Teaching With Poverty in Mind
Welcome!

July 31st, 2014

August 1st, 2014

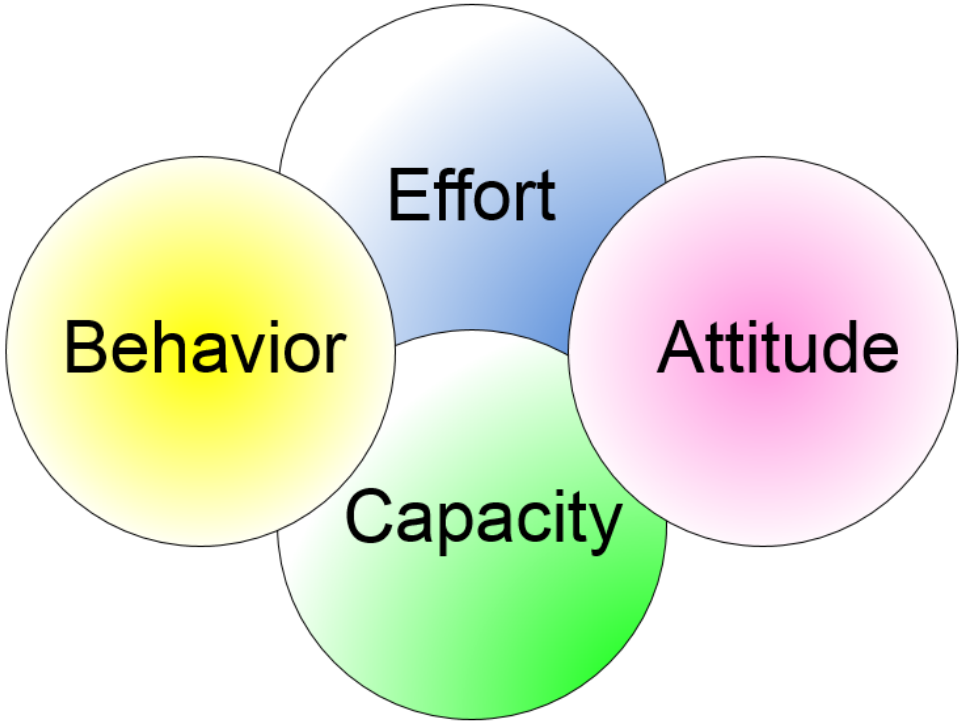
Today’s Objectives

- Explain poverty's impact on the brain and cognitive development
- Describe how the five enrichment mindsets support success for all students
- Define strategies for building cognitive capacity (working memory, executive function skills) and defend why they work with learners impacted by poverty
- Identify effective strategies for building relationships and improving behavior, effort and attitude and defend why they work with learners impacted by poverty

Teaching as decision making…..

Link our work from **Focus on Effective Teaching** and continue to focus on decision making that gets results for us and **all** of our learners

- ✓ WHAT to do that you don't already do or what you should stop doing
- ✓ Why to do it, so you get a new reason to bring energy and commitment
- ✓ How to do it in the case that you have been doing something ineffectively



Time for Stretching

Poverty Quiz- True or False

1. Poor people value education about the same as middle class.
2. Most people are lazy and lack ambition.
3. If you gave the poor money, everything would change.
4. The parents must do more for our kids to learn better.
5. Our schools already do their part; it's now up to the kids to do more.

1= True; 2–5= False

Poverty is…

not a cul_____, but

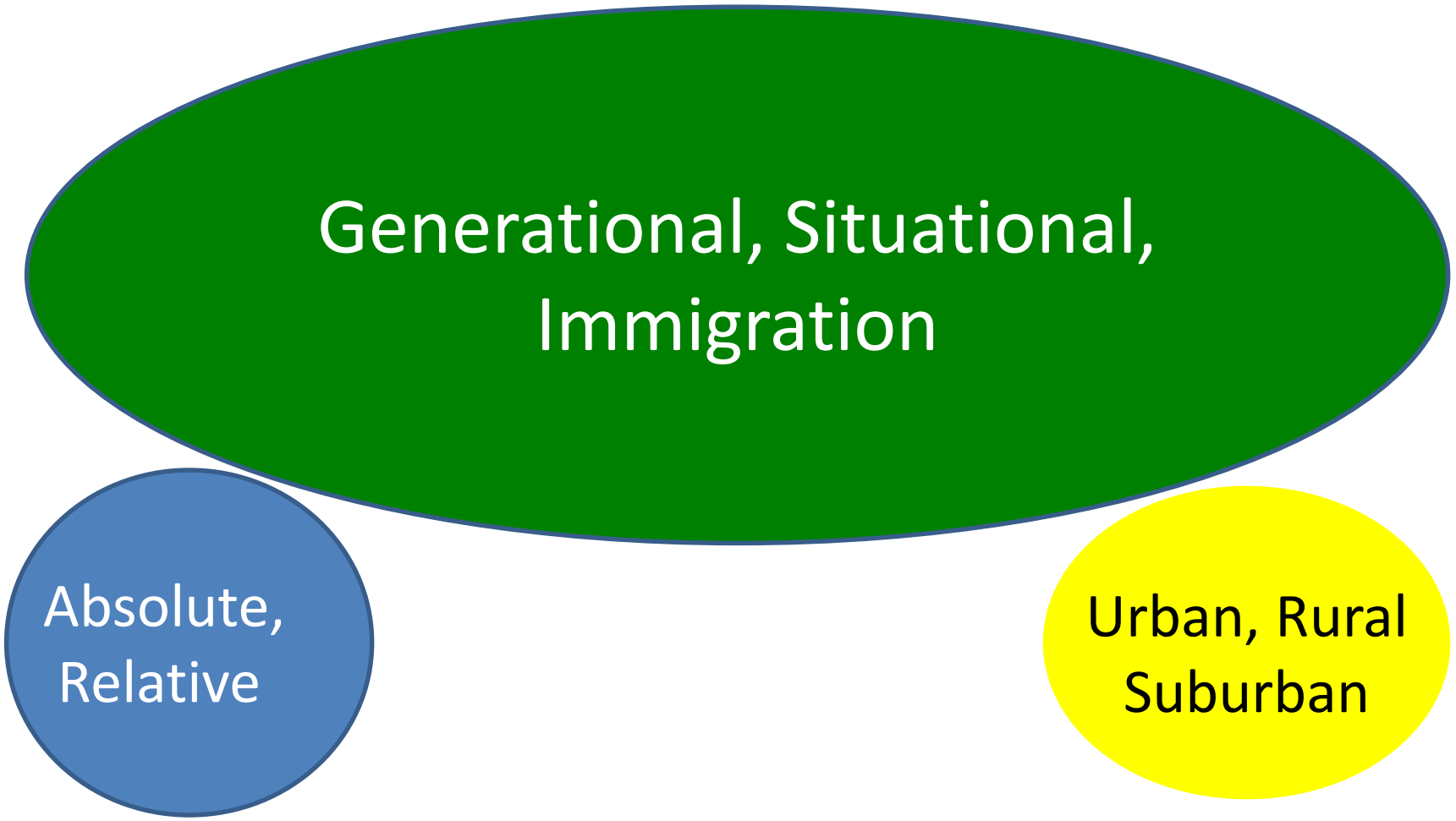
a ***ch _____ condition***

affecting the ***mind, body***

and s __ resulting from

multiple adverse ***r___ f___.***

Common “Faces” of Today’s Poverty



Bottom Line

- Kids from poverty are often different
- Brains adapt to suboptimal conditions
- But brains can and do change everyday
- You can facilitate that change
- Students can change, if you change first
- You'll have to let go of every single excuse you've ever heard of
- You can ensure your kids graduate
- When you find out how to do it, will you?

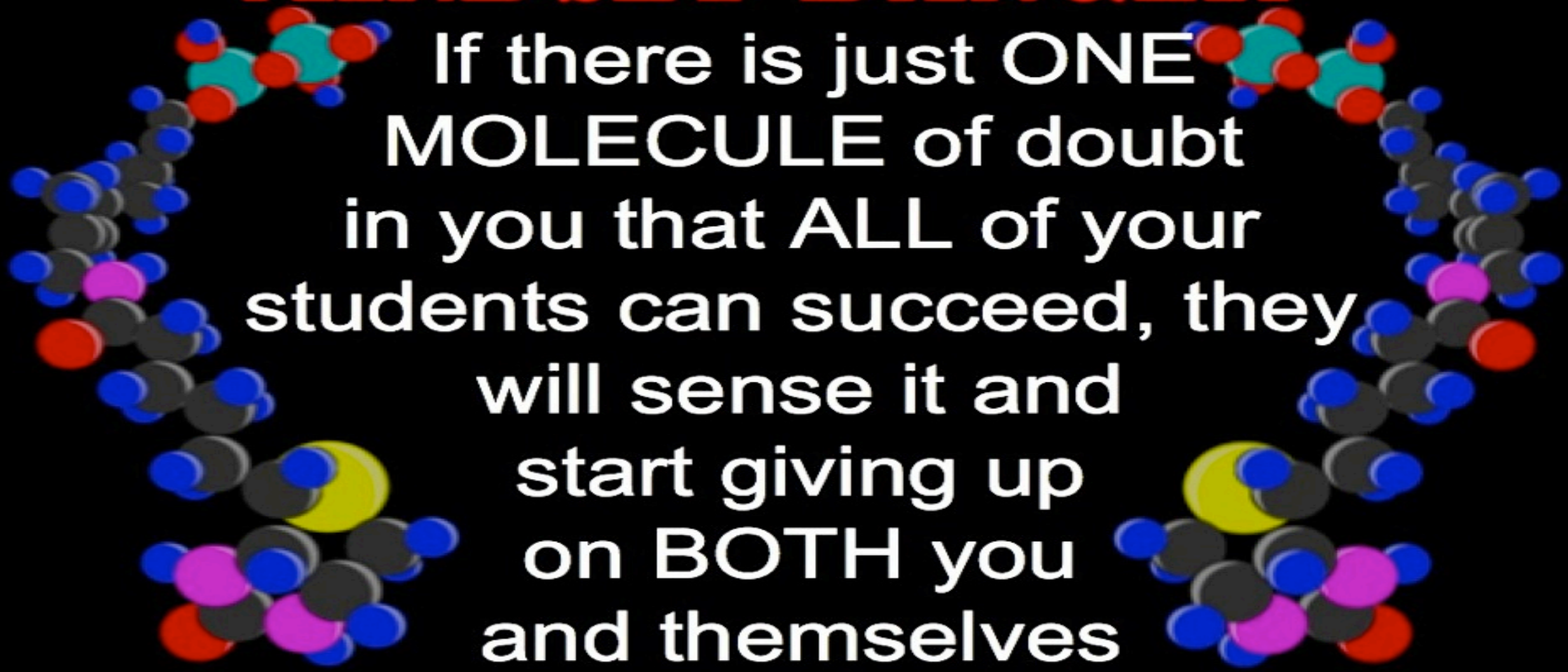
Who Am I?

