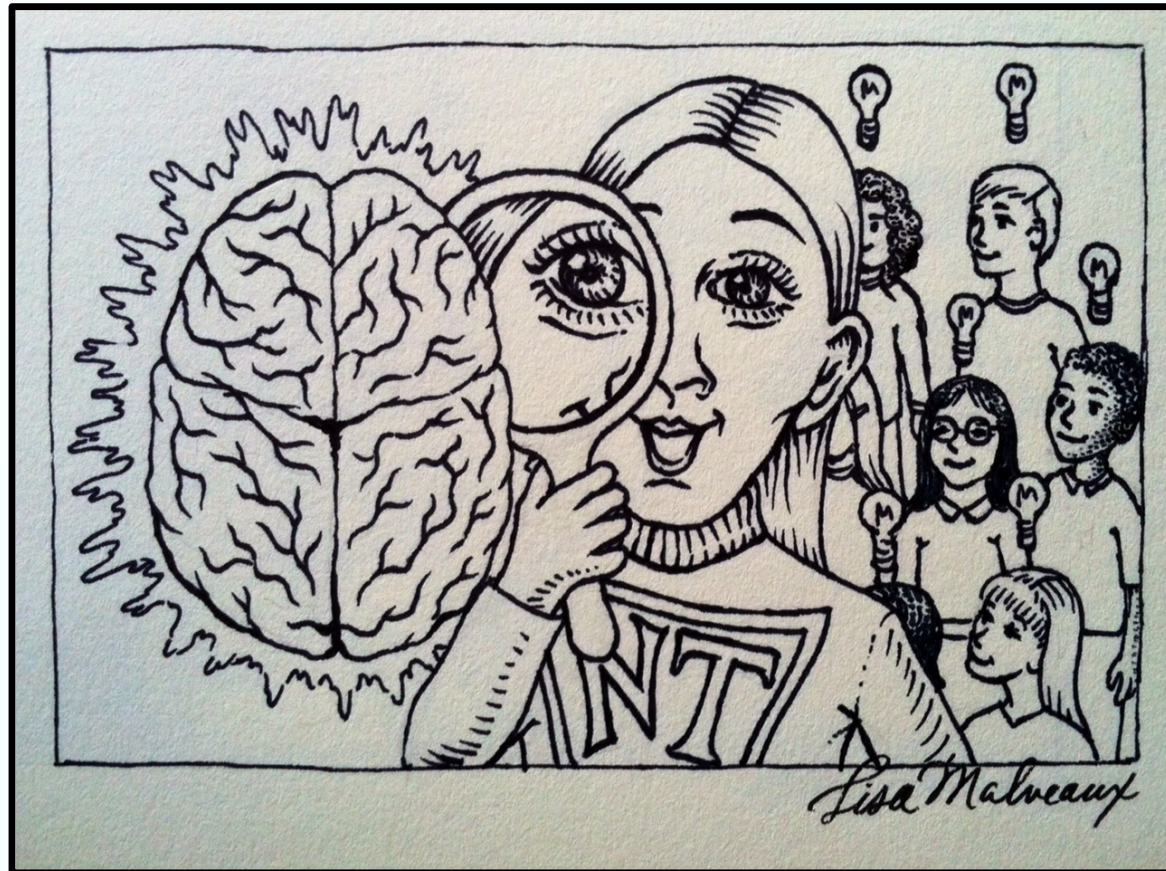


Learning and Your Child's Brain: What The Research Suggests



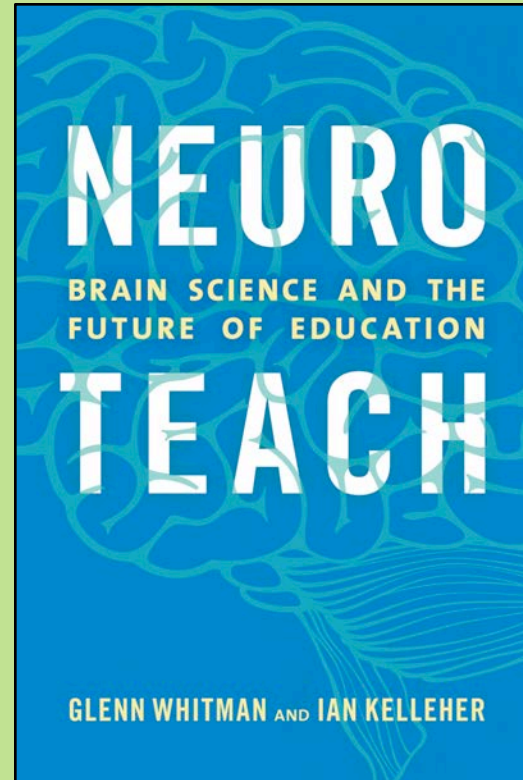
@gwhitmanctl



Glenn Whitman
History Teacher, Advisor
Girl's Soccer Coach
Co-author of *Neuroteach*

