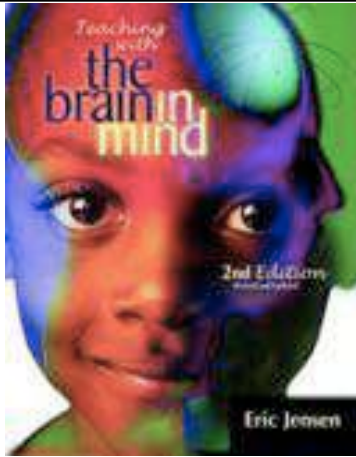


Teaching with Brain Literacy in Mind

eric@jensenlearning.com



Which School Based Factor (when tested at age 5) is a Greater Predictor of Academic Success than IQ?



- a) Reading scores
- b) Working memory
- c) Motivation level
- d) Math scores
- e) Positive attitude
- f) Homework

Anderson, T. A. & Anderson, R. (2010). Investigating the predictive value of working memory and IQ in academic attainment. Journal of Experimental Child Psychology, 106, 20-26.

5 Critical Tools

- Access
- Change
- Emotions
- Uniqueness
- Plasticity



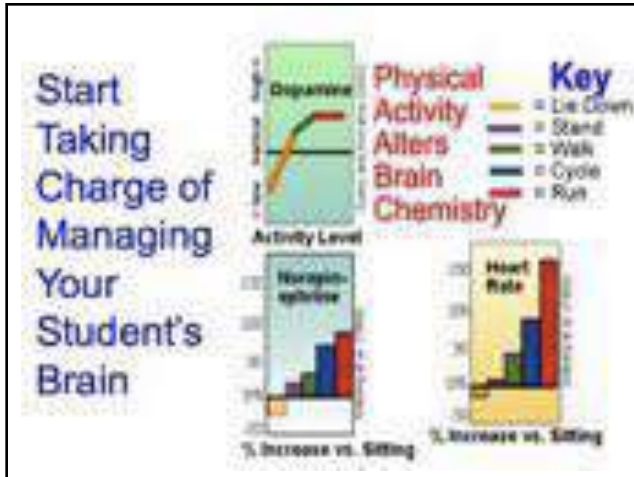
What Actually Changes in Our Brains?



neurogenesis
cell size
cell connectivity
new cell survival
gene expression

neural plasticity

chemical levels
activity distribution
blood flow
glucose metabolism
neural growth factors



Access? You Bet! #1

- Students stand for a preview/review
- **Students take short walk w/ partner**
- Partners share gratitudes/goals
- **Student-led energizers among peers**
- Short block teaching (4-12 min.)
- **Use hands & body to learn**
- Cognitive strategies that work better

5 Critical Tools

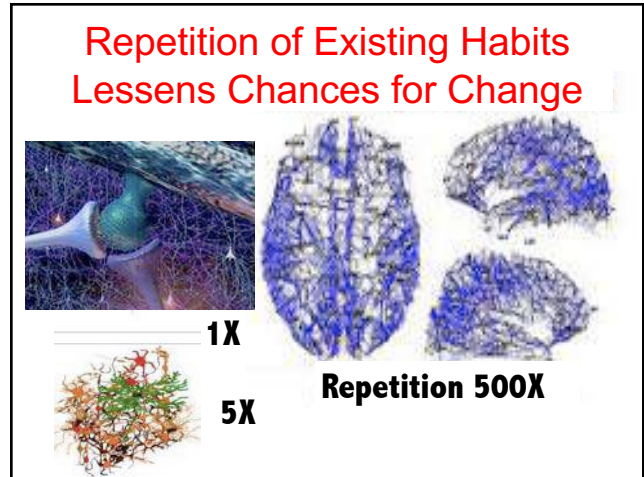
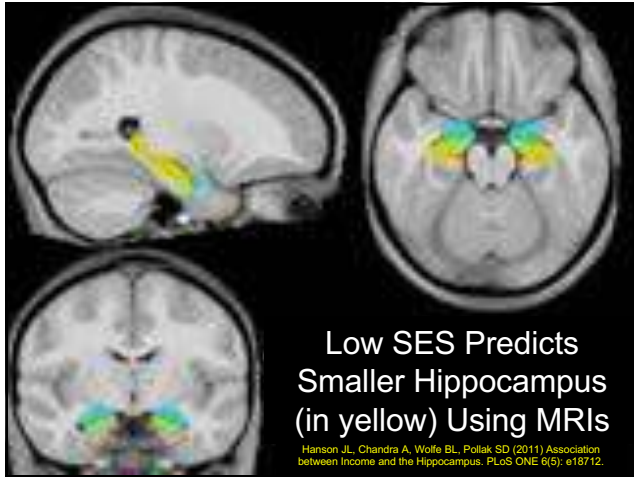
- Access
- **Change**
- Emotions
- Uniqueness
- Plasticity



Change is Hard; But Why?