1. "When my kids don’t succeed, it's not my fault."
2. "I get no support from administration."
3. "They don’t pay me enough for this work."
4. "I am adaptive and determined enough to find a way to help my kids succeed."
5. "I have only a few years to retirement."
6. "I am a victim of circumstances."

5 Mindsets for Success

1. Fierce Urgency
2. Empathy
3. Brains are designed to change
4. Teachers are the single greatest difference-maker!
5. No excuses!!!

MINDSET DANGER



If there is just ONE
MOLECULE of doubt
in you that ALL of your
students can succeed, they
will sense it and
start giving up
on BOTH you
and themselves

How are kids from low SES typically different than those from middle or upper class?

- **Acute/Chronic Stress**
- Executive Function Skills
- Less Emotional Support

Stress - Two Situations

You felt like you were “frozen”, you had an inability to function in some way or ways

You are “feeding off of your stress” ie: achieving a goal, accomplishing a task

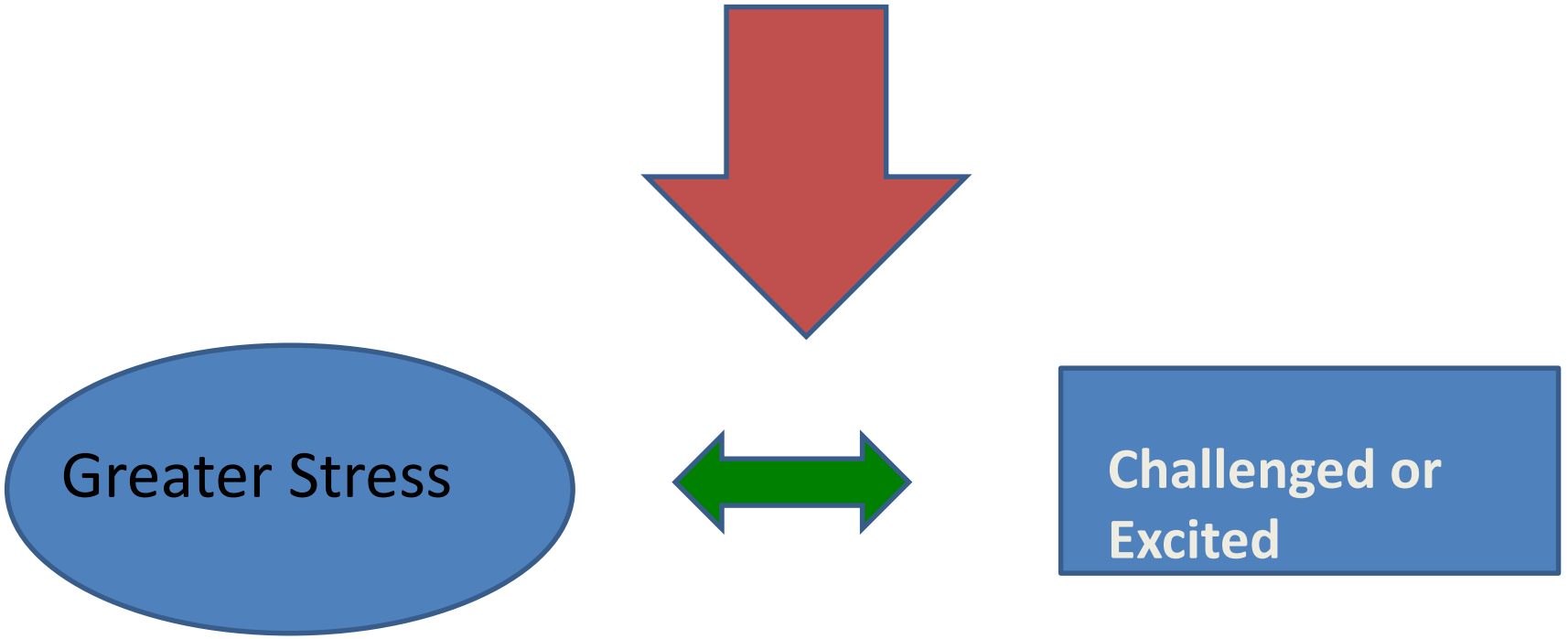
✓Stress (on/off) is healthy for us!

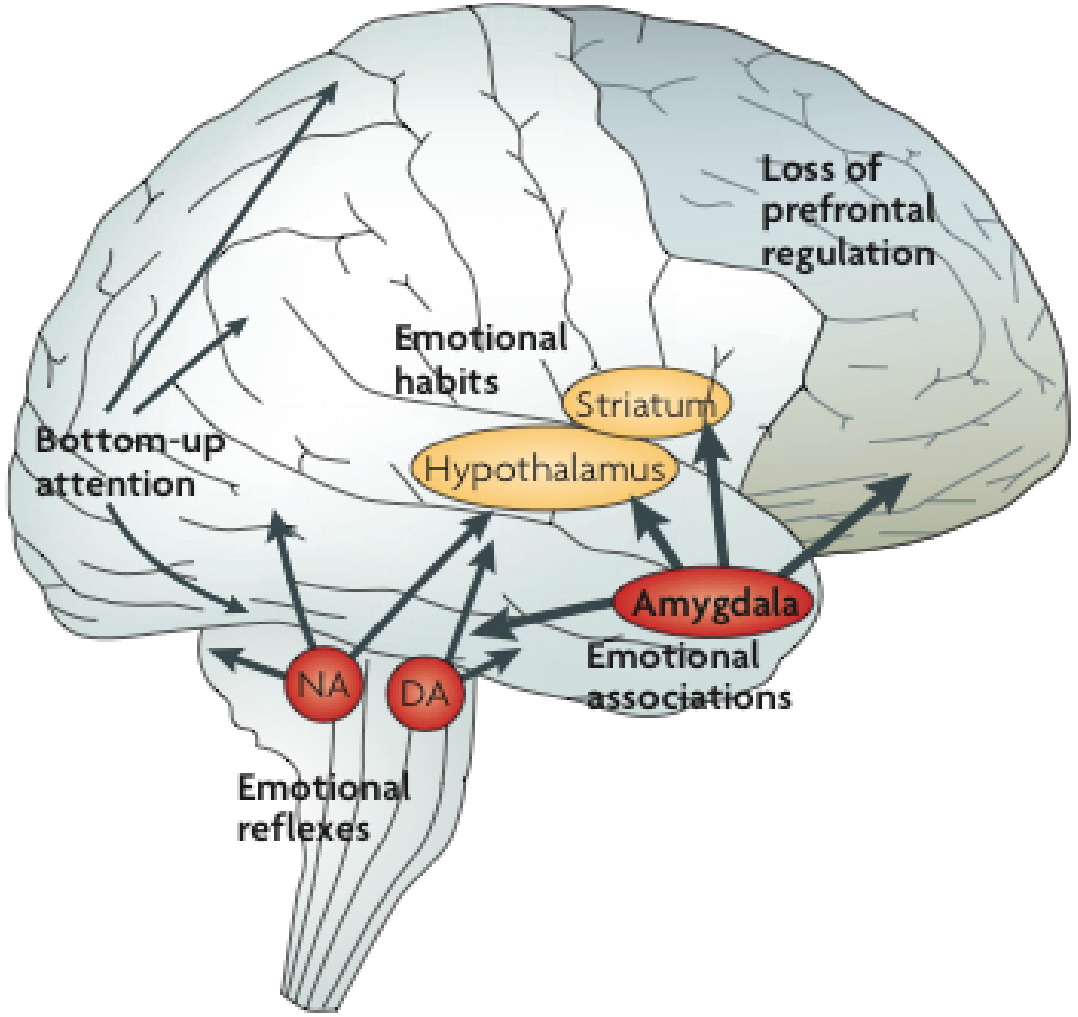
✓Distress (Chronic) is toxic to our brain and body!

✓Reality: Poor children are exposed to: 1)more stressors, 2)more intense and longer lasting stressors, and 3) have fewer coping skills than their higher SES counterparts

Your brain's two filters are **Relevance** and **Control** and they choose stress or no stress based on these

- **1. Perceived Relevance (Yes/No?)**
- **2. Will you have Control (Yes/No?)**

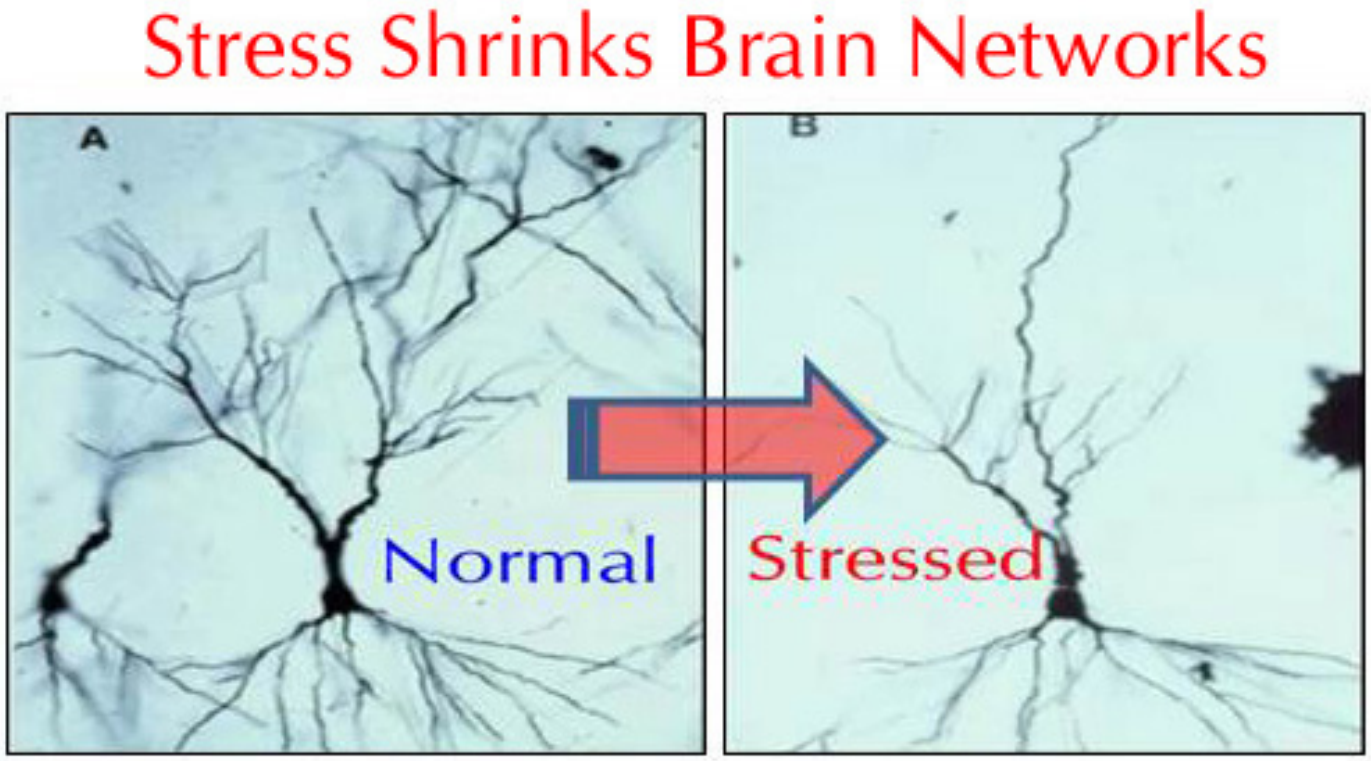




"What were you thinking?"

