

The Future Self: Evidence-Based Strategies to Manage Executive Function & Emotional Dysregulation Over a Lifespan

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Infinite know how
for school

Cerebral Matters

Private practice in Atlanta



ExQ® is personalized digital curriculum for middle and high school students that directly builds Executive Function skills through games, error analysis and metacognitive lessons.

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ExQInfiniteKnowHow.com



Full PreFrontal: Exposing the Mysteries of Executive Function is a podcast hosted by Sucheta Kamath.

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Hello!



Sucheta Kamath,
Founder and CEO, ExQ®

Speaker Disclosure

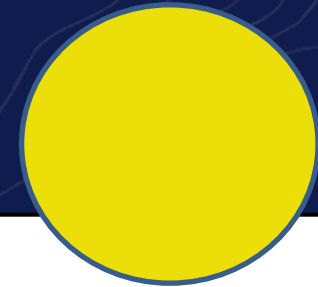
Financial: Sucheta Kamath has received financial compensation for this presentation. She is the Founder/Owner of the private practice Cerebral Matters where she sees clients. And finally, as the CEO of ExQ software curriculum Sucheta benefits from its sales.

Let's Pause And Think

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What ideas are squaring with you?



What ideas are still circling in your head?



What would you like take with you into your practice?



Executive Function

is a set of skills essential to appropriately adjust one's thoughts, emotions and actions in accordance with changing environments and challenging times to achieve personal goals!



The Air Traffic Controller of The Brain

**Supervising
Inhibiting &
Directing**

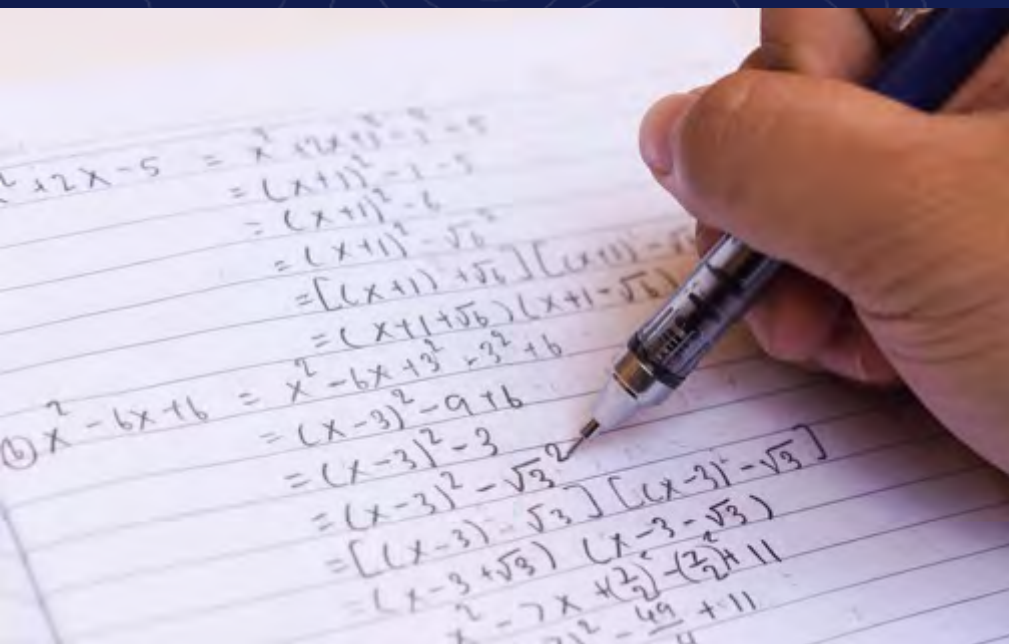
Vital Set of Skills That Help To Engage, Learn and Grow



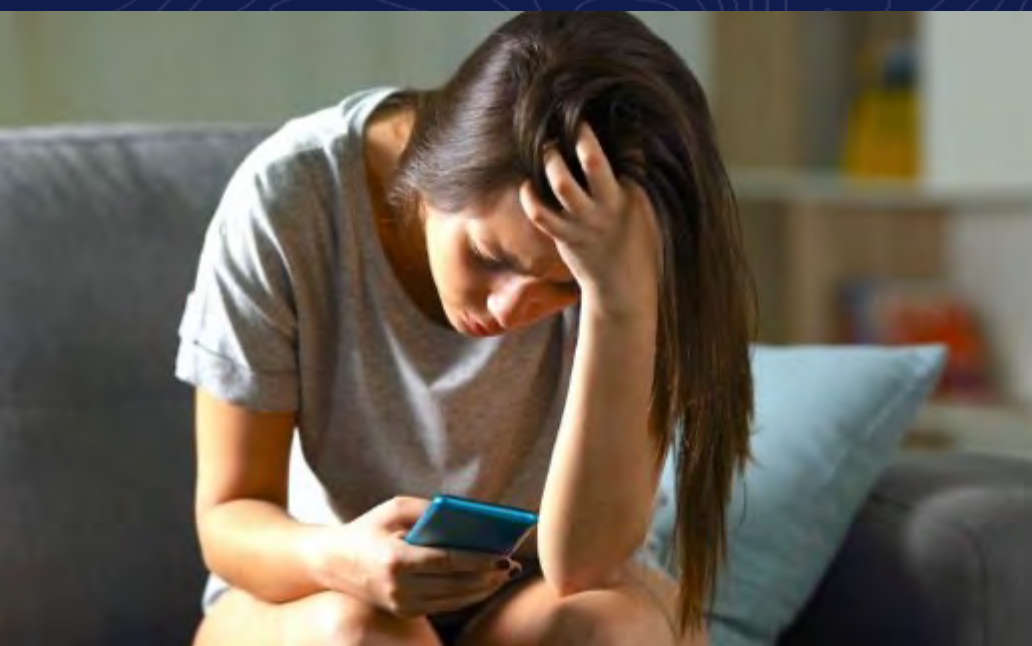


Executive Function includes skills such as:

- Impulse control
- Long-term planning
- Remembering to remember
- Gratification postponement
- Simulation of the Future
- Critical reasoning & collaborative decision making
- Emotional & social regulation
- Adaptive flexibility and
- Seeing the Big-Picture



Knowing you have three zeros on Math HW and still not making up the work or going to the teacher for help



After making a careful plan and setting aside time to work on the history paper, getting sidetracked by drama with friends on social media



Getting frustrated and overwhelmed because of neither being able to figure out what the main idea is nor able to organize it into a neat paragraphs/summary in spite of spending significant time and effort in reading, studying and trying to write



Knowing you have a high cholesterol and struggling to say no to onion rings when out with friends



After careful planning and budgeting, getting sucked into playing the slot machines over and over



Top-down goal modulation

- Managing motivation
- Managing goals
- Managing thoughts

How you USE your knowledge
in service of your goals

- Zelazo et al. (2008)
- Zelazo and Carlson (2012)

Executive Function:

One of the number of overlapping constructs

Self Control

COGNITIVE CONTROL

Self-Regulation

Effortful Control

Fluid Reasoning

Executive Attention

Effortful Control

- Effortful control is the ability to inhibit a dominant or prepotent response in favor of a subdominant or less salient response (Rothbart & Ahadi, 1994)
- Effortful control allows regulation of approach and withdrawal behavioral tendencies in the face of immediate cues for reward or punishment
- Effortful control of emotions leads to the development of emotion-related, regulation of behavior, social competence and minimizing behavior problems





The term “Executive Function” encompasses a collection of cognitive processes that people use to coordinate and control their thoughts and actions, particularly in novel situations, and that are crucial for higher-order problem solving and goal-directed behavior

- Zelazo et al. (2008)
- Zelazo and Carlson (2012)

Controlling Thoughts, Emotions & Actions in Novel Situations





Homer: Just give me my gun!
Wiseguy: Sorry, the law requires a five day waiting period. We've got to run a background check.
Homer: Five days? But I'm mad now! Oh, I'd kill you if I had my gun.

John Swartzwelder, The Simpsons, "The Cartridge Family" (1997).

New York (CNN Business) Alexi McCammond is out as editor-in-chief of Teen Vogue even before officially starting, she and the magazine's owner announced Thursday. The announcement of her appointment to the job had sparked outrage from the publication's staffers and readers as well as some celebrities because of anti-Asian and homophobic tweets she posted a decade ago.