Every thought and action you take will either start or it may strengthen a brain connection. Soon, your existing habits are easier to do than changing to new ones.



- ### Stuck Change Pathways
- Personal Assumptions
 - Poor Use of Teams
 - Emotional Issues
 - Chronic Stress and Burnout
 - Adverse Environmental Triggers
 - School Systems & Stability
 - Brains Resist Overt Change
 - We Underestimate the Power of Micro Changes Over Time



The Biggest Problem with Change

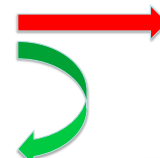
Over 95% of us leave a training with strong intentions. Yet, if we are honest about our past record, we see where we intended to implement changes, but did not do it. Why? Circumstances influenced us to alter our behavior. In the moment, we “defaulted” to our prior behavior instead of the “change intention.” This is a HUGE problem for all of us. Yet one researcher found a solution...

“Implementation Intentions” Solve This Indecision



Dr. Peter Gollwitzer

Or, Make the Change with a NEW Behavior?



Do the Same Old Default Behavior?



To Implement a Change, Always Prevent the “Default” Behavior w/ “Plan B” Triggers

Researchers found that “Plan B triggers” skyrocketed (nearly tripled) success rates for change from 22% to 62%. This is NOT theory; it is from real world experiments. Research shows strong effects when just one “Plan B” is set.



“What to Do When I Want to Do ABC task, but “XYZ” Occurs?”

GOAL: Give better feedback than “Good Job.”

When I default, I will recover and do this:
If I say, “Good job,” I will simply ADD on to it.

I will say WHY it was good (**SPECIFICITY**).
I’ll say, “Good job...your persistent effort made all the difference.” (6X more effective)

How to Support Your Own Success with Online Apps



1. Create advance weekly emails to send to yourself in advance: www.futureme.org
2. Earn money by reaching goals from those who don't reach theirs. www.pactapp.com
3. Inspire yourself with your choices of both the carrot (and stick). www.stickk.com

Change? You Bet! #2

- Use online apps to support change
- Engage small nudges to start up
- Prepare a new story/narrative
- Give staff a “why”, a path & support
- Ensure a “Plan B” for each change
- Use personal, social & system tools
- Set up a 30 day dry run to test it

5 Critical Tools

- Access
- Change
- Emotions
- Uniqueness
- Plasticity



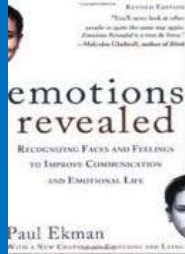
The separation model is NOT supported by recent brain research

Paul Ekman, Emotions Pioneer



Named as one of the 100 most influential people in the world (Time)

- ✓ **Innate emotions**
- ✓ **Micro-expressions**
- ✓ **Movie consultant**



Stop Assuming that Your Students Already Know How to Behave; Most Don't Know!
Teach the Blue Box Skills Daily



TEACH:

- ◇ Humility
- ◇ Forgiveness
- ◇ Empathy
- ◇ Optimism

HARD-WIRED...

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

TEACH:

- ◇ Kindness
- ◇ Patience
- ◇ Gratitude
- ◇ Compassion

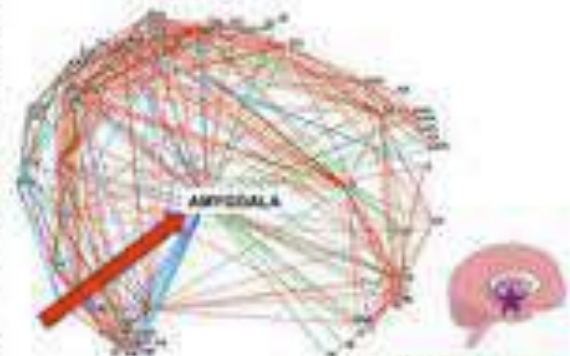
Ekman, P. (2016). What 149 Scientists Who Study Emotion Agree About. Perspectives on Psychological Science 11, 31-34

Teachers who criticize, use negativity and sarcasm as behavior management may activate the stress areas or damage student's brain.



