

# Growth mindset as an approach for improving our lives and our students' lives



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# What are our goals today?

- Discover what a growth mindset is and the impacts of it
- Discuss whether growth mindset applies to us
- Discuss concrete ways to cultivate a growth mindset in our students



Do you believe this is true?

We do!

This is how we got interested in this topic.

# What is a growth mindset?

Psychological research describes two ways we can understand intelligence



Psychologist Carol Dweck developed these theories and has described the two mindsets that result from them. [Click here](#) to see a description of this work.

**Entity view: Theory that a person's mental ability is fixed and stable.**

Students do well (or badly) because they are smart (or not)

Teachers can only help students SHOW their innate mental ability (or lack thereof)

Belief in this theory creates **Fixed Mindsets** in people

**Incremental view: Theory that one's mental ability is fluid and changeable.**


Students do well (or badly) because they work hard, struggle, & persevere (or not)

Teachers can help students IMPROVE mental ability with hard work, practice, & failure

Belief in this theory creates **Growth Mindsets** in people

# Research Shows Mindsets Matter...in Persistence

## Brain points: a growth mindset incentive structure boosts persistence in an educational game

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2014 Article



### Bibliometrics

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· Proceeding  
[CHI '14 Proceedings of the SIGCHI Conference on Human Factors in Computing Systems](#)  
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[table of contents](#) ISBN: 978-1-4503-2473-1 doi>[10.1145/2556288.2557157](#)


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There is great interest in leveraging video games to improve student engagement and motivation. However, educational games are not uniformly effective, and little is known about how in-game rewards affect children's learning-related behavior. In this work, we argue that educational games can be improved by fundamentally changing their incentive structures to promote the growth mindset, or the belief that intelligence is malleable. We present "brain points," a system that encourages the development of growth mindset behaviors by directly incentivizing effort, use of strategy, and incremental progress. Through a study of 15,000 children, we show that the "brain points" system encourages more low-performing students to persist in the educational game Refraction when compared to a control, and increases overall time played, strategy use, and perseverance after challenge. We believe that this growth mindset incentive structure has great potential in many educational environments.



# Research Shows Mindsets Matter...in Personal Traits


Original Articles

## Mindsets That Promote Resilience: When Students Believe That Personal Characteristics Can Be Developed

David Scott Yeager & Carol S. Dweck

Pages 302-314 | Received 06 Jun 2012, Published online: 19 Oct 2012

Download citation <http://dx.doi.org/10.1080/00461520.2012.722805>

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### Abstract

Because challenges are ubiquitous, resilience is essential for success in school and in life. In this article we review research demonstrating the impact of students' mindsets on their resilience in the face of academic and social challenges. We show that students who believe (or are taught) that intellectual abilities are qualities that can be developed (as opposed to qualities that are fixed) tend to show higher achievement across challenging school transitions and greater course completion rates in challenging math courses. New research also shows that believing (or being taught) that social attributes can be developed can lower adolescents' aggression and stress in response to peer victimization or exclusion, and result in enhanced school performance. We conclude by discussing why psychological interventions that change students' mindsets are effective and what educators can do to foster these mindsets and create resilience in educational settings.

# Research Shows Mindsets Matter...in Math

*FORUM*  
*Volume 55, Number 1, 2013*  
*www.words.co.uk/FORUM*



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## Ability and Mathematics: the mindset revolution that is reshaping education

JO BOALER

**ABSTRACT** Recent scientific evidence demonstrates both the incredible potential of the brain to grow and change and the powerful impact of growth mindset messages upon students' attainment. Schooling practices, however, particularly in England, are based upon notions of fixed ability thinking which limits students' attainment and increases inequality. This article reviews evidence for brain plasticity, the importance of mindset and the ways that mindset messages may be communicated through classroom and grouping practices.

# And Research Shows That a Growth Mindset Influences Processing of Information in Our Brains!

doi:10.1093/scan/nsi013

SCAN (2006) 1, 75–86

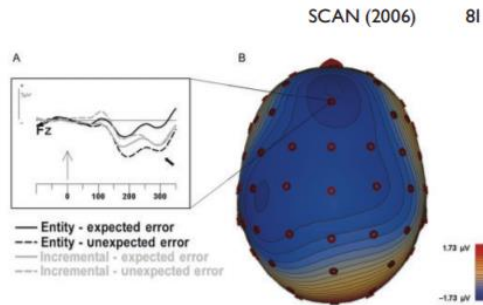
## Why do beliefs about intelligence influence learning success? A social cognitive neuroscience model

Jennifer A. Mangels,<sup>1</sup> Brady Butterfield,<sup>2</sup> Justin Lamb,<sup>3</sup> Catherine Good,<sup>3</sup> and Carol S. Dweck<sup>4</sup>

