

# Mindsets:

Helping Students (and Educators)  
Fulfill Their Potential

ISACS

Columbus, OH

November 6, 2009

Why do so many students shy  
away from challenges...



...and crumble in the face of setbacks?







Why do very able students stop working in school when the material becomes difficult?



Why are coaches saying: Where are the teachable athletes?



# Why are companies complaining about young employees?



Have we created a generation of  
students who don't know how to  
learn?

You don't see unmotivated  
babies!









How do we make sure our  
students remain learners?

# Mindsets Matter

**Fixed Mindset:** Intelligence is a fixed trait

**Growth Mindset:** Intelligence is a malleable quality; a potential that can be developed

...Talent is a starting point

# Mindsets Matter

- Which mindset is correct?
- Does a person hold the same mindset in different life arenas?
- Can mindsets be changed?

# How Do Mindsets Work?

The Mindset Rules

# Mindset Rule #1

Fixed Mindset:

LOOK SMART AT ALL COSTS

Growth Mindset:

LEARN, LEARN, LEARN

# Looking Smart vs. Learning

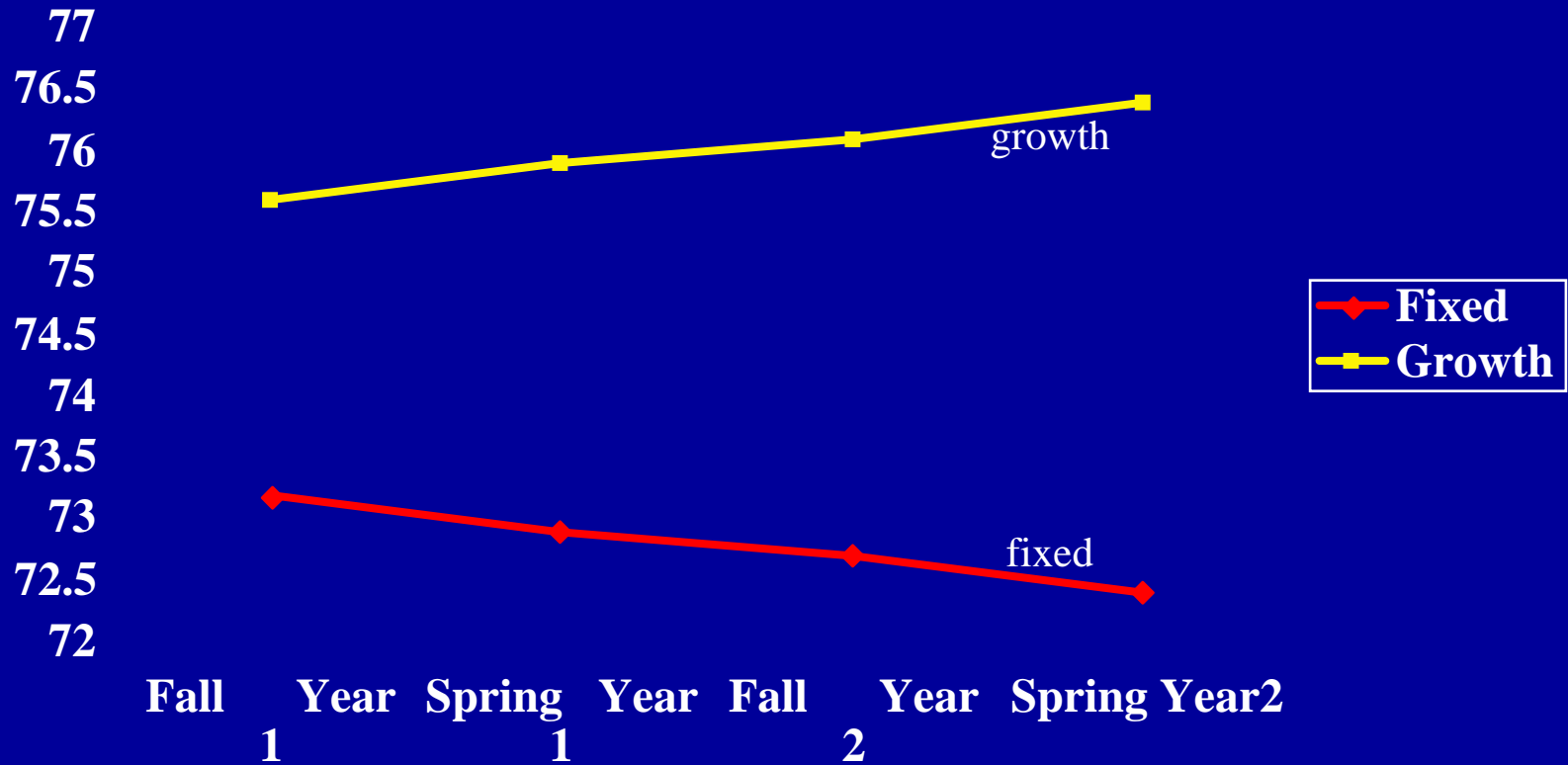
## Fixed Mindset Student:

“The main thing I want when I do my school work is to show how good I am at it.”

## Growth Mindset Student:

“It’s much more important for me to learn things in my classes than it is to get the best grades.”

