work quickly as there is not much time left."

Sequence

- <u>Sequence</u> cues the orchestrating of the proper syntax of a series of perceptions, feelings, thoughts, and/or actions, especially in cases where automated routines are being accessed or are initially being developed.

- <u>Prompt example</u>: "Remember the order of the steps needed for completion."

Execute

- <u>Execute</u> cues the engagement of a well-known series of perceptions, feelings, thoughts, and/or actions, especially in cases where automated routines have been practiced and used frequently.

- <u>Prompt example</u>: "Use the routine you learned to do these."

Hold

- <u>Hold</u> cues activation of the necessary cognitive processes required to maintain information in working memory and continues cueing these processes until the information is manipulated, stored, or acted on as desired.

- <u>Prompt example</u>: "Hold that thought while we hear a reaction from the other group."

Manipulate

- <u>Manipulate</u> cues the use of working memory and other cognitive processes for the manipulation of perceptions, feelings, thoughts or actions as they are being held in mind or being accessed in the environment.

- <u>Prompt example</u>: "Visualize what it would look like if you turned it upside down."

Store

- <u>Store</u> cues the movement of information about perceptions, feelings, thoughts and actions from the mental processing environment of the present moment into "storage" for possible retrieval at a later time.

- <u>Prompt example</u>: "This is important; it will be on Friday's quiz."

Retrieve

- Retrieve cues the activation of cognitive processes responsible for finding and retrieving previously stored information about perceptions, feelings, thoughts and actions.

- The more specific the demands or constraints placed on the retrieval task, the greater the requirements for precision of retrieval cues.

- Prompt example: "To answer the question correctly, you will probably need to recall all that we learned about photosynthesis."

Gauge

- <u>Gauge</u> cues one to identify the demands (perceptual, emotional, mental, physical) of a task or situation and cues the activation of the resources needed to effectively engage the task or situation.

- <u>Prompt example</u>: "Consider what it's going to take to get this job done right."

Anticipate

- <u>Foresee/Plan</u> cues the anticipation of conditions or events in the very near future, such as the consequences of one's own perceptions, feelings, thoughts and/or actions.

- <u>Prompt example</u>: "If you keep erasing in that same spot, what do you think will happen to the paper?"

Estimate Time

- <u>Estimate Time</u> cues the use of time estimation routines (e.g., cueing the engagement of mental functions that enable a person to have an internal sense of how long something will take to complete, or how much time is still left in a specific period of time).

- <u>Prompt example</u>: "Tell me how long you think this will take you to do."

Analyze

- <u>Analyze</u> cues the realization of the need to examine more closely perceptions, feelings, thoughts or actions to obtain a greater understanding of a problem or situation.

- <u>Prompt examples</u>: "Make a list of the positives and negatives and then compare them."

  "Are there additional factors that need to be considered?"

Compare/Evaluate

- Compare/Evaluate cues the realization of the need to make comparisons among, or evaluate the adequacy of, perceptions, feelings, thoughts or actions.

- Prompt examples: "Did you complete all the steps?"

    "Does yours look like the model?"

    "Why do you think what you said was a good explanation?"

Generate

- <u>Generate</u> cues the realization that novel, fluid problem-solving efforts are required and cues the activation of the resources needed to carry out problem-solving routines.

- <u>Prompt example</u>: "We haven't tried to solve a problem like this one before."

  "This problem will require some novel thinking if you are going to find a solution."

Associate

- <u>Associate</u> cues the realization that associations need to be made, and cues the activation of the resources needed to attempt to make the necessary associations.

- <u>Prompt examples</u>: "Have you heard anything like that before?"

  "This problem is very similar to one you worked on last week."
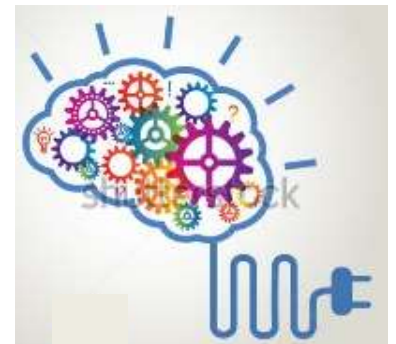
Organize

- <u>Organize</u> cues the use of routines for sorting, sequencing, or otherwise arranging perceptions, feelings, thoughts, and/or actions, to enhance or improve the efficiency of experience, learning, or performance.

- <u>Prompt example</u>: "Let's establish the order in which you need to do things to get this task done."

Plan (Short-term)

- <u>Plan</u> cues the engagement of the capacities required to identify a series of perception, feelings, thoughts, and/or actions that, if carried out, would be most likely to produce a desired outcome in the very near future (within minutes to within several hours).

- <u>Prompt example</u>: "Write down what you will do over the weekend and when you will do it so that you will be ready for the test on Monday."

Choose/Decide

- **Choose** cues the need to achieve closure, i.e., to make a choice among alternatives now.

- **Prompt example**: "Make a choice now." "Pick one now." "Choose now."

- The **Choose** cue often must be preceded by the Stop/Interrupt cue.

- **Prompt example**: "You need to stop thinking about it and make a choice now."

Prioritize

- Prioritize cues the use of routines for ordering perceptions, feelings, thoughts, and/or actions, according to their relevance, importance, or urgency.

- Prompt example: "Think about how important each of these tasks is, and then list them in order of importance so the most important ones get done first."

External Control Strategies

Provide time management aids, such as calendars, clocks, timers, schedules, peer leaders and coaches, work teams, etc.
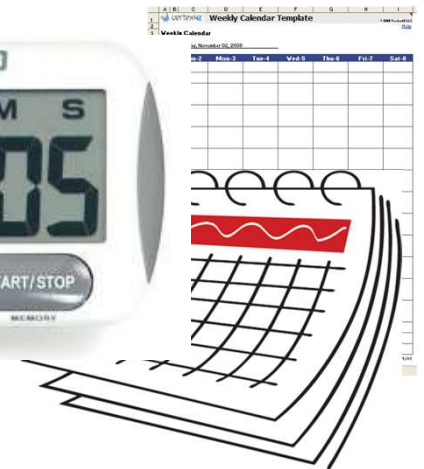
Key Concept
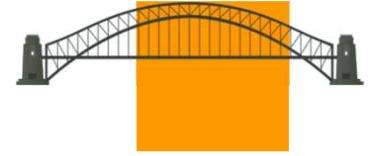
Bridging strategies effect the gradual transition from external control to self-regulated internal control.

Bridging Strategies

Encourage the engagement of executive functions through the use of reflective questioning

Reflective Questioning

Repeat the individual's question back to them instead of providing an answer. In situations where the client seems unaware of the need to be asking questions for adequate engagement, reflective questioning involves the mediator asking the client a question that is intended to make the client aware of the need to engage executive functions.

Bridging Strategies

Provide immediate and frequent feedback about the effectiveness of attempts to engage self-regulation executive functions. Providing individuals with feedback about their performance enables them to engage executive capacities more effectively to learn from their mistakes and improve future performance.

Feedback About Accuracy

When providing feedback, be sure to emphasize the importance of effort; make sure the individual realizes that self-regulation is not simply something you have or don't have – it can be increased by applying techniques and strategies; the more effort placed into applying the techniques, the more likely the improvements.

Bridging Strategies

Model appropriate use of self-regulation executive function capacities

Bridging Strategies

Teach self-regulation capacities with specific skill routines using Cognitive Strategy Instruction approaches (e.g. Graham & Harris Self-Regulated Strategy Development approach for Written Expression).

Five Stages of Strategy Instruction

1. Explain the purpose of self-regulation strategies in general and describe and discuss the specific steps of the strategy that will be taught.

Strategies

Five Stages of Strategy Instruction

2. Model the use of the strategy using language and examples that connect with the students.

Strategies

3. Students memorize the steps in the strategy as well as any mnemonics that are used as part of the strategy.
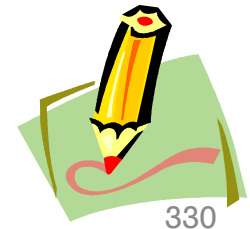
Five Stages of Strategy Instruction

4. Teacher supports the implementation of the strategy by the students, scaffolding as necessary to help the students to master the use of the strategy.

Strategies

Five Stages of Strategy Instruction

5. Students independently apply the self-regulated strategy covertly (in their own minds). Students and teacher collaboratively evaluate the effectiveness of student self-directed strategy application.

Strategies

Things that are Taught to Automaticity in Early Elementary School

- Basic math facts and multiplication tables
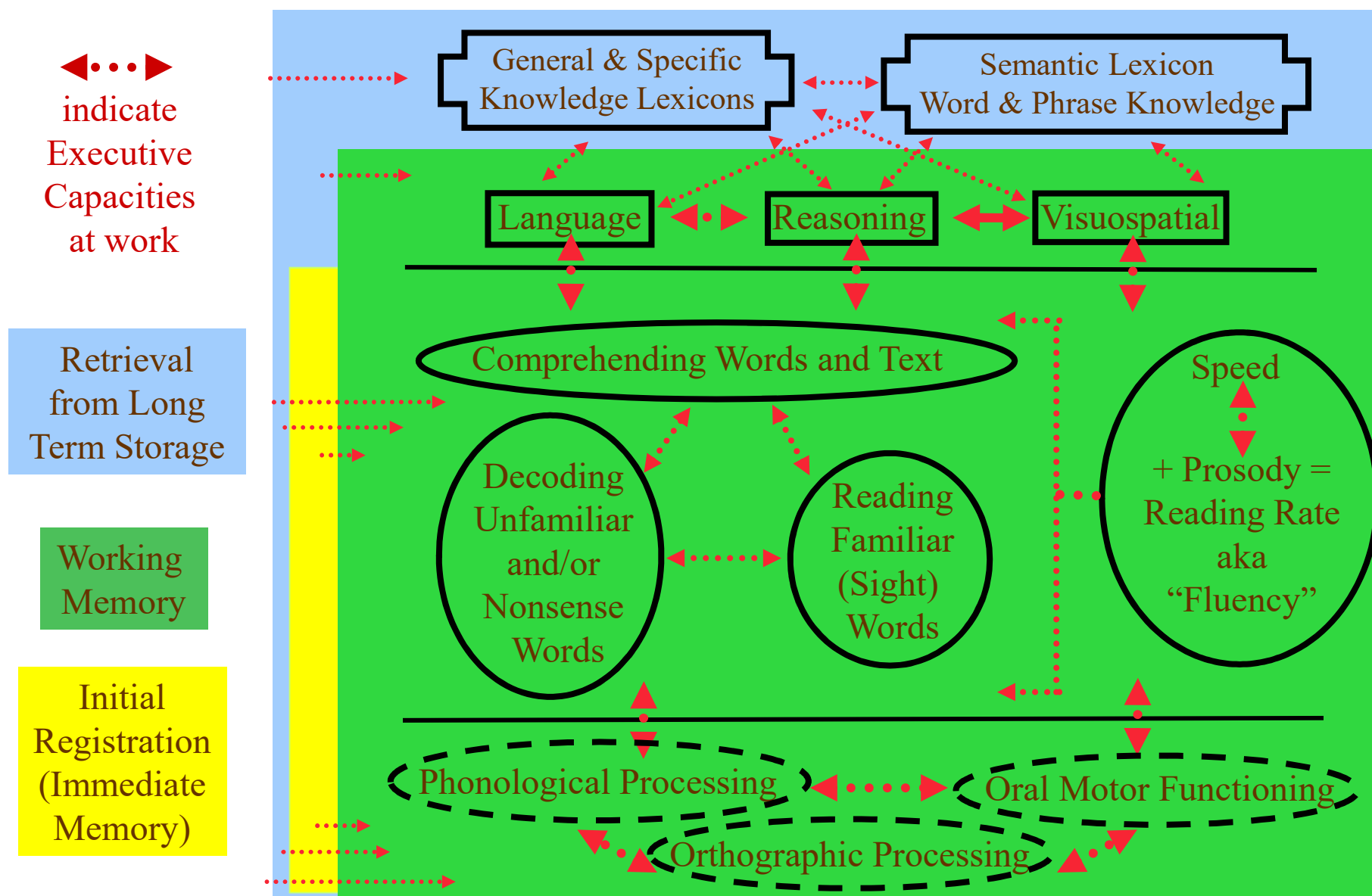- The alphabet and sight word recognition
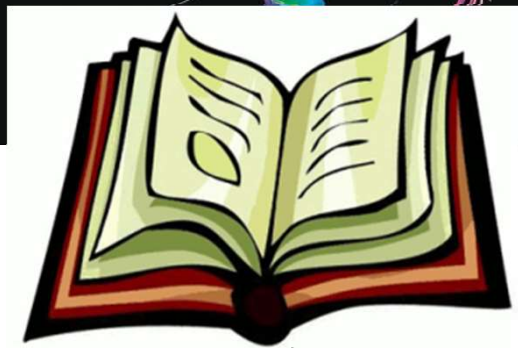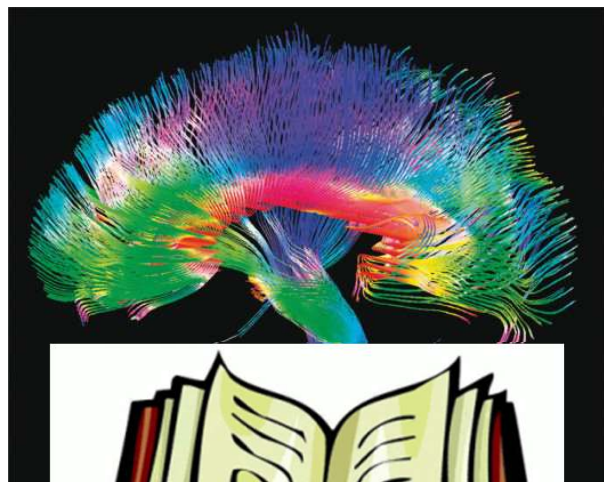
Key Concept

Executive Capacities are used to cue, direct, coordinate and integrate all the processes, skills, abilities, and knowledge bases used when reading writing or doing math.