-  **Alexi McCammond** @alexi · 08 Nov 11
Outdone by Asian #whatsnew
-  **Alexi McCammond** @alexi · 03 Sep 11
now googling how to not wake up with swollen, asian eyes...
-  **Alexi McCammond** @alexi · 15 Oct 11
give me a 2/10 on my chem problem, cross out all of my work and don't explain what I did wrong..thanks a lot stupid asian T.A. you're great.
-  **Alexi McCammond** @alexi · 24 Jan 12
@22austinroos90 She was like an old asian woman.. lololol

Cognitive & Affective Components of Executive Function



SF

Sustained Focus

WM

Working Memory

OP

Organization & Planning

PM

Prospective Memory

PS

Problem Solving

MF

Mental flexibility

SA

Self-Awareness

ST

Strategic Thinking

EF Skills in Action



- Focus
- Plan
- Organize
- Sequence
- Prioritize
- Reflect
- Consider Others
- Connect

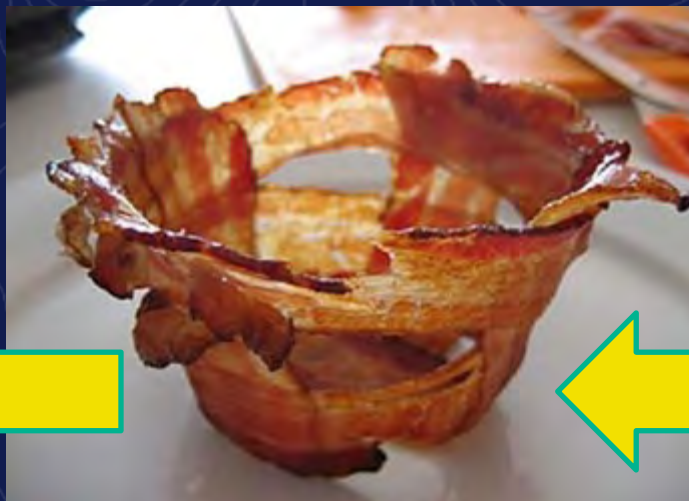
Seeing the end-product: Working Your Way Backwards



Envisioning



Creating Steps



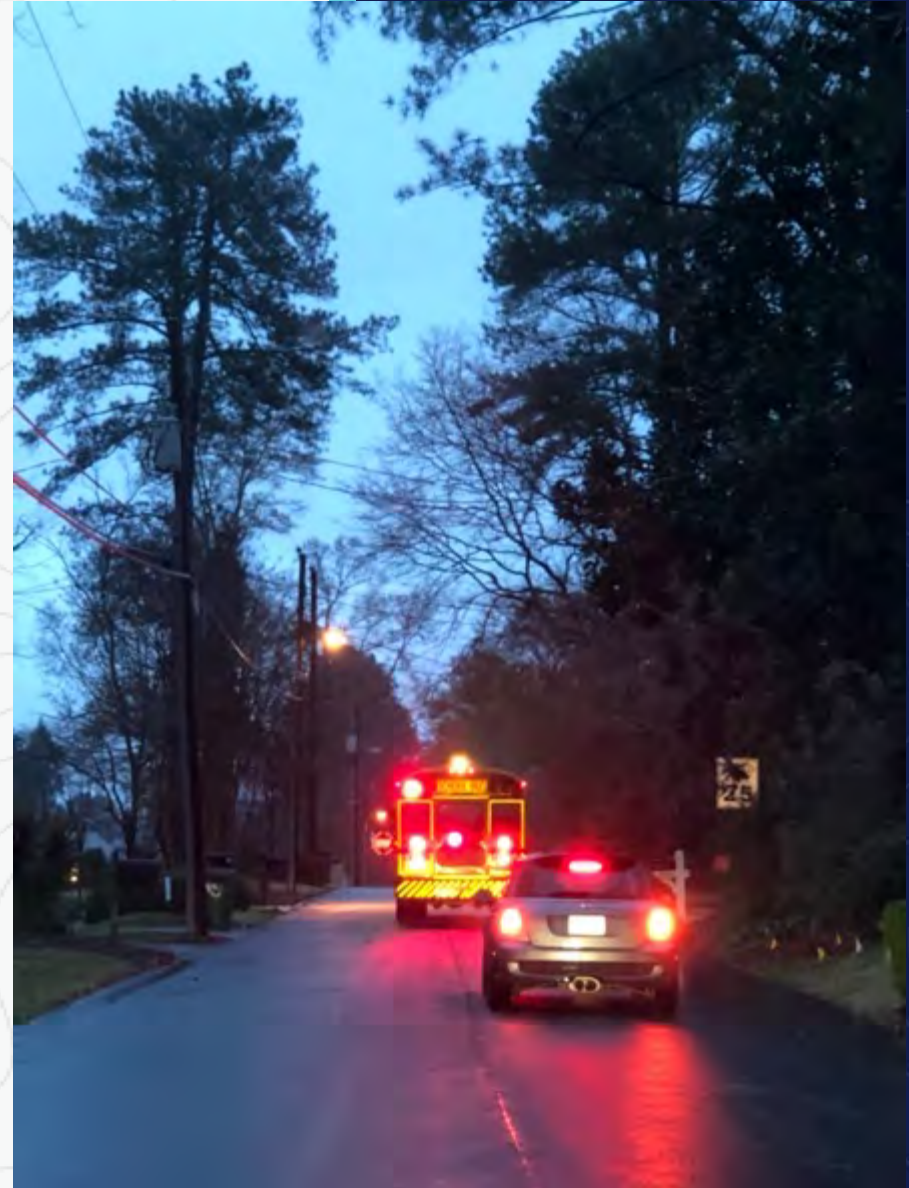
Adaptive Flexibility

Affective flexibility

- Don't get upset (irritated, frustrated or angry)
- Patiently wait while the school bus stops every few minutes
- Accept the delay

Cognitive flexibility

- Call and inform others that you'll be late
- Find an alternative route



Perspective Taking

At their wedding, Marlo Thomas fumbled saying her vows as she choked with the thought that she was going to be married.

Later Phil Donohue asked her, how come you didn't memorize the vows. I thought you're an actress. Marlo said, "yes dummy, I did. It's just that I was overwhelmed."



Let's Pause And Think

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What ideas are
squaring with you?



What ideas are still
circling in your
head?



What would you like
take with you into your
practice?

The Pre-Frontal Lobes: A Future-simulation machine



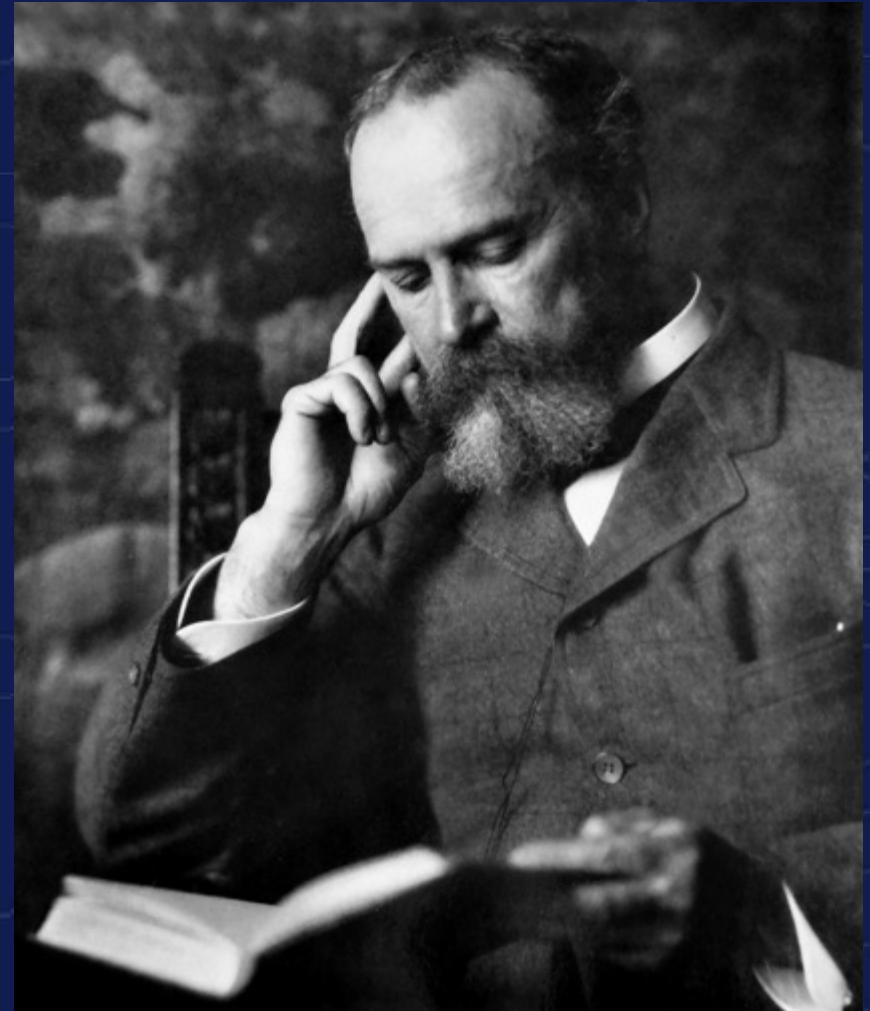
Executive Function & The Magic of the Frontal Lobes

Science shows that EF depends on the prefrontal system

Consequences of damage to the frontal lobes shows grave consequences

"Consciousness of Personal Sameness"

- William James (1892)



Past self → Present self → Future self

Chronesthesia

- Memory allows us to mentally travel backward in time as well as into the future
- Chronesthesia is the brain/mind to be constantly aware of the past and the future
- Chronesthesia is uniquely human and highly learned skill helps to "advance" their survival
- Recalling past events is a tool to learn what to avoid and how to behave in the future
- Researcher Endel Tulving says, the "episodic" memory (involving recollection of past personal experience) does involve time travel while the "semantic" (involving acquisition, retention and retrieval of facts) does not





"You don't need mental time travel to remember a chemical formula or your mother's maiden name, you can know a lot of things without mental time travel, but you can't remember events from your past, or anticipate your future, without it."