Director, The Center for
Transformative Teaching and
Learning
gwhitman@saes.org

[@gwhitmanctl](https://twitter.com/gwhitmanctl)
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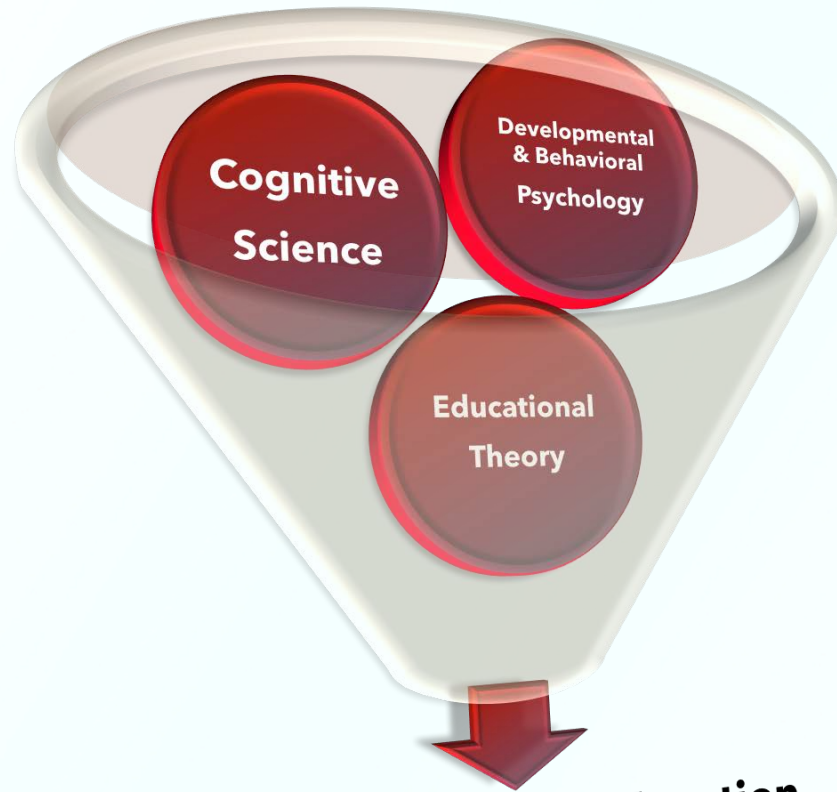


100%

30%

1%

What is the next frontier for
teacher training, to taking great
teachers (and their schools)
and making them exceptional?



**Mind, Brain, and Education
Science**

“Teaching without an awareness of how the brain learns is like designing a glove with no sense of what a hand looks like. If classrooms are to be places of learning, then the brain--the organ of learning--must be understood and accommodated.”

-Hart, *Human Brain and Human Learning*



ST. ANDREW'S

EPISCOPAL SCHOOL

**TEACHFOR
AMERICA**

2009 TFA
(DC)
Partnership

2007
Training
in AKOM
begins

Spring **2011**
Launch of
CTTL &
PD/Research
Association
with JHU
School of Ed.
Faculty

2012



2015

2013
CTTL/RSI
Partnership
led by HGSE
Researchers
& Faculty

2015
EE Ford
Grant of
\$250,000

2016
Intl' Mind,
Brain, and
Education
Society
Mission
Award
winner

2017
Academ
y launch

2017-2018
Research
Engagemen
t
Framework
launch



JOHNS HOPKINS
SCIENCE of LEARNING
INSTITUTE



RESEARCH
SCHOOLS
INTERNATIONAL



evidencebased.
education

Brain Focused

Brain Targeted

Science of Learning

Brain Friendly

Brain Based

Mind, Brain, & Education

Educational Neuroscience

Brain Enhanced

Brain Directed

NEUROMYTHOLOGY

& NEUROMARKETING

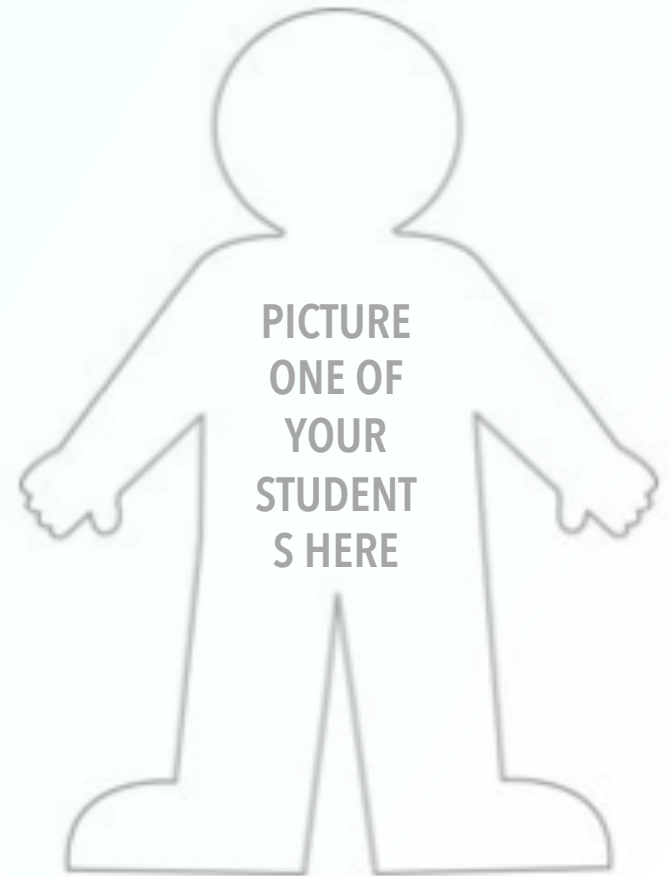
"The Seductive Allure of Neuroscience Explanations," *Journal of Cognitive Neuroscience*, 2008