<sup>1</sup>Psychology Department, Columbia University, <sup>2</sup>Taub Institute, Columbia Presbyterian Medical Center, Columbia University, <sup>3</sup>Psychology Department, Barnard College, and <sup>4</sup>Psychology Department, Stanford University, CA, USA

Students' beliefs and goals can powerfully influence their learning success. Those who believe intelligence is a fixed entity (entity theorists) tend to emphasize 'performance goals,' leaving them vulnerable to negative feedback and likely to disengage from challenging learning opportunities. In contrast, students who believe intelligence is malleable (incremental theorists) tend to emphasize 'learning goals' and rebound better from occasional failures. Guided by cognitive neuroscience models of top-down, goal-directed behavior, we use event-related potentials (ERPs) to understand how these beliefs influence attention to information associated with successful error correction. Focusing on waveforms associated with conflict detection and error correction in a test of general knowledge, we found evidence indicating that entity theorists oriented differently toward negative performance feedback, as indicated by an enhanced anterior frontal P3 that was also positively correlated with concerns about proving ability relative to others. Yet, following negative feedback, entity theorists demonstrated less sustained memory-related activity (left temporal negativity) to corrective information, suggesting reduced effortful conceptual encoding of this material—a strategic approach that may have contributed to their reduced error correction on a subsequent surprise retest. These results suggest that beliefs can influence learning success through top-down biasing of attention and conceptual processing toward goal-congruent information.

[Click here](#) to access a copy of Mangels' et al (2007) research.



**Fig. 3** The feedback-locked negativity (FRN). (A) Difference waveforms associated with negative feedback to unexpected errors (HCE — LCC) and expected errors (LCE — HCC) for entity and incremental theorists. The black arrow points to the part of the waveform corresponding to the peak of the negativity in the raw waveforms (300 ms; see Figure 2C and G). (B) Scalp topography of the FRN difference wave at its peak latency, collapsed across group and expectancy.

Research Report

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## Mind Your Errors: Evidence for a Neural Mechanism Linking Growth Mind-Set to Adaptive Posterror Adjustments

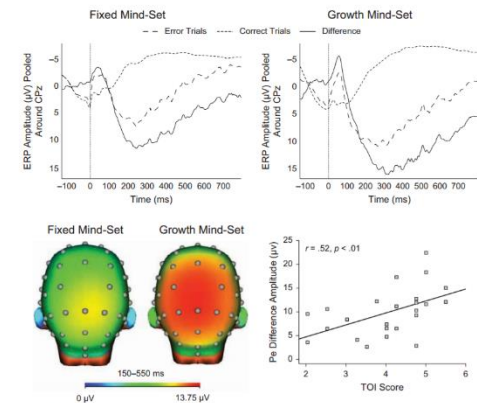
Jason S. Moser<sup>1</sup>, Hans S. Schroder<sup>1</sup>, Carrie Heeter<sup>2</sup>, Tim P. Moran<sup>1</sup>, and Yu-Hao Lee<sup>1</sup>

<sup>1</sup>Department of Psychology and <sup>2</sup>Department of Telecommunications, Information Studies, and Media, Michigan State University

### Abstract

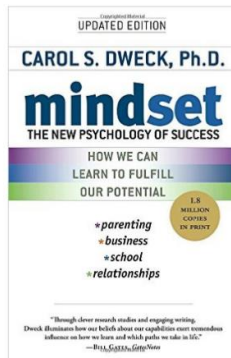
How well people bounce back from mistakes depends on their beliefs about learning and intelligence. For individuals with a growth mind-set, who believe intelligence develops through effort, mistakes are seen as opportunities to learn and improve. For individuals with a fixed mind-set, who believe intelligence is a stable characteristic, mistakes indicate lack of ability. We examined performance-monitoring event-related potentials (ERPs) to probe the neural mechanisms underlying these different reactions to mistakes. Findings revealed that a growth mind-set was associated with enhancement of the error positivity component (Pe), which reflects awareness of and allocation of attention to mistakes. More growth-minded individuals also showed superior accuracy after mistakes compared with individuals endorsing a more fixed mind-set. It is critical to note that Pe amplitude mediated the relationship between mind-set and posterror accuracy. These results suggest that neural mechanisms indexing on-line awareness of and attention to mistakes are intimately involved in growth-minded individuals' ability to rebound from mistakes.

[Click here](#) to access a copy of Moser et al's (2011) research.

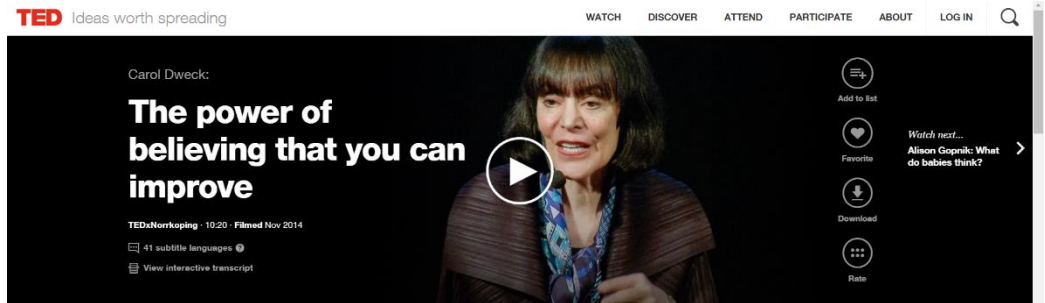


**Fig. 1.** Relationship between the error positivity component (Pe) of the event-related potential (ERP) and theory of intelligence (TOI). The top row shows grand-average response-locked ERP waveforms pooled from the CPZ electrodes and four adjacent recording sites, separately for individuals with a fixed mind-set (left) and individuals with a growth mind-set (right). Waveforms for trials on which responses were correct and trials on which responses were incorrect, as well as the difference between these waveforms, are shown. Time point 0 is response execution (highlighted by the vertical line). The fixed mind-set group (TOI scores from 1 to 3) and the growth mind-set group (TOI scores from 4 to 6) were formed on the basis of a median split for illustrative purposes only. The voltage maps in the bottom panel show the Pe difference amplitude from 50 to 550 ms (average ERP amplitude on error trials — average ERP amplitude on correct trials) in each of these groups. The scatter plot (with best-fitting regression line) in the bottom right panel illustrates the relation between Pe difference amplitude (pooled from electrode CPZ and four adjacent recording sites) and TOI score.

# Growth Mindset: The Power Of “Yet” ....



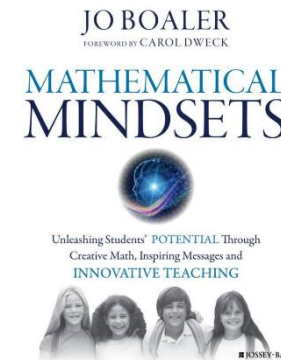
Carol Dweck's bestselling book on growth mindset



[Click here](#) to watch Carol Dweck's TED talk on The Power Of Believing that You Can Improve



[Click to see](#) Sir Ken Robinson's TED talk on Do Schools Kill Creativity? "If you're not prepared to be wrong, you'll never come up with anything creative"



[Click here](#) to see how Jo Boaler applies growth mindset to math education



# The “Golden Nugget” of Growth Mindset

I've missed more than 9000 shots in my career.

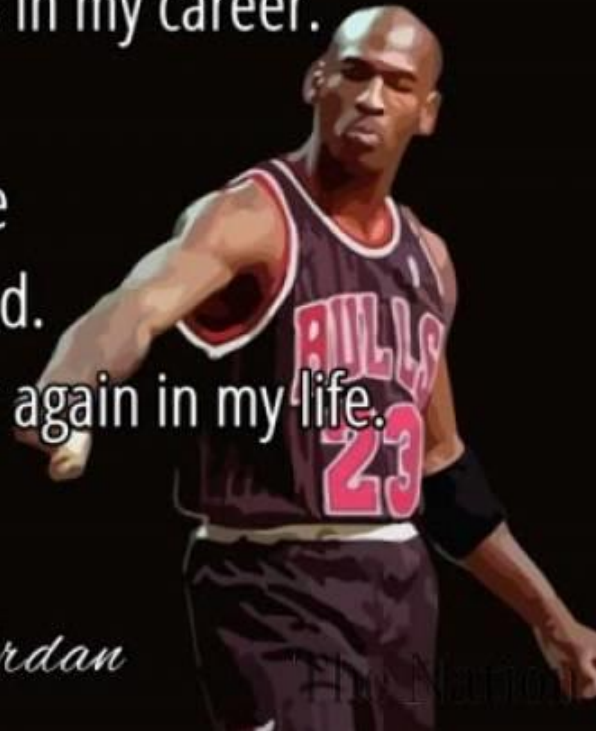
I've lost almost 300 games.

26 times, I've been trusted to take the game winning shot and missed.

I've failed over and over and over again in my life.

And that is why I succeed.

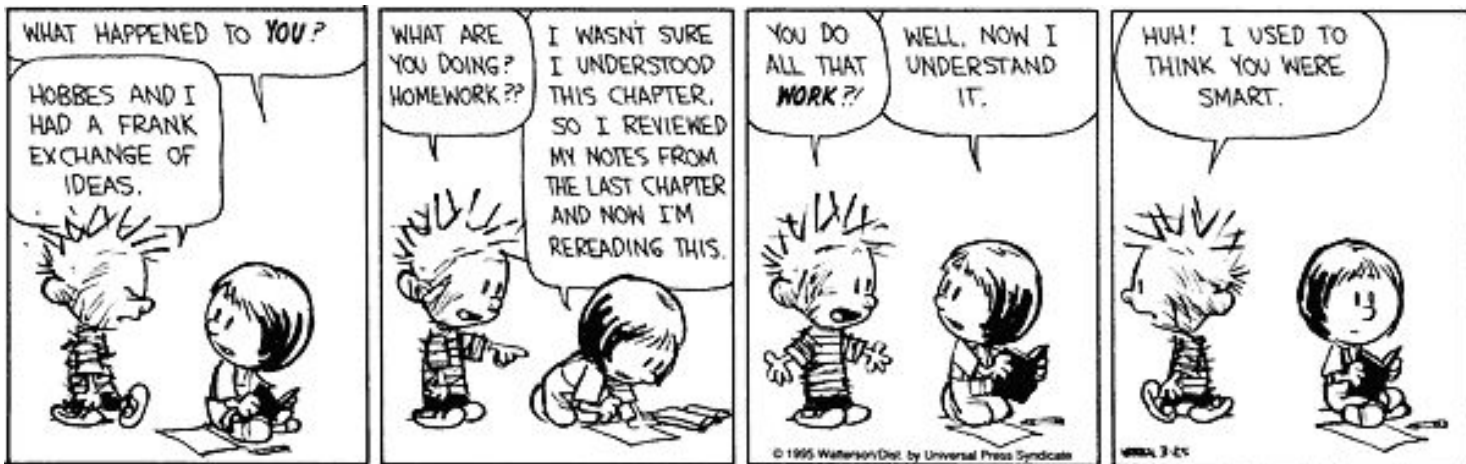
*- Michael Jordan*



Have you ever felt like you learned from a failure?  
If so, that's they key to a growth mindset!

# What are our goals today?

- Discover what a growth mindset is and the impacts of it
- Discuss whether growth mindset applies to us
- Discuss concrete ways to cultivate a growth mindset in our students

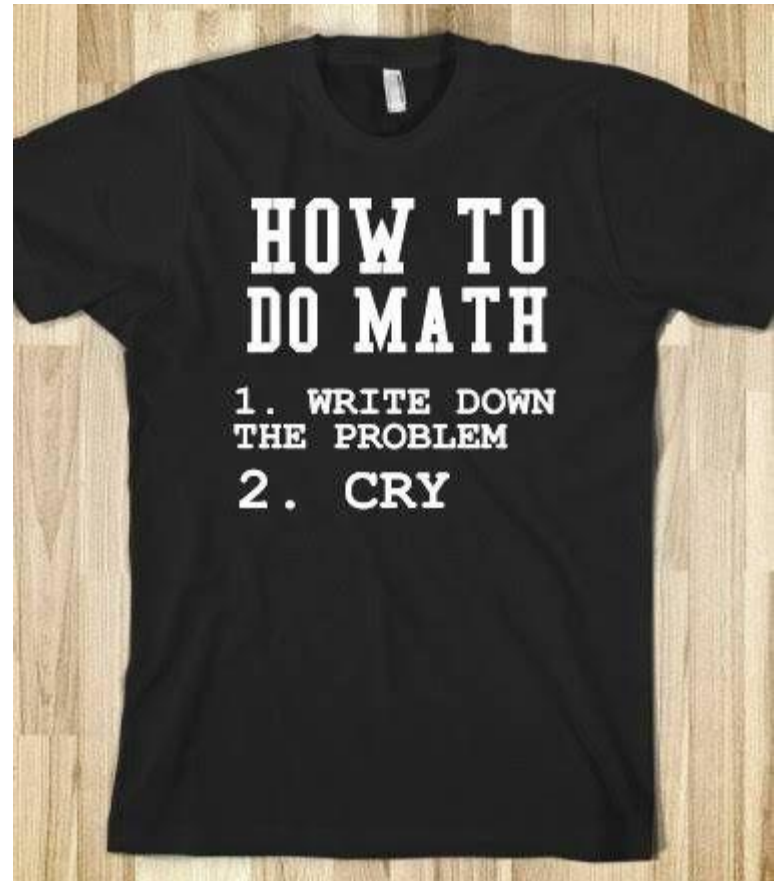


# My experience with growth mindset

Here's a story about one of my failures...

Have you (or someone you know) ever failed at something?

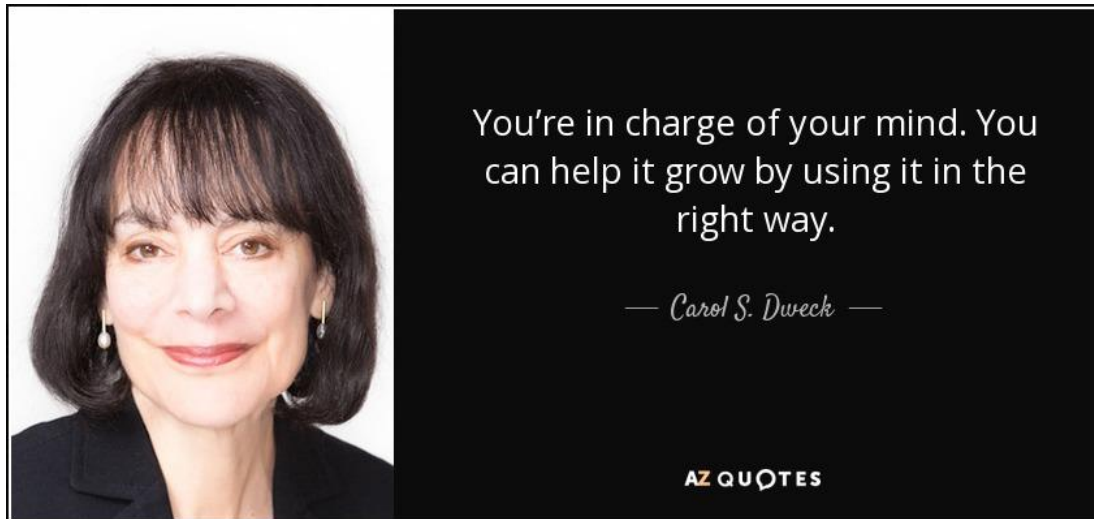
How do you (they) deal with it?



# We can use a growth mindset

## A Growth Mindset leads to success!

- Remember! A growth mindset is the idea that failure is a chance to improve because ability can be improved through dedication and hard work
- A growth mindset shows the power of “yet”..



# Our words matter in growth mindset

## Change your words Change your **MIND**set

**FIXED**      *Growth*

**Fixed Mindset Phrases:**

- This is too hard.
- I'm not good at this.
- I made a mistake.
- I can't do math/science/social studies/reading.
- I give up.
- I'll never be as smart as him/her.
- I can't make this any better.
- It's good enough.
- I'm awesome at this!

**Growth Mindset Phrases:**

- This may take some time and effort.
- I'm going to figure out what he/she does and try it.
- What am I missing?
- IS THIS REALLY MY BEST WORK?
- I'M ON THE RIGHT TRACK...
- I'll use some of the strategies I've learned.
- I can always improve! I'll keep trying.
- Mistakes help me improve.
- I'm going to train my brain in math/science/social studies/reading!

# Our thoughts and beliefs matter in growth mindset

- People who view effort as meaning someone has LESS ability may have a fixed mindset
- People who view effort as meaning someone can INCREASE ability may have a growth mindset

*Review of Educational Research*  
August 2017, Vol. 87, No. 4, pp. 707–735  
DOI: 10.3102/0034654316689328  
© 2017 AERA. <http://rer.aera.net>

## **Students' Thinking About Effort and Ability: The Role of Developmental, Contextual, and Individual Difference Factors**

**Katherine Muenks**  
*Indiana University*

**David B. Miele**  
*Boston College*

*Students' thinking about the relation between effort and ability can influence their motivation, affect, and academic achievement. Students sometimes think of effort as inversely related to ability (such that people with low ability must work harder than people with high ability) and other times think of effort as positively related to ability (such that hard work can lead people to develop high levels of ability). The purposes of the present review are (a) to review literature on developmental, contextual, and individual difference factors that influence students' thinking about the relation between effort and ability in school and (b) to identify unresolved questions in this literature and present an extended theoretical framework that can help answer these questions. By providing researchers with a better understanding of how students think about effort and ability, we hope that this review will inspire new research in this area.*

[Click here](#) to see the abstract!

# Our behaviors matter in growth mindset

## ● Reduce stress and get emotional support:

- ✓ Social support
- ✓ Faith
- ✓ Stress reduction
- ✓ Mindfulness meditation



## ● Access resources to make changes:

- ✓ People with knowledge and skills
- ✓ Information about how to improve



# What are our goals today?

- Discover what a growth mindset is and the impacts of it
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- Discuss concrete ways to cultivate a growth mindset in our students





# A Person's Mindset May Affect Learning

Click to hear about how different cultures and different teachers demonstrate fixed versus growth mindsets.

## Struggle For Smarts? How Eastern And Western Cultures Tackle Learning

Updated November 15, 2012 - 2:17 PM ET  
Published November 12, 2012 - 3:29 AM ET



Chinese schoolchildren during lessons at a classroom in Hefei, east China's Anhui province, in 2010.  
DTR/AP/Getty Images

SHARE

When have you experienced fixed and growth mindsets in education?  
How have you felt that these have affected learning?

# How can we cultivate a growth mindset in students?

Let's discuss how we try to help students have a growth mindset!

## DEVELOPING A GROWTH MINDSET



INSTEAD OF.....	TRY THINKING....
I'm not good at this	What am I missing?
I give up	I'll use a different strategy
It's good enough	Is this really my best work?
I can't make this any better	I can always improve
This is too hard	This may take some time
I made a mistake	Mistakes help me to learn
I just can't do this	I am going to train my brain
I'll never be that smart	I will learn how to do this
Plan A didn't work	There's always Plan B
My friend can do it	I will learn from them

# Our methods of promoting growth mindsets

Marsh and I will describe how we help students have a growth mindset!

- Bio and activity sheets
- Pledge
- How to succeed
- Study Skills assessments
- Praise
- More?

*Journal of the Scholarship of Teaching and Learning*, Vol. 14, No. 2, May 2014, pp. 15 - 28.  
doi: 10.14434/josotl.v14i2.4259

## Student views of instructor-student rapport in the college classroom

Nathan G. Webb<sup>1</sup> & Laura Obrycki Barrett<sup>2</sup>

*Abstract: Building upon past research on the positive learning outcomes associated with rapport building in the classroom, this study examines the specific behaviors instructors utilize in college classrooms to build rapport with undergraduate students. Participants (N=230) answered open-ended survey questions about their instructors' rapport-building behaviors. A total of 514 behaviors described as rapport building were categorized into five themes: attentive behaviors, common grounding behaviors, courteous behaviors, connecting behavior, and information sharing behaviors.*

*Keywords: rapport, instructor-student relationships, learning outcomes, instructor behaviors*

### Introduction

All of these are uncommonly attentive behaviors – and these develop rapport with students!

[Click to read the article.](#)

# What are our students' challenges?

Using a demographics sheet on Day 1 can help us learn about our students and their strengths and challenges

## Introduction to Psychology: Course Orientation & Study Skills In-Class Activities

Your name: \_\_\_\_\_ Date: \_\_\_\_\_ Points: \_\_\_\_\_ points earned

**Task:** As we go through class please complete each section about the course and how to study to do well.

**Goals:** The goals are to help you: 1. Understand how the course is structured and the expectations, Learn how to succeed in the class by using great study skills, and 3. Discuss these ideas with your classmates.

**Assessment:** Participation points based on: 1. completeness of answers, 2. accuracy of answers, 3. thoughtfulness of responses and application, and 4. writing in full sentences, with good spelling and grammar, using your own words.

### Part A. Getting to Know You!

1. Name: \_\_\_\_\_ 2. Preferred name to use in class: \_\_\_\_\_

3. Preferred gender pronoun(s) (he/she, they, etc.): \_\_\_\_\_

4. Where are you from (country, town, high school)? \_\_\_\_\_

5. Are you interested in psychology? If so, why? \_\_\_\_\_  
\_\_\_\_\_

6. What transfer credits, degree, or certificate are you trying to earn? \_\_\_\_\_  
\_\_\_\_\_

7. What academic skills are you good at? \_\_\_\_\_  
\_\_\_\_\_

8. What is challenging for you in terms of learning or getting good grades? \_\_\_\_\_  
\_\_\_\_\_

9. What can I- your teacher - do to help you be successful? \_\_\_\_\_  
\_\_\_\_\_

10. Please tell me something funny, interesting, unusual or idiosyncratic about yourself! (It helps me remember you!)  
\_\_\_\_\_  
\_\_\_\_\_

# What's your opinion?

Will you pledge to NOT drop this class without seeing me first?

- A. Yes
- B. No



# How to Reach Your Goals!

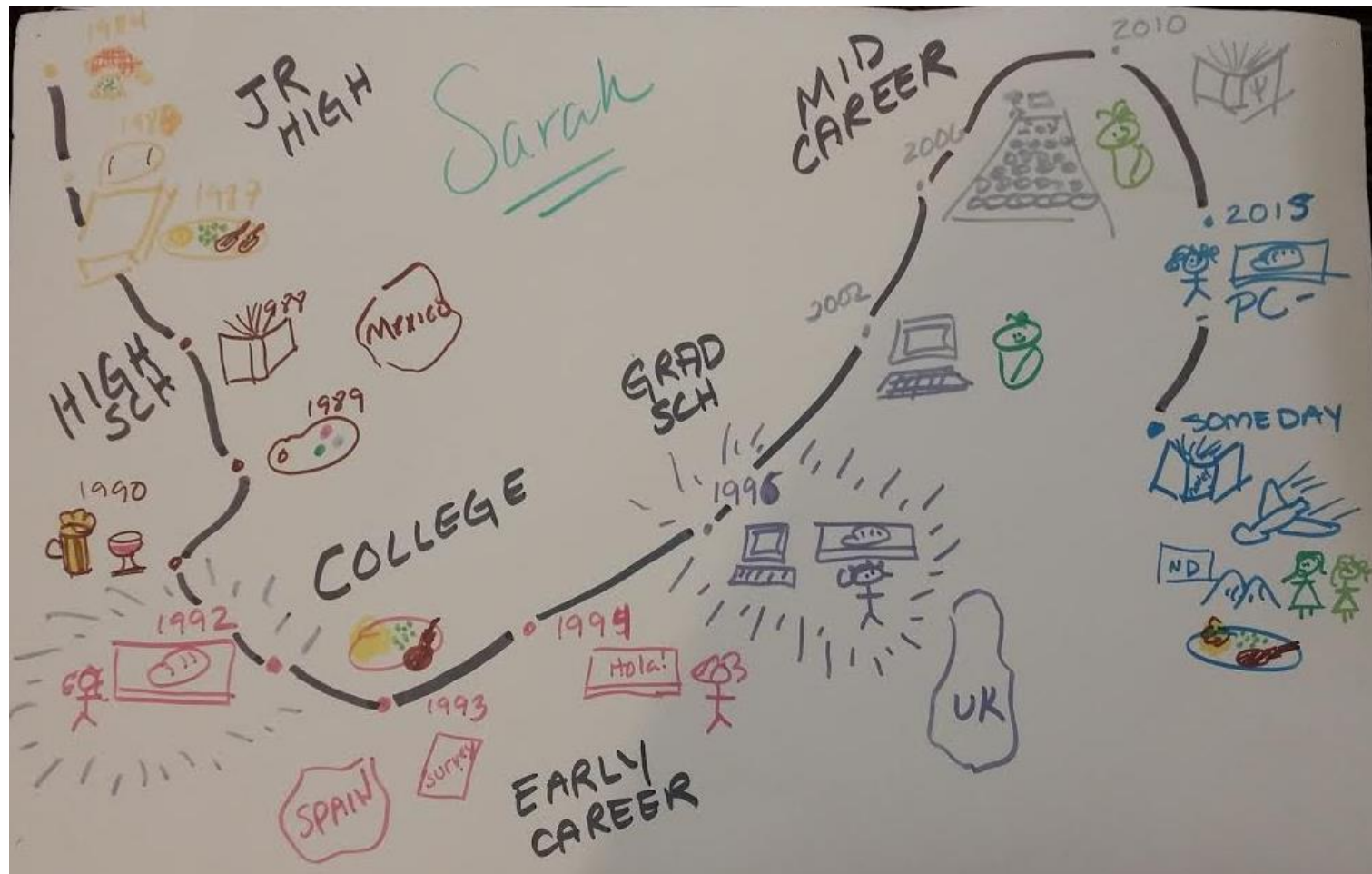
Grit will keep you on that treadmill to meet your goals!



Will Smith segment on Tavis Smiley

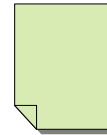
[Click here](#) and start at about 4 minutes to see how grit can help us stay on that treadmill even where there are twists!

# Our Life Paths are TWISTY! Stay on the treadmill!



# Tell Students the steps to Success in Your Class

## The 8 steps to success in our class!



- Step 1: Have a growth mindset!
- Step 2: Know the syllabus & schedule
- Step 3: Break reading into parts & read ACTIVELY
- Step 4: Do InQuizitive to help you practice concepts
- Step 5: Come to class, take notes ACTIVELY, & participate.
- Step 6: Download my PPT slides, ACTIVELY correct your notes, and complete your Class Activity Sheet.
- Step 7: Do practice quiz in Appendix B & check answers
- Step 8: Take the chapter quiz on Cobra & check answers - twice!



# Help Students Assess Skills Several Times

Let's learn now what study skills we are good at and what we can use a growth mindset to improve on!

At the heart of the STUDENT SUCCESS KIT is a pre-assessment survey. It asks questions in 18 areas (called "tools"), which fall under five main categories:

- Academic Skills Development
- Study and Thinking Skills
- Personal Issues
- Planning for the Future
- Resource Needs

Also included in the STUDENT SUCCESS KIT is an exercise that will provide a graphic representation of your Student Success Profile. A *Tool Manual* has been developed for each tool and provides additional exercises and information to address each student's success needs. This information is available through the individual who is assisting you in the process.

**Instructions:** Use the following values of a 5 point scale to score each of the questions on the questionnaire:

- 5 The statement is *always or almost always* true for you (around 100%)
- 4 The statement is *often* true for you (around 75%)
- 3 The statement is *sometimes* true for you (around 50%)
- 2 The statement is *rarely* true for you (around 25%)
- 1 The statement is *never or almost never* true for you (around 0%)

# Help Students Assess Skills Several Times

Then on the back page, please add of the totals to get a grand score for each of the 5 categories!

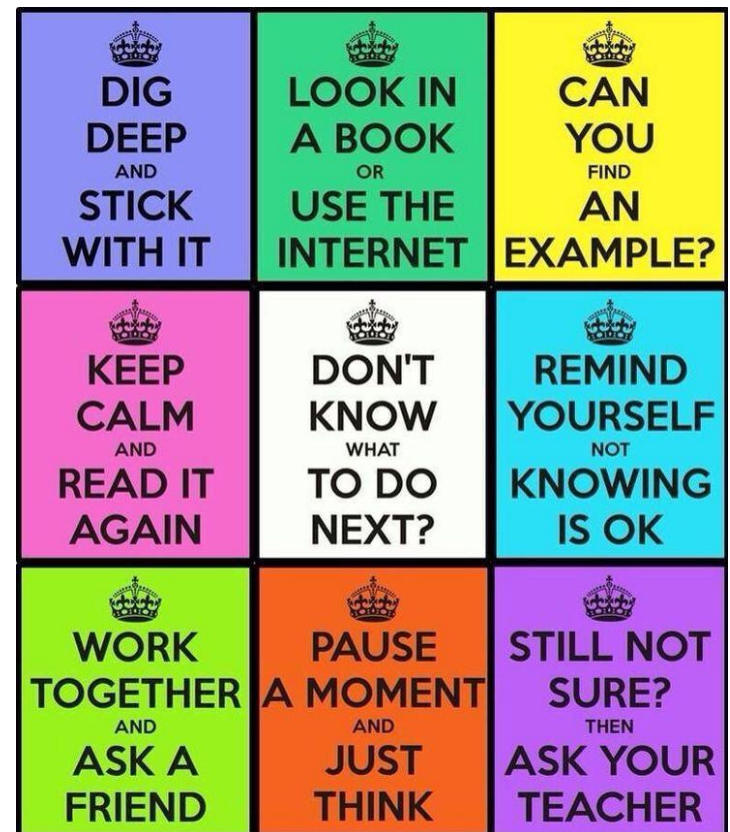
**STUDENT SUCCESS PROFILE**

	Reading [1]	Writing [2]	Speaking [3]	Listening [4]	Learning Styles [5]	Memory [6]	Study Skills [7]	Thinking [8]	Motivation [9]	Self-Esteem [10]	Relationships [11]	Conflict Resolution [12]	Health [13]	Time Management [14]	Money Management [15]	Personal Purpose [16]	Career Planning [17]	Resources [18]		
40																				40
30																				30
25																				25
20																				20
10																				10
0																				0
	ACADEMIC SKILLS DEVELOPMENT				STUDY AND THINKING SKILLS				PERSONAL ISSUES				PLANNING FOR THE FUTURE				RESOURCE NEEDS			

# Help Students Assess Skills Several Times

What category did you score lowest on? This is where you need to have a Growth Mindset!

- A. Academic skills development
- B. Study & thinking skills
- C. Personal issues
- D. Planning for the future



# Be Careful About Use of Praise

## **DON'T PRAISE**

INTELLIGENCE  
OR  
ABILITIES

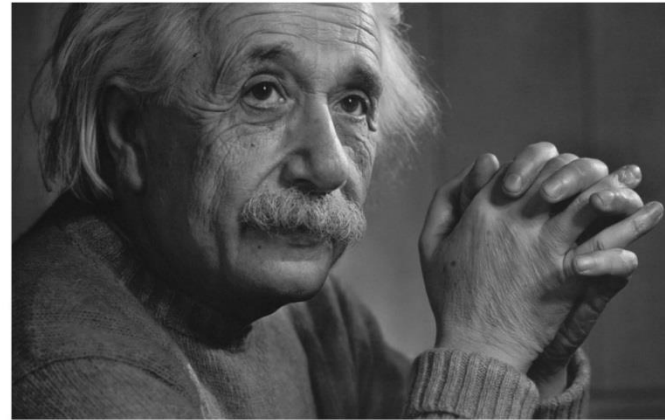
## **DO PRAISE**

THE PROCESS  
AND  
EFFORT

[Click here](#) to read what psychological research says about the effects of these two types of praise

# Take home message...

It's not that  
I'm so smart;  
I just stay  
with problems longer.



**Albert Einstein**

A Growth Mindset at Chew Valley



# Thank you for the chance to work with you!

- Please feel free to share any thoughts or feedback with us
- Marsh is [mjones@parkland.edu](mailto:mjones@parkland.edu) and in D165.
- Sarah is [sgrison@parkland.edu](mailto:sgrison@parkland.edu) and in D177 and in the Hub (D115)

# Did you remember to sign in?

We are happy to  
send anyone a copy  
of this PPT!