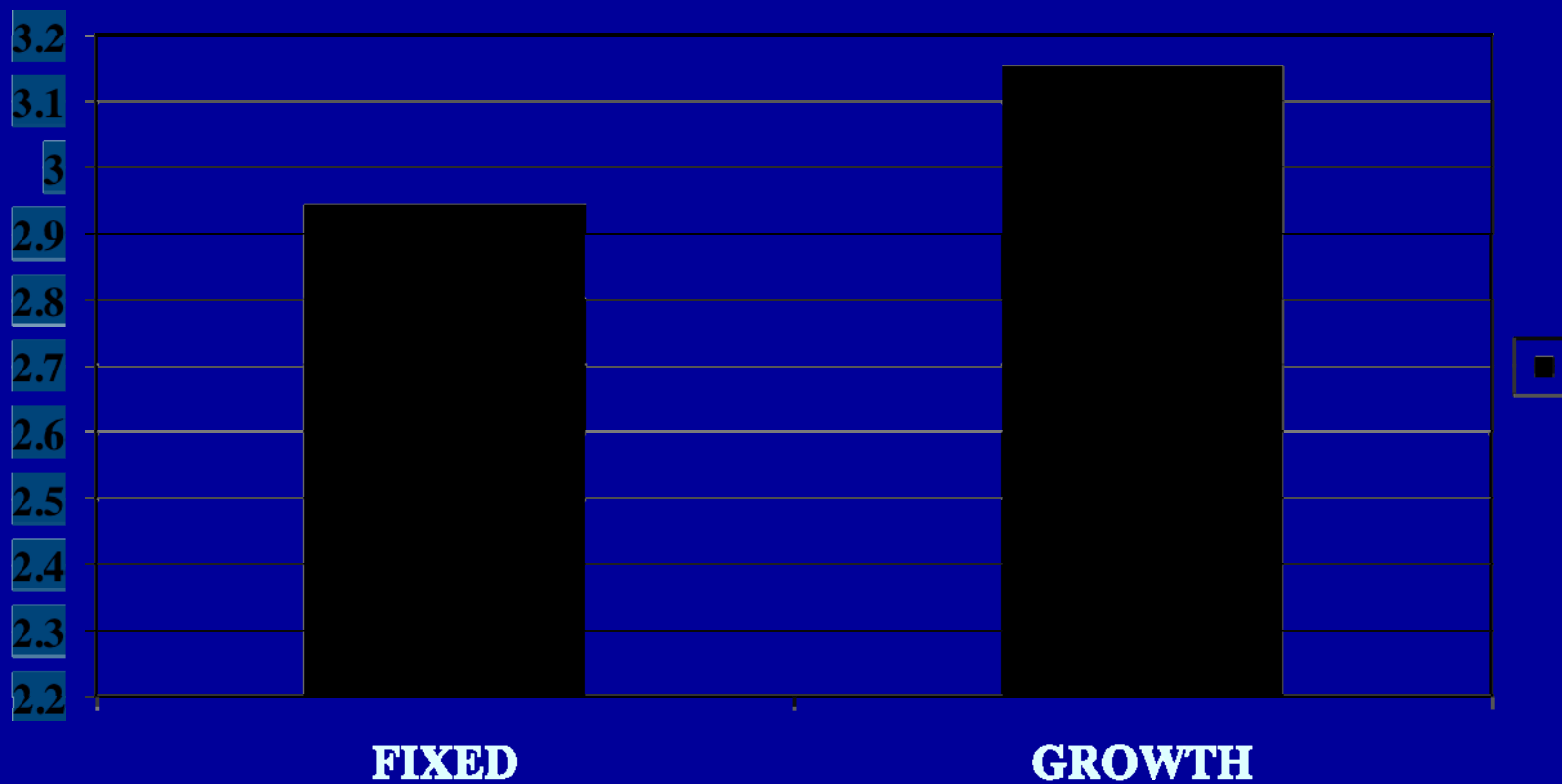
# Math Achievement



# Pre-Med Students



# Organic Chemistry Grades



# Learners and Non-Learners in Action

How do mindsets control our attention?



Mangels, Butterfield, Lamb, Good & Dweck, 2006



# REFLECTION

Think about a time you were in a fixed mindset and chose to be a non-learner.

What could you do differently in the future?

# Mindset Rule #2

## Fixed Mindset:

IT SHOULD COME NATURALLY

“To tell the truth, when I work hard at my school work it makes me feel like I’m not very smart.”

## Growth Mindset:

WORK HARD, EFFORT IS KEY

“The harder you work at something, the better you’ll be at it.”

Trying is  
the first step  
towards failure.