- Endel Tulving, Ph.D. (Psychologist)

Temporal Discontinuity and a Broken Sense of Self

In people with brain injuries, the discontinuities within the temporal sense of self can seriously disrupt the organization of incoming information



“People always say 'be true to yourself' but that's misleading, because there are two selves. There's your short-term self, and there's your long-term self. And if you're only true to your short-term self, your long-term self slowly decays.”



– Anonymous

Empathy & Future-Self

Empathy depends on your ability to

- Overcome your own perspective
- Appreciate someone else's, and
- Step into their shoes

On the other hand, Self-control is essentially the same skill

- Overcome your own perspective
- Appreciate someone else's, and
- Except that those other shoes belong to your future-self — a removed and hypothetical entity who might as well be a different person



People are more future-oriented when they:

- Vividly envision the consequences of their present actions for the future self
- Feel a similarity between the future and present self, and/or
- Acknowledge positive qualities of the future self
- Thus, presenting people with interventions to make them think about the future self in these ways can encourage them to behave in line with their long-term interests.

- Sarah Molouki, Ph.D.

Discounting the Needs of the Future-Self

Why people might excessively discount the impact of future outcomes

- One explanation is that some people simply don't think much about the future at all when making day to day choices (e.g., see Simons, Vansteenkiste, Lens, & Lacante, 2004).
- In other cases, people are explicitly aware of future consequences, yet disregard them, either because they incorrectly estimate the future emotional impact of their actions (e.g., "I'll be totally happy living on a stricter budget and eating ramen noodles for days on end", see Gilbert & Wilson, 2007), or
- Simply cannot resist the pull of the immediate reward (e.g., "those onion rings smell really good", see Loewenstein, 1996)

- Sarah Molouki, Ph.D.



"So think of self-control as a kind of temporal selflessness. It's *Present You* taking a hit to help out *Future You*."

- Ed Young, *The Atlantic* (2016)

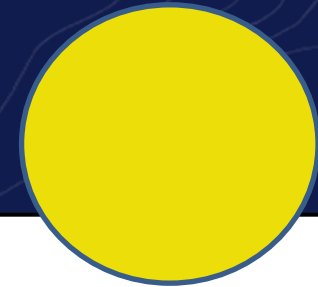
Article: Self-Control Is Just Empathy With Your Future Self: The same part of the brain that allows us to step into the shoes of others also helps us restrain ourselves.

Let's Pause And Think

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What ideas are squaring with you?



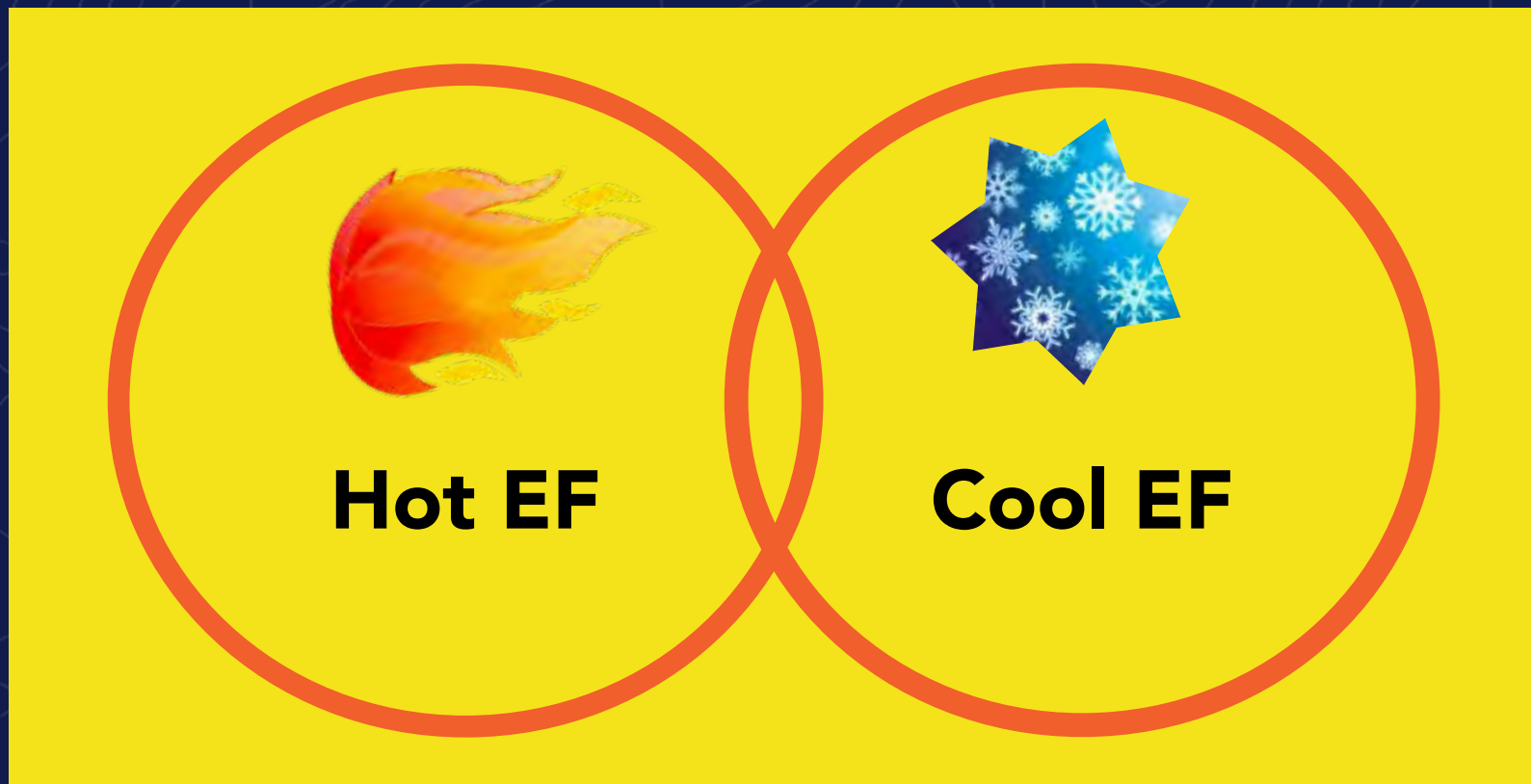
What ideas are still circling in your head?



What would you like take with you into your practice?