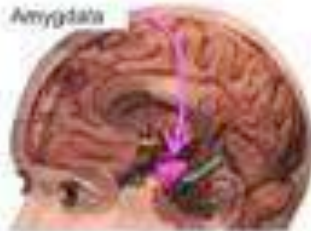
This activation alters the student's ability to think and learn.

How Much Input Does the Amygdala Have to the Rest of the Brain?



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



Healthy Brains Have Smooth Even Activation During Resting States

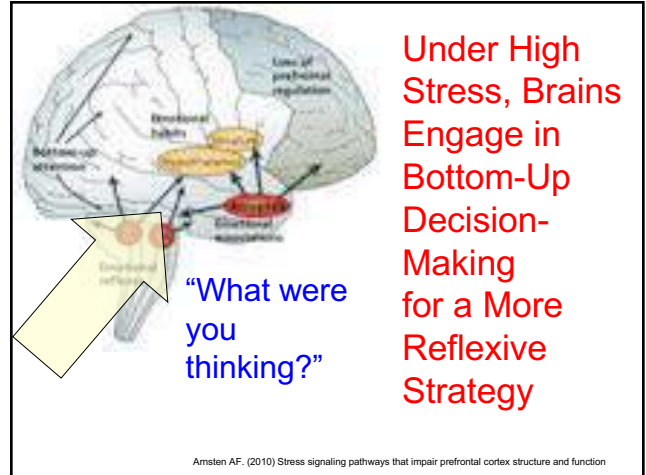
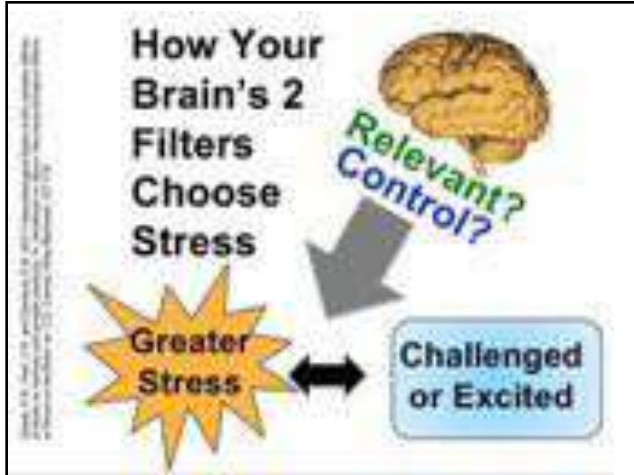
SPECT Scans courtesy Dr. Amen



Areas of Underactivity in this Brain Under Bad Stress

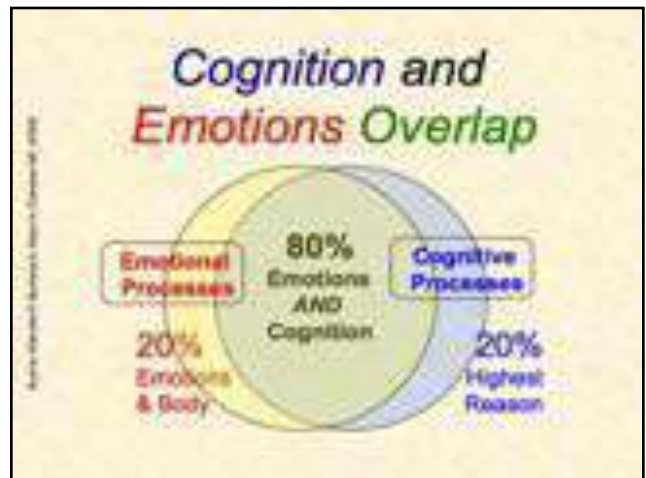
Chronic Stress Triggers

- 1) Experiencing neglect, abuse or trauma
- 2) Being told what to do, but not HOW to do it
- 3) Economic, social and health insecurity
- 4) Being labeled a “minority” or the “out group”
- 5) Staff that is unwilling to be culturally responsive with others different than themselves
- 6) Micro-aggressions: being judged by skin color, spoken language or neighborhood



We Can Always Blame Students and Point Fingers (but so can a 4 year old!)