MATT  
GROENING



# Mindset Rule #2

## Fixed Mindset:

IT SHOULD COME NATURALLY

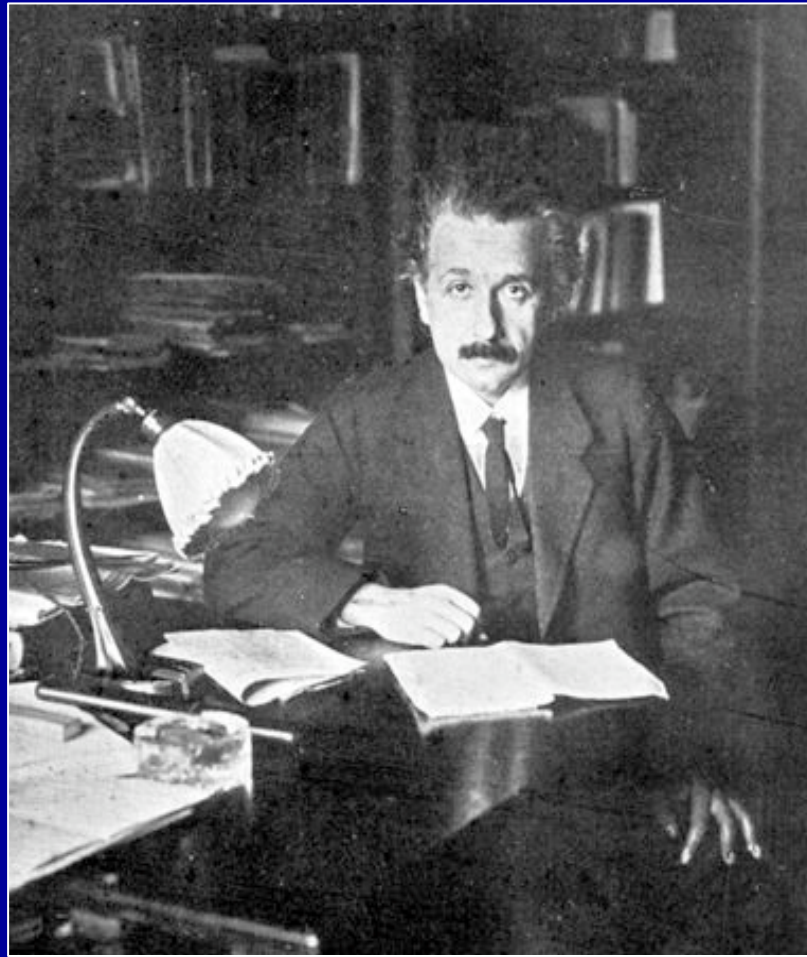
“To tell the truth, when I work hard at my school work it makes me feel like I’m not very smart.”

## Growth Mindset:

WORK HARD, EFFORT IS KEY

“The harder you work at something, the better you’ll be at it.”

# Do Geniuses Work-- Or Does it Just Come Naturally?



# Mindset Rule #3

## IN THE FACE OF SETBACKS...

Fixed Mindset:

HIDE MISTAKES

CONCEAL DEFICIENCIES

Growth Mindset:

CAPITALIZE ON MISTAKES

CONFRONT DEFICIENCIES

# Deficiency Equals...



Born  
Losers



# After Setback

## **Fixed Mindset:**

“I’d spend less time on this subject from now on.”

“I would try not to take this subject ever again.”

“I would try to cheat on the next test.”

## **Growth Mindset:**

“I would work harder in this class from now on.”

“I would spend more time studying for the tests.”

# Fixed Mindset provides no recipe for recovering from failures:

- Giving up, retreating to comfort zone



- Blaming others



- Trying to feel superior



# Where Do Mindsets Come From?

Our language tells children what we  
believe and what we value

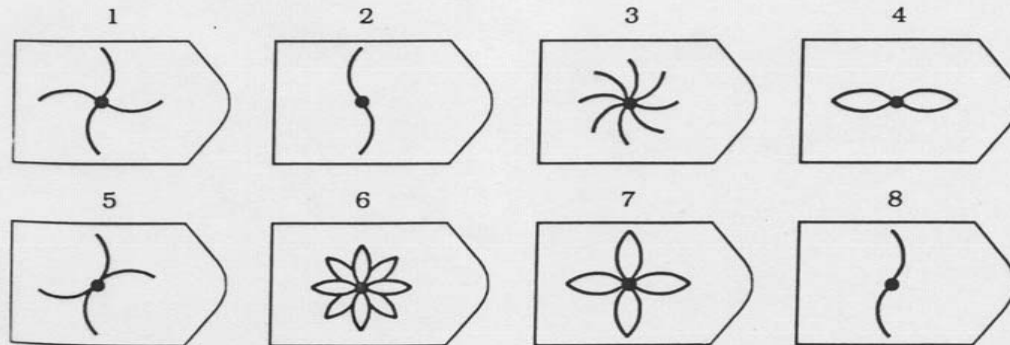
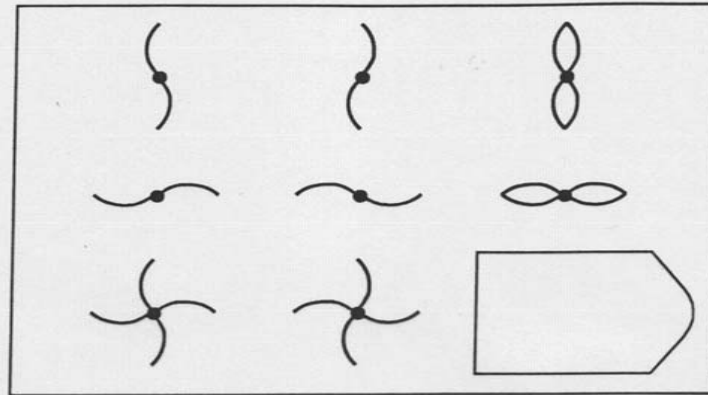
Peace  
Love  
and  
Understanding



And they  
will  
bloom

# Non-Verbal IQ Test

Standard Progressive Matrices (Raven, 1976)



# Messages About What We Value

- **Intelligence Praise:** “Wow, that’s a really good score. You must be smart at this.”
- **Effort (Process) Praise:** “Wow, that’s a really good score. You must have tried really hard.”