Under high stress, brains engage in bottom-up decision-making for a more reflexive strategy.

Distress Shrinks Key Brain Cells



Dendrites taken from rat PFC show effects of distress

Distress Shrinks Key Brain Cells

How much exposure to distress (in time) would you predict it would take for neurons to wither as shown?

1. 2 hours/day for 2 months
2. 30 minutes/day for 7 weeks
3. 1 hour/day for 10 weeks
4. 10 minutes/day for 5 days

With Greater Stress….Flexibility Drops and Stronger Habits Prevail

Good or Bad, you revert to your strongest habits under stress.

When change is needed, lower the stress, make a new habit, then practice it!

How can you reverse the change?

The stress we experience is our reaction to a perceived loss of control over an adverse situation.

- Increase the control and our stress goes down
- Decrease the control and our stress goes up

"Great theory, but what do we do?"

For things to change, you must change. Start by managing your own stress much, much better.

What works for you? (Round Robin)

Take an opportunity to manage your stress! Did you say any of these?

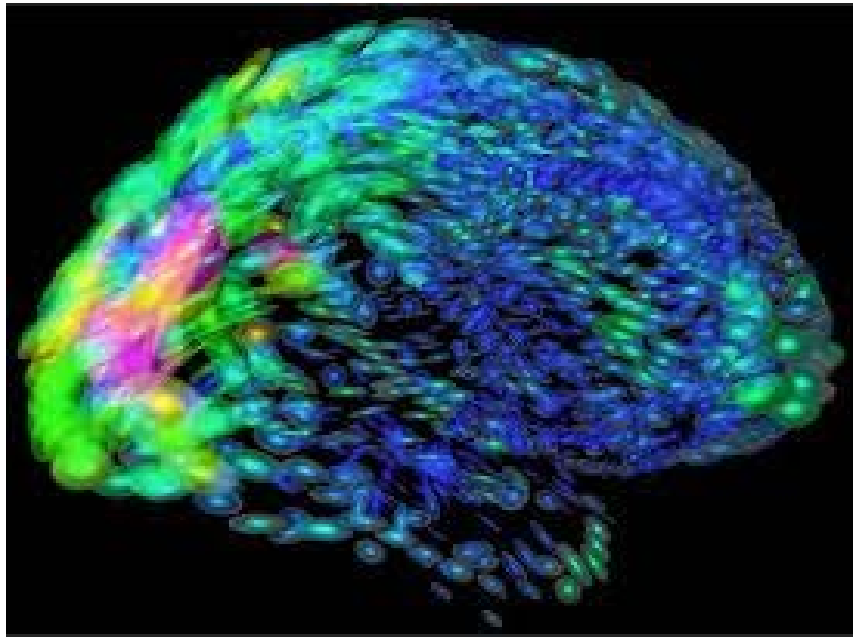
- Take action (get control)
- Write it down for later
- One week rule
- Redirect your attention
- Burn off energy (play/exercise/hug)
- Reframe the experience
- Let it go
- Relax/meditate/sleep

Have you seen me?

The Effects of Chronic Stress on our Students

- Greater impulsivity (blurts, talking back, less reflection, more scattered)
- Hyper vigilant (in your face, angry) or Hypo responsiveness (passive aggressive, detached)
- Inappropriate classroom behaviors
- Less effort put out in class/ academic underperformance
- Poor working memory*

How are kids from low SES typically different than those from middle or upper class?



- **Acute/Chronic Stress**
- Executive Function Skills
- Less Emotional Support

What is Executive Function?

- A set of mental processes shaped by physical changes in the brain and life experiences (schema)
- It is how we connect past or prior knowledge/experience to the present
- People use it to plan, organize, strategize, pay attention to and remember details, manage time and space, control impulses, store things in working memory

It's your operating system!

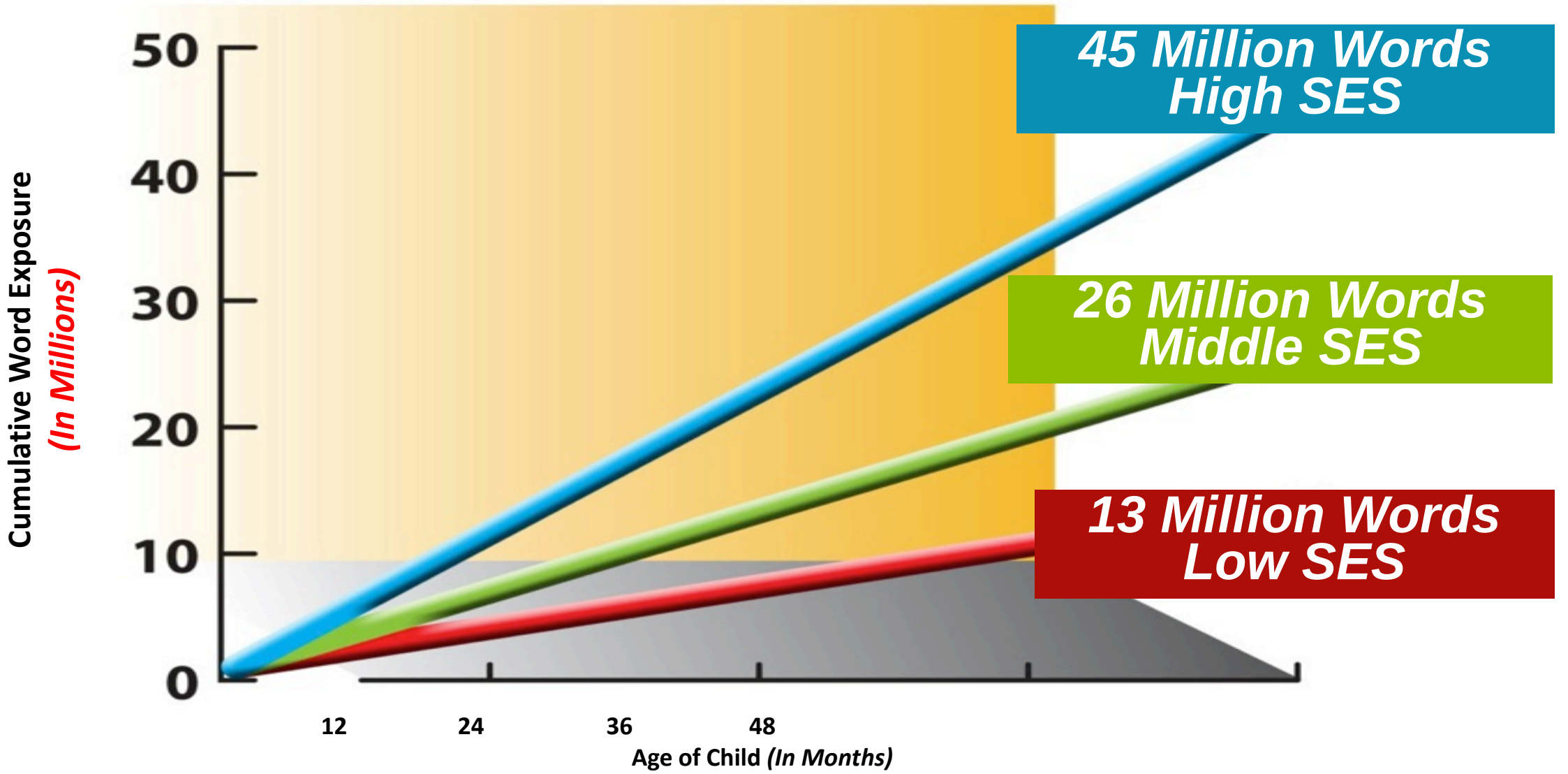
https://www.youtube.com/watch?v=efCq_vHUMqs

Language Influences Cognition

Toddlers from middle and upper income families actually used more words *in talking to their parents than low SES mothers used in talking to their own children.*

(Bracey, 2006)