Stop pointing fingers at struggling students. What they don't know is teachable. **You are it.**

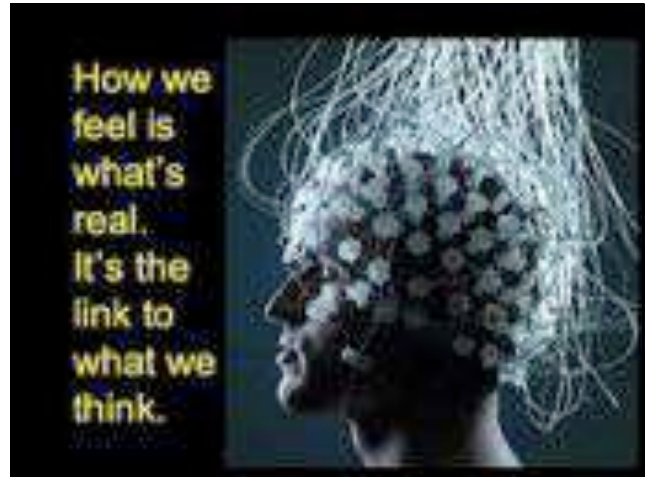


Emotional Positivity Means Making School Time a Great Experience

- Positive behaviors come from strong parenting and teaching
- Home and classroom examples include:



verbal affirmations, smiles, physical gestures, head nodding, positive comments, positive music, celebrations, use of name or pre-set celebration rituals



Emotions? You Bet! #3

- We have 5-6 hard-wired emotions
- Recognize trouble signs (e.g. distress)
- Students rarely manage emotions well
- Teaching emotional IQ daily is critical
- Avoid yelling, sarcasm, bullying
- Focus on positive emotion minutes
- Role model appropriate emotions

5 Critical Tools

- Access
- Change is hard
- Emotions
- **Uniqueness**
- Plasticity



Students share 99.5% of the same DNA, but we have unique brains because of unique life experiences and gene-expression



Can You Connect Brain Uniqueness to the Classroom?

Do the following students behave and perform academically any different than others?

- Those with autistic spectrum disorders?
- Those with abusive parents?
- Those who grow up in poverty?
- Those who use drugs?
- Those with stress disorders?
- Those with foster care experiences?
- Those with a family member in prison?

Researchers Who Have Analyzed Over 30,000 Brains Tell Us That "Different" or "Unhealthy" Brains Are the New "Normal"



Dr. Daniel Amen, MD, pioneer, bestselling author, has scanned over 30,000 brains says "5-10% of his already prescreened brains seem to be 'healthy.'"



Dr. Arthur Yogi, MD, pioneer, has published over 700 brain studies. He sees huge variation and says, "The idea that all 49 graders should be on the same page on the same day is nonsense."



Effects of Chronic Stress on Your Students

- AD/HD - like symptoms (poor memory, impulsivity & achronica)
- Often Argumentative or angry
- May be apathetic and seemingly disinterested in achievement

Traumatic Stress

Often Fosters Aberrant Social and Emotional Behaviors

Chronic Stress

Often Fosters Hypervigilance or Learned Helplessness (Apathy)

Manage Your Brain Better

- Take Action (do something!)
- Write it Down for Later
- 1 Week Rule
- Redirect Your Attention
- Burn off Energy (play/exercise)
- Reframe the Experience
- Mindfulness / Meditation
- Talk it over w/ a Friend / Hugs

Uniqueness? You Bet!

#4

- We share over 99% of our DNA
- Maybe 10% of all brains are healthy
- 3 ways our brain becomes unique
- Environments can influence genes
- Get to know students much better
- Variety & differentiation matter a lot!
- Appreciate diversity and uniqueness

FREE
Research-
Based and
Highly
Practical
Monthly
Newsletter
You Can
Use ASAP!



Text my name...
JENSEN
to
44222

5 Critical Tools

- Access
- Change is hard
- Emotions
- Uniqueness
- **Plasticity**



Old (outdated) Paradigm

“Our brains stay mostly the same. You can predict kids based on their past.”