Exerting Executive Control

Hot & Cool EF Distinction



Everyday Life is Rarely Emotionally Neutral



Everyday Life is Rarely Emotionally Neutral (2)



Two Types of Executive Control

Hot & Cool EF Distinction



Cool Executive Function



For children, it manifests itself when applying self-regulation to:

- Low-stakes situations
- No roadblocks in accomplishing the goals
- No conflict between the self and the other

Research by Phil Zelazo & Stephanie Carlson

Hot Executive Function (1)



For children, it manifests itself when applying self-regulation to:

- High-stakes situations
- Multiple roadblocks in accomplishing the goals and
- Anticipated or ongoing conflict between the self and the other

Research by Phil Zelazo & Stephanie Carlson

Cool Executive Function (2)



Research by Phil Zelazo & Stephanie Carlson

For adults, it manifests itself when applying self-regulation to:

- Low-stakes situations
- No roadblocks in accomplishing the goals
- No conflict between the self and the other

Hot Executive Function (2)



For adults, it manifests itself when applying self-regulation to:

- High-stakes situations
- Multiple roadblocks in accomplishing the goals and
- Anticipated or ongoing conflict between the self and the other

Research by Phil Zelazo & Stephanie Carlson

Directionality of the Executive Control



- Evident when involving conflicting motivations
- Triggered when one is provided with rewards and losses for performance

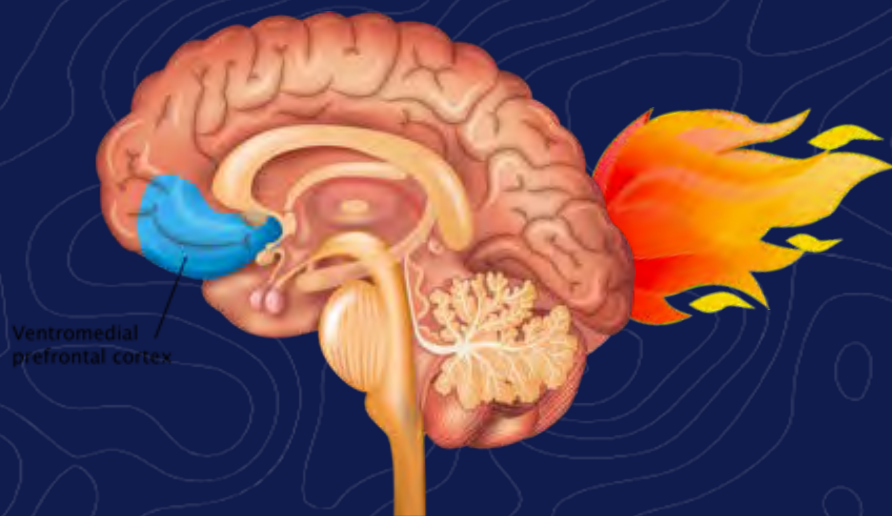
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- Evident when there are no motivational conflicts
- Works on solving problems in a decontextualized way

Welsh, Marilyn & Peterson, Eric. (2014). Issues in the Conceptualization and Assessment of Hot Executive Functions in Childhood. *Journal of the International Neuropsychological*

Distinct Neurological Substrates of Hot & Cool EF



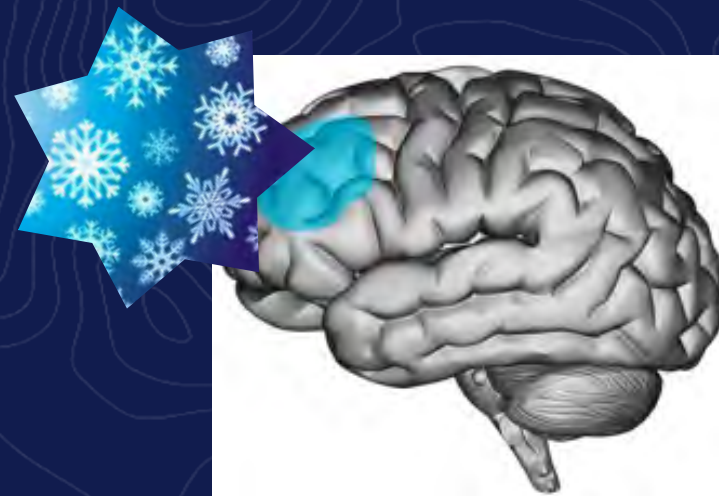
Ventromedial prefrontal cortex

Hot EF

= Ventromedial PreFrontal Cortex

Cool EF

= Dorso-Lateral PreFrontal Cortex



Best/Miller (2010) and Garon et.al Garon et al. (2008)

Instantaneous Switch

From Cool EF to Hot EF



Self vs. the Other: Weighing options



Philip D. Zelazo, PhD on Oct 05, 2016

Delaying Gratification

Wise choice – for you

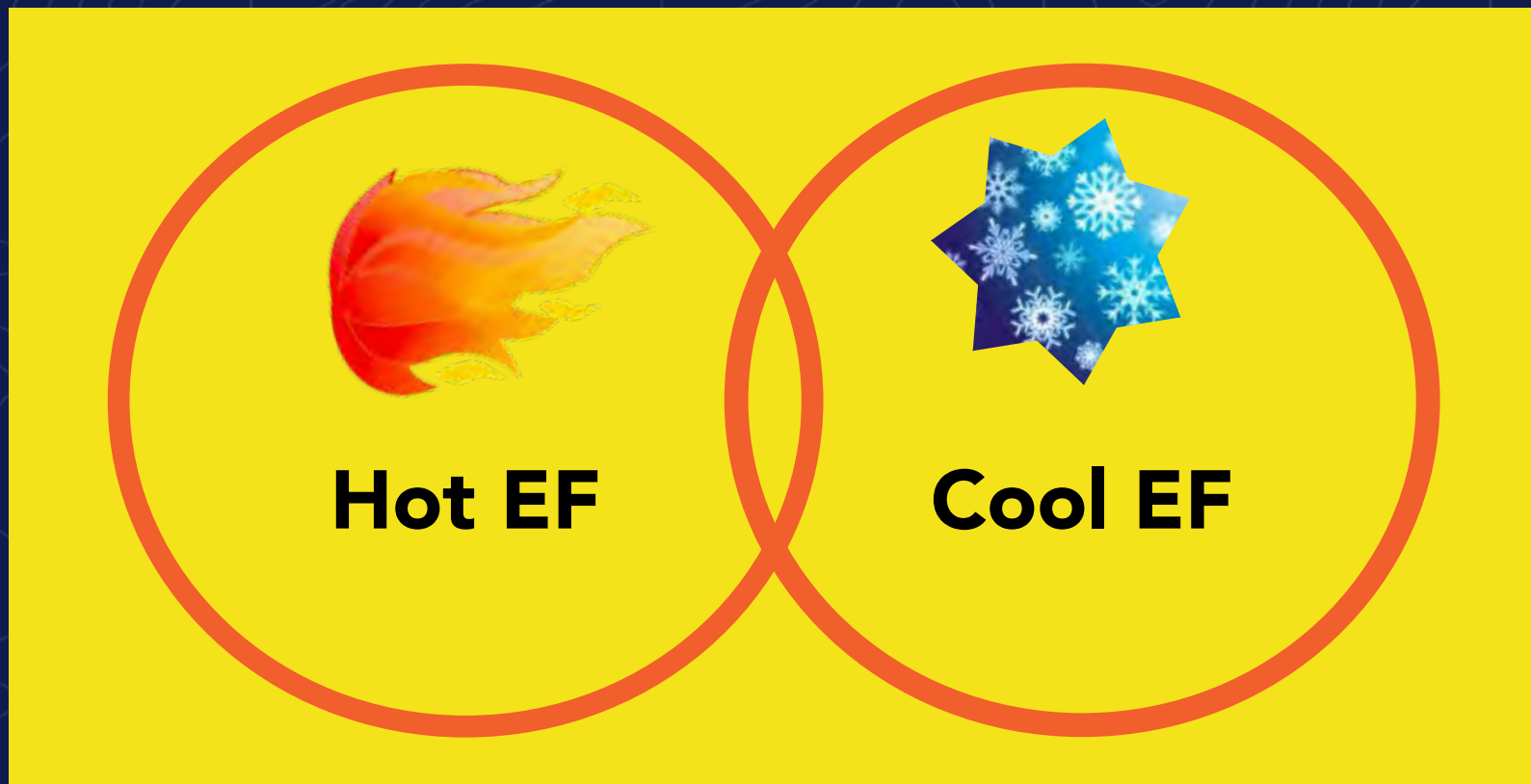


Traditional marshmallow test with a twist

- Delayed gratification paradigm
- 3 vs. 4-year-olds
- Self vs. the other condition ("What should Angela do?")
- Better decision for the other (Cool EF) & poor decision for self (Hot EF)

Prencipe, A., & Zelazo, P. D. (2005)

Exerting Executive Control To Help The Future Self



Mounting evidence shows that teaching **Executive Function and cognitive skills** leads to positive student outcomes, in learning and in life.



Lifelong Impact of Executive Function



30 years later...