This is our
'secret recipe,'

**But how do you move a faculty
from 30% research informed to
100% research informed?**

30 → 100

Until teachers and school leaders develop knowledge, skills and mindsets in MBE science, each of their students will not meet their full potential

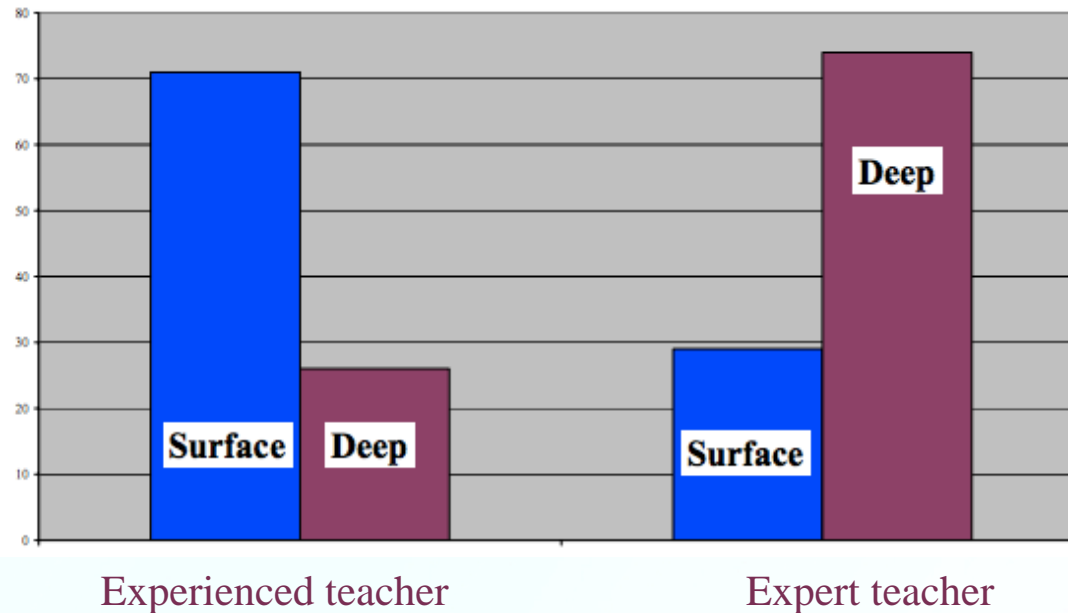


Experience:

1987, 15 years
today, 5 years
future?

Experience or Expert?

Percentage of Student Work Classified as Surface or Deep



How do we create expert teachers?