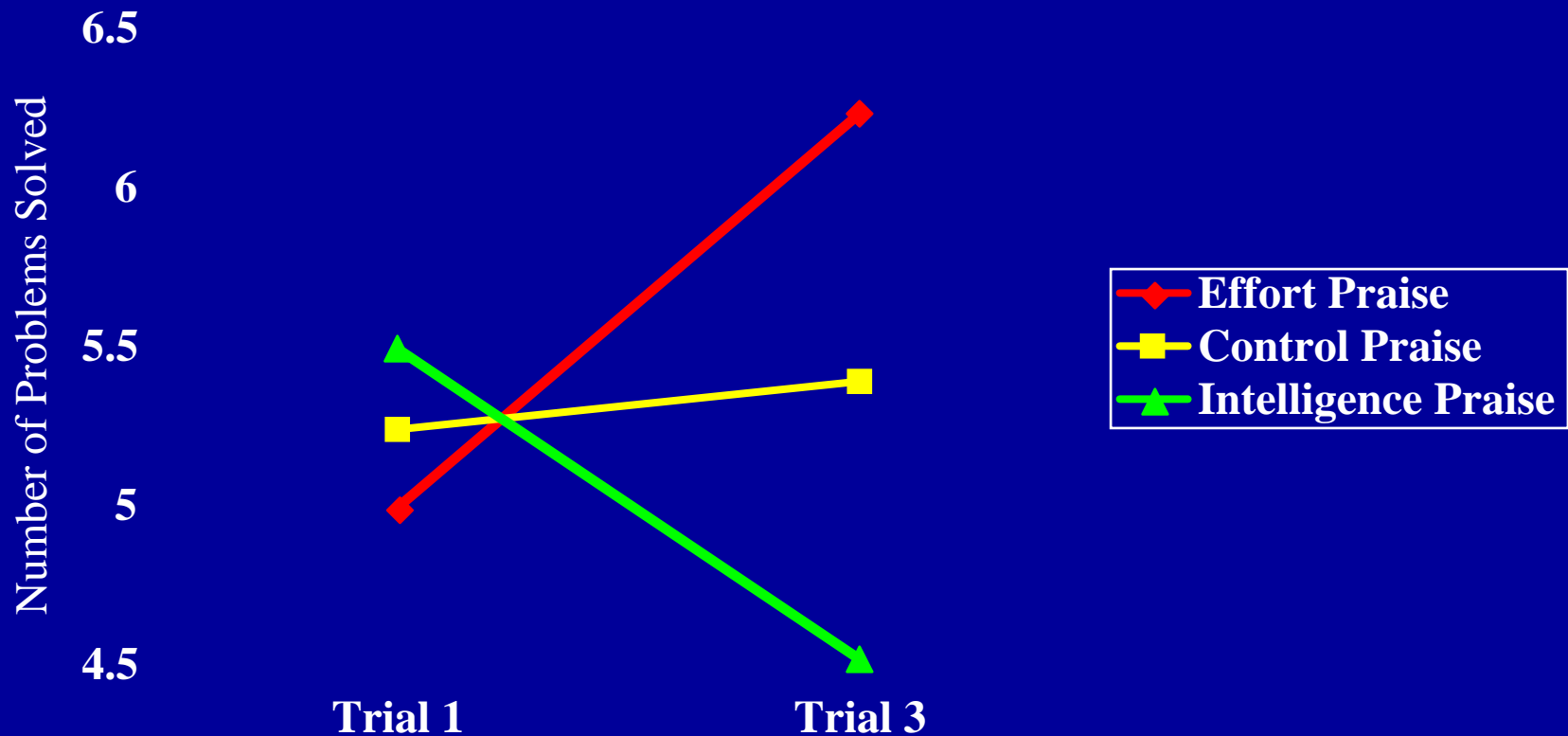
# Intelligence vs. Effort Praise

- Mindset: Fixed vs. Growth
- Goals: Looking smart vs. Learning

## After Difficult Trial:

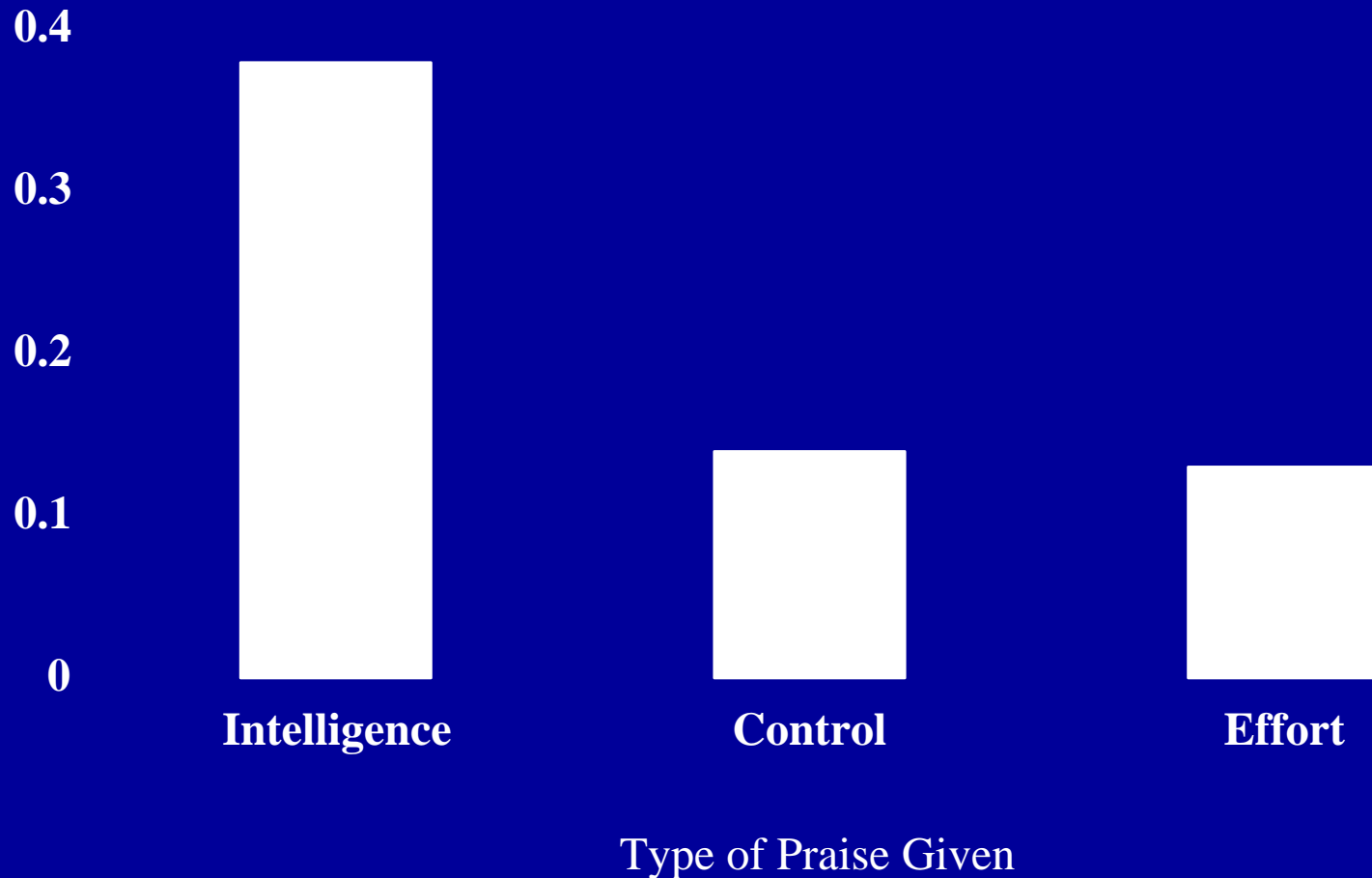
- Confidence: Low vs. High

# Number of problems solved on Trial 1 (before failure) and Trial 3 (after failure).



# Lying

Students who misrepresented their scores



# What to Praise

- Effort, struggle, persistence despite setbacks
- Strategies, choices
- Choosing difficult tasks
- Learning, improving

# Low Effort Success: Yesterday

- Look, you got an A without really working. You're really good at math!
- You did that so quickly and easily. That's impressive!

# Low Effort Success: Tomorrow

- You got an A without working. A's are nice to have, but you must not be learning much.
- You did that so quickly and easily. I'm sorry I wasted your time. Let's do something you can learn from.

# REFLECTION

What is one thing you could do differently in your interactions with your students to foster a growth mindset?

# Changing Mindsets

# A Mindset Workshop

- Growth Mindset Group: 8 sessions of study skills + the growth mindset.
- Control Group: 8 sessions of great study skills.

# You Can Grow Your Intelligence

*New Research Shows the Brain  
Can Be Developed Like a Muscle*

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Many people think of the brain as a mystery. They don't know much about intelligence and how it works. When they do think about what intelligence is, many people believe that a person is born either smart, average, or dumb—and stays that way for life.

But new research shows that the brain is more like a muscle—it changes and gets stronger when you use it. And scientists have been able to show just how the brain grows and gets stronger when you learn.

Everyone knows that when you lift weights, your muscles get bigger and you get stronger. A person who can't lift 20 pounds when they start exercising can get strong enough to lift 100 pounds after working out for a long time. That's because the muscles become larger and stronger with exercise. And when you stop exercising, the muscles shrink and you get weaker. That's why people say "Use it or lose it!"

But most people don't know that when they practice and learn new things, parts of their brain change and get larger a lot like muscles do when they exercise.