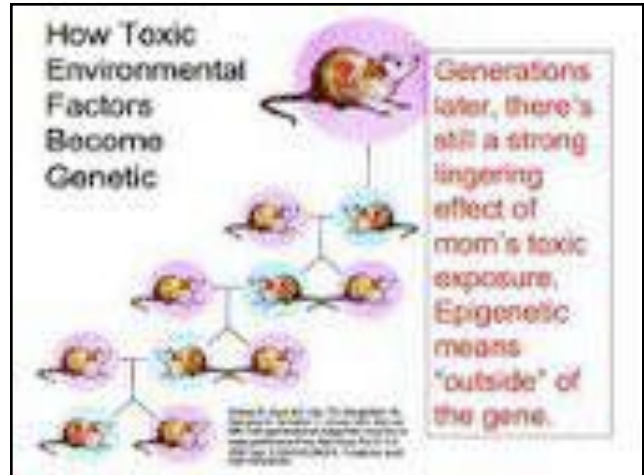
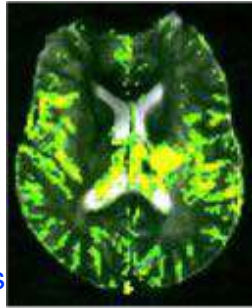


A New View of the Human Brain

➤ The human brain is dynamic, not fixed.

The brain, at every age, is still:

- making connections
- adding new neurons
- pruning excess neurons
- changing its chemistry
- **re-organizing itself every single day!**



DNA is Not Destiny! Here are 5 Ways Your DNA is Modified by Life Experiences

✓ Chromatin Remodelers

These proteins enable other proteins to access DNA to turn genes on or off

✓ Methylation

Methyl groups act as molecular signage to turn on or off gene expression

✓ Non-Coding RNA

Some RNA sequences interact with histone and methyl groups to influence DNA

✓ Histone Modification

Modifications to histone proteins can make genes more or less accessible to change, affecting gene transcription

✓ Transcription Factors

These proteins bind quickly to affect DNA expression



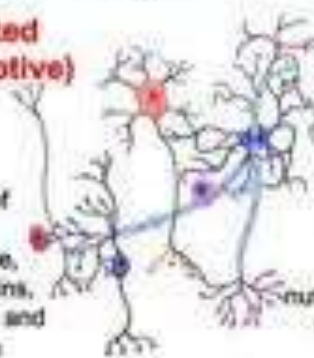
Neuroplasticity = Brain Changes

Unassisted (maladaptive)

Trauma, brain disorders, addictions of all types, aging, abuse, neglect, toxins, malnutrition and medications

Intentional (adaptive)

Cognitive training, pharmacology, skills training, non-invasive stimulation, nutrition, exercise, enrichment and neurofeedback



Pioneers of Neuroplasticity



Dr. Michael Merzenich
Creator of Fost Experiments

Dr. Paul Bach-y-Rita
Pioneer in Sensory Substitution

Dr. Paula Tallal
Creator of Fast ForWord

Myth: IQ is Fixed

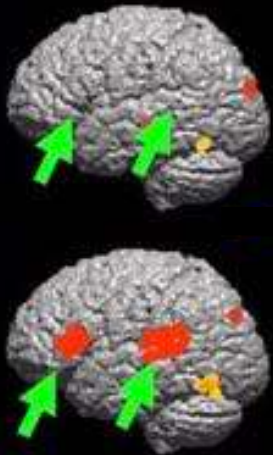


Reality: IQ Can Change!