- Better jobs
- Higher incomes
- Improved health
- Stronger relationships
- Fewer run-ins with the law

Study by Terrie Moffitt et al. (2011)
Proceedings of the National Academy of Science

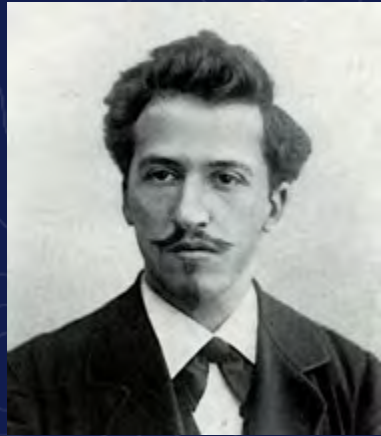
Affective Coloring

The Concept of Stickiness

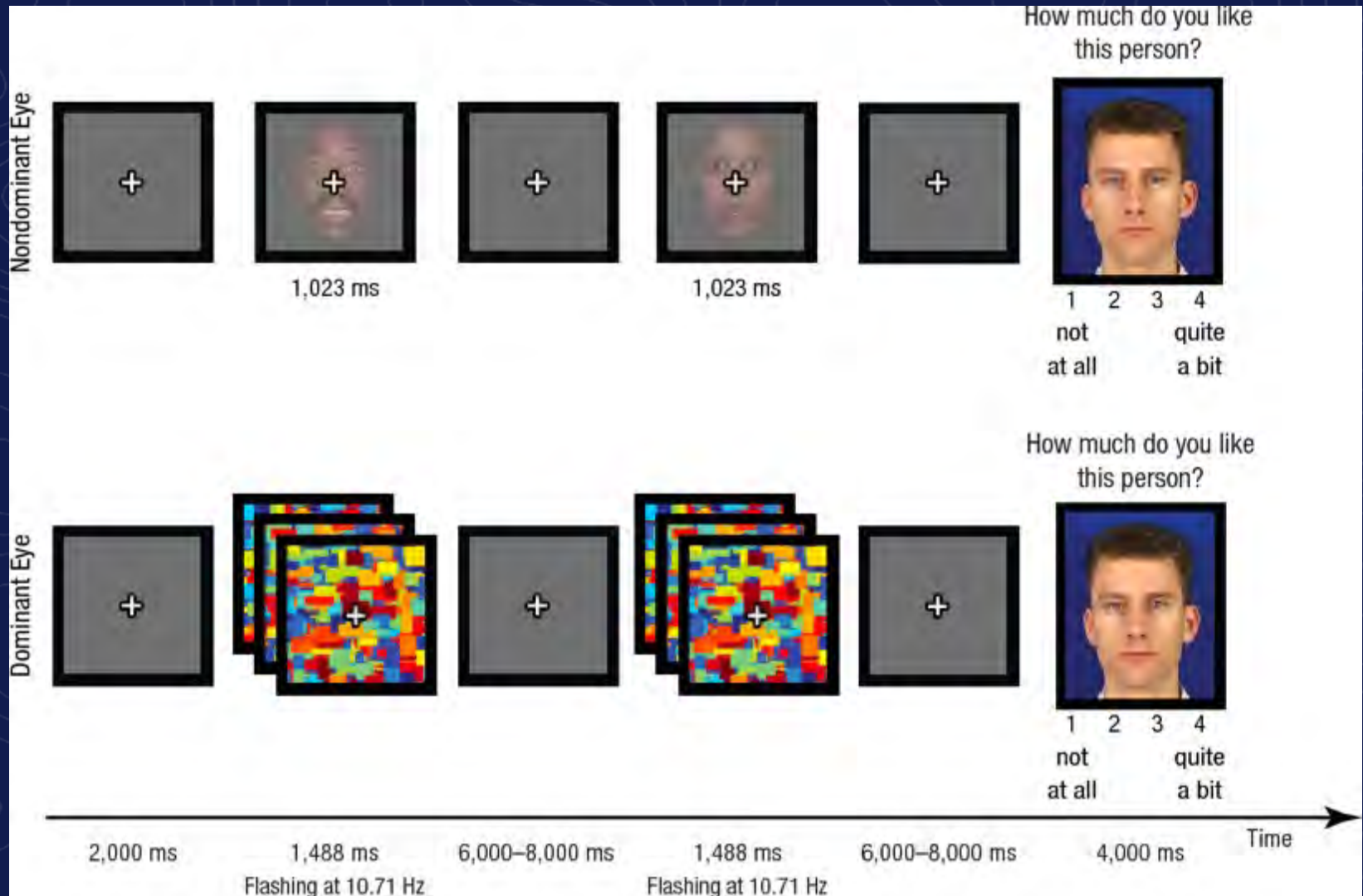
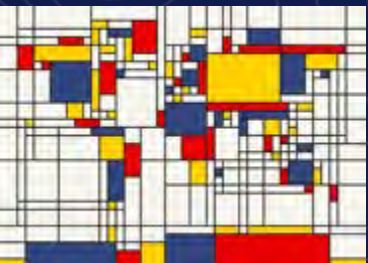


- Our affect bleeds through from one situation to another
- Our inner narrative is made of a constellation of thoughts which has a quality of stickiness to it
- When our awareness is somewhere else, stickiness worsens
- Stickiness is the antithesis of resilience

Study

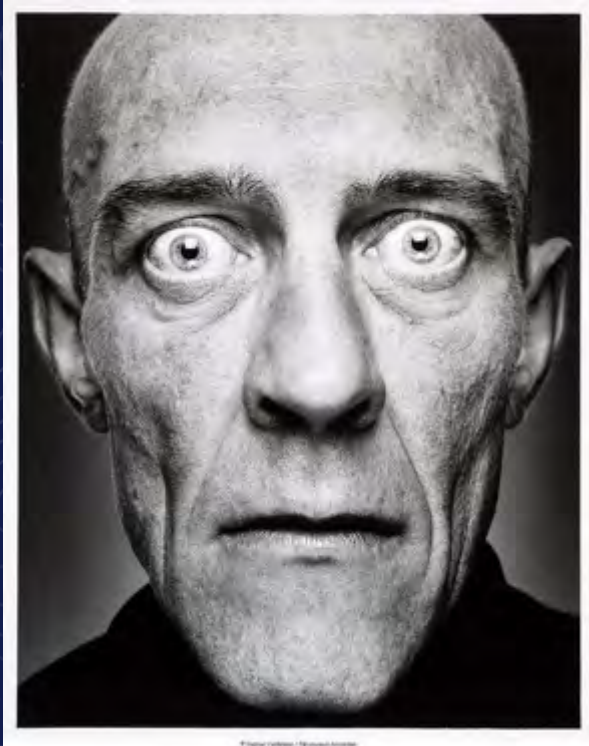


Dutch Painter
Piet Mondrian



Lepate et al (2017) Psych. Science

Disruptive Awareness



- Seeing the fear face is influencing one's judgments of liking the neutral face much much more than when you are aware of the fear face
- You sweat more to a fear face when unaware.

The Iceberg of Competence

EF (Cognitive & Emotional) Skills that enable desirable behaviors are mostly beneath the surface



Behaviors and (in)actions are visible and tangible but the underlying skills and abilities (or a lack thereof) are not

Beyond Learning

EF is central to humility, altruism and even transcendence!

**C
E
N
T
R
A
L**

Caring

Reflection

Empathy

Compassion

Contentment

Morality

Mounting evidence shows that teaching
Executive Function & cognitive skills
leads to positive student outcomes,
in learning and in life.

Summary of Research Outcomes:

Proven benefits of integrating Executive Function & Social-Emotional training into academics

- Improved classroom climate and instructional support
- Improved college and career readiness
- Higher graduation rates
- Prevention of bullying and low-level aggression
- Reduction in teacher stress
- Reduced exclusionary discipline and discipline disparities
- Improved social performance, job outcomes, and higher education attainment

Source: Learning Policy Institute Report (2017) Melnick, H., Cook-Harvey, C. M., & Darling-Hammond, L. (2017). Encouraging social and emotional learning in the context of new accountability. Palo Alto, CA

Therapeutic Considerations Building Resilience

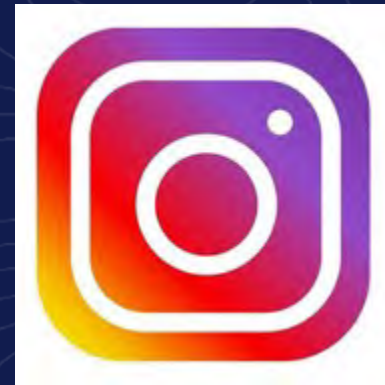


Resilience is a successful adaptation or the absence of a pathological outcome following exposure to stressful or potentially traumatic life events or life circumstances



Start with Self

Improving Your OWN Perspective & Skills to Help Clients Improve Theirs



My Grandma's idea - Color coordinated Easter egg hunt. You can only collect your color of egg. Stops one kid from getting all the eggs!



The Founding Therapeutic Principle

If it is YOUR idea, YOUR
Executive Function will
improve and not your
clients!