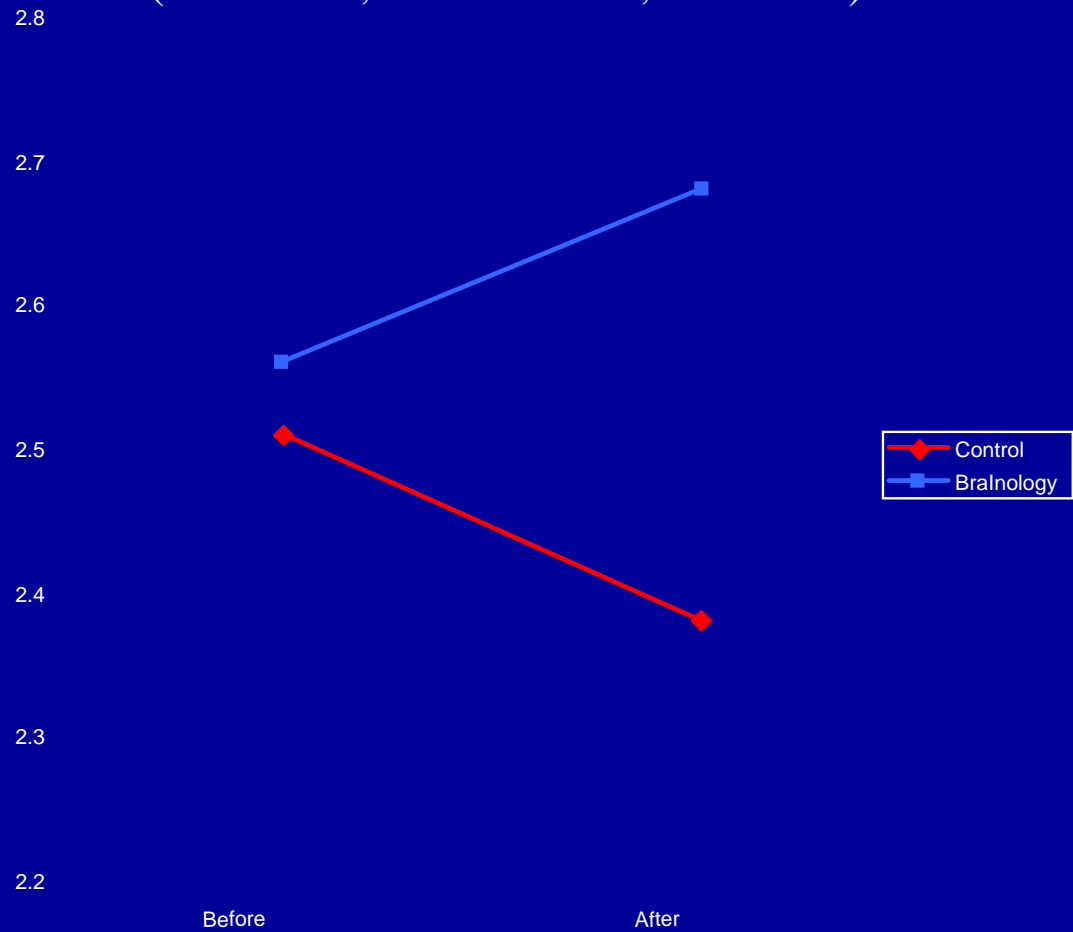
Inside the cortex of the brain are billions of tiny nerve cells, called neurons. The nerve cells have branches connecting them to other cells in a complicated network. Communication between these brain cells is what allows us to think and solve problems.



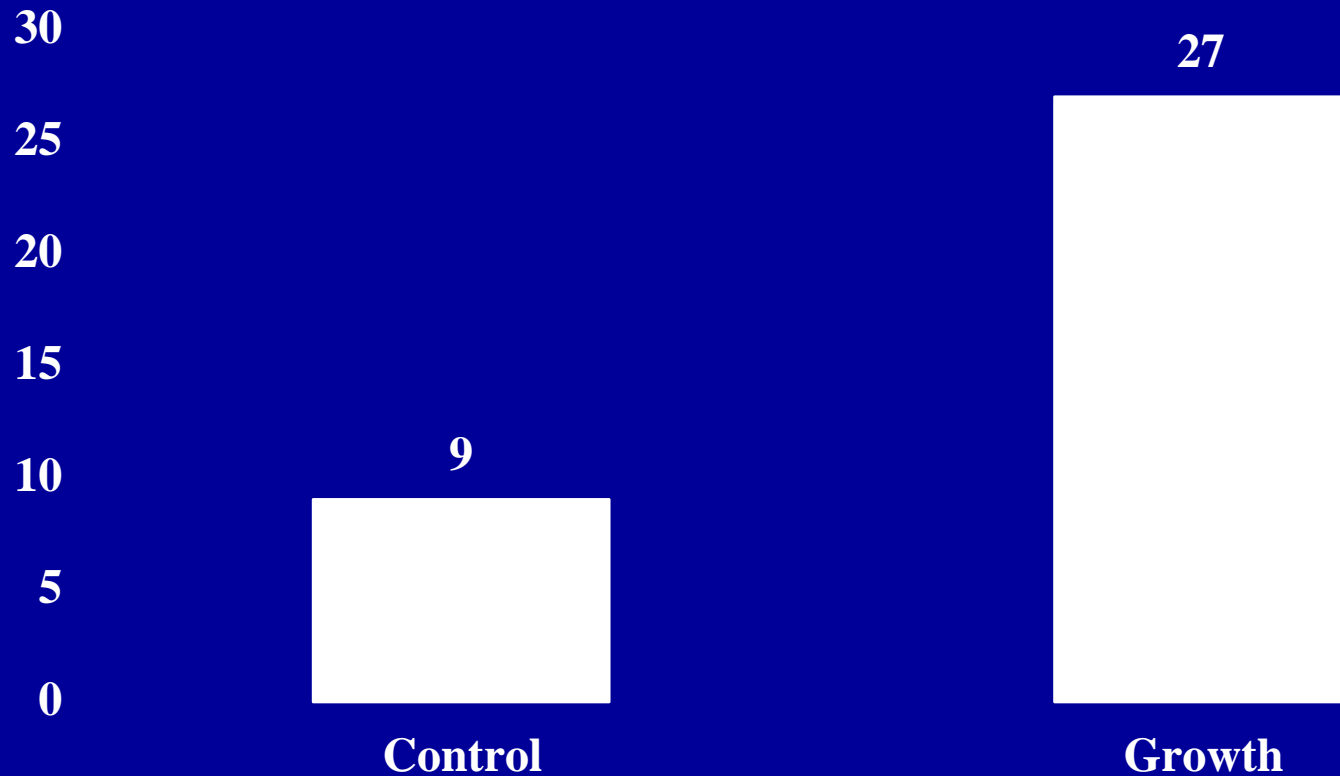


# Math Grades

(Blackwell, Trzesniewski, & Dweck)



# Percent Showing Increased Motivation

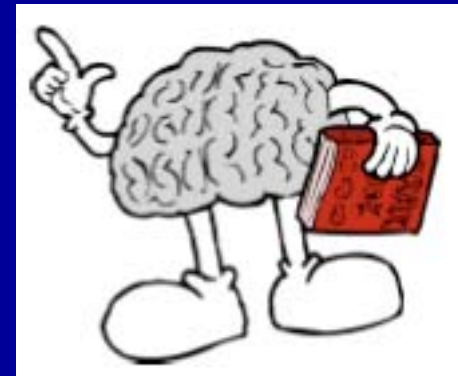


# BRAINOLGY®

*Transforming Students' Motivation to Learn*

5 Computer Modules  
Teachers' Guide

[www.brainology.us](http://www.brainology.us)



# Brain Orb as Guide

The screenshot displays the Brainology website interface. At the top left is the Brainology logo with a small character. To the right are navigation buttons: back, pause, forward, and a double forward button. Below the logo is a 'Control Panel' with several icons and labels: 'e-Journal' (with a CD icon), 'Notepad (e-Journal Reflector)' (with a notepad icon), 'Map' (with a scroll icon), 'Brain book' (with a book icon), 'Help' (with a question mark icon), 'Feedback' (with a lightbulb icon), 'Save & Exit' (with an 'X' icon), and 'Certificate' (with a certificate icon). The main content area features a cartoon illustration of a girl in a purple dress holding a notepad and a boy in a blue shirt and red cap pointing at a large, glowing brain orb. A speech bubble above the boy says 'Whoa, it talks!'. The background is a blue sky with white clouds and a green ground. At the bottom, there is a copyright notice: 'Copyright © 2008 Brainology, LLC. All rights reserved.' and the website URL 'www.brainology.us'.

BRAINOLGY®

Control Panel

e-Journal Notepad (e-Journal Reflector)

Map Brain book

Help Feedback

Save & Exit Certificate

Whoa, it talks!

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# Visit to Brain Lab

The screenshot shows the Brainology software interface. At the top left is the Brainology logo with a cartoon brain character. To the right of the logo is a navigation bar with four buttons: a double left arrow, a vertical bar (pause), a double right arrow, and a square (stop). Below the logo is the text "Control Panel". On the left side, there is a vertical menu of icons and labels: "e-Journal" (floppy disk icon), "Notepad (e-Journal Reflecton)" (notepad icon), "Map" (scroll icon), "Brain book" (book icon), "Help" (question mark icon), "Feedback" (lightbulb icon), "Save & Exit" (X icon), and "Certificate" (diploma icon). The main area is a 3D cartoon illustration of a laboratory. A large, grey, cylindrical machine with a white nozzle is in the foreground. In the background, two small, colorful characters (one purple, one blue) are standing on a grey floor. A large, dark, rectangular object is suspended in the air above them. The entire interface is framed by a blue border.

Brainology®

Control Panel

e-Journal Notepad (e-Journal Reflecton)

Map Brain book

Help Feedback

Save & Exit Certificate

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[www.brainology.us](http://www.brainology.us)

# Mad Scientist

The screenshot shows a software interface for 'Brainology'. At the top left is the 'BRAINOLGY®' logo with a small character. In the top right corner, there are four navigation buttons: a double left arrow, a vertical bar, a double right arrow, and a square. On the left side, a 'Control Panel' contains several icons and labels: 'e-Journal' (floppy disk icon), 'Notepad (e-Journal Reflecton)' (notepad icon), 'Map' (scroll icon), 'Brain book' (book icon), 'Help' (question mark icon), 'Feedback' (lightbulb icon), 'Save & Exit' (X icon), and 'Certificate' (diploma icon). The main area features a cartoon scientist with a yellow brain and glasses, pointing towards a speech bubble that says 'We'll do an experiment on our Virtual Brain. Click on it!'. To the right, a green cylindrical container labeled 'Virtual Brain' holds a glowing green brain. The background is a simple laboratory setting with a chalkboard and equipment.

BRAINOLGY®

Control Panel

e-Journal Notepad (e-Journal Reflecton)

Map Brain book

Help Feedback

Save & Exit Certificate

We'll do an experiment on our Virtual Brain. Click on it!