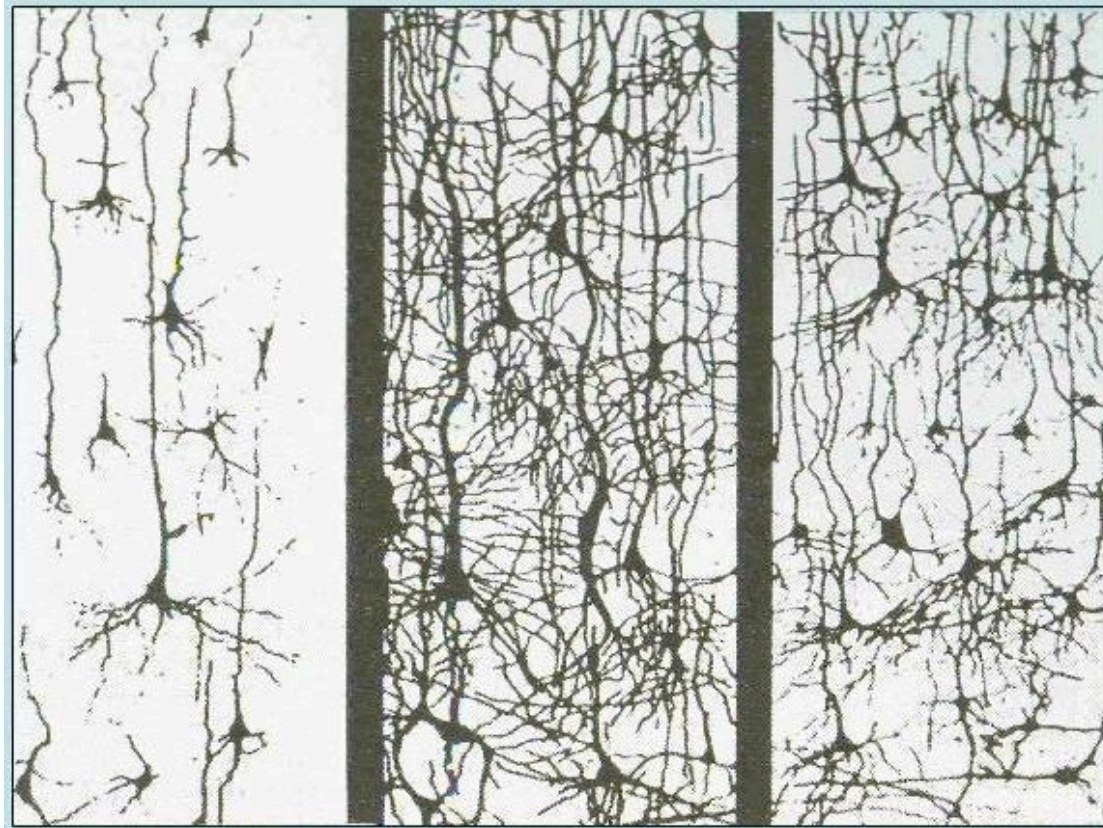
A Mindset for the Future of Education

Teachers and School Leaders are Brain Changers & Researchers

Plasticity: "The lifelong ability of the brain to change its organization as a result of experiences."



What Do You See, Think & Wonder?