COOL EF - Therapeutic Goals

- Teach how to set and reach goals
- Help master ways to choose effective performance settings
- Improve metacognitive skills
- Promote mastery of ways to sustain effort over a period of time
- Build skills to be willing to persist in the face of failure



HOT EF - Therapeutic Goals

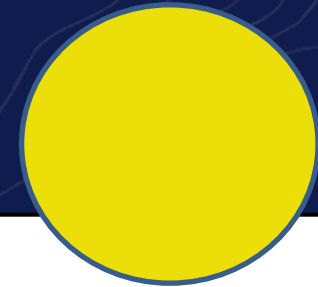
- Teach gratitude and collaboration skills
- Help master emotions in uncertain times
- Help reduce Procrastination
- Promote mastery of self-calming techniques
- Build reframing skills

Let's Pause And Think

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What ideas are still circling in your head?



What would you like take with you into your practice?

M-E-T-A® Strategies

That Enhance Hot & Cool EF

**Put on Your Mask First -
Get control over your EF**



Five Evidence-based Strategies Recommended By APA

1. Give yourself permission to **take a break** from the news, social media or even certain friends
2. Practice the **rule of “three good things”** and ask friends and family to do the same
3. Practice **self-care** in 15- or 30-minute increments throughout the day
4. **Stay connected** with friends and family
5. Keep things in **perspective**

<https://www.apa.org/news/press/releases/2021/02/adults-stress-pandemic>

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M-E-T-A® Strategies

That Enhance Hot & Cool EF

**Practice *Designing a
Blueprint for Success***



Make Client the *Partner* in the Process

1. Establish the WHY
2. Assess level of effort
3. Discuss help-seeking skills

The Blueprint that Shows the Gestalt

The Bigger-Picture to Focus on

1. Joy of Doing
2. Joy of Curiosity
3. Joy of Adventure
4. Joy of Sacrifice
5. Joy of Helpfulness
6. Joy of Work for sake of Work!



Ingredients for Success: Self-Set Rules

Personal Dos & Don'ts

- Will get started right away
- I'll ask questions to get clarifications
- I'll not disturb the class

Ways to show my boss I'm dependable

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____
9. _____
10. _____

Ways to show my teacher I'm a good listener

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____
9. _____
10. _____

Teach to Conform and to Cooperate

Strong self-regulation enables individuals to alter their behavior

- To conform to rules
- Stick to plans
- Keep promises
- Abide by ideals and other standards



M-E-T-A® Strategies

That Enhance Hot & Cool EF

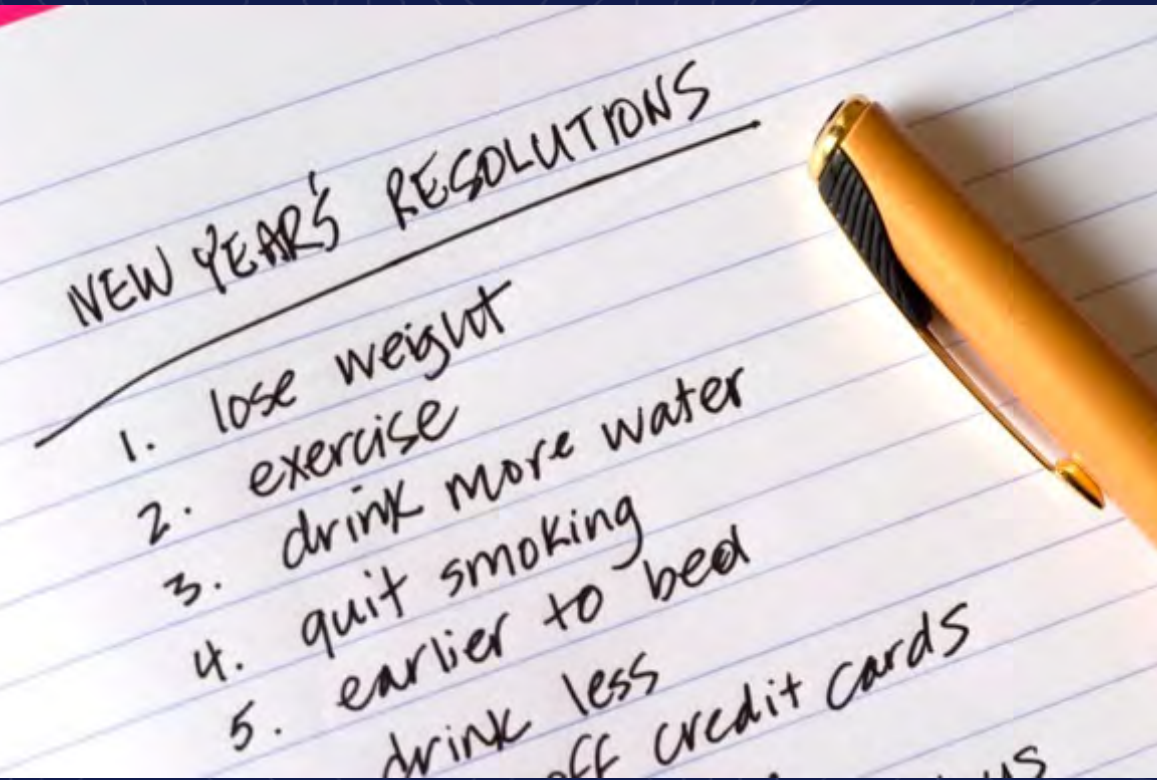
**Practice of *Doing* or
Effective Goal Pursuit
(Ways to enhance
productivity)**

Envisioning The Future-Self



Stress Goals, Not Stretch Goals

Figuring Out Stress Priorities & Setting 1-2 Stress Goals



Instead of "new year's resolution" shift towards working to attain **Stress Goals**

Goal-Directed Persistence

Actions That Serve the Future Self



P = Plan

D = Do

F = Finish

My Goal for You:

- *Help you with getting organized*
- *Get a job*
- *Have a better relationship with parents*

Your Goal for Your Future-Self:

- _____
- _____
- _____

M-E-T-A® Strategies

That Enhance Hot & Cool EF

**Practice Engineering the
Environment**



Environment that inspires

- Lifestyle features
- Engineering the environment and then
- **RESETTING** it to baseline every week



Workspace Principles

- Clutter-free
- Distraction Free
- Built in prompts
- Connects with personal vision and mission
- Brings in inspiration

August 2015

TUESDAY	WEDNESDAY	THURSDAY	FRIDAY
3 4 CM 12-2	5 6 CM 9-12 Conference 1:55	7 8 CM 9-12 SMTA Party 5-7	9 10 Church 8pm Weis Music 4:30 MBCA Field 6-9
10 11 soccer 6:45	12 13 Camp Laney Tam Drop off soccer 6:15	14 15 soccer 6:45	16 17 Pick up Leo at 7p
18 19 soccer 6:45	20 21 soccer 6:15	22 23 soccer 6:45	24 25 Scott Keating Band playing @ 6pm
26 27 soccer 6:45	28 29 soccer 6:15	30 31 Picture Day! Shot 3:30pm soccer 6:45	Dishes: Week 8/8 8/16 Week 8/9 8/23

Community Calendar

- Month At a Glance
- Create patterns with Color-Coded system
- Keep it updated
- Analyze Routines from Non-Routines

Strategies: Movement Snack

Work-arounds for Sitting, Zooming & the Sedentary life



- Walking Desk
- Stepper
- Portable trampoline
- Aerobic stepper
- Simply step out

M-E-T-A® Strategies

That Enhance Hot & Cool EF

**Practice of “Delaying”
(Action, Response,
Comment or Decision)**



Don't just Control the Impulse, Examine it

“To have an impulse and to resist it, to sit with it and examine it, to let it pass by like a bad smell—this is how we develop spiritual strength. This is how we become who we want to be in this world.”

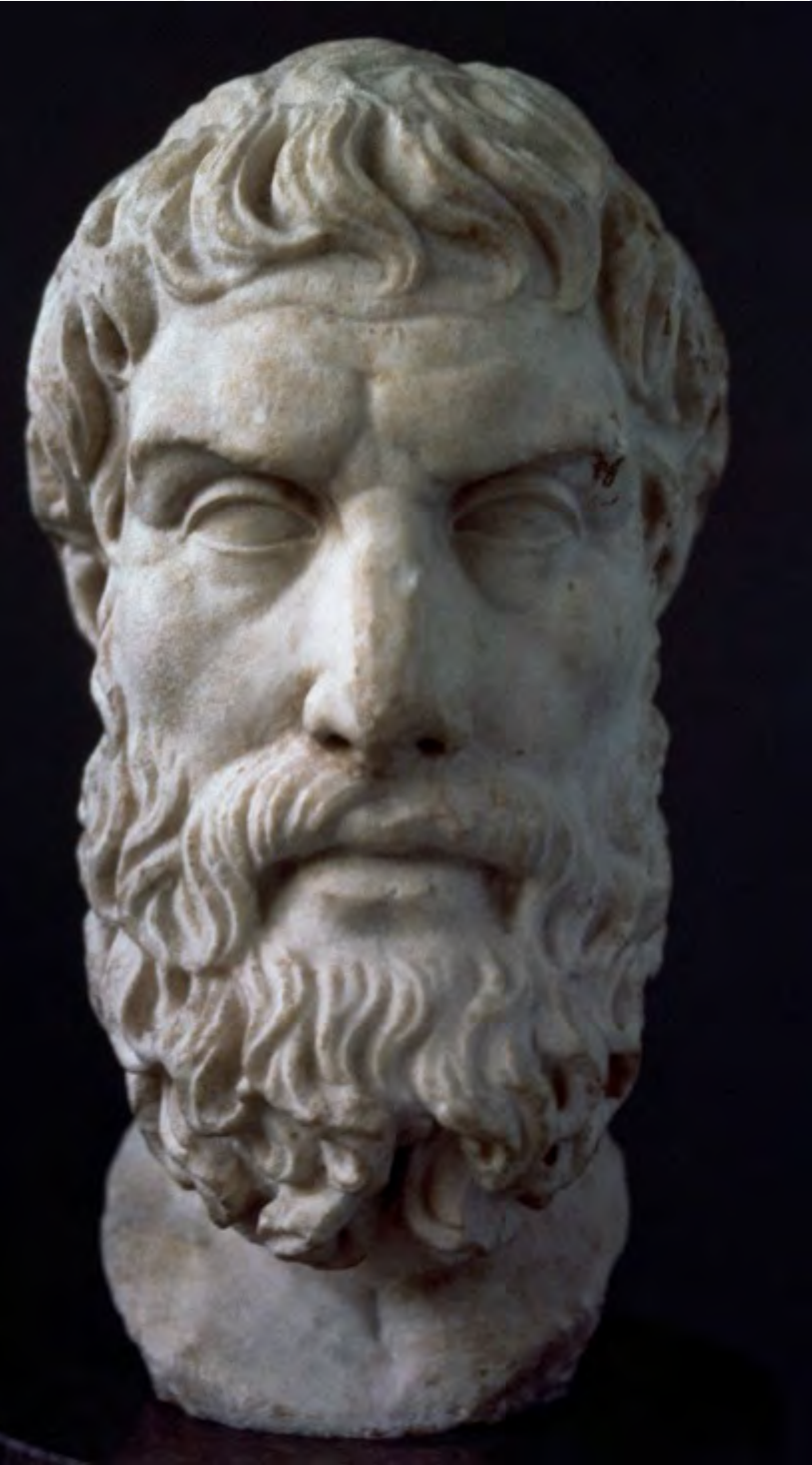
- Ryan Holiday, *Stillness is the Key*



Discuss FAILED Delaying

Multiple daily examples of

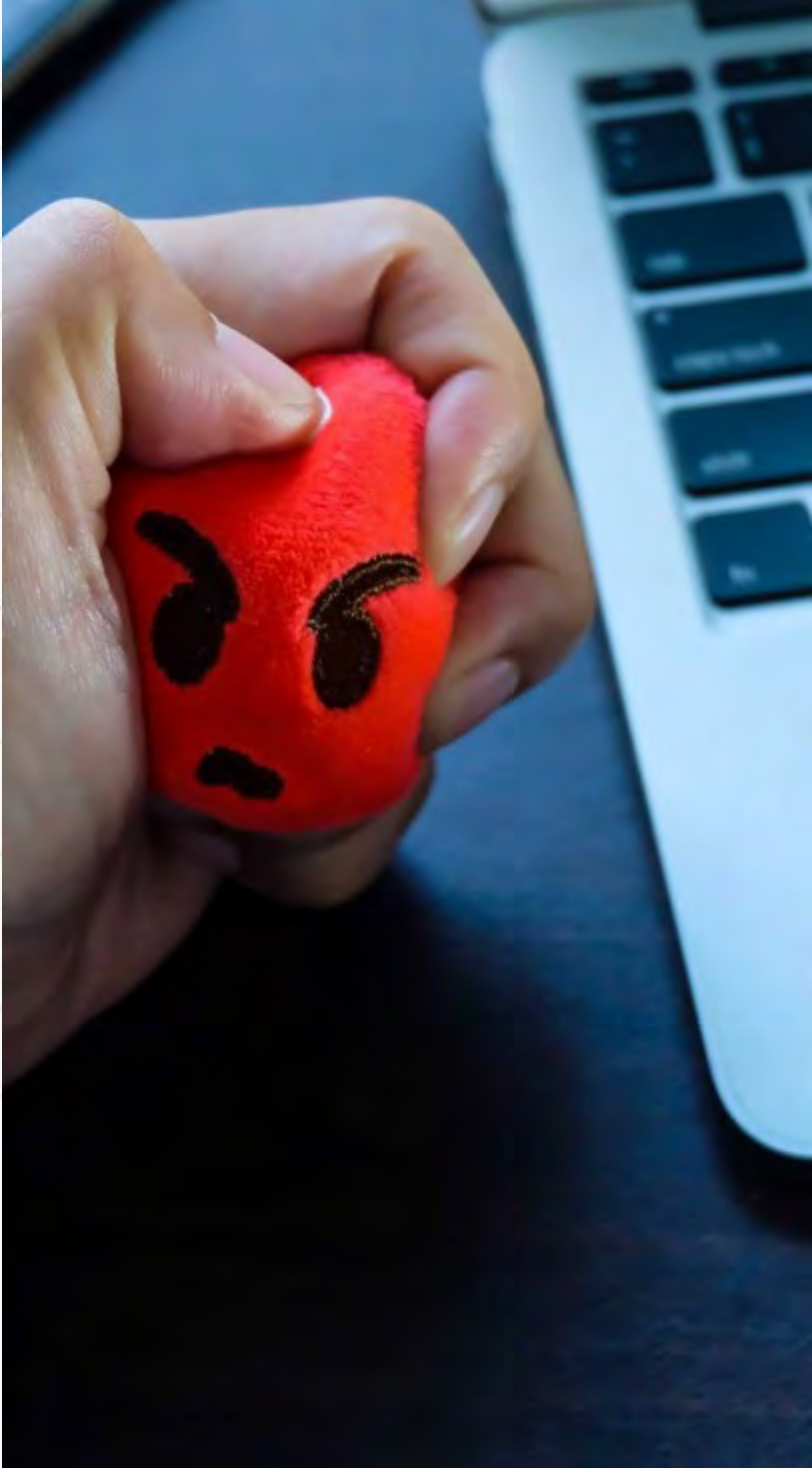
- Losing temper
- Losing money
- Hurting feelings of others
- Not slowing down
- Eating too fast or too much



Help Clients Conduct Thought- Experiments

Epicurus (341—271 B.C.E.)

- What would happen to me if I got what I wanted?
- How will I feel?



Learn to *Sit on Things*

Story of Unsent Emails

- Don't respond right away
- Prepare a draft and save in the draft folder
- Revisit after a few hours and revise



Self-Guided Qs for Revision

1. Is there anything that could be misinterpreted or that sounds angry, desperate, or emotional?
2. Is the message confusing? Will it raise more questions than it will answer?
3. Is there anything unnecessary I can remove from this message?
4. Would it be better to communicate this by phone (or in person)?

M-E-T-A® Strategies

That Enhance Hot & Cool EF

Practice of Patience



Learn to be Patient

At the heart of emotional regulation is figuring a way out of your personal misery...

"Compose Yourself!"



Have I made mistakes?
Have you ever made
mistakes? Have parents
made mistakes?
How have you lived
through that?



M-E-T-A® Strategies

That Enhance Hot & Cool EF

Practice of Reflecting



Teach and Learn to Say Sorry

Story of Fred Rogers

“The important thing is what we do with the mad that we feel in life.” -Fred Rogers talks about a time he said, “I’m Sorry” ...



SPRR Of the Moment!

- S** • Stop (the action)
- P** • Pause to Refocus (on relevant parts)
- R** • Reflect (on results and unseen consequences)
- R** • Redirect (new future action)

Keep a Glitch List

- List of errors, mistakes and faux-pas
- **Other observed errors, mistakes and faux-pas**
- Identify themes
- Plan to reduce or eliminate future glitches

Glitch Analysis by Mom

Self-Assessment of the glitch:

Describe the glitch:

Elizabeth left her dirty dishes in the sink. It was her responsibility to clean them, as well as unload the dishwasher.

Describe the Cause (or causes) of this glitch:

She did not take responsibility for cleaning up after herself, and did not check if she needed to perform her chores.

Consequences:

Dirty dishes in the sink, clean dishes in the dishwasher.
had to do the GA sheet

Unseen Consequences:

Mom gets upset/frustrated. Pets want to live in our house.

Ways to prevent it in the future:

If the sink stays empty, it should trigger a response when placing dishes in the sink.

Glitch Analysis by Teen

Self-Assessment of the glitch:

Describe the *glitch*:

Did not unload dishwasher like I was supposed to. I should have seen that the dishes in the dishwasher were clean after ~~testing~~ eating, but did not check.

Describe the Cause (or causes) of this glitch:

Forgot to take dirty dishes and put them in the dishwasher rather than the sink, and didn't see that the dishes in the dishwasher were clean.

Consequences:

Dishwasher was not unloaded and dirty dishes were not put in dishwasher.

Unseen Consequences:

Ways to prevent it in the future:

Have some way to remember to put dishes in dishwasher.

Day	Teacher Assigned Homework	Implicit Steps	Self-set Homework
Mon	<ul style="list-style-type: none"> • Be prepared to present your group's vocabulary to the class • You will be presenting with a group, but each student is responsible for adding to the presentation. • The Vocabulary presentation for "The Monkey's Paw" is posted on the VOCABULARY page. 	<ul style="list-style-type: none"> • _____ • _____ • _____ 	<ul style="list-style-type: none"> • _____ • _____ • _____
Tues	<ul style="list-style-type: none"> • Complete the final draft of your paragraph - due at the beginning of tomorrow's class. For step-by-step help, go to the COMPOSITION page of this wiki. 	<ul style="list-style-type: none"> • _____ • _____ • _____ 	<ul style="list-style-type: none"> • _____ • _____ • _____



Reflection Sheet

- What I Know?
- What I Need?
- What I predict?
- What works?
- What I don't see?
- Who can help?

M-E-T-A® Strategies

That Enhance Hot & Cool EF

Practice of Sharing with Gratitude

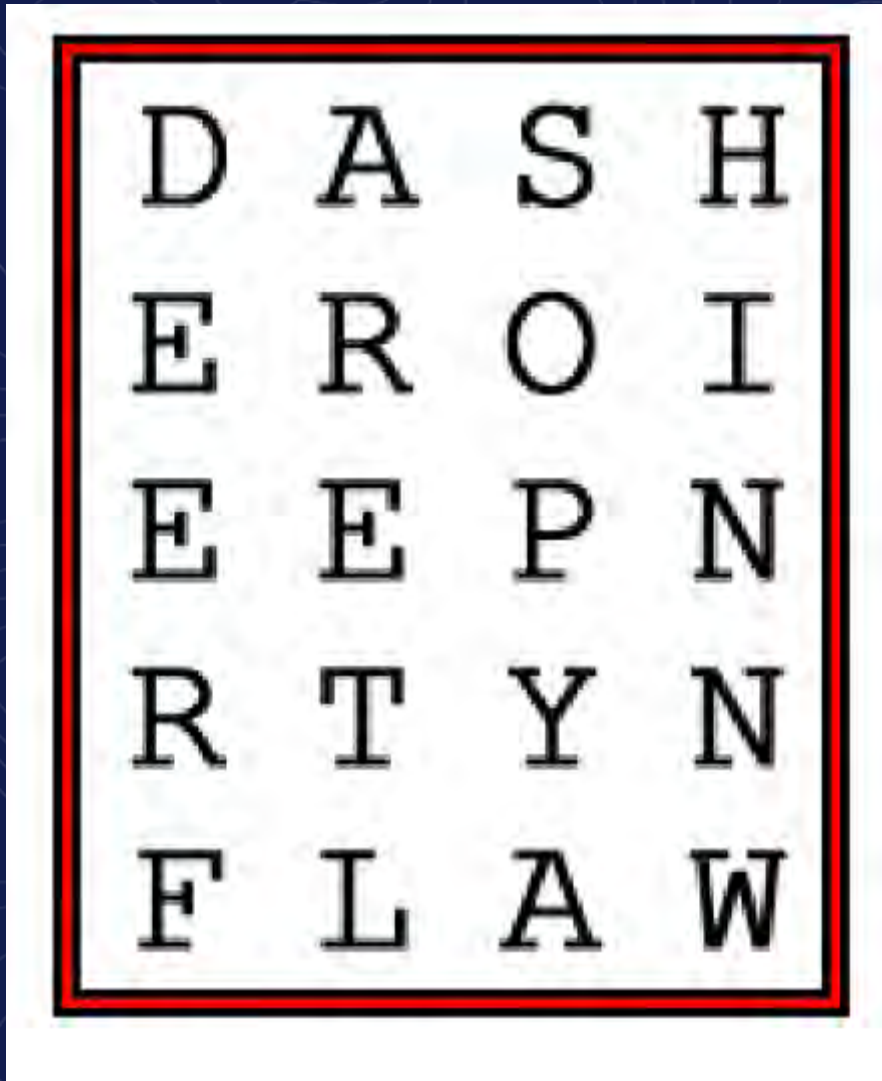


M-E-T-A® Strategies

That Enhance Hot & Cool EF

Practice of Strategic Problem Solving

How to solve a problem

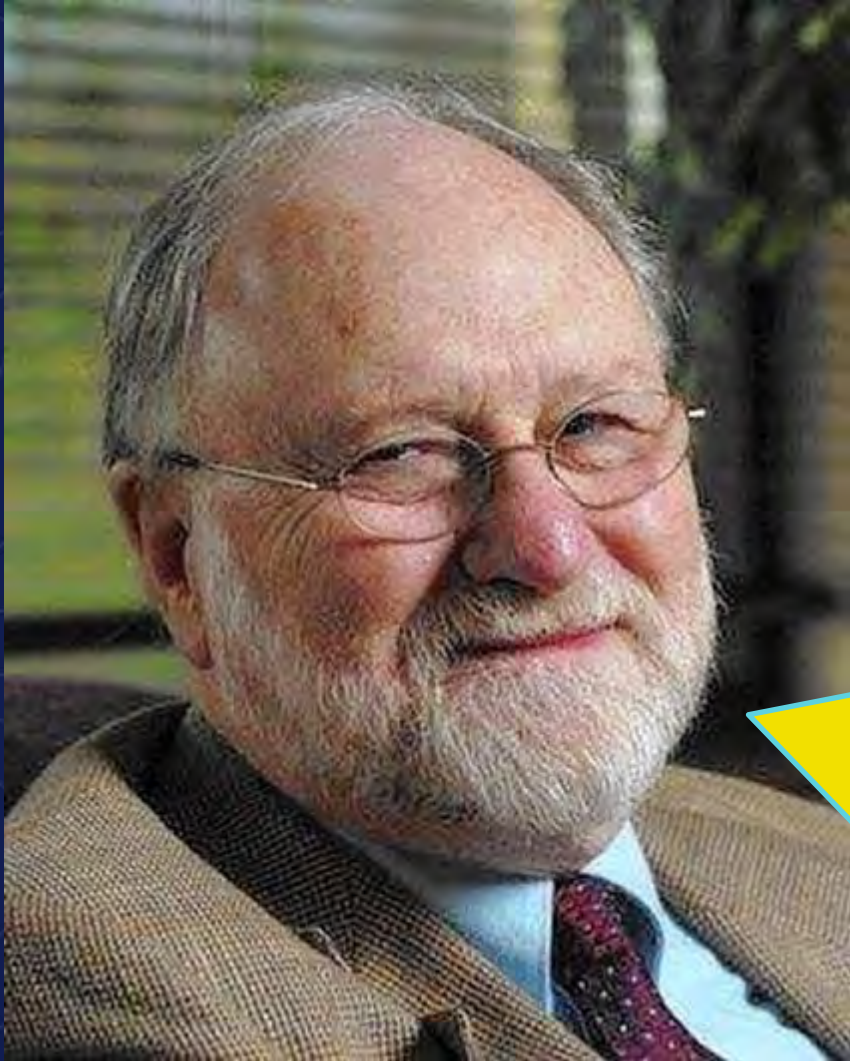


- Determine the goal
- Assess level of difficulty (combination of complexity and skill)
- Figure out the parts/step
- Execute & then Evaluate

M-E-T-A® Strategies

That Enhance Hot & Cool EF

**Practice of Rethinking or
Reimagining Decision
Making**



“The three components of happiness are something to do, someone to love, and something to look forward to.”

- Gordon Livingston, M.D. (Psychiatrist)

Conclusion

There is no stress-free Future-Self, just **a Wiser-Self** - who is the same as a compassionate friend or a good inner parent!



Infinite know how
for school

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