Virtual Brain

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# The Learning Brain



The image shows a screenshot of the Brainology software interface. At the top left is the Brainology logo, and at the top right are navigation controls (back, pause, forward, and a fourth button). Below the logo is a "Control Panel" with several icons and labels: "e-Journal" (floppy disk icon), "Notepad (e-Journal Reflector)" (notepad icon), "Map" (scroll icon), "Brain book" (book icon), "Help" (question mark icon), "Feedback" (lightbulb icon), "Save & Exit" (X icon), and "Certificate" (diploma icon). The main area features a stylized brain diagram with a speech bubble containing the text: "growing and making new connections all the time... every time you learn something new." At the bottom, there is a copyright notice: "Copyright © 2008 Brainology, LLC. All rights reserved." and the website address: "www.brainology.us".

**BRAINOLGY®**

Control Panel

**e-Journal** **Notepad (e-Journal Reflector)**

**Map** **Brain book**

**Help** **Feedback**

**Save & Exit** **Certificate**

growing and making new connections all the time...  
every time you learn something new.

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# Have you changed your mind about anything?

- My favorite thing from Brainology is the neurons part where when u learn something there are connections and they keep growing. I always picture them when I'm in school (khadija)
- Yes ... I imagine neurons making connections in my brain and I feel like I am learning something. (biggie)

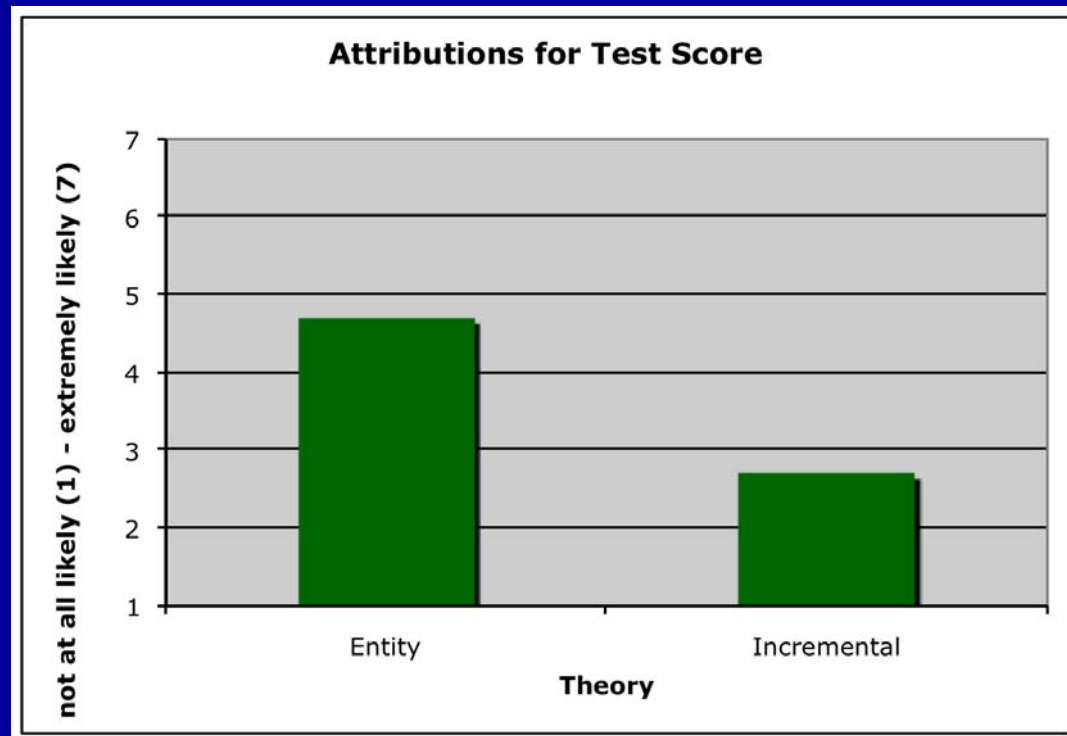
Teachers' Mindsets Matter Too

# Teachers' Mindsets Matter

- Teachers learn growth or fixed mindset
- Read about a child in their 7<sup>th</sup> grade class who earned 65% on the first test of the year
- How does teacher respond?

# Student's Score: 65%

- How much do you believe that (s)he got a 65% because (s)he is not smart enough in math?



# Likelihood of Responding By...

- Encouraging the student
- Emphasizing effort
- Communicating specific strategies

vs.

- Comforting the student for not being a math person

# And...

Encouragement of effort & strategies:  
More for boys  
than for girls!



# Changing Adults' Mindsets

Peter Heslin & colleagues

# Before Workshop

- Fixed mindset managers were less open to feedback and learning
- Fixed mindset managers didn't mentor as much--people can't change
- Fixed mindset managers didn't notice improvement--first impressions lasted

# Mindset Workshop for Managers

- Scientific article and video on how the brain grows with learning throughout life
- Exercises to instill a growth mindset

# After Workshop

Managers showed greater:

- Openness to feedback & learning
- Willingness to mentor and higher quality of mentoring
- Attunement to change in others

# Reflection

- What is one way to help foster a growth mindset in your staff or colleagues?

# Conclusion

A growth mindset allows students to:

- Embrace learning and growth
- Understand the role of effort in creating talent
- Maintain confidence and effectiveness in the face challenges and setbacks

...and it can be taught.

# A growth mindset administrator/teacher:

- Portrays skills as acquirable
- Values passion, effort, improvement over natural talent
- Presents self as mentor/collaborator vs. judge

Thank you!