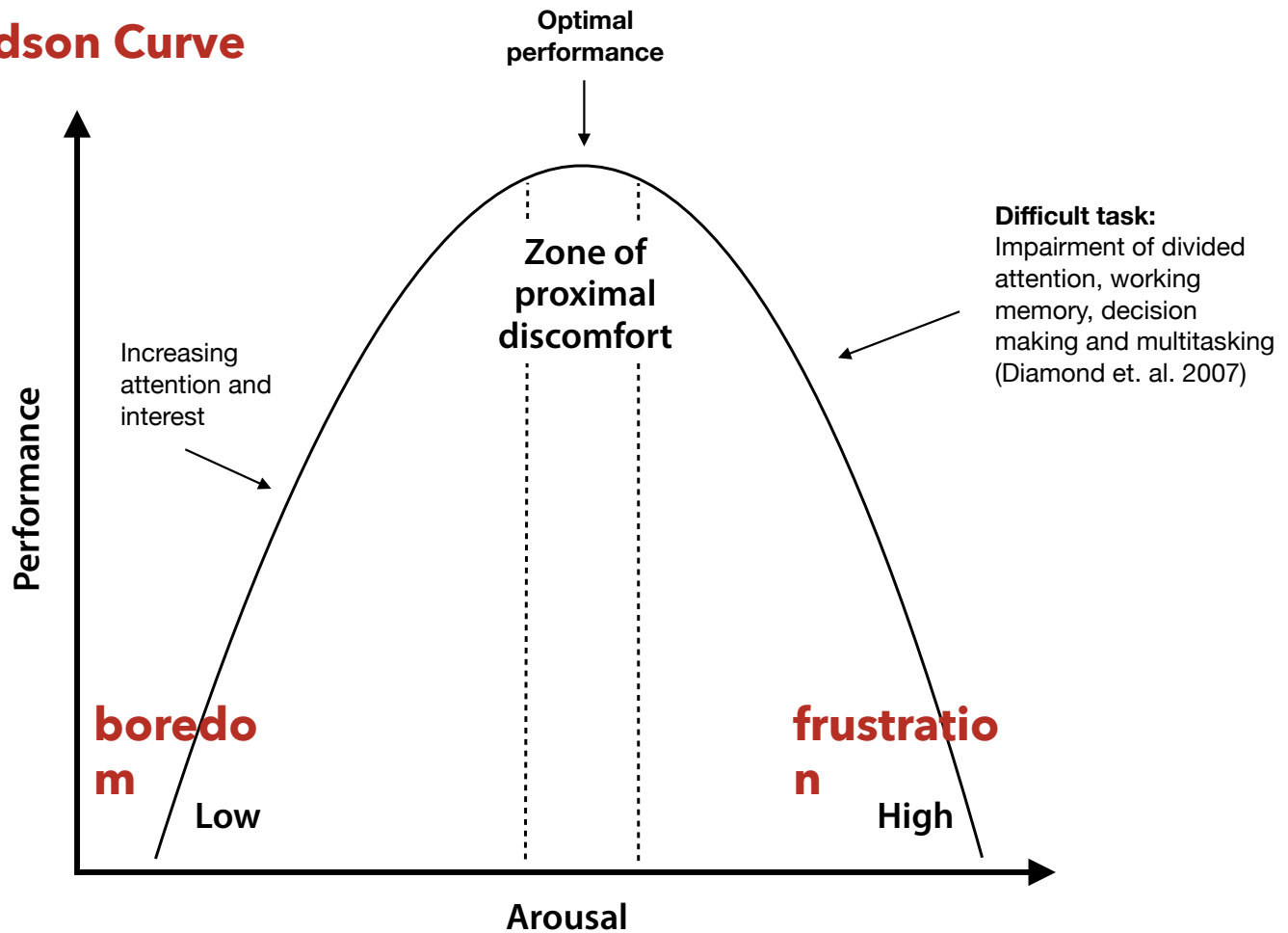


At birth

6 years old

14 years old
old

The Yerkes Dodson Curve



More than Growth Mindset

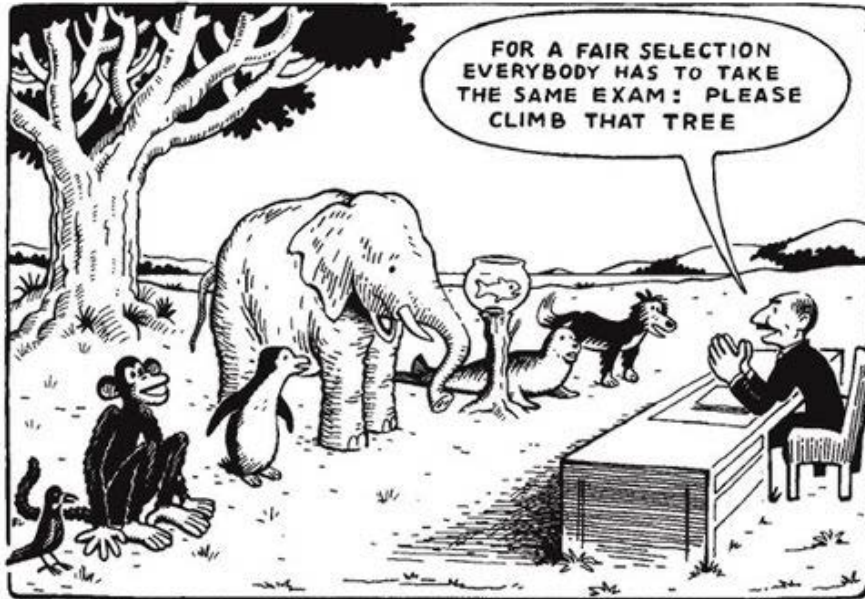
See www.mindsetscholarsnetwork.org

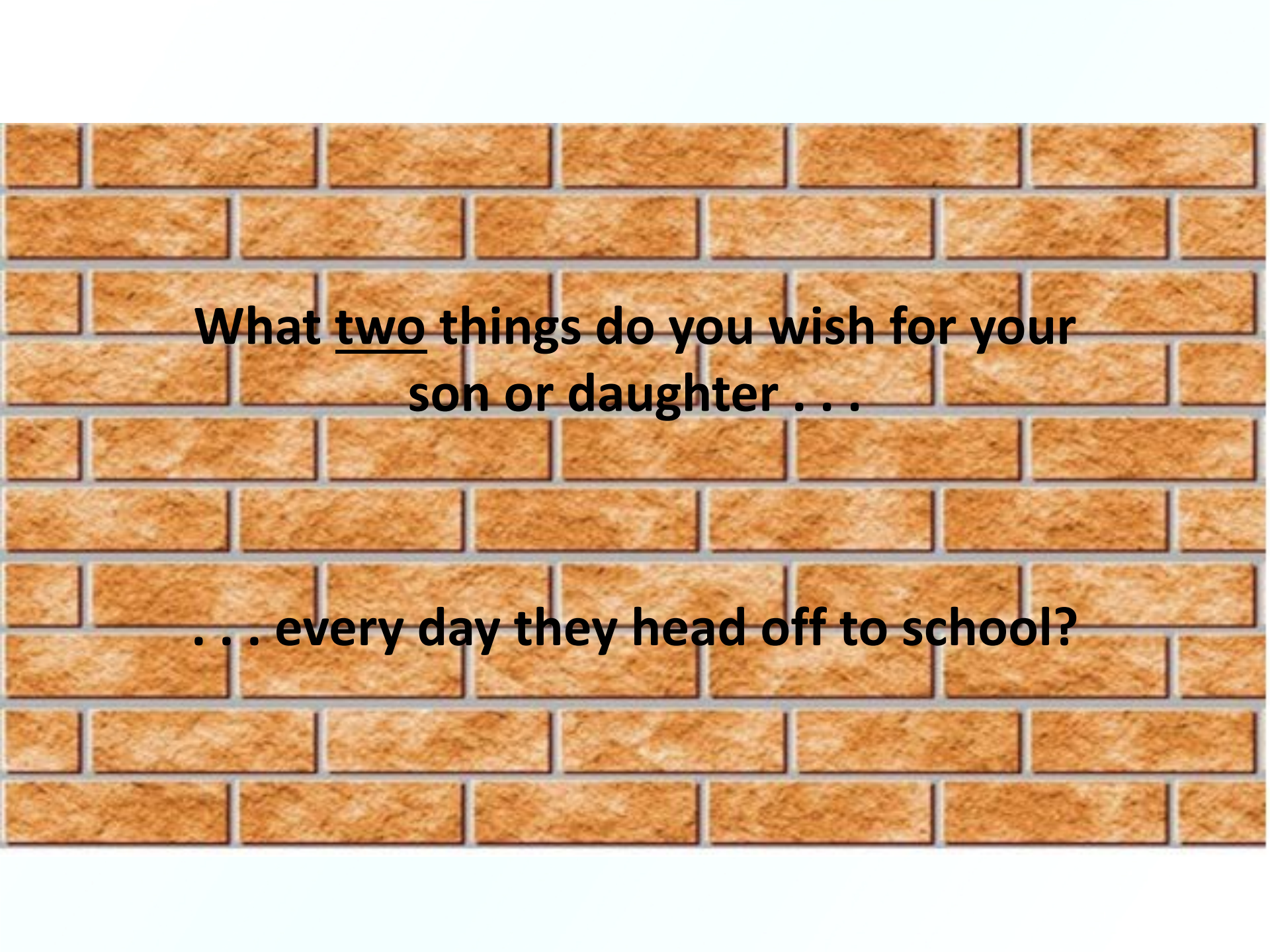
1. Growth mindsets
2. Belonging mindsets
3. Purpose and relevance mindset