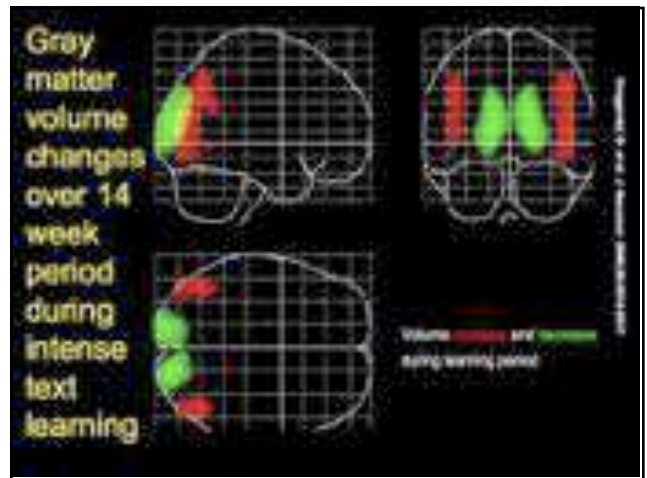
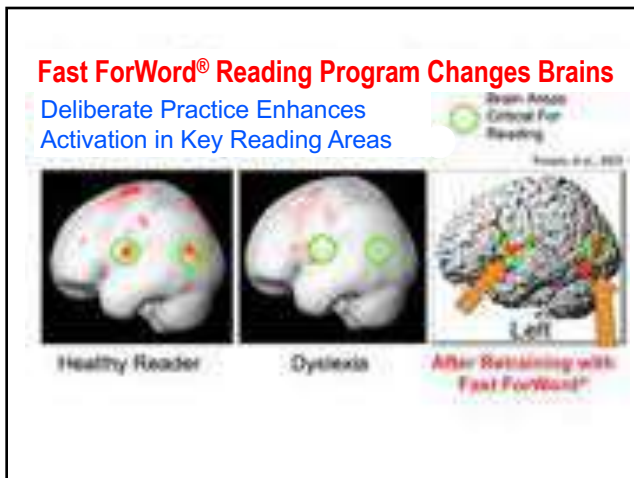
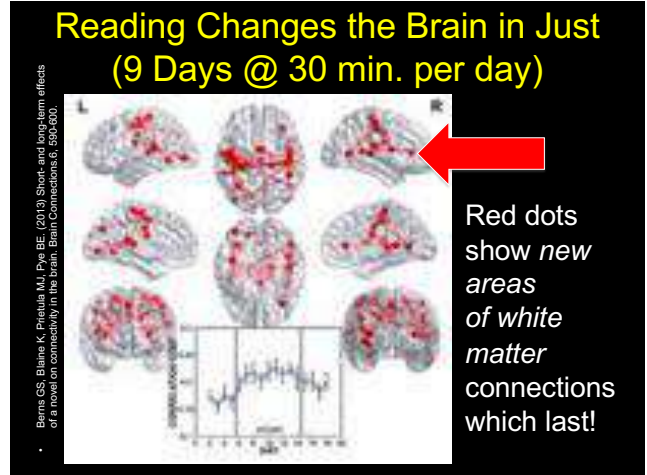
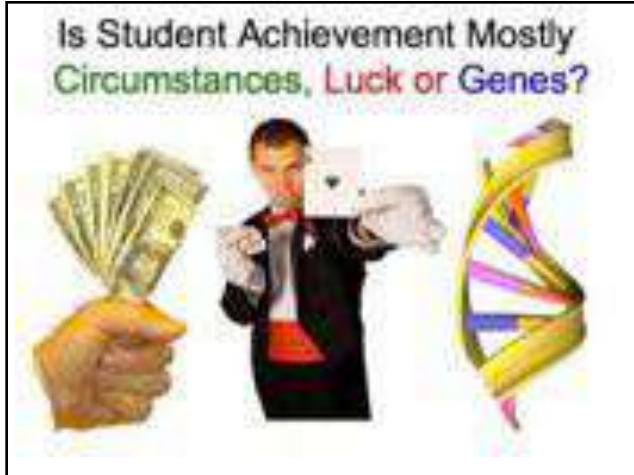
Can an Enriching Change in Everyday Environment Raise IQ in Low SES Students?

+19.5 IQ in Best cases	65 low SES children were adopted between 4 and 6 years of age, all with an IQ <86 before adoption. After eight years, the average overall IQ gain was 13.9 points, and the gain was as high as 19.5 points in some children. <small>Doyle et al. (1995)</small>
+13.9 overall	
Baseline (<86 IQ)	

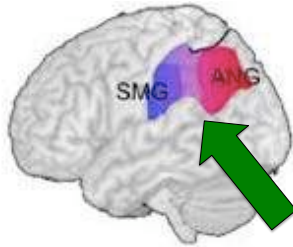
Student on (R) had reading issues diagnosed in kindergarten (top). Note differences in brain activity from intensive reading skill building in 1st grade (bottom).