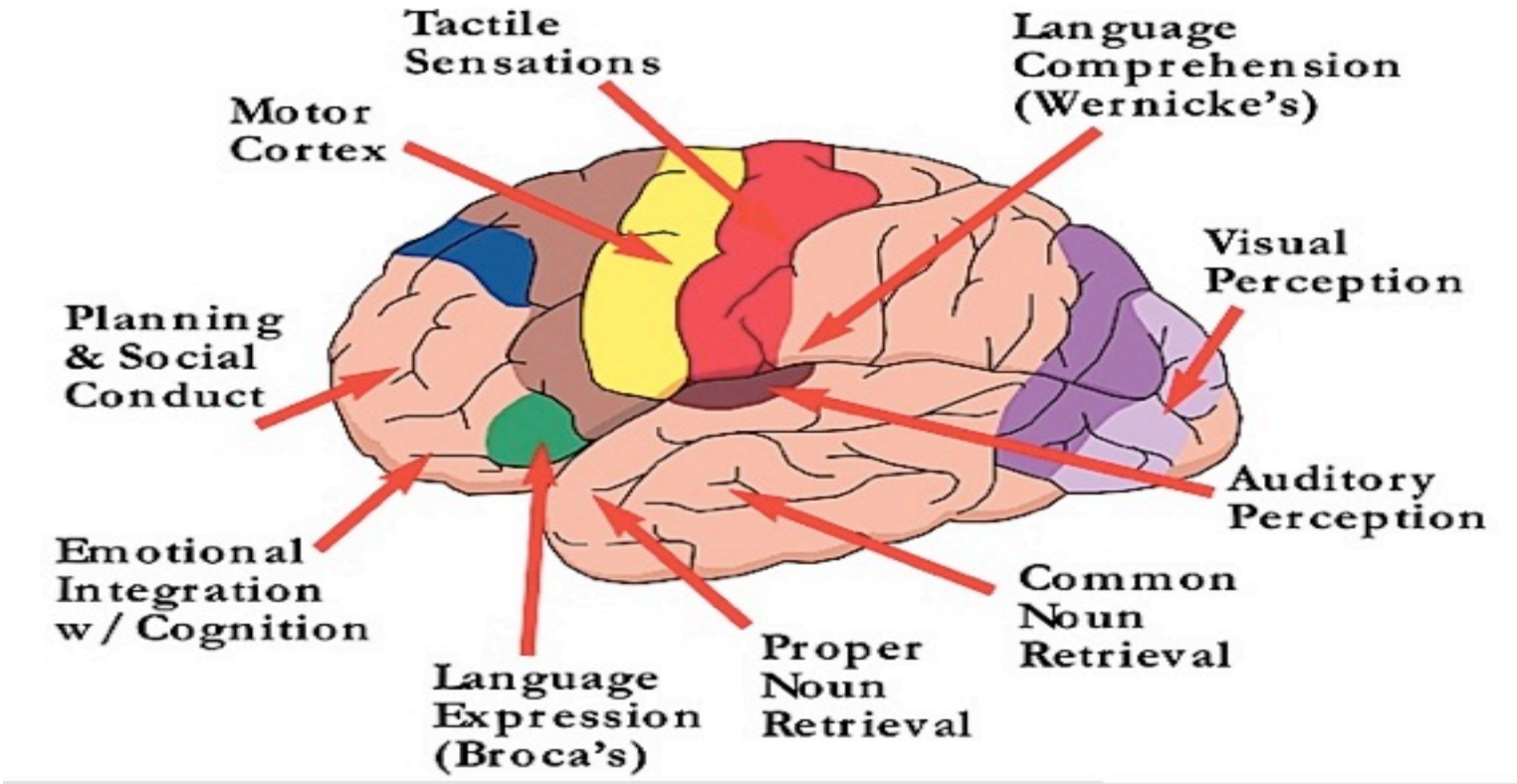
Early Language and Low SES



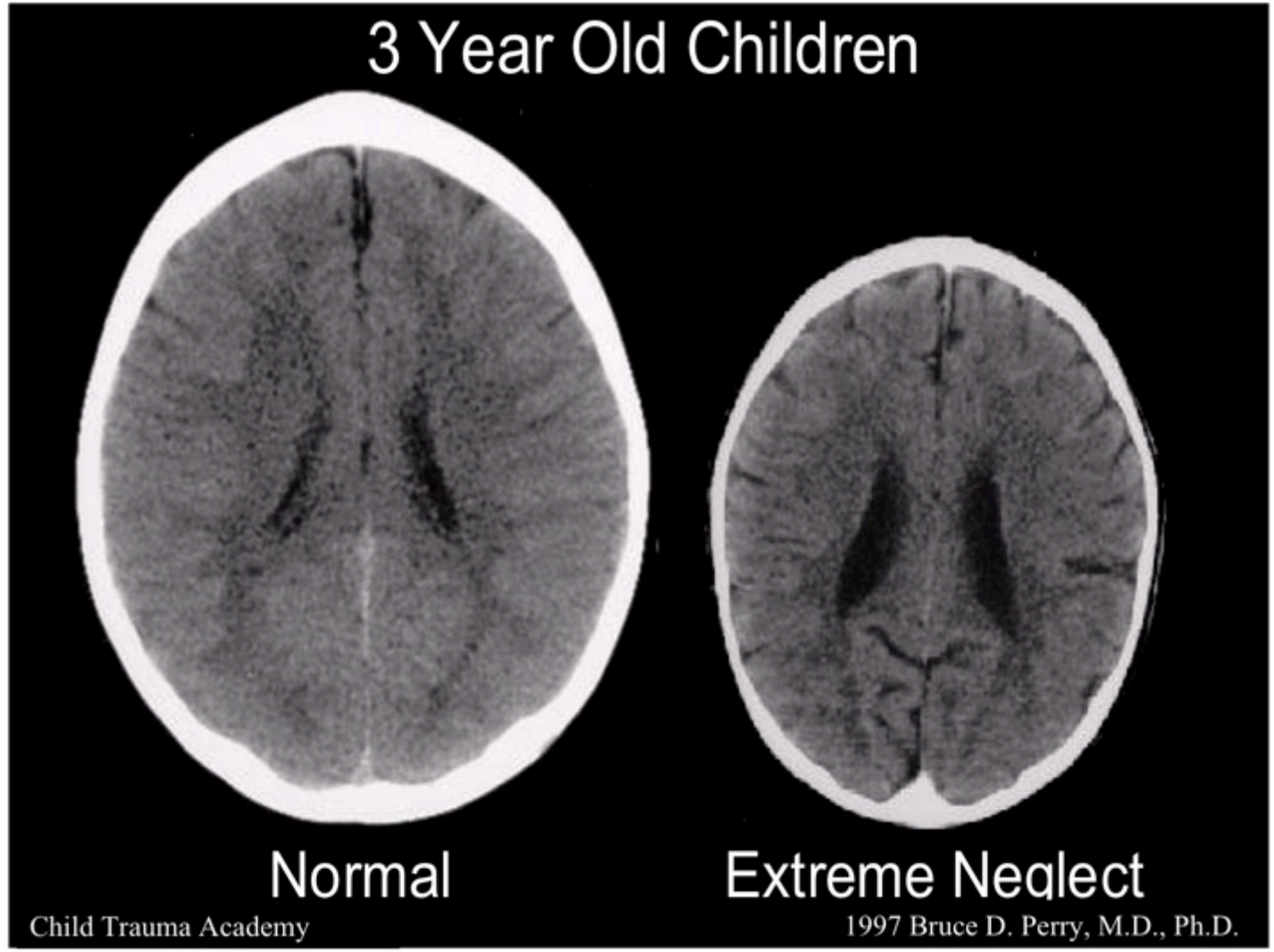
Hart, B. & Risley, T (1995) Meaningful Differences in the Everyday Experience of Young American Children. Paul H. Brookes Publishing Co.

Brains of Lower SES *are* Different than those from Higher SES

Areas include those responsible for working memory, impulse regulation, visuospatial, language and cognitive conflict

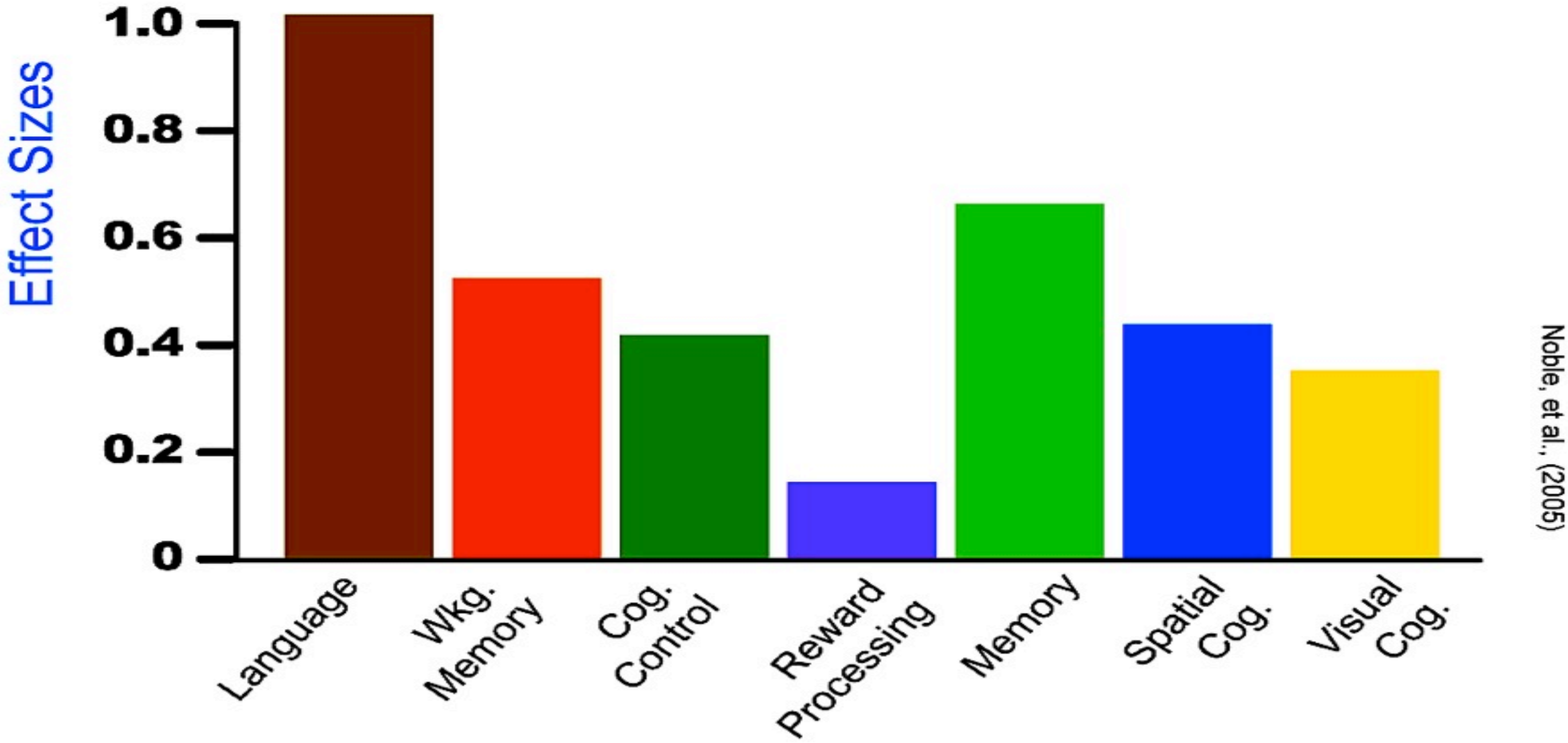


Noble KG, Norman MF, Farah MJ (2005) Neurocognitive correlates of socioeconomic status in kindergarten children. Dev Sci Jan;8(1):74-87


3 Year Old Children
Normal
Extreme Neglect
Child Trauma Academy
1997 Bruce D. Perry, M.D., Ph.D.

Cognitive Functions

How are the brains from poverty different?



Noble, et al., (2005)

Effect Sizes

Effect size is a **standardized measure** of the *relative size of the gain (or loss)* of an intervention.

0.00 or less = Negative effect
0.00 – 0.20 = Negligible, unclear effects
0.20 – 0.40 = Small-moderate effects
0.40 – 0.60 = Very strong effects
0.60 – 2.00 = Extreme effects

These are just one way of understanding the value of educational/classroom factors. There are others.

Impacts on low SES learners

- Lack of vocabulary for school success
- Sub-grade level in language
- Poor mood regulation
- Weaker executive function (impulsivity, working memory, processing, sequencing, and locus of control)

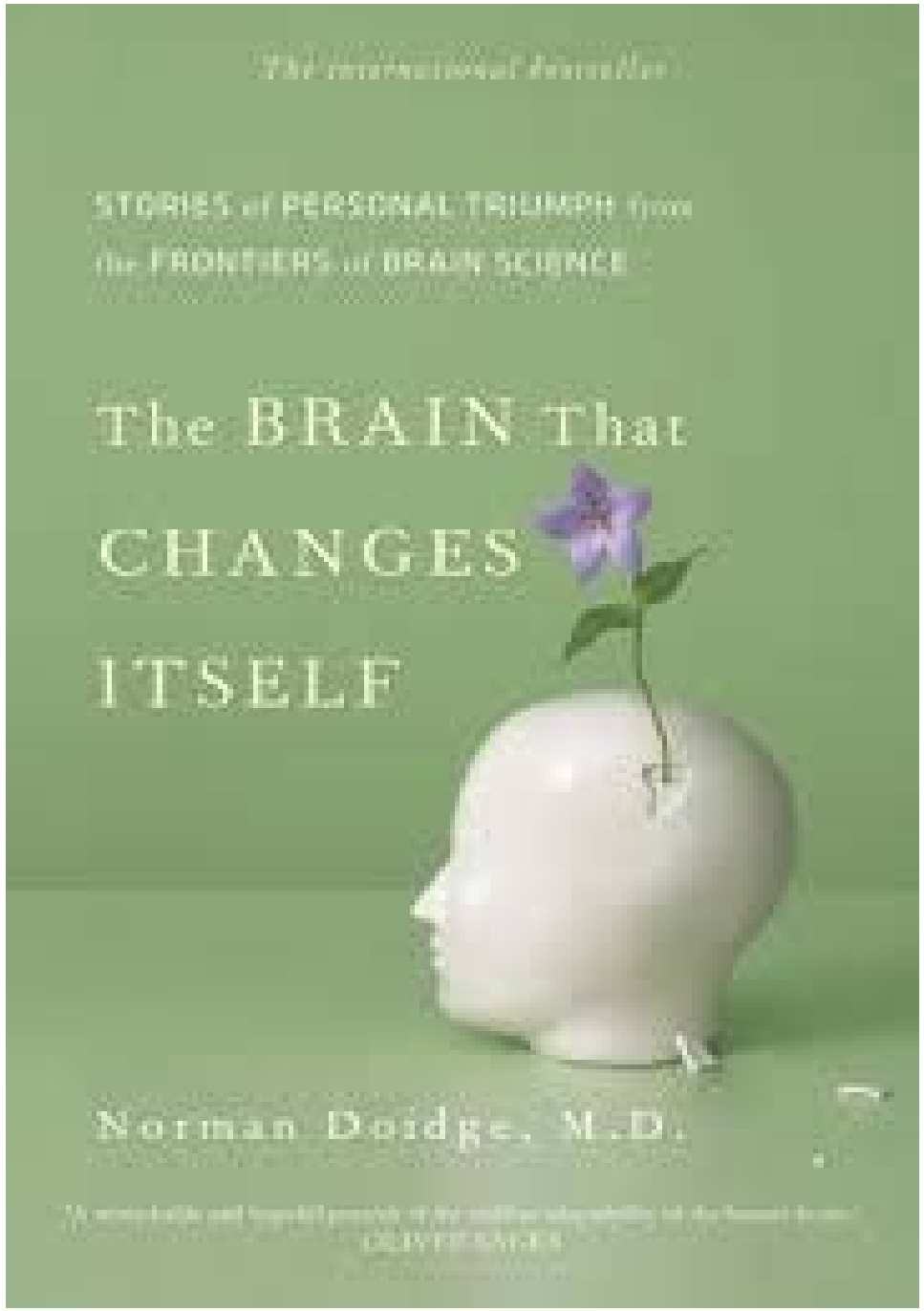
For over 100 years, scientists accepted as "fact" that our brain never grew new cells.

New Understanding: Brains can and do change every day

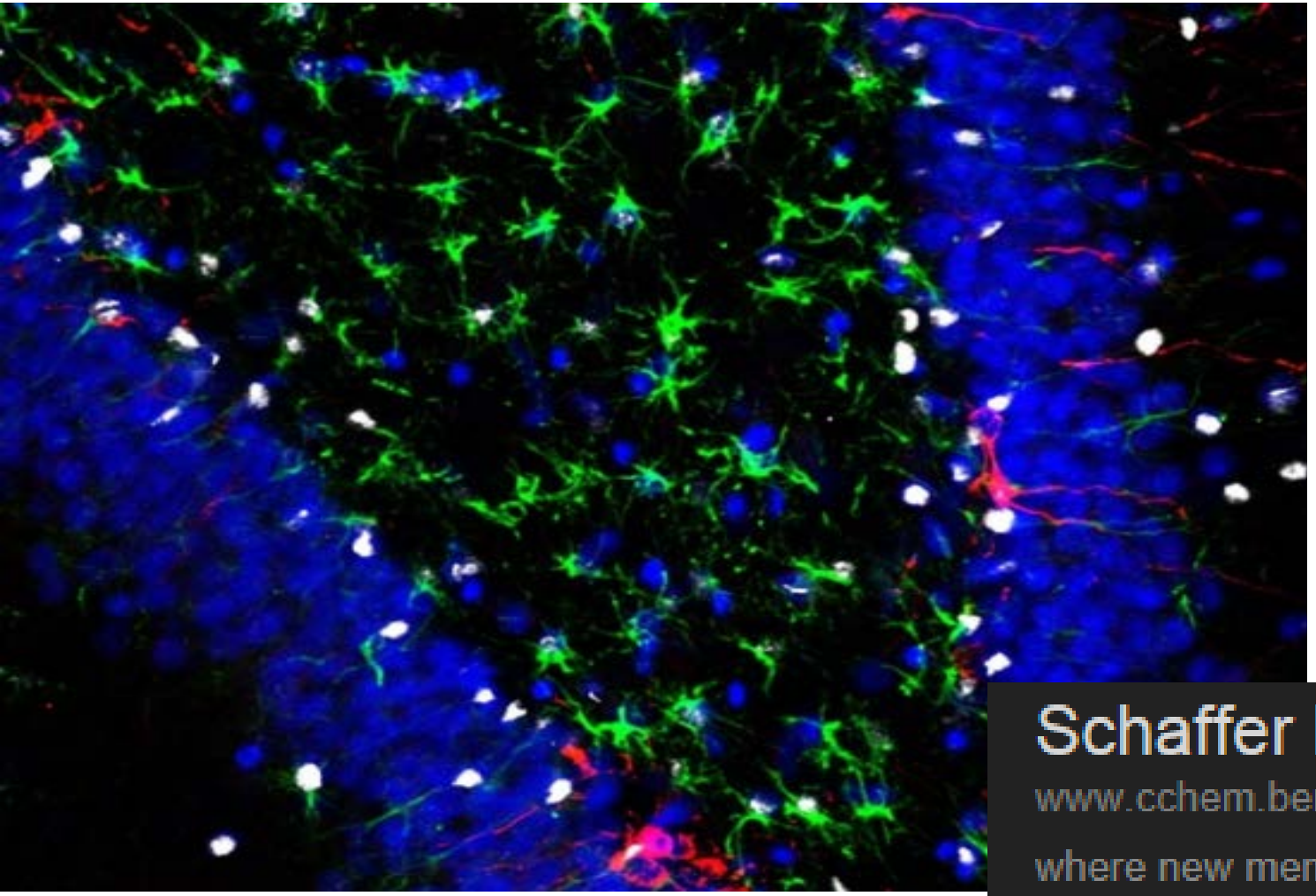
But if the experiences stay the same, so will the brain!

The production of brand new brain cells is called **Neurogenesis.**

[Paul Bach Y Rita]



Neurogenesis



Schaffer Research Group Home

www.cchem.berkeley.edu - 600 × 600 - Search by image

where new memories are formed, at 25X magnification. Astrocytes (green) signal to neural stem cells (white) to differentiate into immature neurons (red). Cell nuclei are shown in blue. Courtesy of Anthony Conway

Why care about Neurogenesis?

1. It is highly correlated with the following benefits
   - ✓Improved cognitive performance
   - ✓Elevated mood (less anger and stress)
   - ✓Enhanced memory

2. Neurogenesis is the raw material for learning! You increase or decrease the above benefits by how you teach (teaching decisions you make)

Neurogenesis is reduced by:

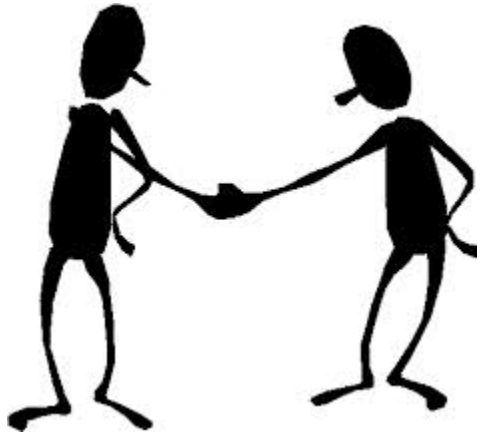
- Distress
- Inactivity
- Boredom
- Depression
- Poor nutrition
- Isolation and low social status

Common Factors in the lives of low SES kids!

Knew and New

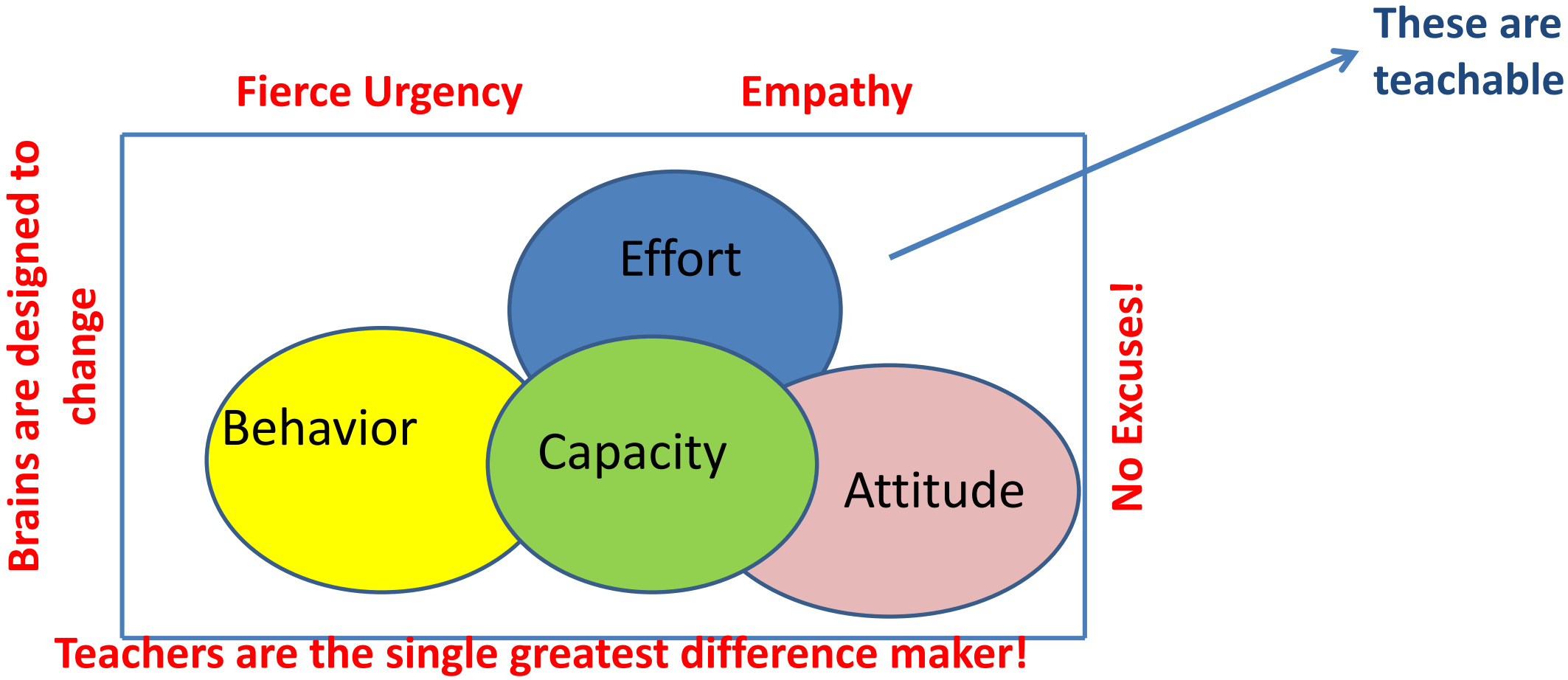
- How has our learning about poverty's impact on the brain and cognitive development validated what you **knew** before you came?
- Right now, what is standing out to you as **new or newly** important?

Stand up/Hand up/Pair up



"Yes, But What Do I Actually Do Differently?"

Teachers are the strongest change agents in student's lives



Capacity

How do we build cognitive capacity?

Retool the Brain's Operating System or the "Apps" that run the brain

What do we mean by "operating system" or "APPS"?

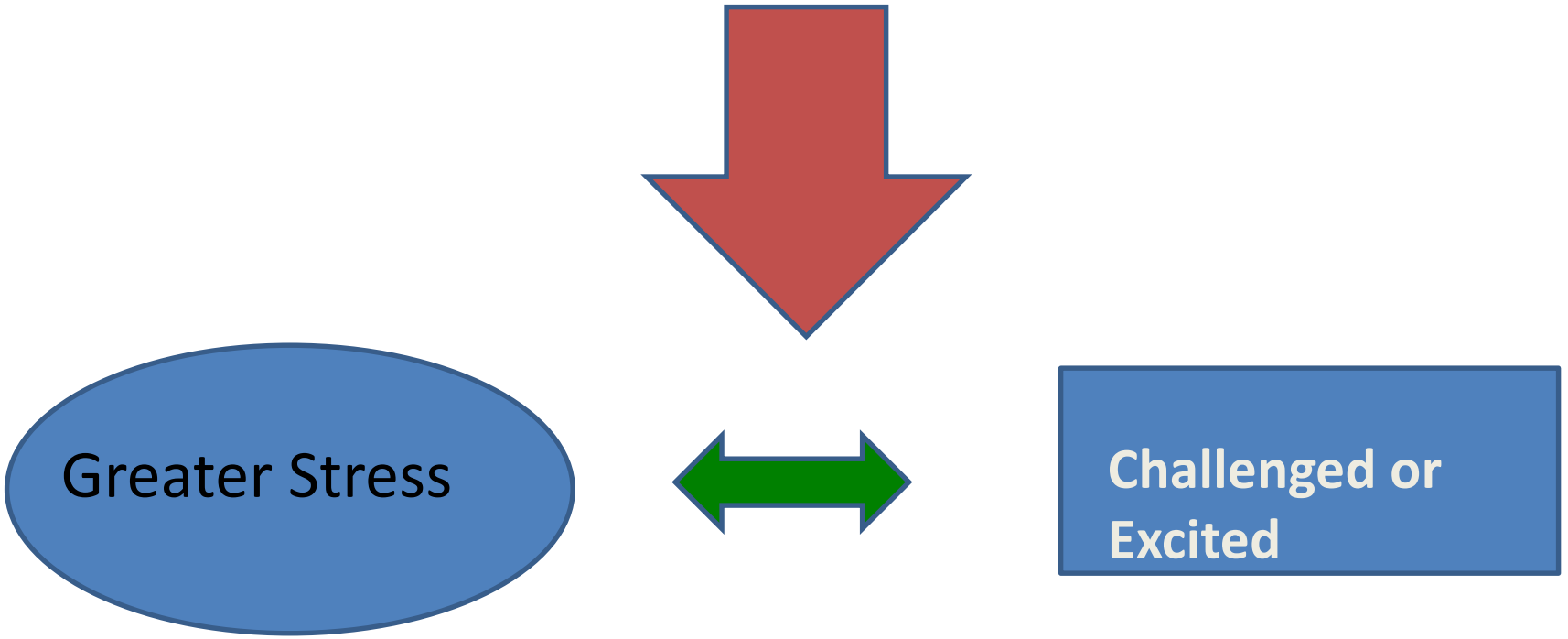
Our Memory Systems

Our learners impacted by poverty have disrupted memory systems.

Our memory systems are the root of all learning

Your brain's two filters are **Relevance** and **Control** and they choose stress or no stress based on these

- **1. Perceived Relevance (Yes/No?)**
- **2. Will you have Control (Yes/No?)**



Grab the brain’s attention!

- De-stress
- Ritual
- Surprise
- Interest or novelty
- Color
- Personal meaning

Which factor (when tested at Age 5) is a far greater predictor of student success at age 11 than IQ?

- reading scores
- motivation level
- math scores
- attitude
- working memory

What is working memory?
Why does it matter?

- The “active” part of your memory system, like mental juggling – as information comes in, your working memory processes it and stores it short term
- A set of skills: problem-solving, planning, deciding, debating, organizing, paying attention and making **meaning**
- Upper part of our pre-frontal cortex – we literally hold things in the “forefront of our mind”

It is the “**gateway**” to all learning and memory systems – the “gatekeeper” of executive function

What is in our working memory?

Sounds – (phonological) systems

- Language

Reading/writing

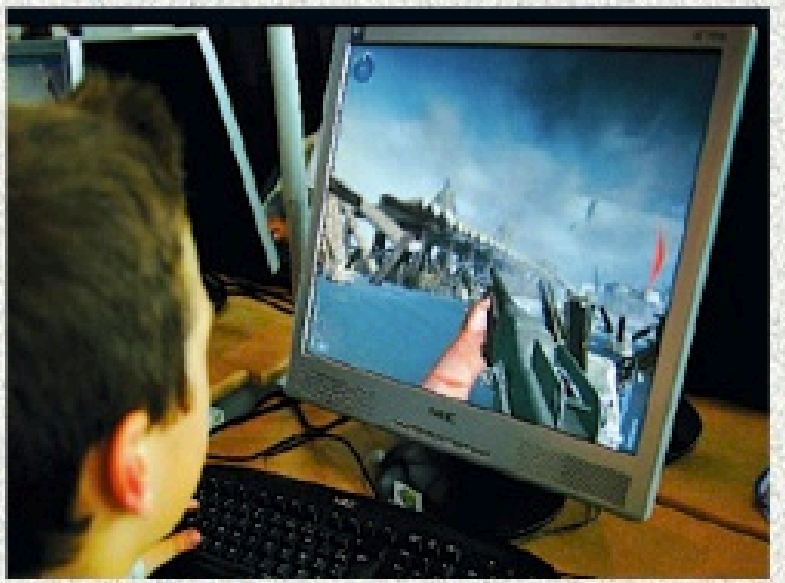
instructions

Pictures – Visual/spatial sketchpad

- It allows you to envision something, keep it in your “minds eye”
- Visualize places, ie: layout of the classroom
- Math, patterns, images, sequences of events

5 – 30 minutes, untrained capacity is 1-4 “chunks” or meaningful units, helped by dopamine, hurt by chronic stress

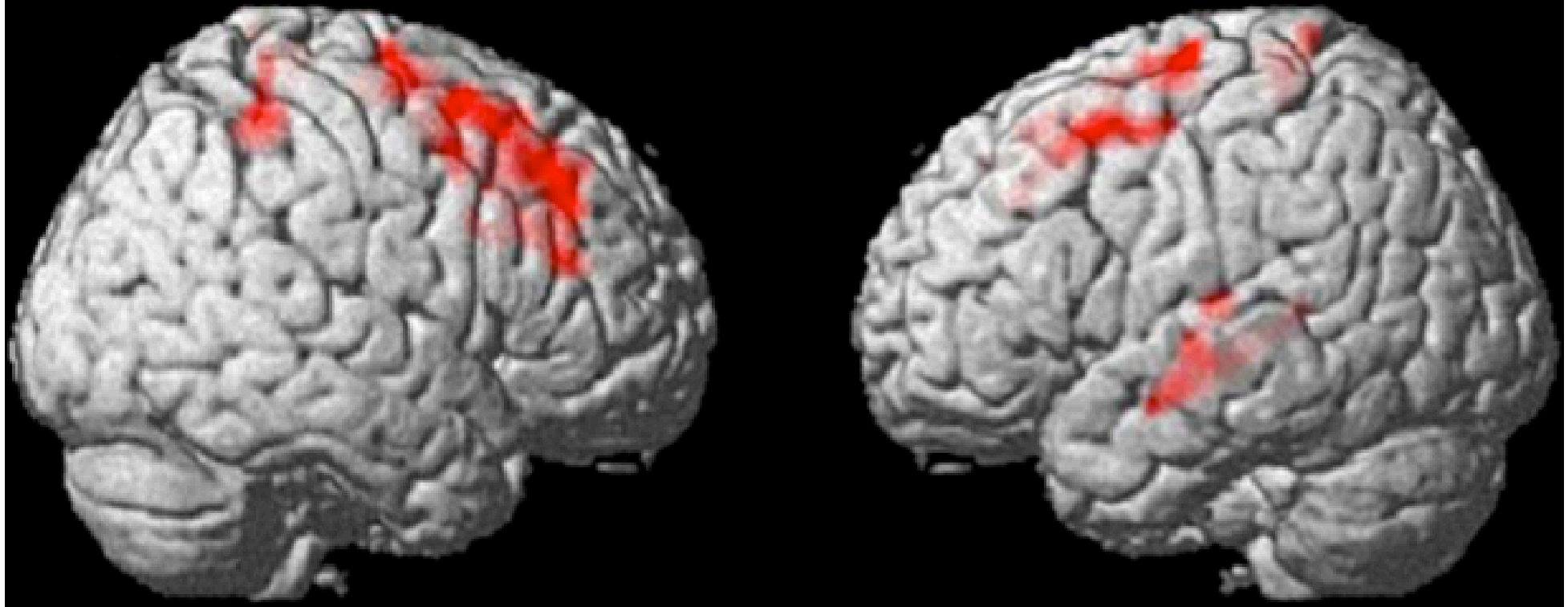
Your Student's Working Memory Can *(and should)* be Improved!



The researchers said, "We found that 15 minutes of training per day for 5 weeks had significant effects on working memory and after 3 months, over 90% of the gains were preserved."

Thorell L B, Lindqvist S, Bergman S, Bohlin G, Klingberg T (2009) Training and transfer effects of executive functions in preschool children. Developmental Science, 12(1): 106-113.

Impact of Working Memory Training on Gray Matter in 5 Days



Takeuchi H, Taki Y, Sassa Y, Hashizume H, Sekiguchi A, Fukushima A, Kawashima R. (2011) Working memory training using mental calculation impacts regional gray matter of the frontal and parietal regions. PLoS One.6(8):e23175

Workarounds for Working Memory Limitations in Kids

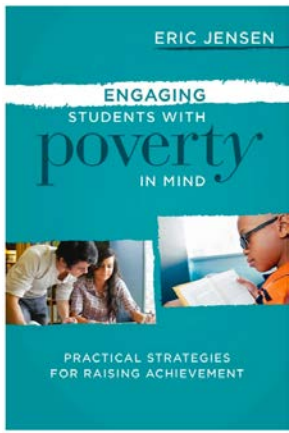
1. Every few minutes, pause to let content sink in
2. Chunk content into smaller chunks to aid understanding
3. Quick, fun energizer than can bump up dopamine

("Math Moves" – Common Core, Kinesthetics for voc./content, Kagan Classbuilders)

4. Music can be used to activate high energy or lower energy for extended focus – depends on beats per minute)

Strategies for Building Auditory Working Memory (over time)
Start simple and gradually increase complexity over time

1. Partner/group process w/# add-on/calculations
2. G_____ (e.g. Simon Says)
3. Word Basket (elementary) File Folder (secondary) Connect to Content
4. Add-On Stories (Use, “I went to the mall…”, then keep adding). Repeat prior ____then add…
5. Repeat after me(or, the d_____)
6. Partner, buddy or teacher speaks, student w_____ the content

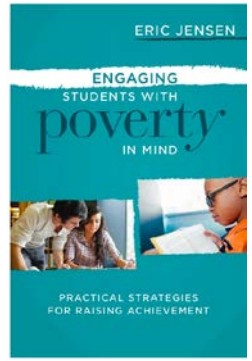


Your Turn!

- At your table team, person who starts will start with the word “suddenly”
- Each person will build the sentence by repeating what was said before them and then adding a word
- The last person to go will repeat the sequence of words and add the last word.

Variations on “Story Builders” for Working Memory Practice

- You provide the end of the story; their story has to lead up to it.
- Each story has to be in X number of words
- Include posted vocabulary words (academic and content specific)
- Stories must use certain elements (adverbs, foreshadowing, character builds)
- Students can invent the rules
- Record, post, exchange stories



Building Content For Auditory Working Memory

K - 2 Content

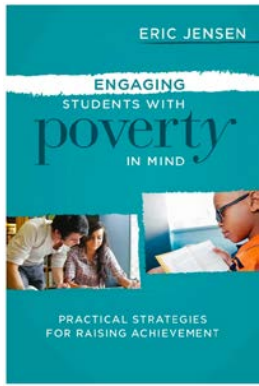
- Letters of alphabet
- Simon Says
- Sing-alongs that build phonemes

Repeat/add

- Clapping games
- Word basket (start small/grow slowly)
- Spell 2-3 letter words forwards/ backwards, then add

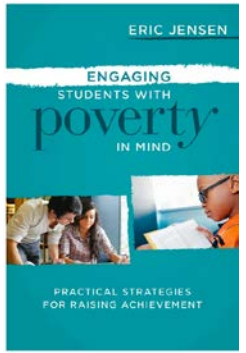
3- 5 Content

- New vocabulary
- Word basket
- Simon Says (w/2,3 adds)
- Repeat directions
- Play an instrument
- Spell 3-7 letter words forward, then go slow backwards)
- Grow sentences (start with 4-5 words and grow)



Building Content for Auditory Working Memory Secondary

- New required vocabulary
- File folder (same as word basket)
- Repeat directions
- Spell 4-10 letter words (over weeks, first forward, then go slowly backwards)
- Add ons – grow sentences (start with 4 to 5 words and grow)



Grab a partner
both stand
one has back to the screen
other says the words
on the screen

Sample WM Vocabulary (V or A) Practice w/ Spelling (F & B)

Say… “Do” (as in “Do this…”)

Say… “The”

Say… “Best”

Say… “Daily”

Say… “Joyful”

Say… “Affinity”

Sample WM Vocabulary (V or A) Practice w/ Spelling (F & B)

Say… “So” (as in “So what…”)

Say… “Eat”

Say… “Slow”

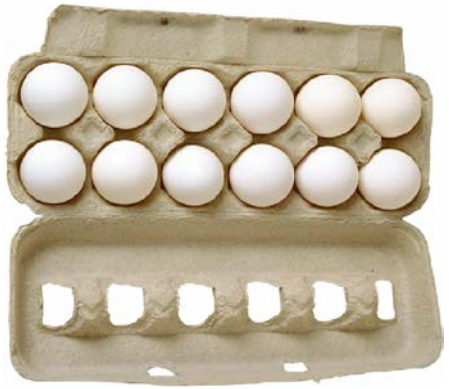
Say… “Fresh”

Say… “Guavas”

Say… “Healthy”

How About the visual/spatial?

		Apple
	4	
	Orange	

		
Berry	5	
	Apple	Orange

Mango	Orange	
Carrot		Berry
84	Papaya	Pear

Research-Based Online Games
Build Attention and Working Memory

- Secondary: www.lumosity.com
- Elementary: www.junglememory.com

And

www.focuseducation.com

Memory Coaching (Cont'd)

We actually have 5 memory systems (SPEWS)

1. Semantic
2. Procedural
3. Episodic (events)
4. Working
5. Spatial (map memory)

The brain stores things differently. The more memory systems we store things in, the better our chances for keeping what we need and retrieving it when we need it

Mental Manipulation for Long Term Memory

- We have to keep carving the pathways between neurons so they become like “the grand canyon”.
- Helping students represent knowledge in different ways build neuroplasticity!

How do you help students carve these pathways now?

How are kids from lower SES typically different than those from middle or upper class?

- Acute/Chronic Stress
- Executive Function Skills
- **Less Emotional Support**

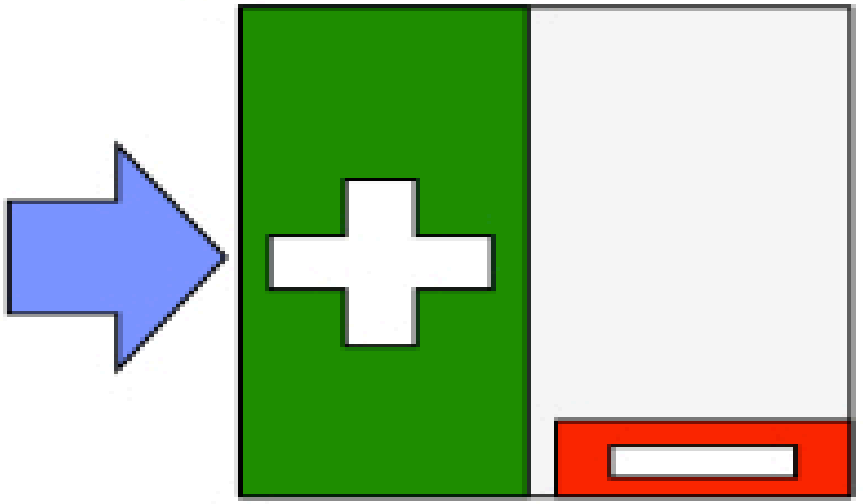
Kids “download” the negatives of chaos, disharmony, poor relationships, foul language, poor manners and weak vocabulary just as quickly and just as automatically as they would any positive or enrichment input.

Emotional Support

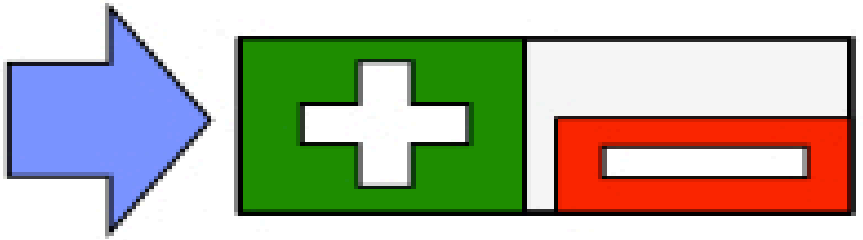
A mother in poverty is less likely to provide the emotional support needed for proper developmental growth when she's stressed about her own health, safety, bill-paying, hunger and housing prospects.

Caregiver Feedback and Emotional Affirmations Varies by Child's SES

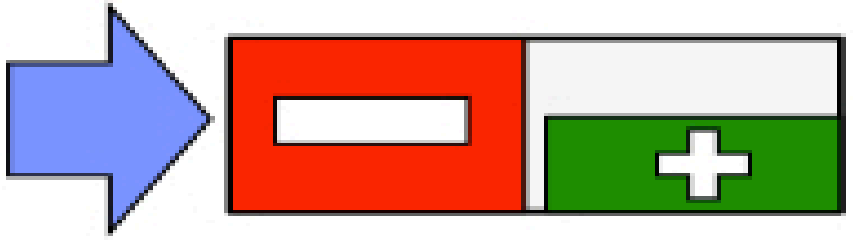
$$$ Upper income
caregivers average a 6-1 ratio of **6 positives** to **1 reprimand**



$$ Middle income
caregivers average **2-1**

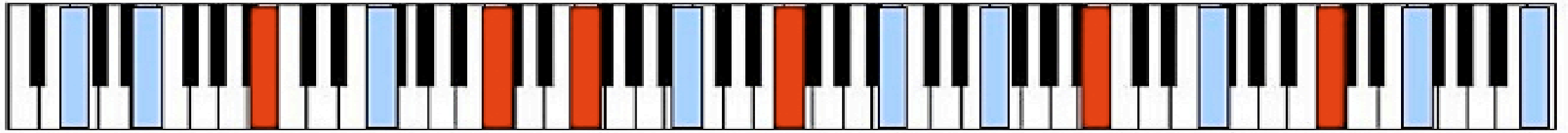


$ Lower income
caregivers average **1-2**



Hart and Risley (1995)

If the Healthy Emotional Brain Was Represented by a Keyboard, Many Students Today Use Fewer "Keys"



TAUGHT:

- Humility
- Forgiveness
- Empathy
- Optimism
- Compassion

HARD-WIRED

- ✓Sadness
- ✓Joy
- ✓Disgust
- ✓Anger
- ✓Surprise
- ✓Fear

TAUGHT:

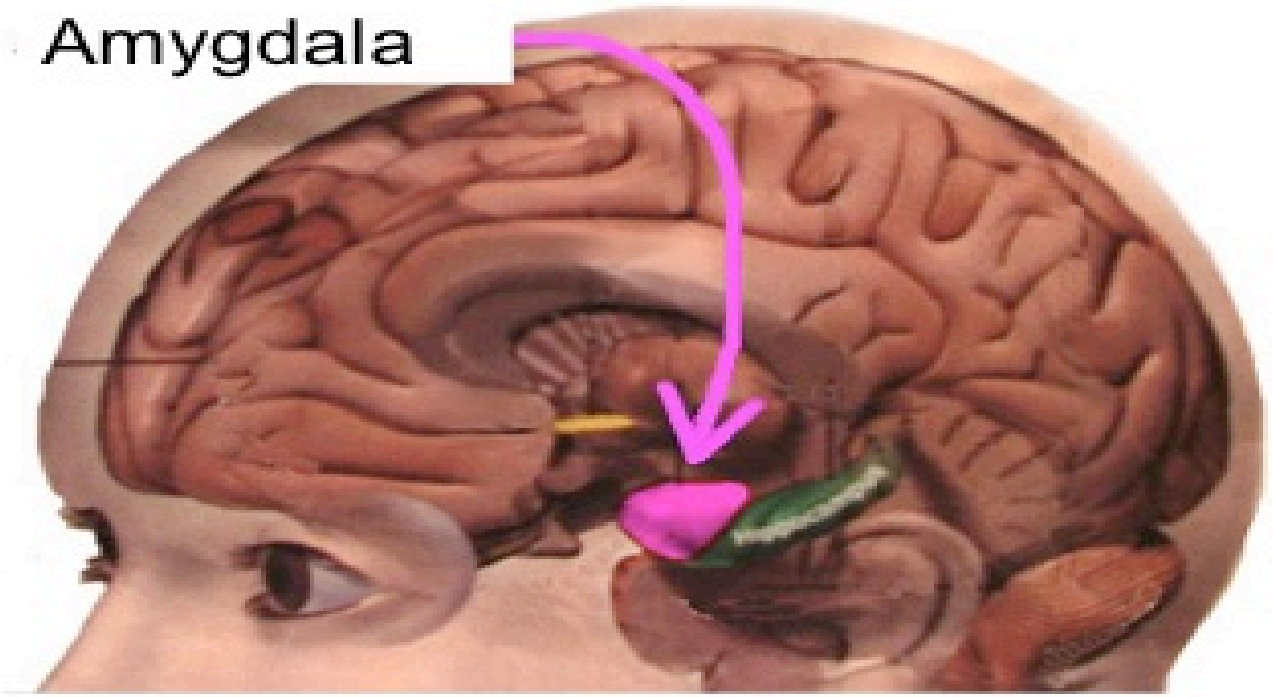
- Sympathy
- Patience
- Shame
- Cooperation
- Gratitude

Discipline Problems Emerge When Teachers Expect *What They Cannot Get*

Many kids don't have the full emotional range to respond well *UNLESS* they are taught *HOW* to respond in class.

Fight, Flight or Freeze?

Once the amygdala is activated in class, it takes *at least 30 – 90 minutes* to calm down for quality learning.



Threats, insults, put-downs and sarcasm activate the amygdala

Teach Students How to Display Different Emotional States

- Use DVD's or You Tube clips to debrief & teach
- Use simple student role-plays
- Use game-like formats for fun
- Ask students to present skits on the topic

Emotional Impact of Low SES

Children of poverty were *50% more* likely to experience physical neglect and *80% more* likely to report sexual abuse than those of middle to upper SES-- very stressful to them!

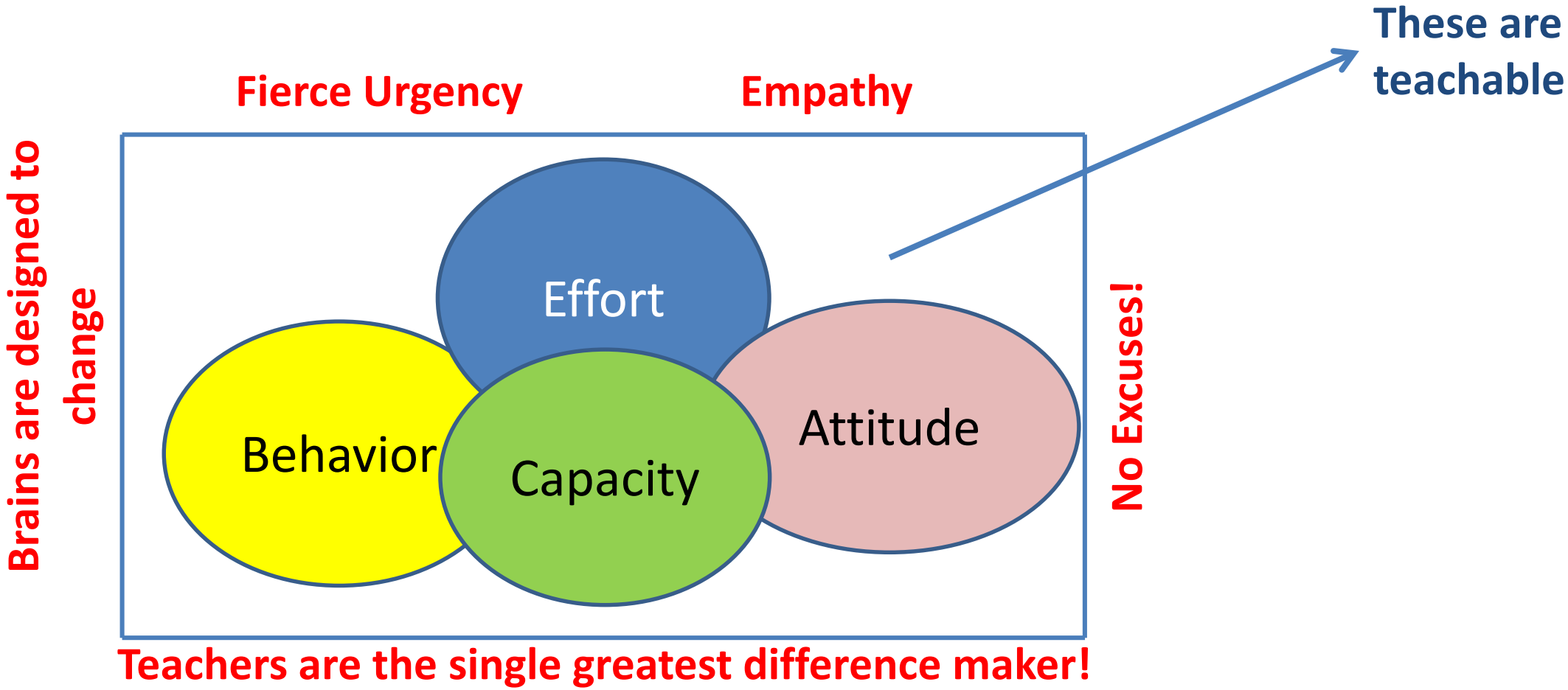
(Hussey, Chang, & Kotch, 2006)

How we feel is what's real. It's the link to what we think.

The effects of less emotional support

- ✓ Fewer hours of attunement leading to a narrower set of emotional responses
- ✓ Far fewer experiences with quality emotional punctuation that shapes appropriate behaviors
- ✓ Less trust in adult relationships
- ✓ More classroom misbehaviors

Teachers are the strongest change agents in student's lives



Classroom Climate

Building Relationships with Challenging Children and Young Adults

Growth Mindset – That of Champions!

"Yes, But What Do I Actually Do Differently?"

How we feel is what's real. It's the link to what we think.


Relationship

Learners Who Challenge Us

Read your selected article, be prepared to “Say Something” with colleagues.

“Say Something”

Same/Different

- ✓ I read _____ and it makes me think/wonder because…
- ✓ I read _____ and it validated what I do because…
- ✓ I learned that….
- ✓ I am reminded that…..

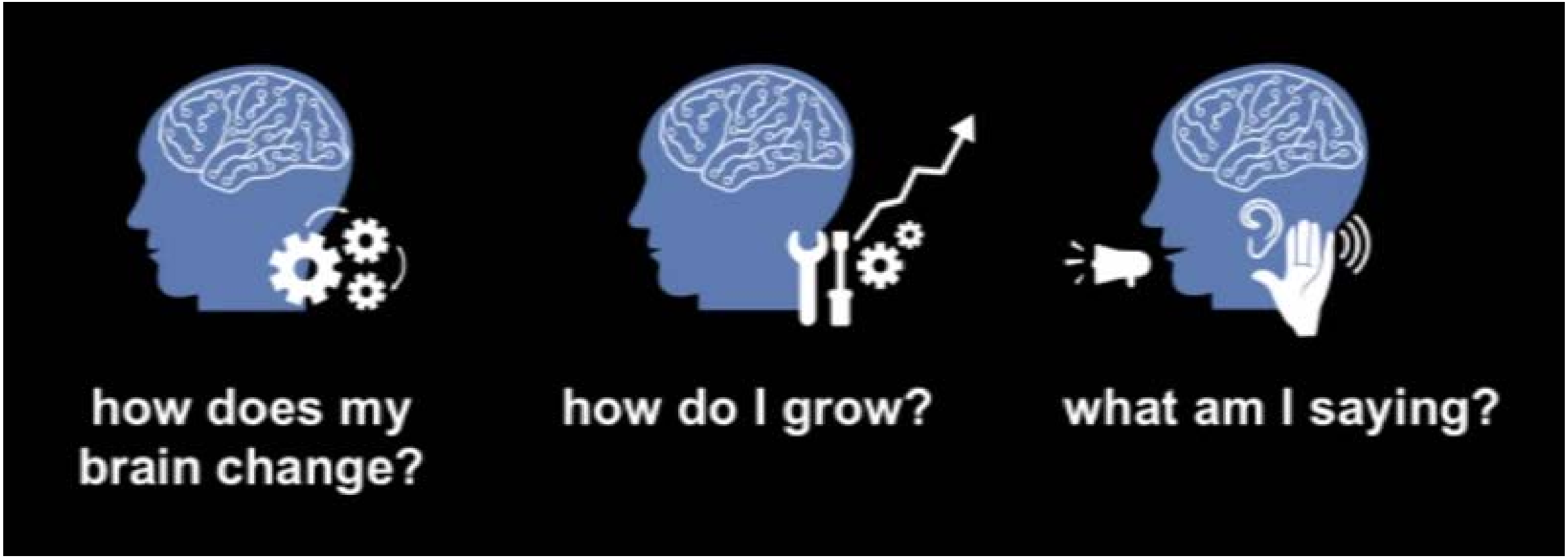
Fixed Mindset: After a Failure

- ✓ Feel helpless and want to give up
- ✓ Avoid future tasks similar to this one
- ✓ Invest little or no effort since I will not likely succeed
- ✓ I might consider cheating, if need be

Growth Mindset: After a Failure

- ✓ Resilience; I feel renewed energy
- ✓ I will learn from my mistakes to improve
- ✓ Effort is a positive, since I can control how much I apply
- ✓ I can be better the next time I try this

Growth Mindset



Actionable Steps For Your Classroom

- Use your “thought catcher” to focus on a few “actionable steps” or starting points for your learning spaces beginning **day one**
- Be ready to share one thing from your plan
- Hold yourself to it! - www.futureme.org
- Actionables – Team Poster

Until we learn together again,

Thank you!

futureme.org

Write a Letter to the Future | Read Public Letters | What? | Props | D

What do you want to say to your future self?

E-mail Address: Your e-mail

Subject: A letter from July 29th, 2014

Your Letter: Dear FutureMe,

Deliver on: Jul 29 2015

Make this letter:
- (•) Private
- ( ) Public (but anonymous)

Add a picture? No, thanks

Are you human? (new image)

Available Resources

- ASCD Education Collection
  - Teaching With Poverty in Mind
- School Library System Professional Book Collection Catalog
  - Engaging Students with Poverty in Mind
- Presentation Materials
  - www.btboces.org ---Effective Teaching ---

  Teaching with Poverty in Mind

Resources

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Dweck, C. (2006) *Mindset. The New Psychology of Success: How we Can Learn to Fulfill Our Potential.* New York, Random House, Inc.

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