Multiple modalities



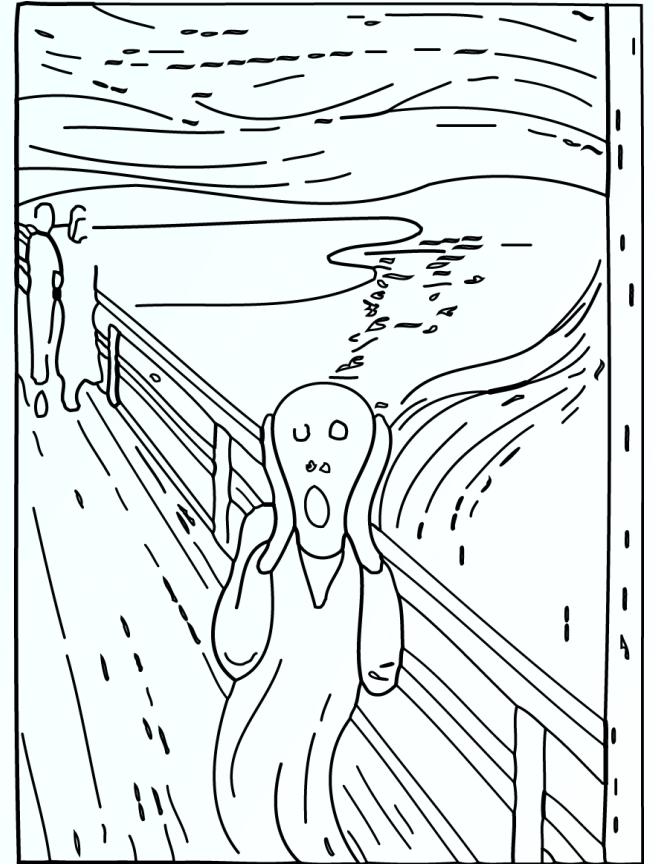


**What two things do you wish for your
son or daughter . . .**

. . . every day they head off to school?

Learning & Emotion

“Downshifting’ is a metaphor often used to describe how negative emotions cause us to process in our emotional center and lose focus on higher order thinking.”



Great Teachers Know the Amygdala is the Gateway to Learning

sensory intakes

- ✦ The *pull* a student feels is powered by dopamine
- ✦ Dopamine is the source of intrinsic satisfaction
- ✦ When dopamine boosts are a regular part of teaching, it helps train student's brains to **go down the thinking brain path - even when stress is present**

thinking,
reflective brain

- ✦ **Effort really matters**
Students who recognize that effort influences their success apply greater effort - this is supported by research

Teaching in a way that enhances each student's ability to go down the "thinking brain" path doesn't lower the bar, it lowers the barriers



amygdala

Emotional switching station
Which path will your sensory intakes go down?

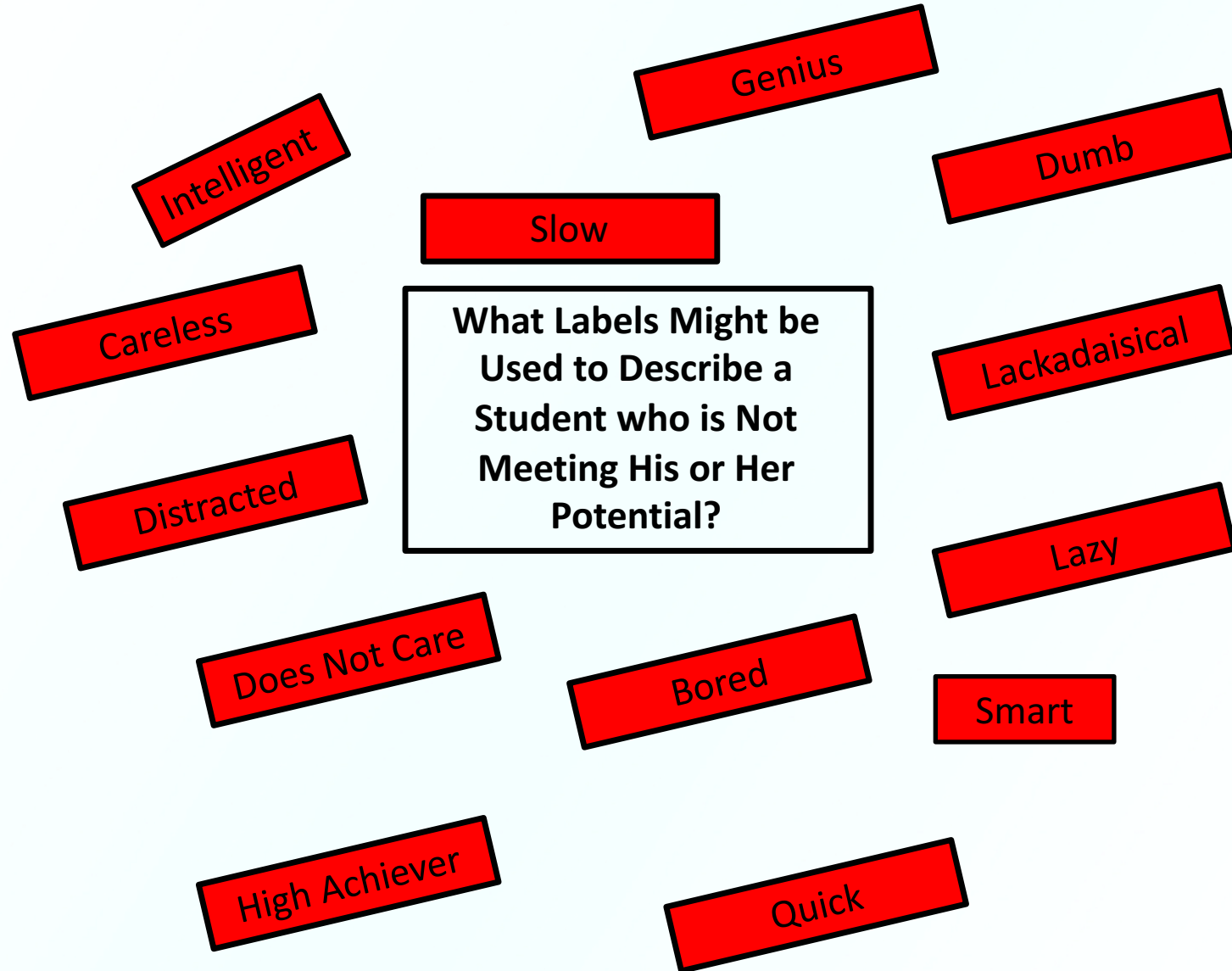


- ✦ How can we reduce unnecessary stress, and thus get more thinking and more learning?

reactive brain
fight, flight, freeze
not much learning taking place



Avoiding Labels



How is Your Child's School Using Research to Consider . . .

- School start times
- Good homework vs. bad homework
- Cognitive load and transitions during the school day
- The school's daily schedule
- Instructional/pedagogical practices
- Differentiated assessment
- Feedback to students
- Arts integration
- Quality project based learning
- Technology as a deeper learning tool
- STEM, STEAM, STREAM and Design Thinking

Research



Practice

Ready-Made Research

- Daniel Willingham
- Rob Coe
- Angela Duckworth
- Carol Dweck
- Kurt Fischer
- Mariale Hardiman
- John Hattie
- Paul Howard-Jones
- Eric Kandel
- Mark McDaniel
- Denise Pope
- Michael Posner
- Vanessa Rodriguez
- Todd Rose
- Jack Shonkoff
- Mary Ellen Immordino-Yang
- Judy Willis

Original/University Supported Research

- How do peer relationships impact stress and student achievement?
- “How does happiness shape student motivation and academic achievement?”
- How does Mind, Brain, and Education Science currently inform teacher, student, and parent practices at St. Andrew’s?
- How can increased training in MBE improve teaching, professional satisfaction, and student achievement?

Teacher “Classroom-Based Research”

- Assessment and the Learning Brain
- Attention and engagement
- Arts Integration
- Brain Plasticity and Growth
- Design Thinking
- Foreign Language (2nd Language) Learning
- Homework
- Intrinsic Motivation (Choice)
- Memory and Recall
- Metacognition
- Novelty and Choice
- Stress and Learning
- Technology (A Student’s 2nd Brain)

Research suggests
we **SHOULD**
do this



Research is unclear
or there is no
research on this



Research suggests
we should **AVOID**
doing this



Why is the climb hard?

& WHY AREN'T MORE SCHOOLS IN THE
WASHINGTON, DC AREA AND THEIR
TEACHERS TAKING IT?

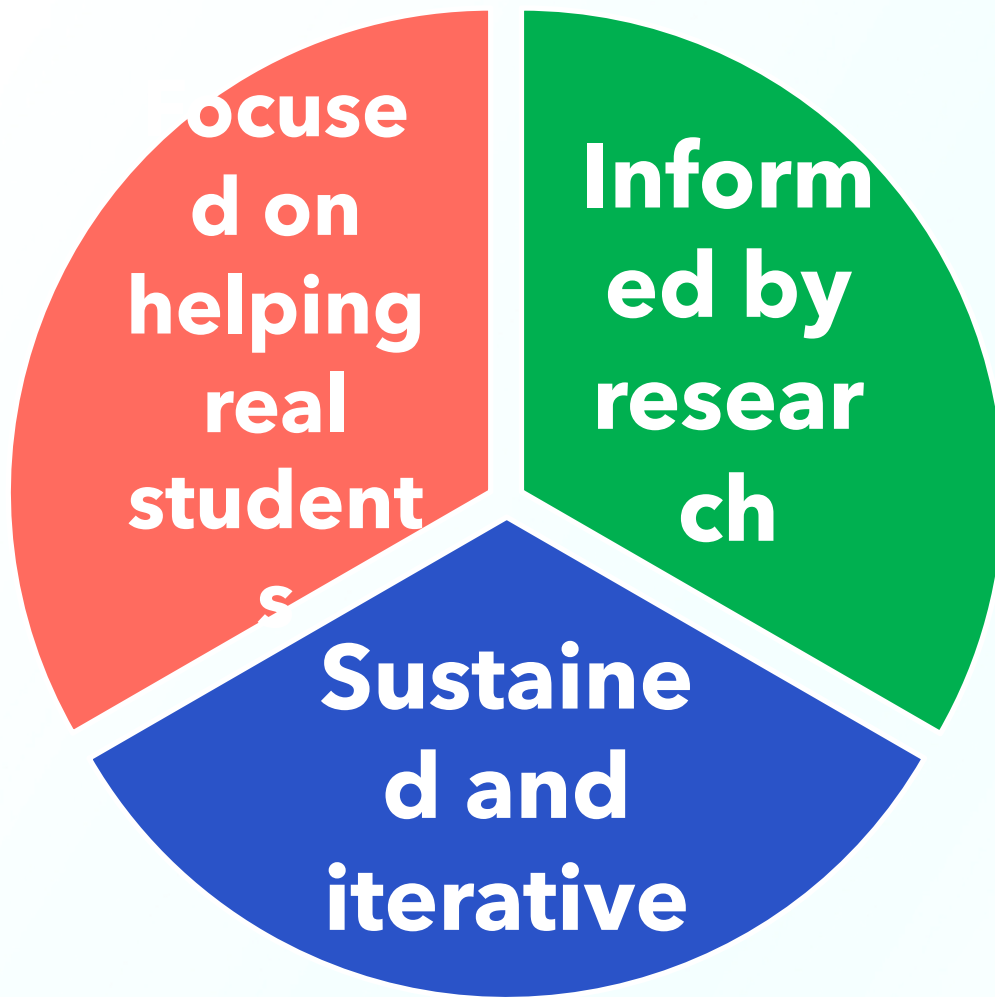
Washington, DC Region Parents Are Some of the Problem

What if your son or daughter came home from school and informed you that his or her teacher has decided to end giving homework (be honest)?

"Lower the Barriers, Not the Bar."



Judy Willis: "The Current Impact of Neuroscience" in *Mind, Brain, and Education*

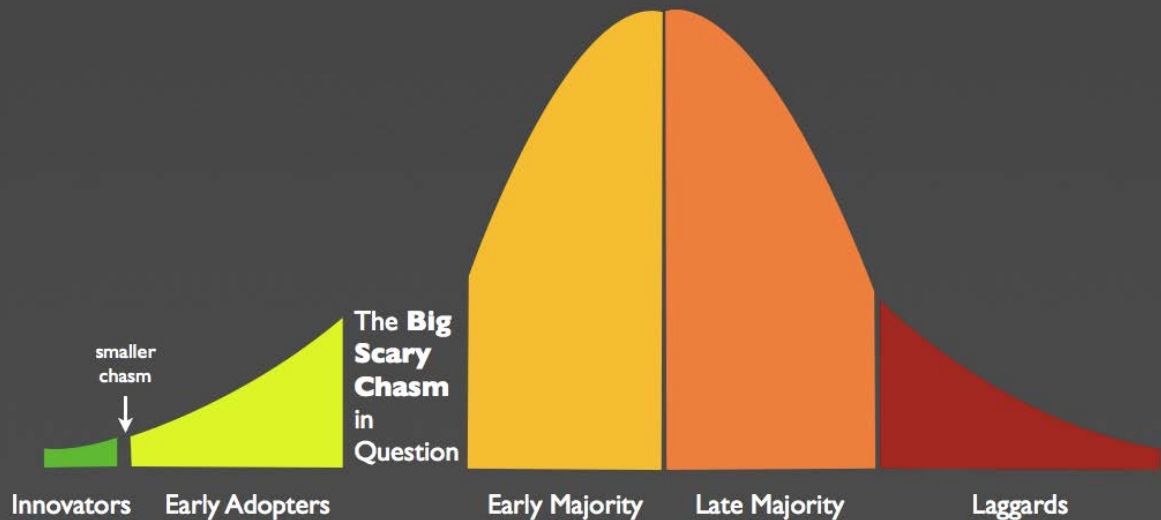


WHAT MAKES GREAT PD?

How does your PD measure up?

Crossing the Chasm

Geoffrey Moore - 1991



Where are you currently and where do you want to be in the future as a Mind, Brain, and Education Science research-informed teacher or leader?

Stay Connected with the CTTL

Creating Innovators through Design Thinking
Workshop, June 19-21, 2017

Teaching All Kinds of Minds: The Principles of and
Strategies of Neuroeducation, June 19-21, 2017

National Diversity Practitioners Institute, June 26-
28, 2017

The Science of Teaching and School Leadership
Academy, July 23-27, 2017

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