Simos, et al., 2002

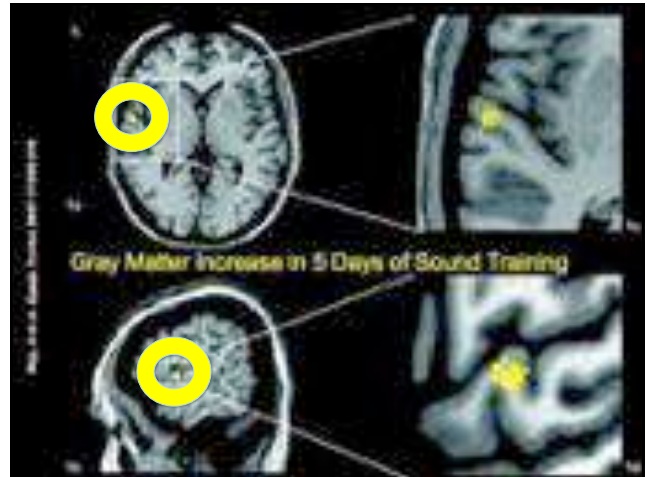


Evidence of Anatomical Traces of Vocabulary Acquisition in the Typical Adolescent Brain



Vocabulary instruction and test scores are correlated with increased gray matter density

Lee H, Devlin JT, Shakeshaft C, Stewart LH, Brennan A, Glensman J, Pitcher K, Crinion J, Mechelli A, Frackowiak RS, Green DW, Price CJ. (2007) Anatomical traces of vocabulary acquisition in the adolescent brain. J Neurosci. 27,1184-9.




WHY the Big Changes?

- ❖ The human brain is designed to adapt
- ❖ Understand what drives the change
- ❖ When the change “factors” are in place, the brain will change every time

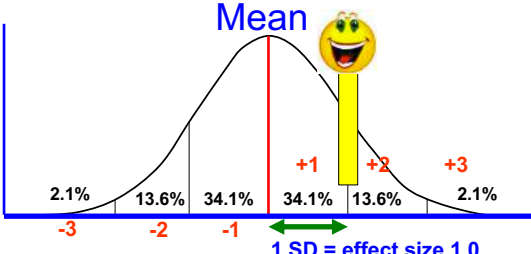


Does Strong Teaching Matter?

"If a student had a good teacher (one standard deviation of quality above the mean AYP) as opposed to an average teacher for five years in a row, the increased learning would be sufficient to close entirely the average gap between a typical low-income student and a higher-income student (i.e. one not on free or reduced lunch)."



What Would it Take for You to Close the Equity Gap at School?



The mean is the average; an effect size of 1.0 = 34 point percentile change in scores

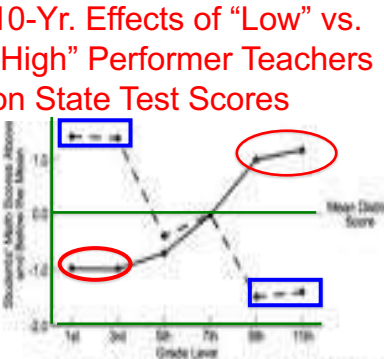
Which Group of Kids Are the "Low Kids"?



Two Groups of Students in 1st- 3rd Grade, Each Group Over 1 Full SD From the Mean

Ferguson, R.F. (1998). Evidence that school reforming did backslide into test score gaps.

10-Yr. Effects of "Low" vs. "High" Performer Teachers on State Test Scores

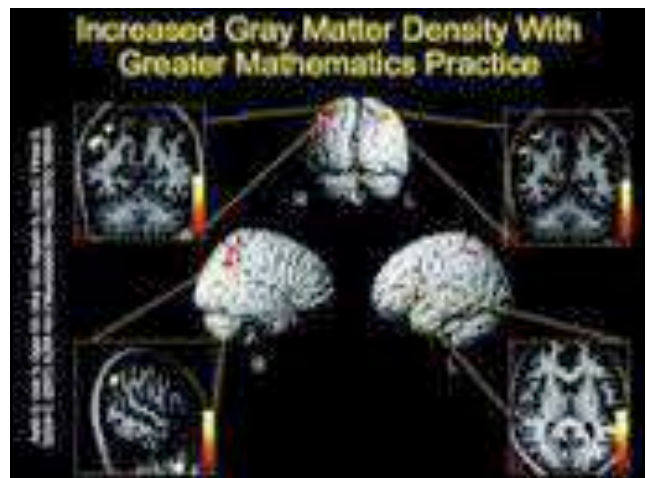


Students with Strong Teachers Rose Two Full Standard Deviations, Erasing ALL the Academic Effects of Poverty!