An Integrative Model Specifying Processes, Abilities, Knowledge Bases, Skills, Memory and Achievement in Reading

◄ • • ► indicate Executive Capacities at work

Retrieval from Long Term Storage

Working Memory

Initial Registration (Immediate Memory)

General & Specific Knowledge Lexicons

Semantic Lexicon Word & Phrase Knowledge

Language

Reasoning

Visuospatial

Comprehending Words and Text

Decoding Unfamiliar and/or Nonsense Words

Reading Familiar (Sight) Words

Speed + Prosody = Reading Rate aka "Fluency"

Phonological Processing

Oral Motor Functioning
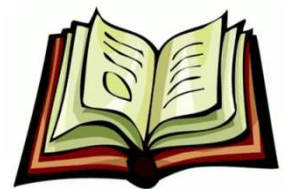
Orthographic Processing

Interventions for Executive Capacity Difficulties Related to Reading

Many executive capacity difficulties related to reading are the result of a lack of adequate use or adequate maturation of the neural networks involved in the executive control of reading.
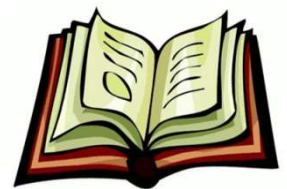
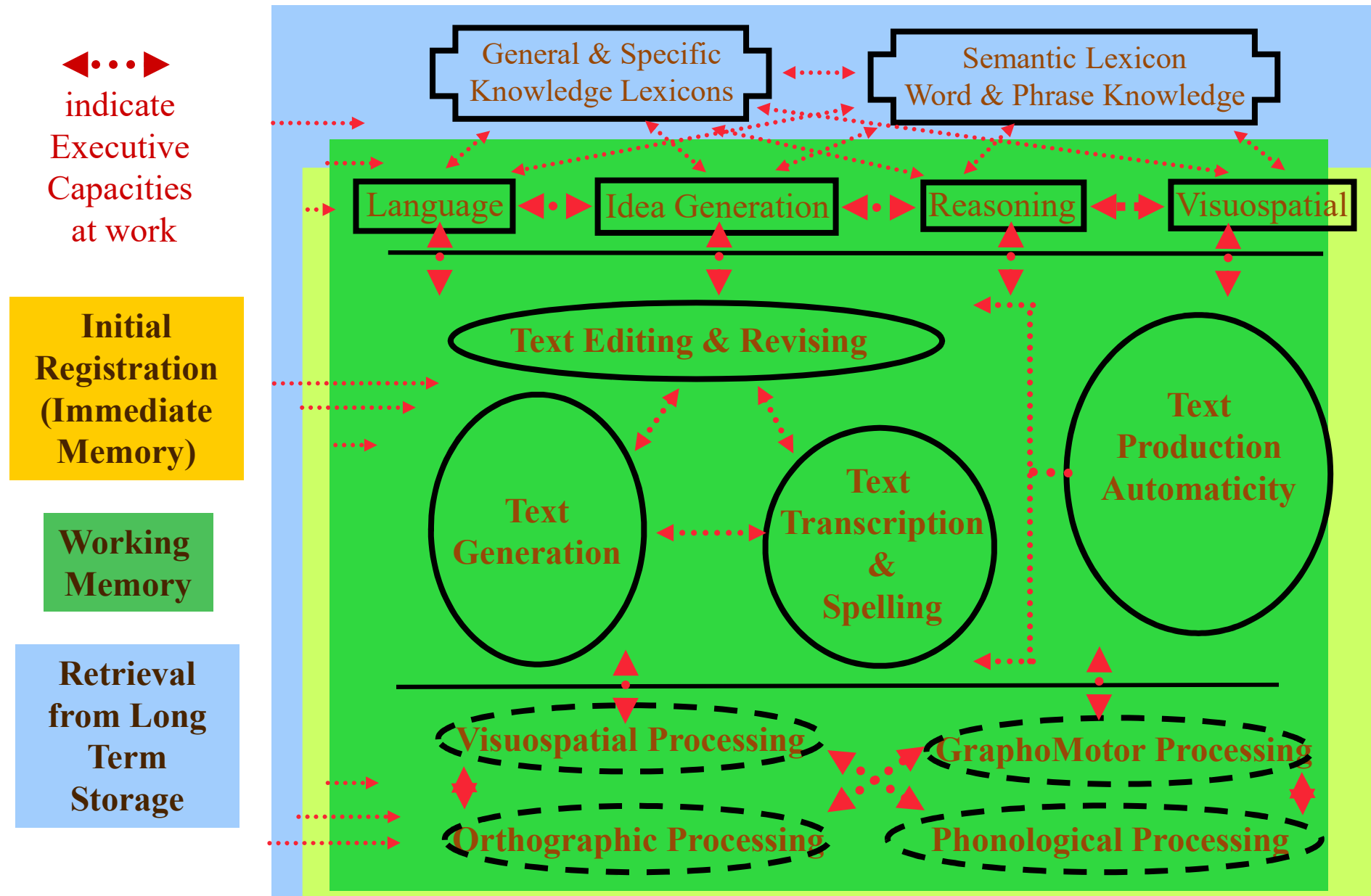# Interventions for Executive Capacity Difficulties Related to Reading

The most effective form of intervention for maturational difficulties with executive control of reading is increased practice of the complete act of reading, i.e., applying the integration of all processes, skills, abilities and lexicons to read connected text while receiving feedback from an external source.

# Things that are Taught to Automaticity in Early Elementary School

- Basic math facts and multiplication tables

- The alphabet and sight word recognition

- Graphomotor functioning for quick handwriting of letters and words

An Integrative Model Specifying Processes, Abilities, Knowledge Bases, Skills, Memory and Achievement in Writing

◀ • • • ▶ indicate Executive Capacities at work

Initial Registration (Immediate Memory)

Working Memory

Retrieval from Long Term Storage

General & Specific Knowledge Lexicons

Semantic Lexicon Word & Phrase Knowledge

Language

Idea Generation

Reasoning

Visuospatial

Text Editing & Revising

Text Generation

Text Transcription & Spelling

Text Production Automaticity

Visuospatial Processing

GraphoMotor Processing

Orthographic Processing

Phonological Processing

Interventions for Executive Capacity Difficulties Related to Writing

Many executive capacity difficulties related to writing are the result of a lack of adequate use or adequate maturation of the neural networks involved in the executive control of writing.
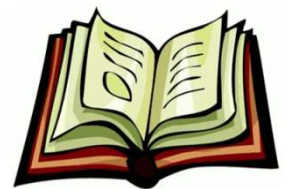
Interventions for Executive Capacity Difficulties Related to Writing

The most effective form of intervention for maturational difficulties with executive control of writing is increased practice of writing, i.e., applying the integration of all processes, skills, abilities and lexicons involved in the act of writing and receiving feedback from an external source immediately (or as soon as possible) after writing.
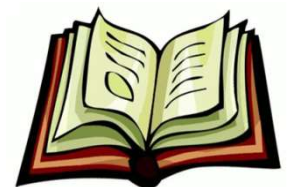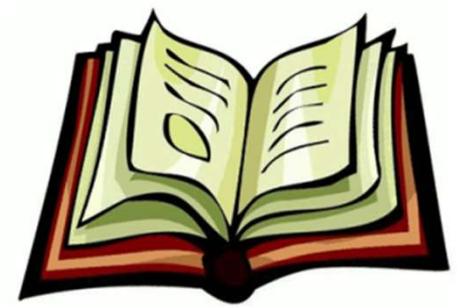
EF Involvement in Reading

Behavior indicating EF difficulties:

- Quick but inaccurate offerings for individual words with no recognition of the errors being made; words offered are highly similar in visual configuration to the correct word or start with the same letter or letter combination as the correct word or the nonsense word when performing decoding tests.

EF **Involvement in Reading**

Attention to Orthography

- Cueing/directing/coordinating immediate and sustained attention to orthography for accurate letter/word perception and discrimination

EF Involvement in Reading

EFs Likely to be involved in directing orthographic processing during word reading and decoding:

- Perceive, Focus, Monitor, Correct

Intervention for Orthographic Awareness Difficulties

- Should be addressed directly in early intervention (Pre-K-1)

- Intervention involves transfer of visual images to long-term storage, usually through repetition drills

- Unremediated difficulties result in chronic illiteracy

- Typically not the primary factor in most reading problems

Intervention for Difficulties with Direction of Attention to Orthography

- Typically not addressed specifically in intervention programs

- Intervention involves focusing attention on characteristic visual features of letters; learning to attend carefully and quickly to all the letters of every word

Intervention for Difficulties with Directing Attention to Orthography

Interventions for executive functions difficulties with word reading miscues:

1) Increase awareness of and use of all of the steps in the word recognition process.

Intervention for Difficulties with Directing Attention to Orthography

- For a student who appears to be having a lot of difficulty with substituting visually similar highly familiar words, talk with the student about how words can be illusions in that they can fool us into believing that they look like other words we know.

Intervention for Difficulties with Directing Attention to Orthography

- Script for increasing awareness and use:

- "Look" (Perceive cue)

- "at each word" (Focus cue)

- "carefully." (Monitor cue)

Intervention for Difficulties with Directing Attention to Orthography

- "See the letters and words that **are** on the page, not the letters and words you **believe to be** on the page." (Inhibit cue)

- "Quickly" (Pace cue)

- "figure out if you know the word or don't know the word." (Gau

Intervention for Difficulties with Directing Attention to Orthography

- "Quickly" (Pace cue)

- "say the word if you know it." (Retrieve cue)

- "Pause if you don't know it." (Interrupt cue)

- "Shift to decoding mode." (Shift cue)

Intervention for Difficulties with Directing Attention to Orthography

- "and quickly" (Pace cue)

- "use your decoding skills to sound out the word." (Retrieve cue)

- "Ask yourself if what you sounded out matches a word you've heard before." (Monitor & Retrieve cues)

Intervention for Difficulties with Directing Attention to Orthography

- "Use your decoding skills again if you don't recognize what you sounded out or if the word doesn't make sense in the sentence." (Correct cue)

Intervention for Difficulties with Directing Attention to Orthography

- Follow the discussion with word recognition drills and oral reading of passages that emphasize the use of the first four cues in the sequence ("Look / at each word / carefully./ See the letters and words that **are** on the page, not the letters and words you **believe to be** on the page.")

minister

Intervention for Difficulties with Directing Attention to Orthography

- Attention to orthography difficulties also should be addressed in conjunction with fluency instruction.

- The following strategy can be used:

Intervention for Difficulties with Directing Attention to Orthography

- Note the words that are mispronounced during a "cold" read of a fluency practice passage.

- Identify those words that have been read correctly in word decoding lessons but that were mispronounced during the cold read.

355

Intervention for Difficulties with Directing Attention to Orthography

- On a copy of the practice passage, underline every mispronounced word that had been pronounced correctly during decoding instruction.

Intervention for Difficulties with Directing Attention to Orthography

- Instruct the student as follows: "When you see an underlined word, that means that this is a word that you don't always read correctly but that you know how to decode. The underline is there to remind you to use your decoding skills to sound out that word so that you will be sure to read it correctly.."

351

Intervention for Difficulties with Directing Attention to Orthography

- Computer-based interventions that emphasize attention to orthographic regularity have demonstrated improvements in students' decoding skill application and overall reading achievement levels.
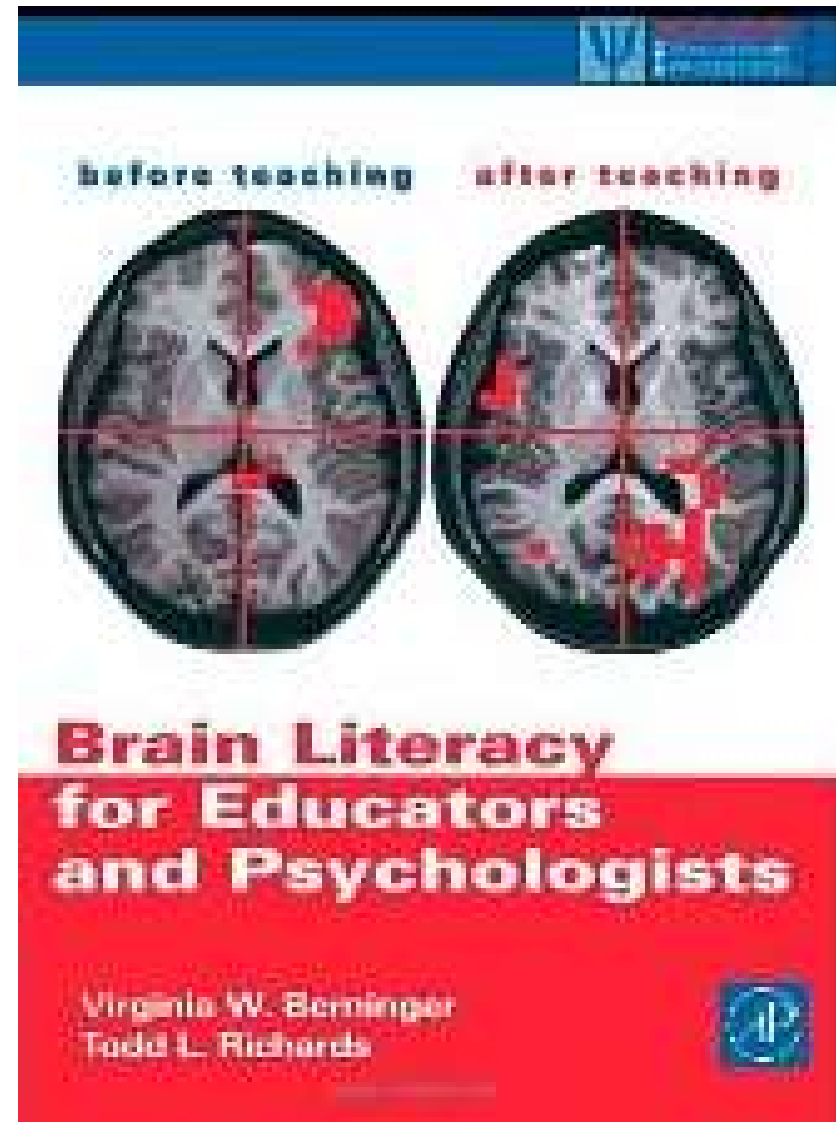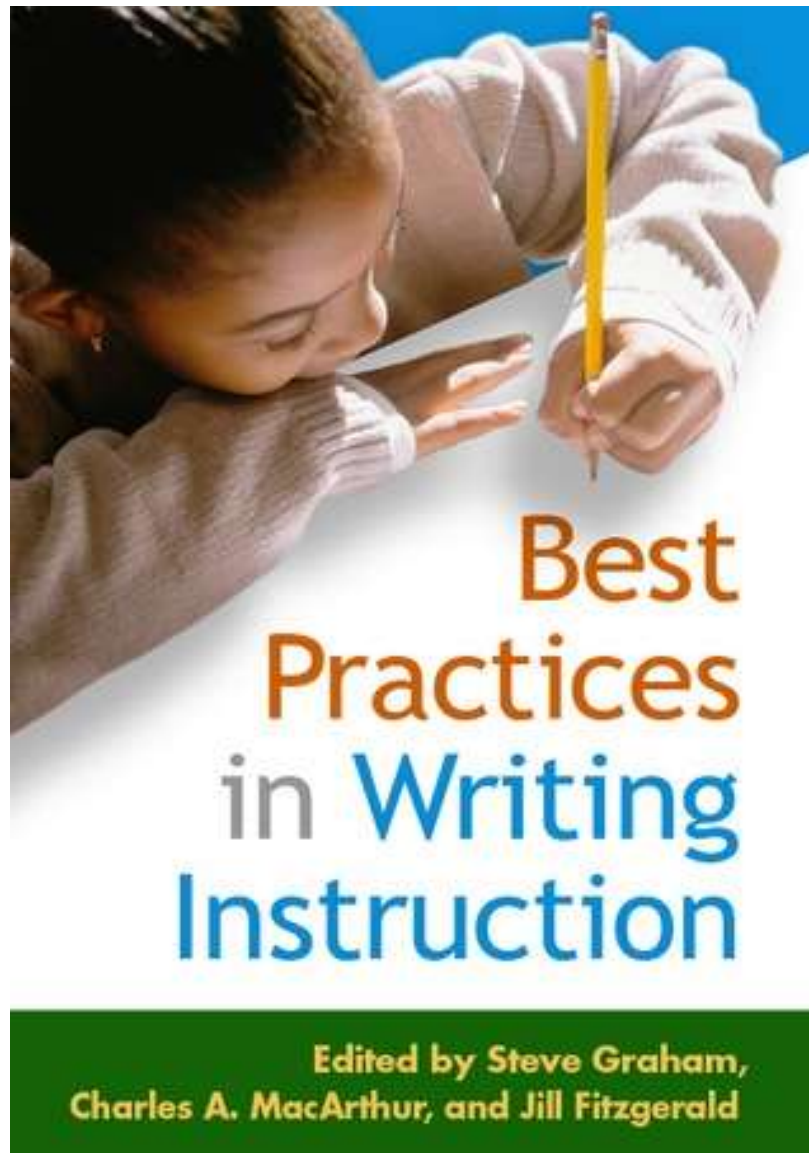
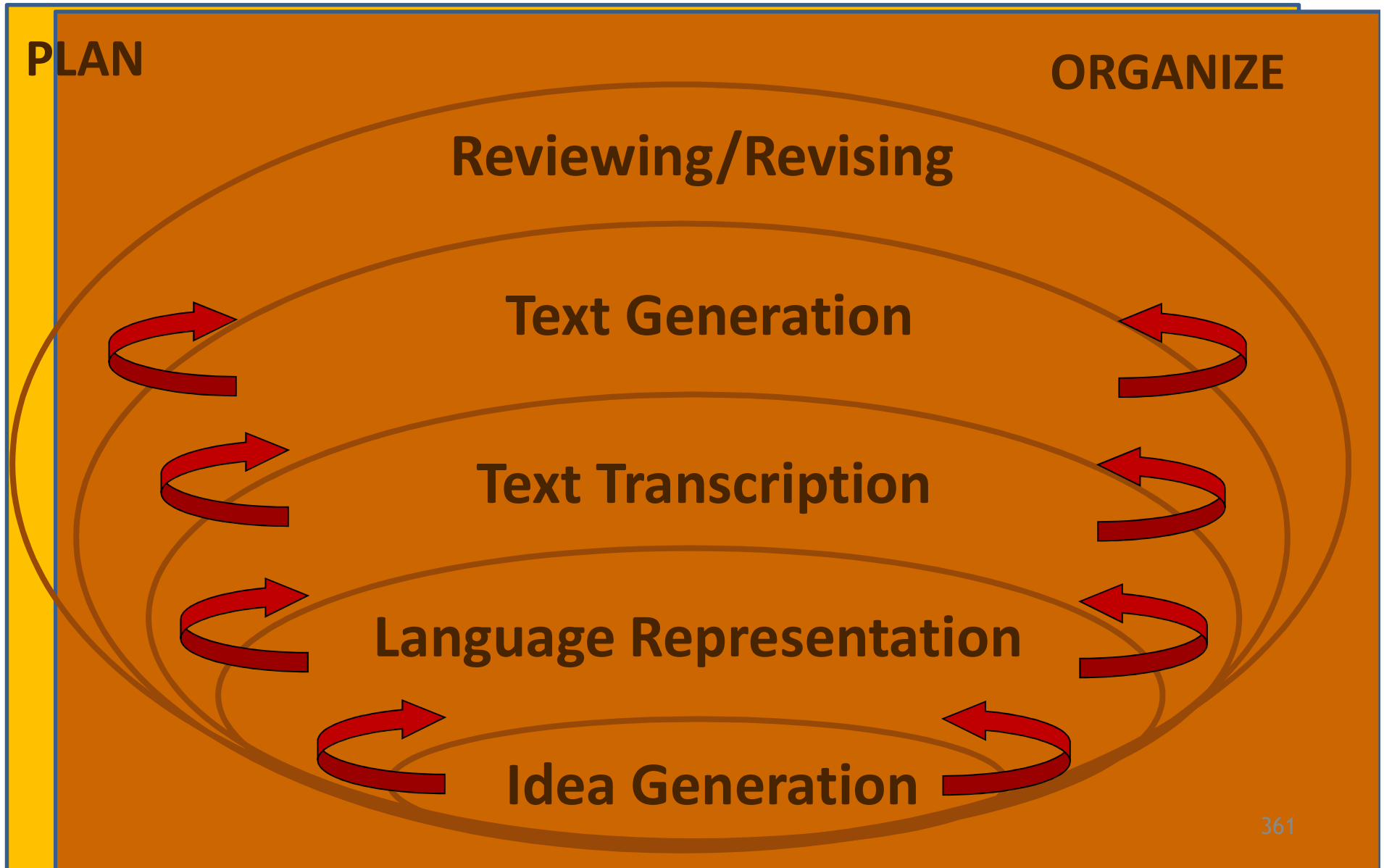# Intervention for Difficulties with Directing Attention to Orthography

- Many programs available today, such as Read 180 and Lexia, have the reading with orthographic and speech support components that have been shown to improve decoding skills.

Source Acknowledgements

Best Practices in Writing Instruction

Edited by Steve Graham, Charles A. MacArthur, and Jill Fitzgerald

before teaching   after teaching

Brain Literacy for Educators and Psychologists

Virginia W. Berninger
Todd L. Richards

Writing as a Holarchically Organized Process

PLAN

ORGANIZE

Reviewing/Revising

Text Generation

Text Transcription

Language Representation

Idea Generation

361

Executive Capacities and Writing

- What Evan wrote for me:

My favorite game is … "mabul
roling   it   is
fun.   I like   making
the box to role in
to. Iam   prety gode as
well.   It   is   rell   inters
ing.   It is   so   fun

Executive Capacities and Writing

- ## What Evan told me:

"My favorite game is rolling marbles. I think it is fun. I just learned it yesterday. It can be pretty hard at times. It can be fun and it's interesting if you make it challenging. I like making the boxes to roll the marbles into. You probably need to be pretty skilled with eye hand coordination to do it. To get up the ramp you need to roll it really fast."
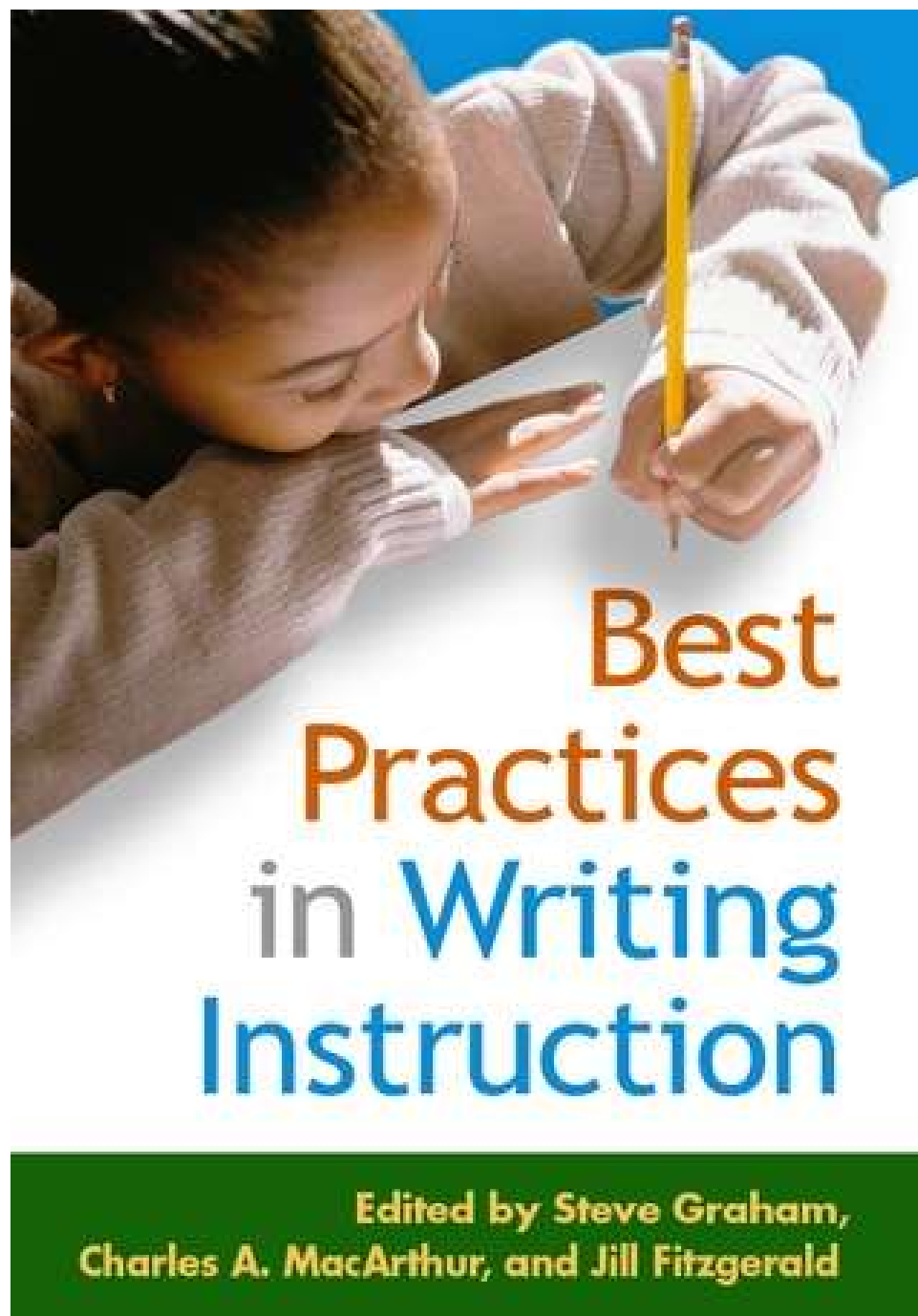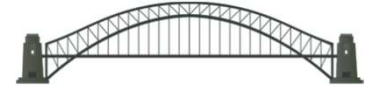
Executive Capacities and Writing

- What Evan wrote for me:

  My favorite game is…"mabul roling it is fun. I like making the box to role in to. Iam prety gode as well. It is rell inters ing. It is so fun

- What Evan told me:

  "My favorite game is rolling marbles. I think it is fun. I just learned it yesterday. It can be pretty hard at times. It can be fun and it's interesting if you make it challenging. I like making the boxes to roll the marbles into. You probably need to be pretty skilled with eye hand coordination to do it. To get up the ramp you need to roll it really fast."

Best
Practices
in Writing
Instruction

Edited by Steve Graham,
Charles A. MacArthur, and Jill Fitzgerald

**Steve Graham
Self-Regulated Strategy
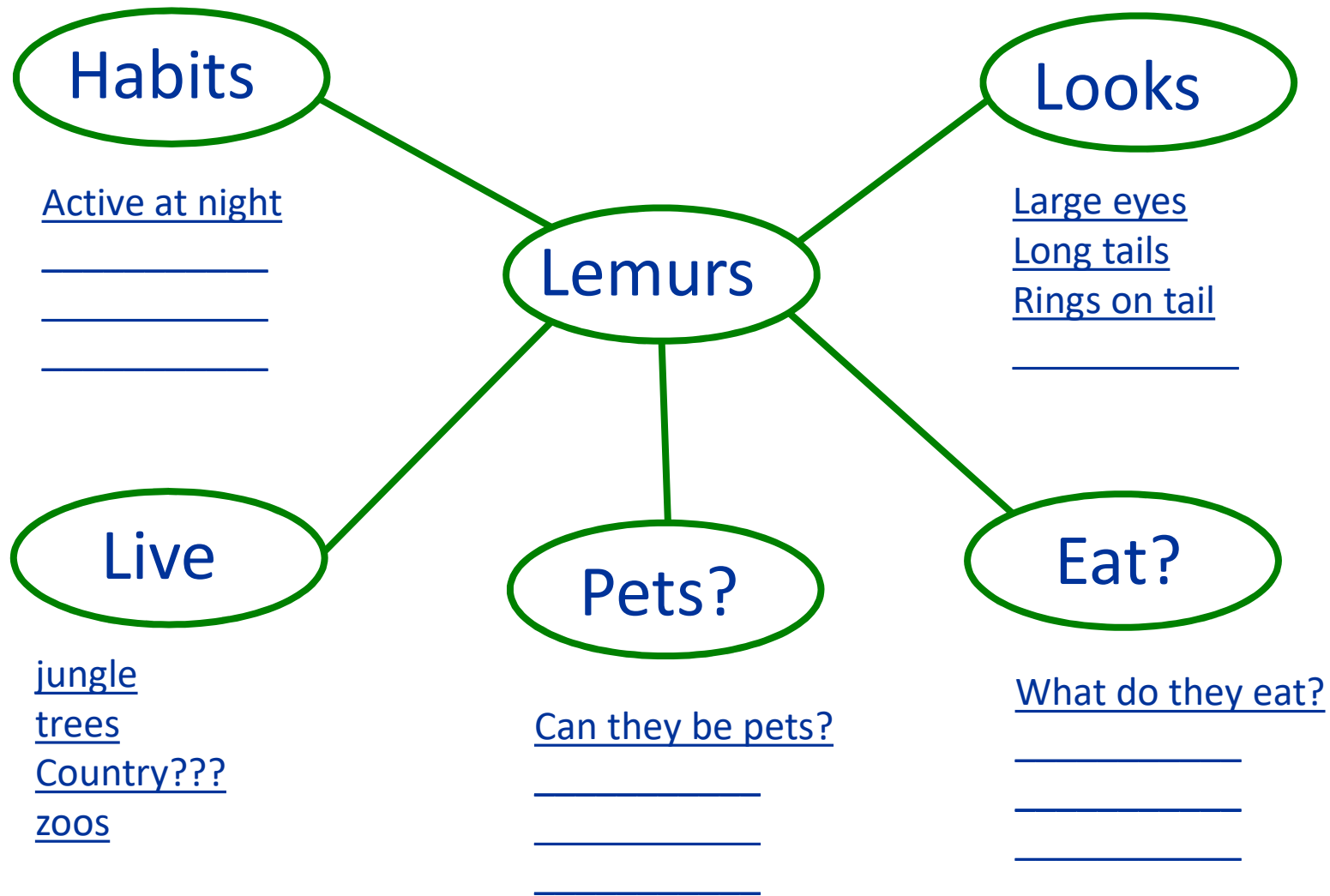Development (SRSD)**

The Report Writing Strategy

1. Select a topic.

2. Brainstorm what you know and what you want to learn.

3. Organize your information using a visual web.

4. Review your visual web and identify any holes or disconnects.

Web for what I know and what I want to learn

Habits

Active at night

_____

_____

_____

Looks

Large eyes
Long tails
Rings on tail

_____

Lemurs

Live

jungle
trees
Country???
zoos

Pets?

Can they be pets?

_____

_____

_____

Eat?

What do they eat?

_____

_____

_____

The Report Writing Strategy

5. Gather new information and revise your visual web.

6. Use the visual web to help construct an outline for the report or to begin writing.

7. Review, plan and revise as you write.

The Report Writing Strategy

8. Check the visual web; did you write what you wanted to write?

9. Add information that is missing; fix sentences that don't say what you want to say.
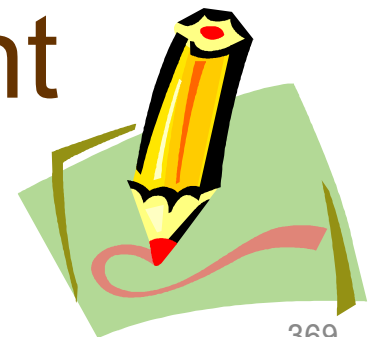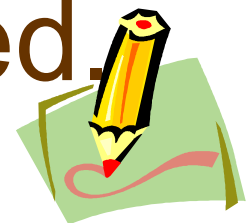
Scaffolding Step 9

A. Read the sentence silently and/or aloud.

B. Does the sentence make sense to you? What does it mean?

C. Is that what you meant to say?

Scaffolding Step 9

D. What's missing? What doesn't make sense?

E. Restate what you want to write. Repeat it to yourself.

F. Write what you just said.

G. Read what you wrote; go through steps A-F if needed.

Bridging Strategies

Practice and rehearsal of the use of executive functions. This is the single best way to increase engagement and efficiency of the use of executive functions.
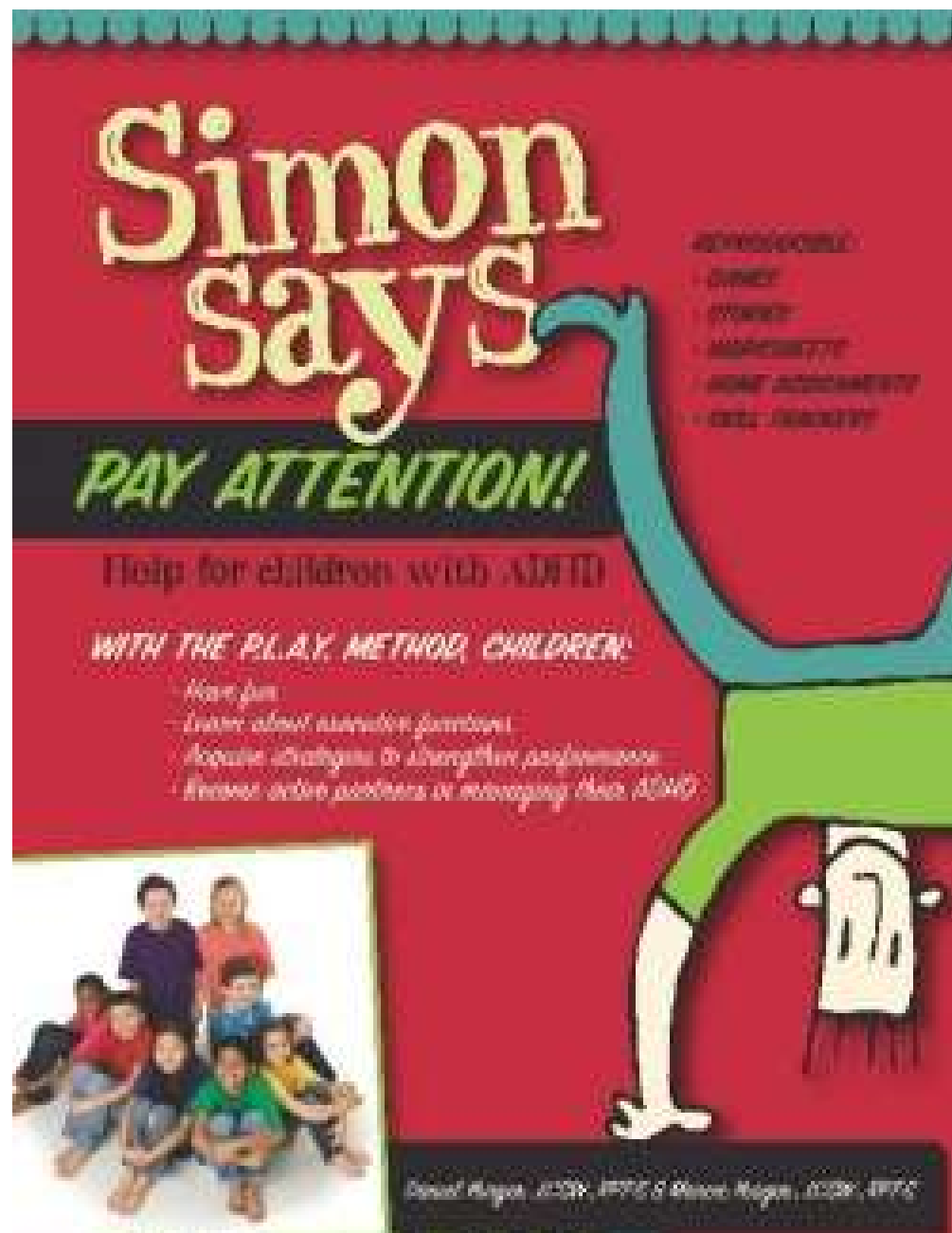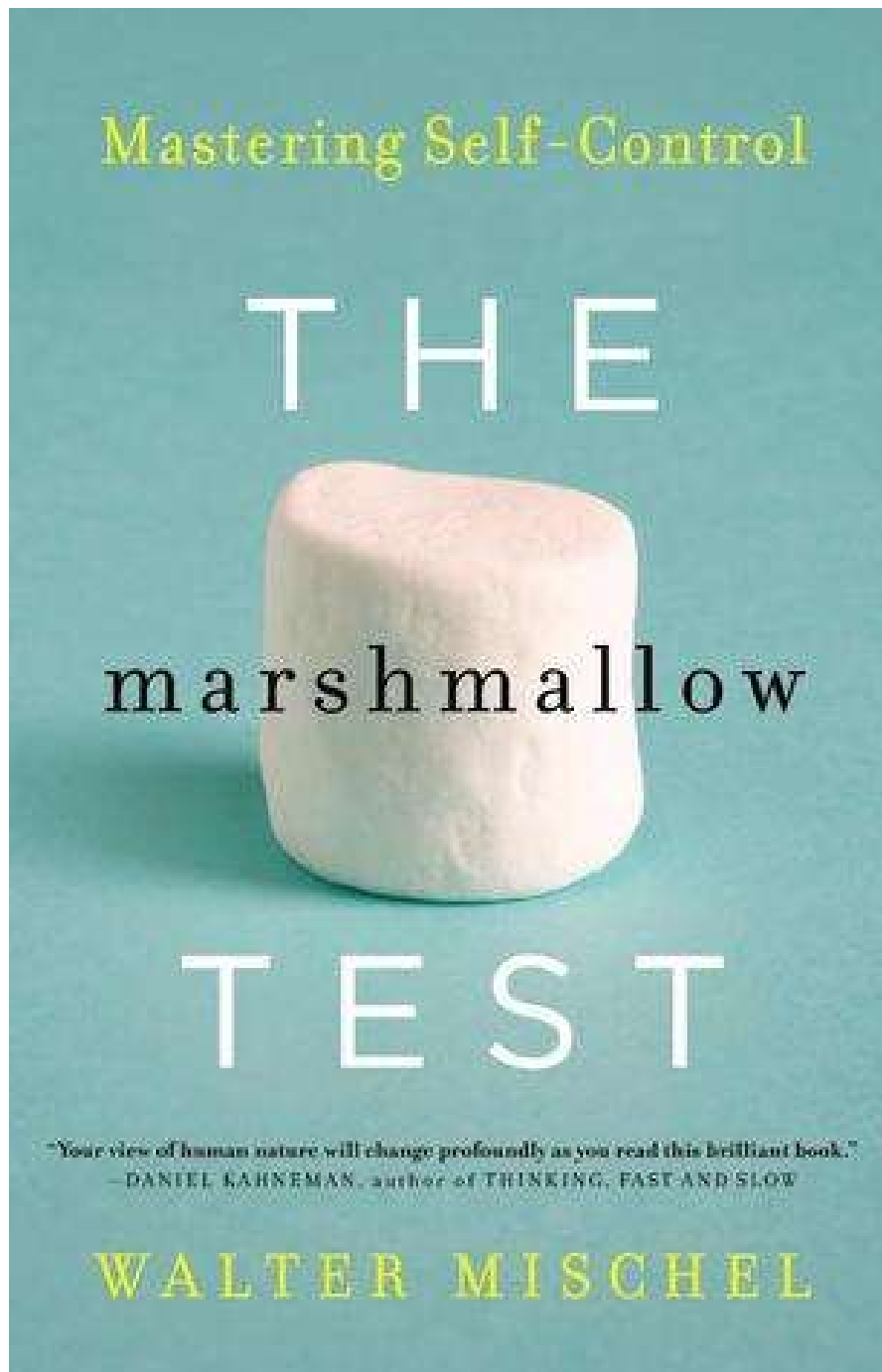
Bridging Strategies

Whenever possible, use game formats and game strategies to practice the use of executive functions.

Simon Says Pay Attention: Help for Children with ADHD

Daniel Yeager & Marcie Yeager

Bridging Strategies

Align external demands with internal desires to maximize motivation.

- Allow self-selection or choice of assignments whenever possible

- Use high interest material to illustrate application of new knowledge and skills

Bridging Strategies

Develop a common vocabulary and set of nonverbal symbols for describing or signifying self-regulation capacities and signaling their use (e.g., cueing flexibility with "The Coconut Story")

Key Concept

Once learned and practiced, Internal Control Strategies enable students to effectively "run their own shows."

Internal Control Strategy

Once learned, the child can use internalized "self-talk" as a means of increasing awareness of executive functions and of when and how to use them (e.g., modified Berninger mantra for writing: "What I can think I can say. What I can say I can write. What I can write I can revise.")

Internal Control Strategy

Model and teach the use of self-administered reward routines to increase the use of self-regulation executive functions (e.g., teach the child how to "bargain with yourself" to get homework accomplished).
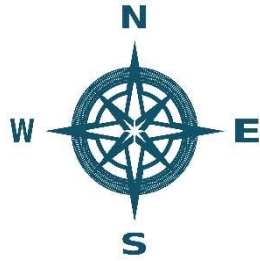
Internal Control Strategy

Teach the use self-monitoring routines. These routines can be used to monitor and correct perceptions, feelings, thoughts and actions.

Key Concept

Some specific educational programs are designed, either explicitly or implicitly, to improve students' executive functions.

Executive Capacity Interventions

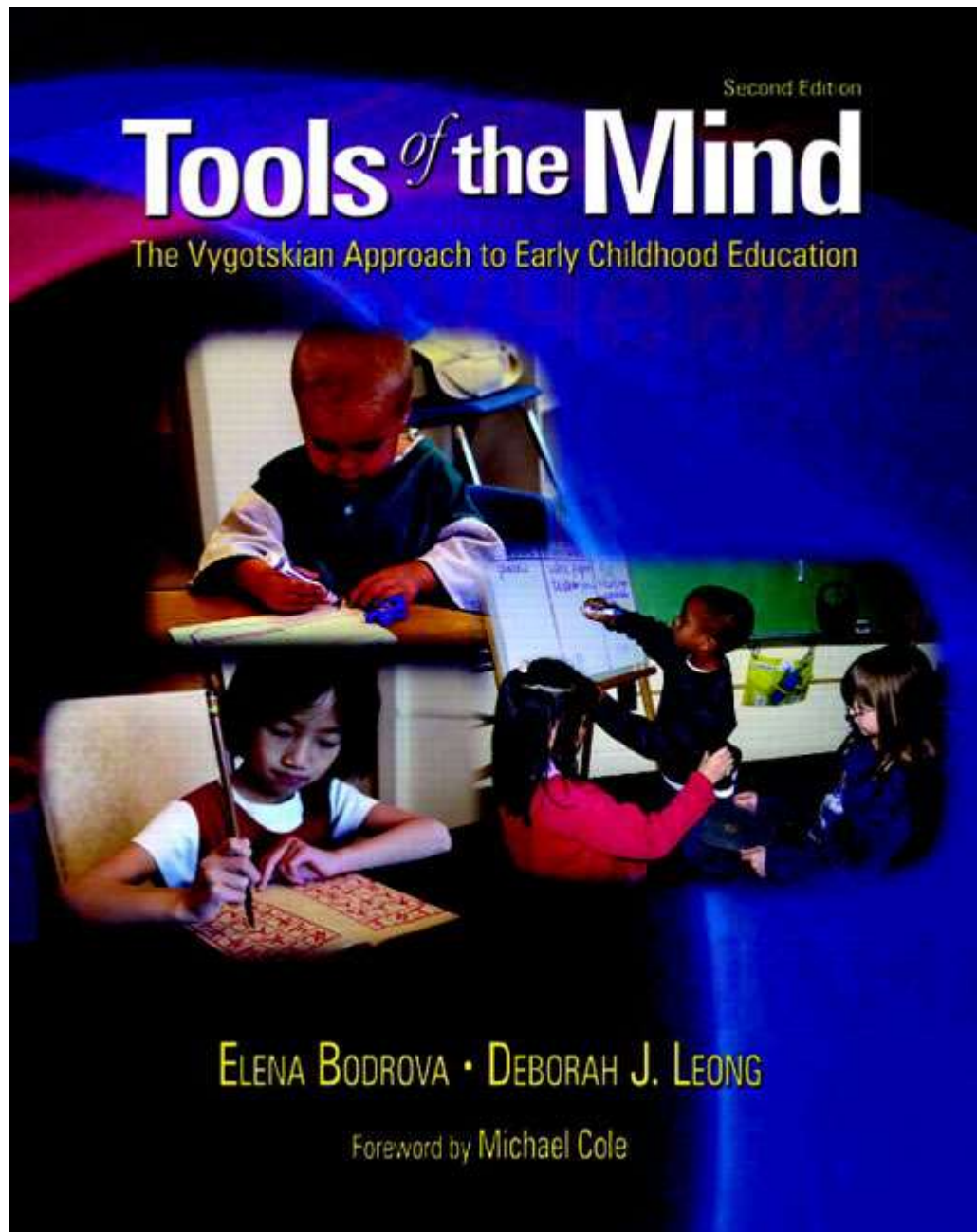Specific Programs and Approaches to Improving Clients' Executive Capacities include the following:

Key Concept

Tools of the Mind (Bodrova & Leong) is an effective preschool /kindergarten curriculum that helps young children improve executive capacities.
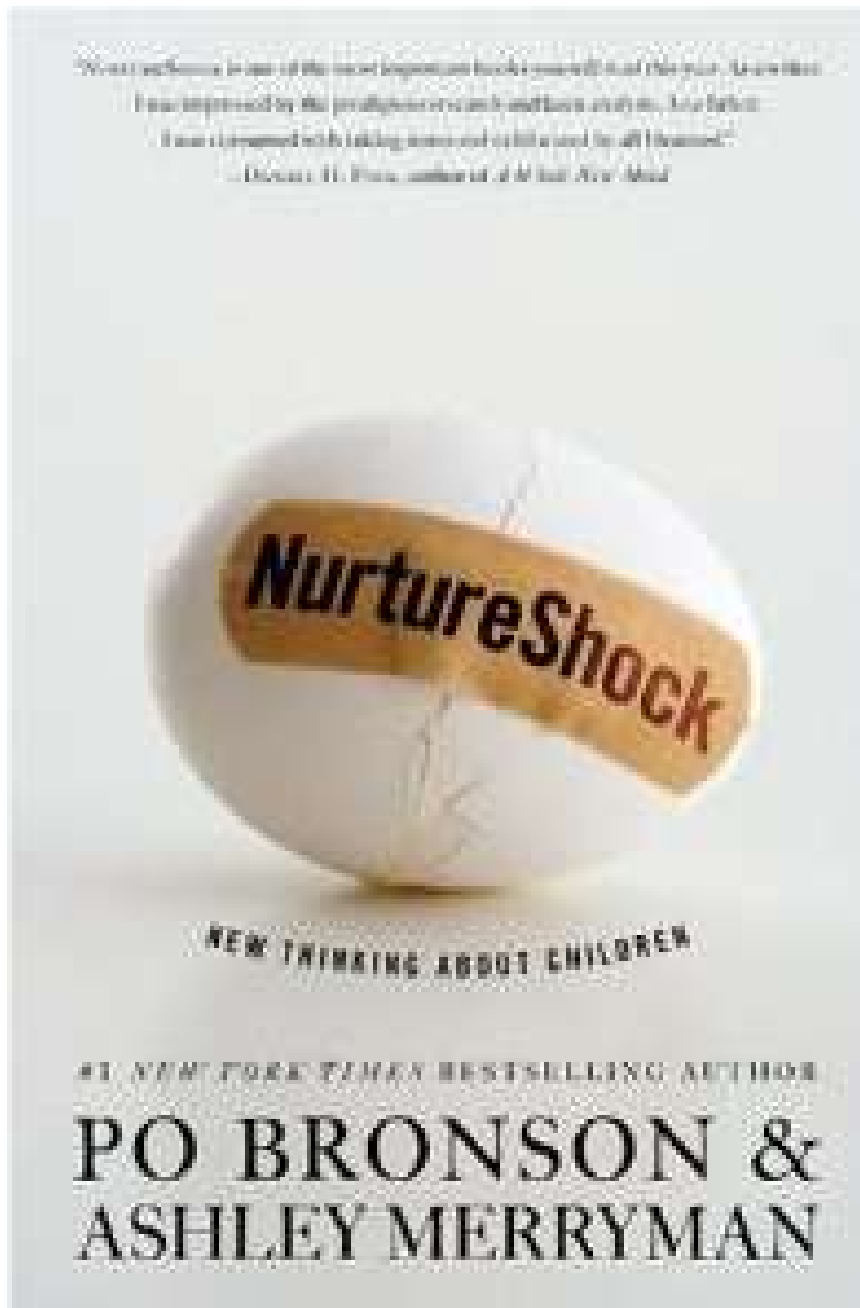
Bronson & Merryman discuss their observations of the Tools of the Mind curriculum in Chapter 8
Can Self-Control Be Taught?

Key Concept

Cognitive Strategy Instruction is an evidence-based methodology that improves students' use of executive capacities to improve academic production.

Evidence Based Intervention:
Cognitive Strategy Instruction

Cognitive Strategy Instruction (CSI) emphasizes the development of thinking skills to increase learning and production. CSIs help students to become more strategic, self-reliant, flexible, and productive in their learning endeavors (Scheid, 1993). Use of these strategies have been associated with increased academic production (Borkowski, Carr, & Pressley, 1987; Garner, 1990).

Evidence Based Intervention: Cognitive Strategy Instruction

CSI techniques employ metacognition and focus on modeling and teaching students strategies for completing tasks and routines and then modeling and teaching methods for self-cueing the use of the strategies.

Evidence Based Intervention: Cognitive Strategy Instruction

Lynn Meltzer (2010) employs CSI techniques in the Drive to Thrive classroom program and the BrainCogs and Essay Express software programs.

Evidence Based Intervention: Cognitive Strategy Instruction

Drive to Thrive and BrainCogs both address five general areas of self-regulation:

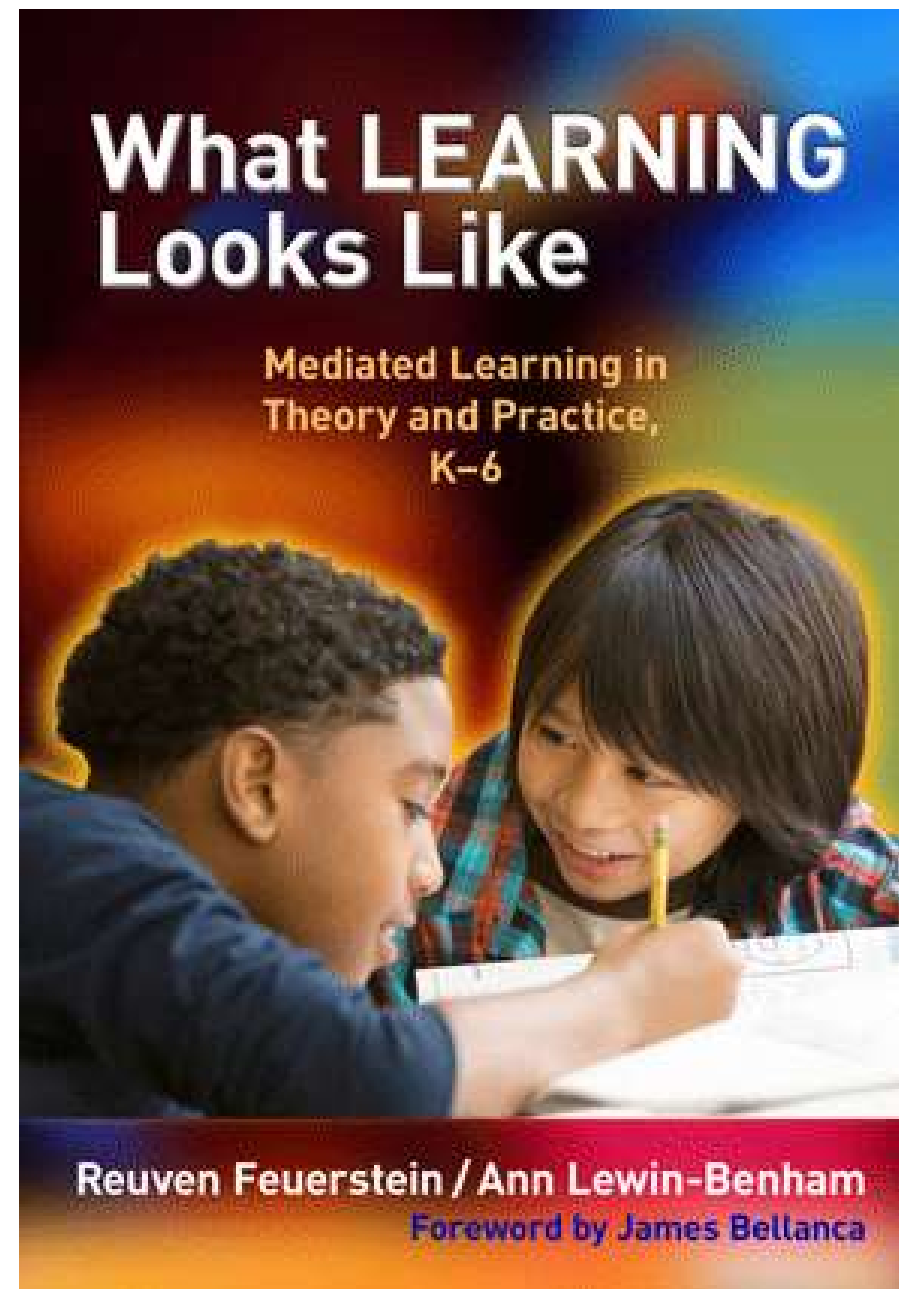- Goal Setting, Planning and Prioritizing
- Organizing
- Remembering
- Shifting and Flexible Problem-Solving
- Self-Monitoring and Self-Checking

Executive Capacity Interventions

Rueven Feuerstein's approach to improving cognitive functioning through instrumental enrichment, mediated learning and dynamic assessment, all focused on increasing self-regulation through increased self-awareness and strategy use.

SECOND EDITION

MEDIATED *Learning*

Teaching, Tasks, and Tools to Unlock Cognitive Potential

Mandia Mentis

Marilyn Dunn-Bernstein

Martene Mentis

Foreword by Reuven Feuerstein

What LEARNING Looks Like

Mediated Learning in Theory and Practice, K–6

Reuven Feuerstein / Ann Lewin-Benham
Foreword by James Bellanca

A THINK-ALOUD & TALK-ALOUD APPROACH to BUILDING LANGUAGE

OVERCOMING DISABILITY, DELAY, AND DEFICIENCY

Reuven Feuerstein, Louis H. Falk, Rafael S. Feuerstein, and Kristina Bohács

Foreword by Yvette Jackson

Key Concept

The language of Cognitive Behavior Therapy is being used to help teachers improve their ability to engage specific brains areas during classroom instruction.

Executive Functions Interventions

Cognitive Behavior Therapy (CBT).

CBT teaches strategies for improving the use of executive functions to cue and direct effective perceiving, feeling, thinking and acting. Techniques have shown good results at the adult and adolescent levels and some early indications that the techniques can be applied effectively with children in the elementary grades.

Evidence Based Intervention: Cognitive Behavior Therapy

Cognitive Behavioral Therapy (CBT) emphasizes collaborative reality-testing and the monitoring and modification of automatic perceptions, feelings, thoughts, and actions that cause difficulties for the child.

Evidence Based Intervention: Cognitive Behavior Therapy

Outcomes of CBT with children and adolescents:

- Increased ability to monitor perceptions, feelings, thoughts and actions

- Increased engagement in positive problem-solving strategies

- Increased capacity for self-regulating perceptions, feelings, thoughts and actions

Executive Functions Interventions

CBT variants such as Jeffrey Schwartz's "Brain-Lock: Free Yourself from Obsessive-Compulsive Behavior; subtitled as "a four-step self-treatment method to change your brain chemistry." This method uses CBT oriented techniques to strengthen self-regulation capacities and decrease unproductive perceptions, feelings, thoughts and actions.

Evidence Based Intervention: Dialectical Behavior Therapy

"**Dialectical behavior therapy** (**DBT**) focuses on the treatment mood disorders and on changing patterns of behavior that are not helpful, such as suicidal ideation and substance abuse. DBT improves modulation of perceptions, feelings, thoughts and actions by helping clients learn about the triggers that lead to reactive states and learn coping skills in order to avoid undesired reactions.

DBT is a modified form of CBT developed by Marsha Linehan to treat individuals diagnosed with borderline personality disorder and chronically suicidal individuals. DBT use has expanded to the treatment of traumatic brain injuries (TBI), eating disorders, and mood disorders, self-injury, sexual abuse survivors, and chemical dependency. DBT combines standard cognitive behavioral techniques for emotion regulation (modulation) and   reality-testing with concepts of distress tolerance,   acceptance, and mindful awareness larg derived from meditative practice.

Key Concept

Problem-solving approaches are intended to increase students' use of executive functions to find better solutions to personal difficulties.
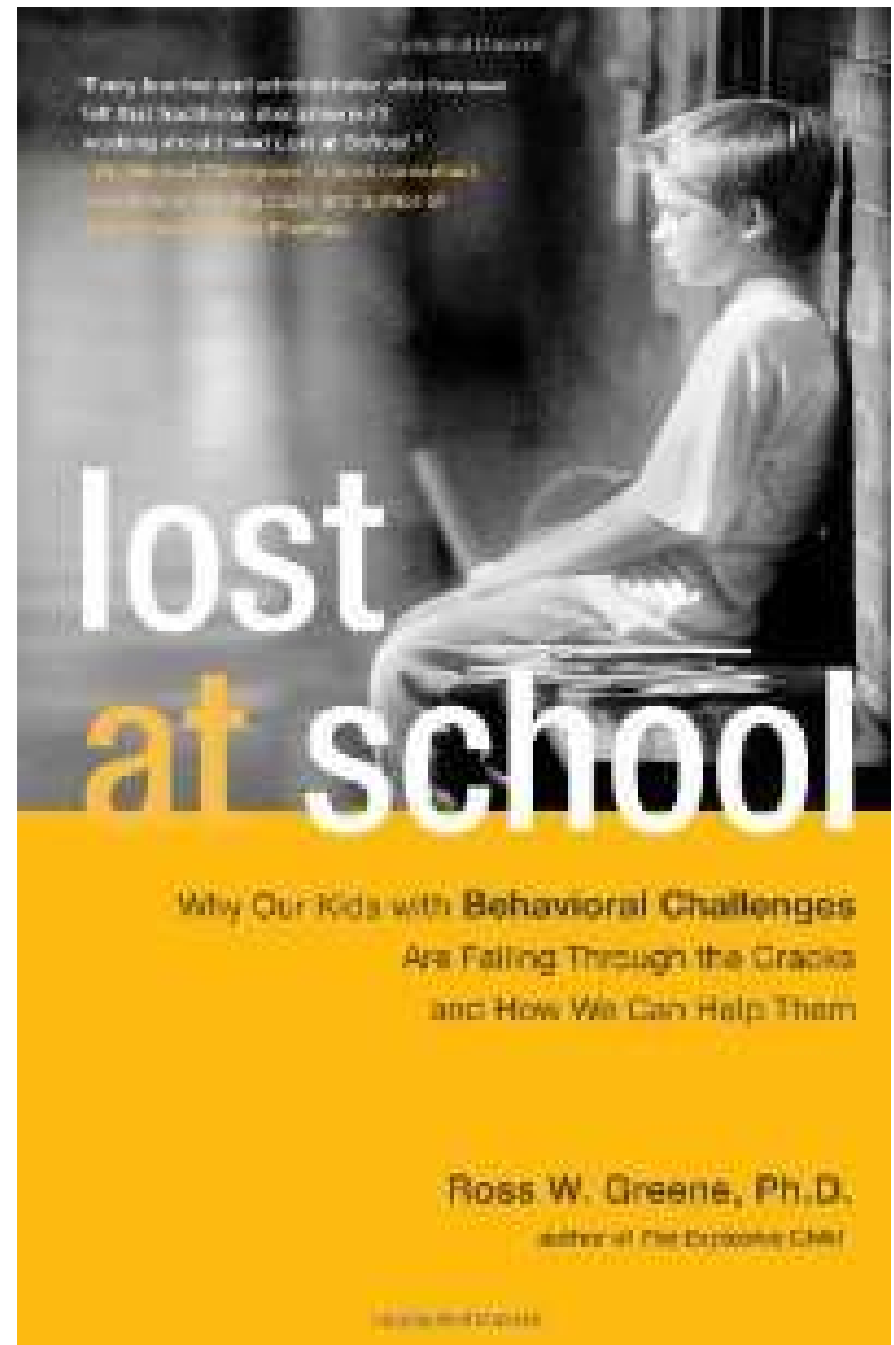
Executive Functions Interventions

Ross Greene's Collaborative & Proactive Solutions approach is featured in his books on Treating Explosive Kids. Although Greene does not specifically use the concept of executive functions, his intervention approach is a great strategy for bridging to internal self-regulation capacities.

Ross Greene's Collaborative & Proactive Solutions

lost at school

Why Our Kids with **Behavioral Challenges** Are Falling Through the Cracks and How We Can Help Them

Ross W. Greene, Ph.D.

author of *The Explosive Child*

Executive Capacities Interventions

Myrna B. Shure's I Can Problem-Solve techniques for teaching young children increased self-control and improved cueing of appropriate problem-solving routines.
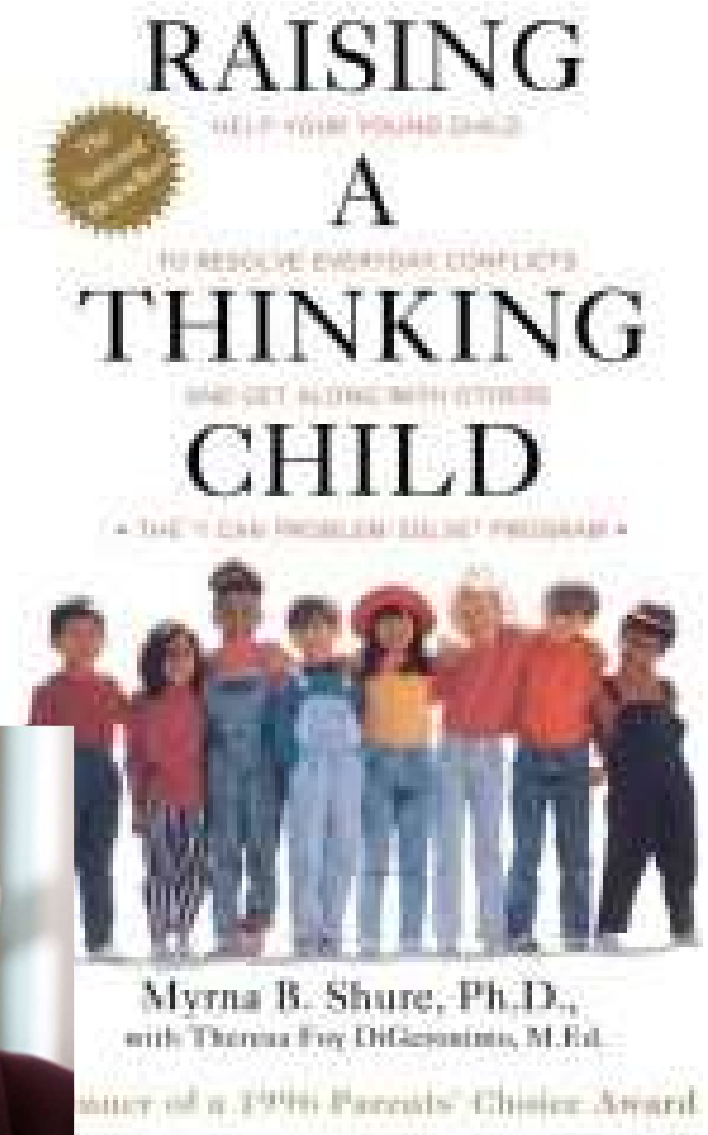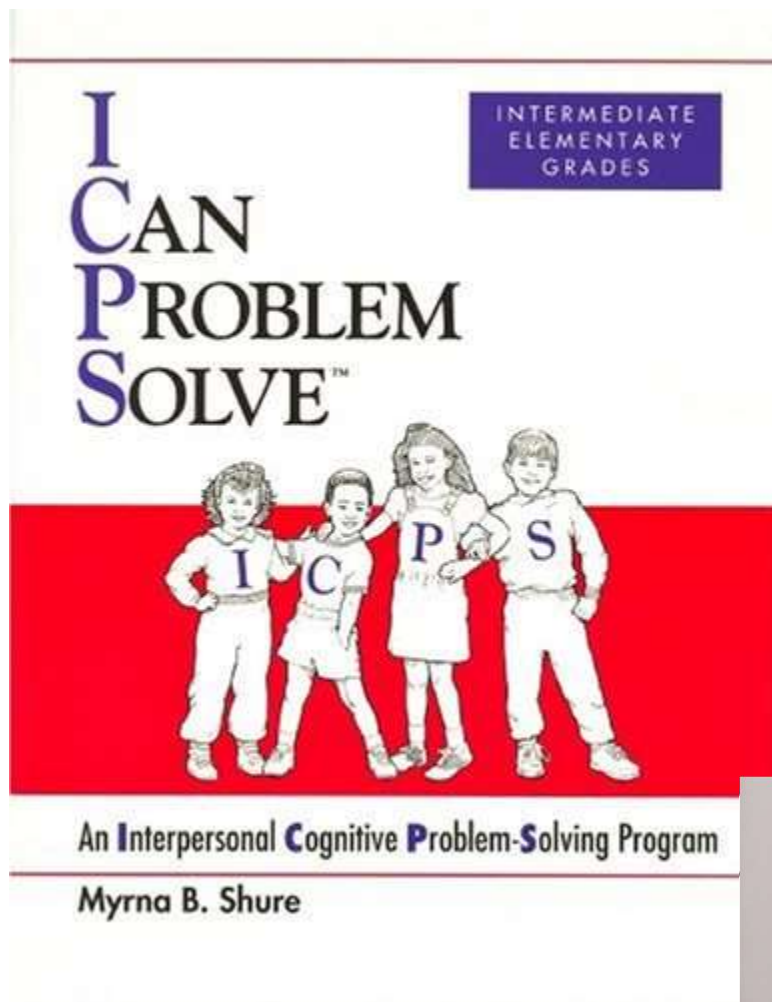
Executive Capacities Interventions

Michelle Garcia Winner's Social Thinking Curriculum Superflex. Uses cartoon characters to teach about self-regulation concepts (e.g., Rock Brain represents inflexible thinking). Intended for upper elementary age children diagnosed with Asperger's, but the techniques and ideas appear to have wider application.

Key Concept

Computer-based technologies are beginning to show promise as techniques for improving students' effective use of executive capacities.
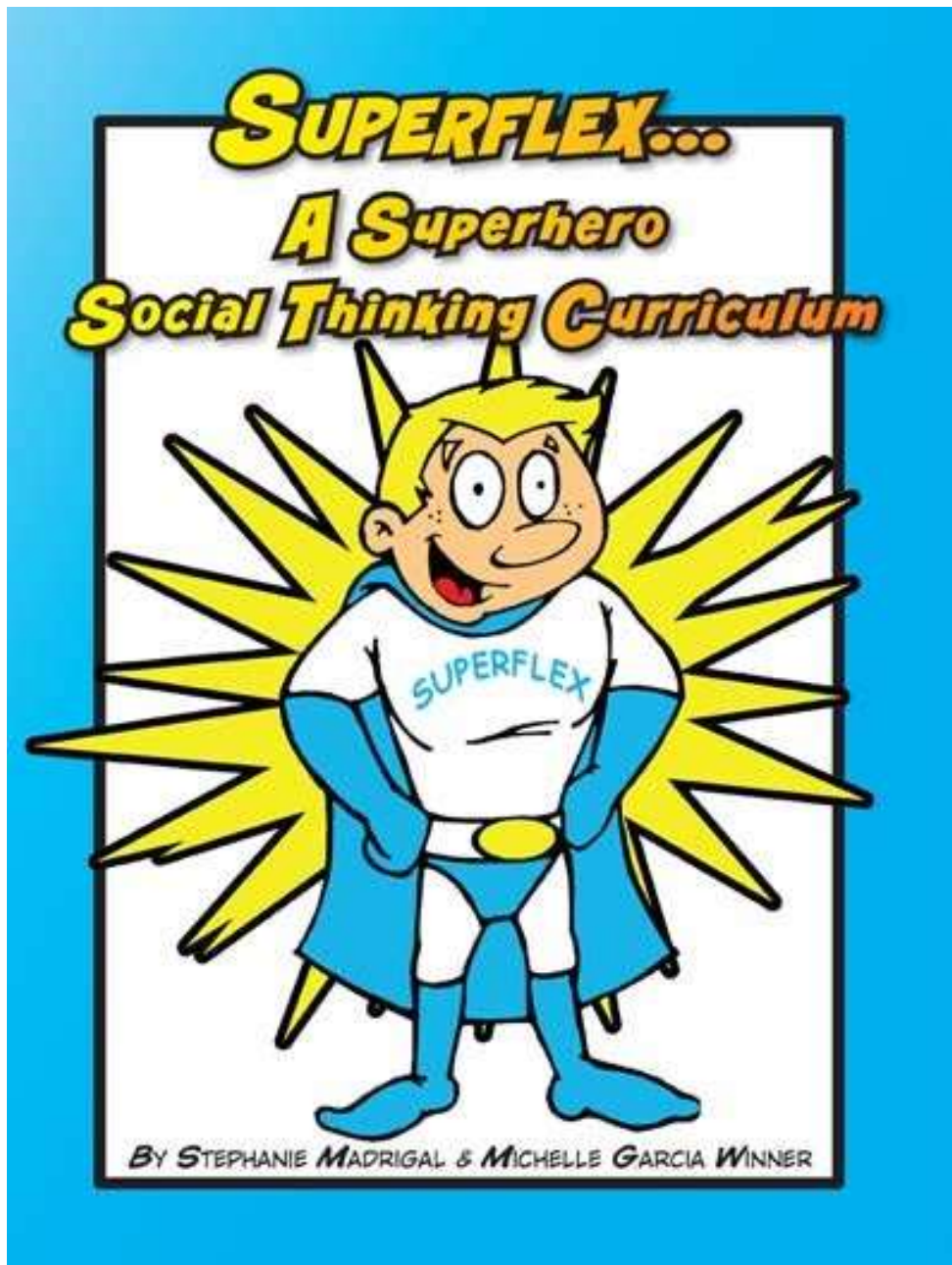
Executive Functions Interventions

Computer-based cognitive training programs such as CogMed and neurofeedback programs are being closely studied to determine the extent to which they can be used to improve self-regulation in settings other than the "computer lab."

Key Concept

Meditation is one of the most effective ways to increase access to and use of executive capacities.

Executive Capacity Interventions

Use of Meditation, especially witnessing meditation techniques. Improving all forms of self-control, especially Self-Awareness, through "quieting of the mind."

How to Help Your Kid Manage Stress and Become Happier, Kinder, and More Compassionate

Sitting Still Like a Frog

Mindfulness Exercises for Kids (and Their Parents)

Simple mindfulness practices to help your child deal with anxiety, improve concentration, and handle difficult emotions

Eline Snel

Foreword by Jon Kabat-Zinn

The Mindful Child

Susan Kaiser Greenland

Cofounder and Executive Director of the Inner Kids Foundation
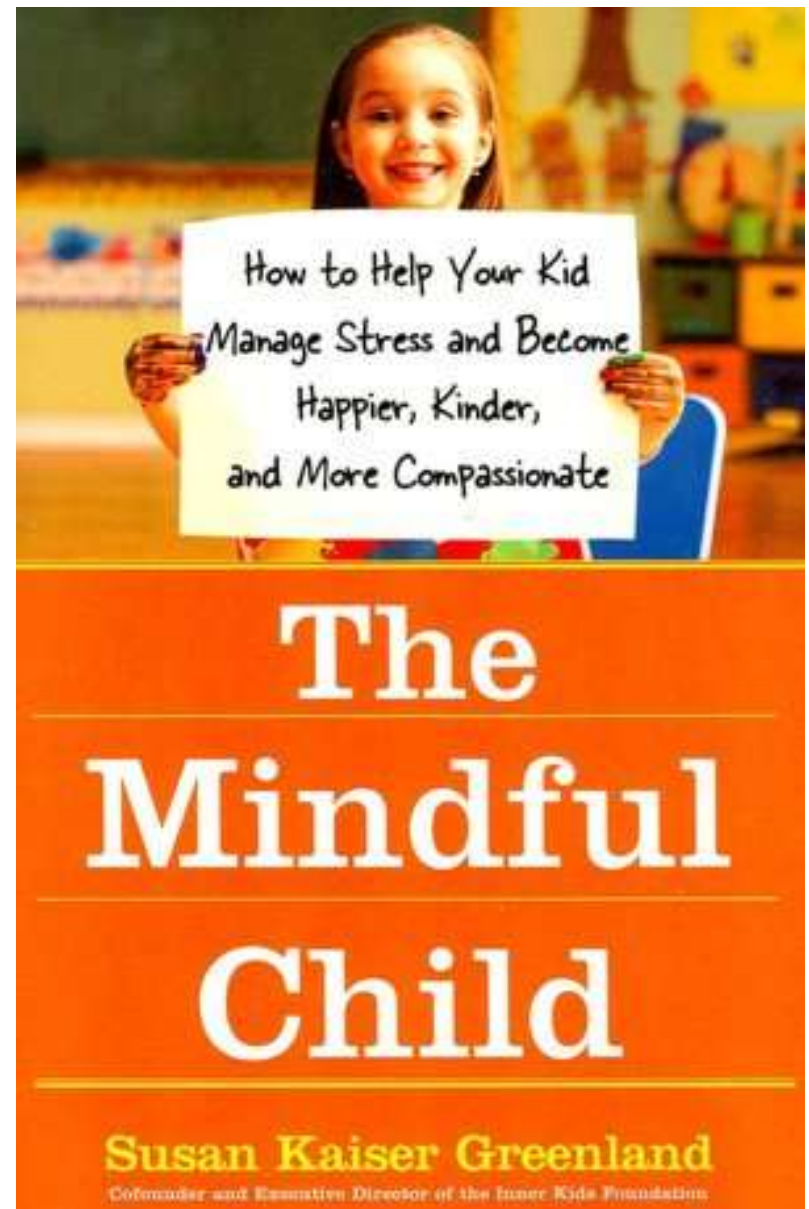
Executive Capacity Interventions

Mindfulness-based Physical Exercise Programs such as Yoga and Thai Chi are likely to have generalized effects on a number of self-regulation executive capacities.

little flower
yoga
for **kids**

A Yoga and Mindfulness Program to
Help Your Child Improve Attention
and Emotional Balance

connect,
breathe, move,
focus, relax –
includes exercises to
help kids learn the
key elements
of yoga

Jennifer Cohen Harper, MA, E-RCYT
Foreword by Daniel J. Siegel, MD

TAI CHI
FOR FUN!

by Robin Koontz
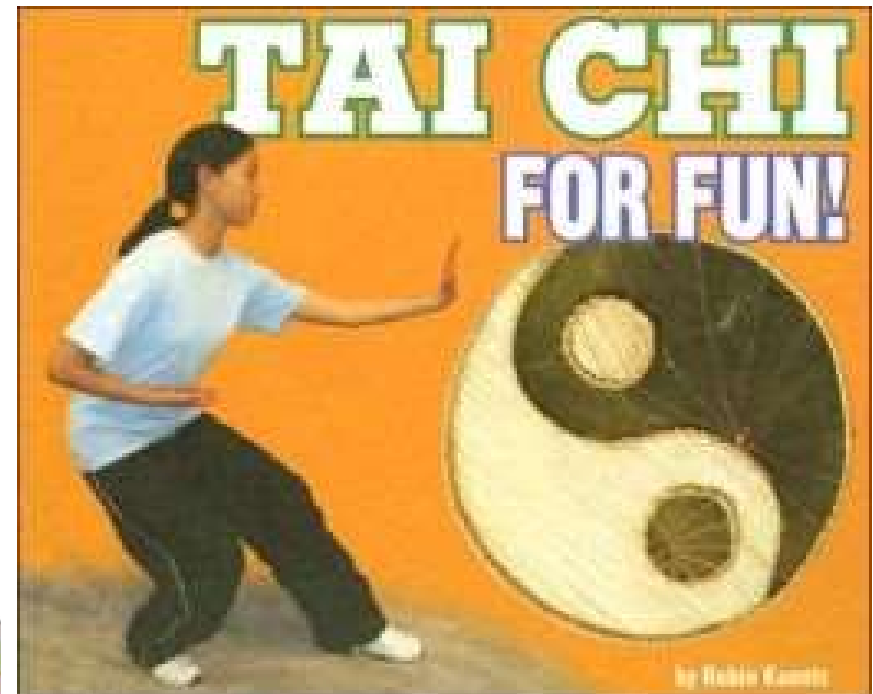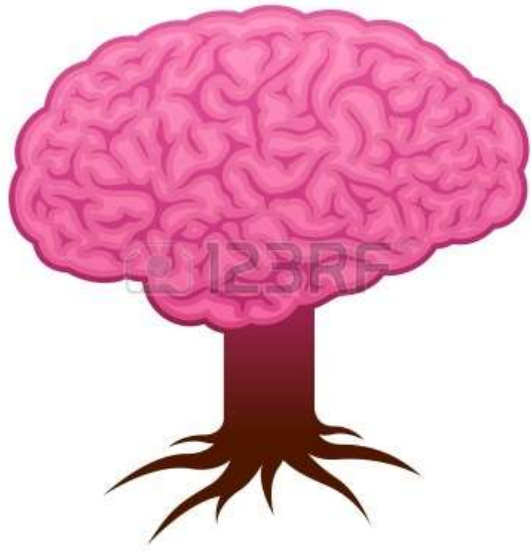
Key Concept

Because so many executive capacities problems are related to maturational delays, time is an effective intervention in itself.

Executive Capacity Interventions

Time - Natural maturational processes affect executive capacities at all levels; time-related expectations for EF development often need to be adjusted (e.g., recall the 30% developmental delay often found with individuals with ADHD)

Key Concept

Some medications help individuals with severe ADHD gain greater access to some specific executive capacities.

Executive Capacity Interventions

Pharmacological - Medications help increase executive capacity use in conditions such as ADHD, mood disorders, and OCD. In most cases, the medication does not directly enhance EFs but rather reduces the disrupting effect of less than optimal function of other neural circuitry.

Key Concept

Executive Skills coaching is a growing area. When done well, it can be used to implement all four strategies for improving executive capacities.

Executive Capacity Interventions

Engage the Services of a Cognitive Coach (i.e., Rent-a-Lobe) Make extensive use of external executive capacity substitutes where appropriate, e.g., some aspects of the services of ADHD and Life Coaches.

Executive Capacity Interventions

Encourage Symbiotic Relationships and Support Networks. Enter into relationships where there is a mutual interdependence that enables reduction of the effect

of EC deficiencies

(e.g., Marry-a-lobe).

Key Concept

Teachers can implement specific techniques to reduce the likelihood of executive capacity difficulties affecting assessment of academic production.

Key Concept

Alternately, teachers can take on the challenge of teaching students how to adjust to increased demands for the use of executive capacities in assessment situations.

Strategies for Improving Assessment Methods

1) Offer bonus points for handing in homework and assignments on time instead of taking points away

2) Point out minor errors and offer students a chance to correct them before assigning a grade

Strategies for Improving Assessment Methods

3) Offer feedback and opportunities to revise writing assignments before grading them

4) Offer students choices for ways to demonstrate content knowledge

Strategies for Improving Assessment Methods

5) Offer credit for all efforts to correct work; offer opportunities to retake failed tests

6) Deduct no more than 5-10% of total points for minor detail errors

Strategies for Improving Assessment Methods

7) Offer multiple ways to participate in classroom activities, not just oral expression

8) Use pop quizzes only as a diagnostic tool rather than a graded performance measure

Strategies for Improving Assessment Methods

9) Offer response choices (word banks) for open-ended question formats

10) Provide guidelines and progress checks for long-term projects

Strategies for Improving Assessment Methods

11) Avoid placing constraints on response modes as much as possible

12) Teach note-taking, memory strategies, and study skills when necessary

Cognitive Strategy Instruction

Case Example:

Billy

Lack of Inhibition?

Billy: Case Conceptualization

It is critical that the actual problem behavior and associated EC difficulties be specified clearly and accurately :

- Teacher used the terms Lack of Inhibition and Impulsivity to describe Billy's behavior, but her behavioral descriptions of problem situations were really examples of lack of effective monitoring and modulating.

- Classroom observation confirmed that Billy's difficulties resulted from a lack of monitoring of voice and activity levels and a lack of adjusting of the intensity of voice and activity levels.

Billy: Case Conceptualization

- Teacher only used a Stop prompt when voice or activity levels were in the unacceptable range.

- Billy was not aware of why he was being told to stop.

- Without awareness of the problem and help in finding a strategy to change voice and activity levels on command, Billy was unable to change his behavior.

Billy's Intervention: Orienting Phase

- The psychologist described what he saw in the classroom and listened to Billy's explanation of what was happening in the classroom.

- The psychologist helped Billy to think through why his behavior was viewed as disruptive by the teacher.

- The psychologist asked Billy to help find a solution to the classroom problems that resulted when he was unable to monitor and adjust his voice and activity levels.

- Billy and the psychologist concluded that Billy needed help learning how to monitor and modulate his voice and activity levels.

- The psychologist and Billy met with the guidance counselor to identify strategies that could be used to help Billy learn how to improve his ability to monitor and adjust his voice and activity levels.

436

Billy's Intervention: Orienting Phase

- The team (Billy, the psychologist and the guidance counselor) decided to use an activity similar to those used in the *Tools of the Mind* curriculum to help Billy learn how to monitor and adjust his voice level.

Billy's Intervention: External Control Phase

- Billy and the counselor talked about the different voice levels (library, indoor and outdoor) and the best times to use each one.

- The counselor and Billy practiced using different voice levels; Billy would try to repeat what the counselor said in the same voice level used by the counselor and would receive feedback about the accuracy of his use of different voice levels.

Billy's Intervention: Skill Bridging Phase

- The guidance counselor and Billy played a game that Billy named "the Sounding Good Game."

- In the first part of the sounding good game, Billy got to choose a song to dance to while playing the game.

- As Billy danced to the music, the counselor held up a card with a short sentence and a symbol for a specific voice level printed on it.

- Billy would continue to dance while reading the sentence to himself and while thinking about saying the sentence out loud in the voice level that was shown on the card.

- When the counselor stopped the music, Billy had to say the sentence in the voice level indicated on the card.

- The counselor would give Billy feedback about the accuracy of his use of voice level.

Billy's Intervention: Bridging Phase

- Billy and the counselor discussed how he could use what he was learning about voice level control in the classroom.

- They decided that Billy's teacher could cue him about the right voice level to use in a classroom activity by saying to Billy: "Billy, what voice level do you think we should be using now?"

- Billy's teacher would also give him feedback about the accuracy of his response.

- The counselor explained to Billy that the teacher's question and feedback would be his cue to be sure to use the right voice level.

440

Billy's Intervention: Function Bridging Phase

- In the second part of the sounding good game Billy and the counselor also played a modified version of the game; the counselor showed Billy a card with the description of an activity or a location in the school and a sentence about the activity or location and Billy would read the description in the voice level appropriate for the activity or location.

- The counselor would give Billy feedback about the accuracy of the voice level he used when reading.

Billy's Intervention: Progress Monitoring

- The counselor kept track of Billy's progress informally by checking in with the teacher at least weekly.

- Over the course of three months, Billy's teacher usually reported that Billy was able to adjust his voice level in class, but most often only after being given the reflective question prompt.

Billy's Intervention: Progress Monitoring

- Because Billy was still being provided with reflective questions at the end of the school year to get him to adjust his voice level, he played the sounding good games with the counselor a few times at the beginning of the next school year and his new teacher was asked to provide the reflective question prompt when Billy's voice level was inappropriate for the situation.

Billy's Intervention: Self-Regulation Phase

- Reflective questioning was used with Billy through September and October. During November, the teacher needed to use reflective questioning only twice.

- Billy was able to self-regulate the monitoring and adjusting of his voice level for the rest of the school year without requiring reflective questioning.

Billy's Intervention: Carry-Over to Activity Level

- Although no specific teaching was provided to help Billy adjust his activity level, the psychologist and the counselor discussed with Billy how he could use what he was learning about voice control to monitor and adjust his activity level.

- The counselor provided Billy with examples of how he could think about a classroom activity and then think about how active he should be during that activity (using the same level names as voice – library, indoor, outdoor).

- Billy's teacher was asked to use the reflective question technique with Billy when his activity level was not appropriate for an activity and give him feedback about the accuracy of his response.

- Billy was coached by the counselor to recognize the teacher's reflective question as a prompt to monitor his activity level and adjust it.

Billy's Intervention: Progress Monitoring

- The counselor kept track of Billy's progress informally by checking in with the teacher at least weekly.

- Over the course of four months, Billy's teacher reported that Billy was able to adjust his activity level in class, but usually only after being given the reflective question prompt.

- By the end of the school year, Billy was still requiring the use of the reflective question prompt, but usually not more than 1-2 times per week.