Ferguson, R (1998) "Can Schools Narrow the Test Score Gap?" In, The Black-White Test Score Gap (Jencks & Phillips, Eds.), pgs. 318-374.



- ## How Teachers & Students Grow: The Use of “Deliberate Practice”
- ✓ **Define** measurable, specific goals for the change to be made: *“I want to see 75% of hands raised.”*
 - ✓ **Intensify** the focus on just that one task and do it until there is clear progress towards mastery
 - ✓ **Respond** to feedback without shame, guilt or judgment; it is simply information for growth
 - ✓ **Overlearning** means go beyond comfort to mastery; *practicing the change is key* to “lock” it in
 - ✓ **Change** your mental model; the teacher can now describe the altered way of thinking
- https://deansforimpact.org/wp-content/uploads/2016/12/Practice-with-Purpose_FOR-PRINT_113016.pdf



FREE Offer for You



Try out Fast ForWord with *your* students, but only if you qualify:

www.scilearn.com/free-trial

Key Brain-Changing Factors to Use



- Buy-in/Relevance
- Meaningful Goals/Evidence of Learning
- Interdependency
- Quick Initial Learning Curve
- Increasing Challenge & Complexity
- Actionable & Timely Feedback
- Go 10-14 min. day/3-5X/wk. for 8-12 wks.

DNA is NOT Your Destiny!

Sometimes the apple DOES fall far from the tree!

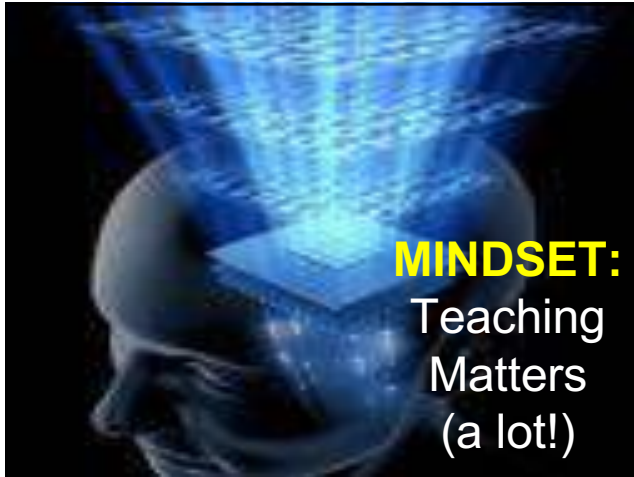


How Much do Teachers Matter?



Recent research suggests approximately **50-60%** of the variation in the performance of students comes from their school experience with the remaining being due to genes, student background, homelife or random influences.

Cuttance, P. (1998) International handbook of educational change, Quality assurance reviews as a catalyst for school improvement in Australia, eds Hargreaves A, Lieberman A, Fullan M, Hopkins D (Kluwer, Dordrecht, Netherlands), Part 2, pp 1135-1162. Text passage from pp. 1158-1159.



Alonzo Clemons suffered brain damage as a result of a fall when he was a child. *In school, he could not read, write or do math. His IQ was 40-50. He was unable to tie his shoes or eat on his own.*



What goals or expectations should a teacher have set for him? What would you have predicted for him?

Plasticity? You Bet!

#5

- Plasticity is an inherent property
- **All brains can change...if you know how**
- Learn the rules that guide brain change
- **Raise your expectation of your students**
- Use deliberate practice for skill-building
- **Share relentless optimism in class**
- Every single student can learn

5 Critical Tools for "Brain Literacy"

- **Access**
- **Change**
- **Emotions**
- **Uniqueness**
- **Plasticity**





www.jensenlearning.com 2018 Events

- ✓ **Teaching with the Brain in Mind: How to Reach and Succeed with Every Student:** June 6-9
- ✓ **Game Changers: Instructional Leadership that Works:** June 18-20
- ✓ **Engaging & Teaching with Poverty (and Equity) in Mind:** June 11 – 13, June 14 -16, July 16 – 18, July 19-21

Retrieval Practice

- **Access:** _____
- **Change:** _____
- **Emotions:** _____
- **Uniqueness:** _____
- **Plasticity:** _____

Decision +
Action Step
= Results



Predict What Will Be Different in Your Daily Work.
NEXT STEP? _____

“What is my “Plan B”?”

GOAL: _____

When I default, I will recover and do this:
