

The Mentor Mindset: The Science of Motivating Young People

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<https://utexas.box.com/v/yeagerblc2023>

The Mentor's Dilemma in Medicine



Dr. Alex Sweeney, M.D.,
Associate Professor,
Baylor College of Medicine

The Mentor's Dilemma in Higher Ed

CATCHING UP ON TECHNICAL SKILLS

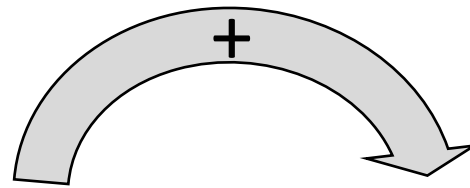
$$\frac{\partial f}{\partial x} = \frac{\partial}{\partial x} \left(\int_b^y Q(a, y) dy + \int_a^x P(x, y) dx \right) = P(x, y).$$

$$\frac{\partial f}{\partial y} = \frac{\partial}{\partial y} \left(\int_b^y Q(a, y) dy + \int_a^x P(x, y) dx \right)$$

$$= Q(a, y) + \int_a^x \frac{\partial P}{\partial y}(x, y) dx$$

$$= Q(a, y) + \int_a^x \frac{\partial Q}{\partial x}(x, y) dx$$

$$= Q(a, y) + [Q(x, y) - Q(a, y)] = Q(x, y).$$



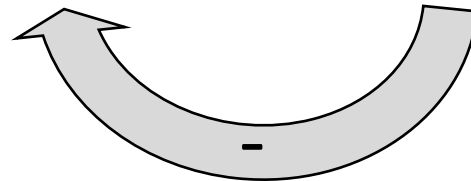
STRESS, ANXIETY AND WELL-BEING



```

1 @decorator(param=1)
2 def f(x):
3     """ Syntax Highlighting Demo
4     @param x Parameter"""
5     s = ("Test", 2+3, {'a': 'b'}, x) # Comment
6     print s[0].lower()
7
8 class Foo:
9     def __init__(self):
10        byte_string = 'newline:\n also newline:\x0a'
11        text_string = u"Cyrillic Я is \u042f. Oops: \u042e"
12        self.makeSense(whatever=1)
13
14    def makeSense(self, whatever):
15        self.sense = whatever
16
17 x = len('abc')
18 print(f.__doc__)

```



Preliminary Hope for Resolving the Mentor's Dilemma

Global encouragement "Good job"

My hero is Dr. Martin Luther King JR. My hero has courage to do what he has to and when he has to do it. He is a testimony to others, and when he was tested he over came it. He went through trials after trials and he did not hold a grudge.

First Dr. Martian Luther king JR has courage. He did not have to speak for "his people" but he did it because he cares. King lead some civil rights movements in his time. Dr. King also gave a speech in front of 200, 000 of his supporters. — where?

Second Dr. Martian Luther king is a testimony to me and others. He is a testimony to me because he did everything he could do to fight for the freedom for him, his family, and others. Now when I look at the simplest things and complain I think of what Dr. King would do.

Finally Dr. King is my hero because when he was tested he did not complain instead he over came the worst. Dr. King had many good reasons to quit what he was doing and curse everyone, but he didn't. In the worst of times Dr. King kept his chin up. When King's home was bombed all he said was "We must learn to meet hate with love" Dr. King was a great man and he helped change our world as we know it.

In conclusion Dr. Martian Luther King JR is my hero because he had courage. He is a testimony to me and to others. Also he over came his troubles when he was tested.

"I have a dream that little boys of all colors will be able to go to school with little white boys and brothers."

Substantive feedback "Give more detail"

7 edits

1) had the

2) had

5) met the best

define hero

had or was courageous

give more detail

what do you mean by testimony?

freedom to fight from what

say more about the

7) turn away

say more about the change

use this in

use past tense for someone no longer living

give me detail use the article

good use this earlier w/ courage maybe

“Wise feedback:”
I’m giving you these comments because I have high standards and I know that you can meet them.



② had
⑤ to what he has to and d he over came it. He

define hero

o speak for “his ements in his time. Dr. where?”

give more detail

. He is a testimony to im, his family, and what Dr. King would

what do you mean by testimony?

⑦ turn away

freedom to fight from what

good - use this earlier w/ courage maybe

Finally Dr. King is my hero because when he was tested he did not complain instead he over came the worst. Dr. King had many good reasons to quit what he was doing and curse everyone, but he didn't. In the worst of times Dr. King kept his chin up. When King's home was bombed all he said was “We must learn to meet hate with love” Dr. King was a great man and he helped change our world as we know it.

say more about the change

say more about the

In conclusion Dr. Martian Luther King JR is my hero because he had courage. He is a testimony to me and to others. Also he over came his troubles when he was tested.

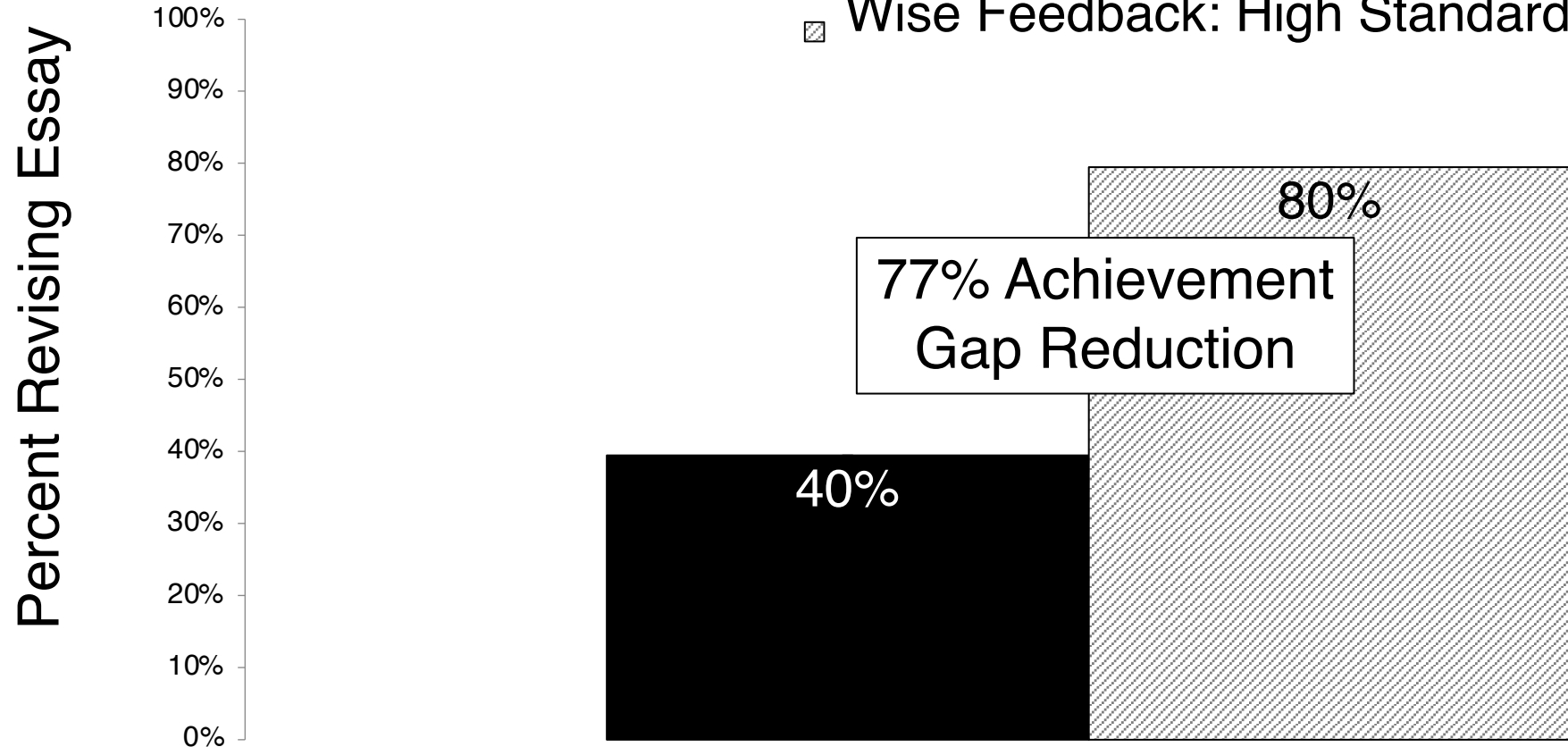
“I have a dream that little black boys and little black girls will be able to join hands with little white boys and little white girls and walk together as sisters and brothers.”

use this in the essay.

Wise Feedback Improves Engagement

(7th graders)

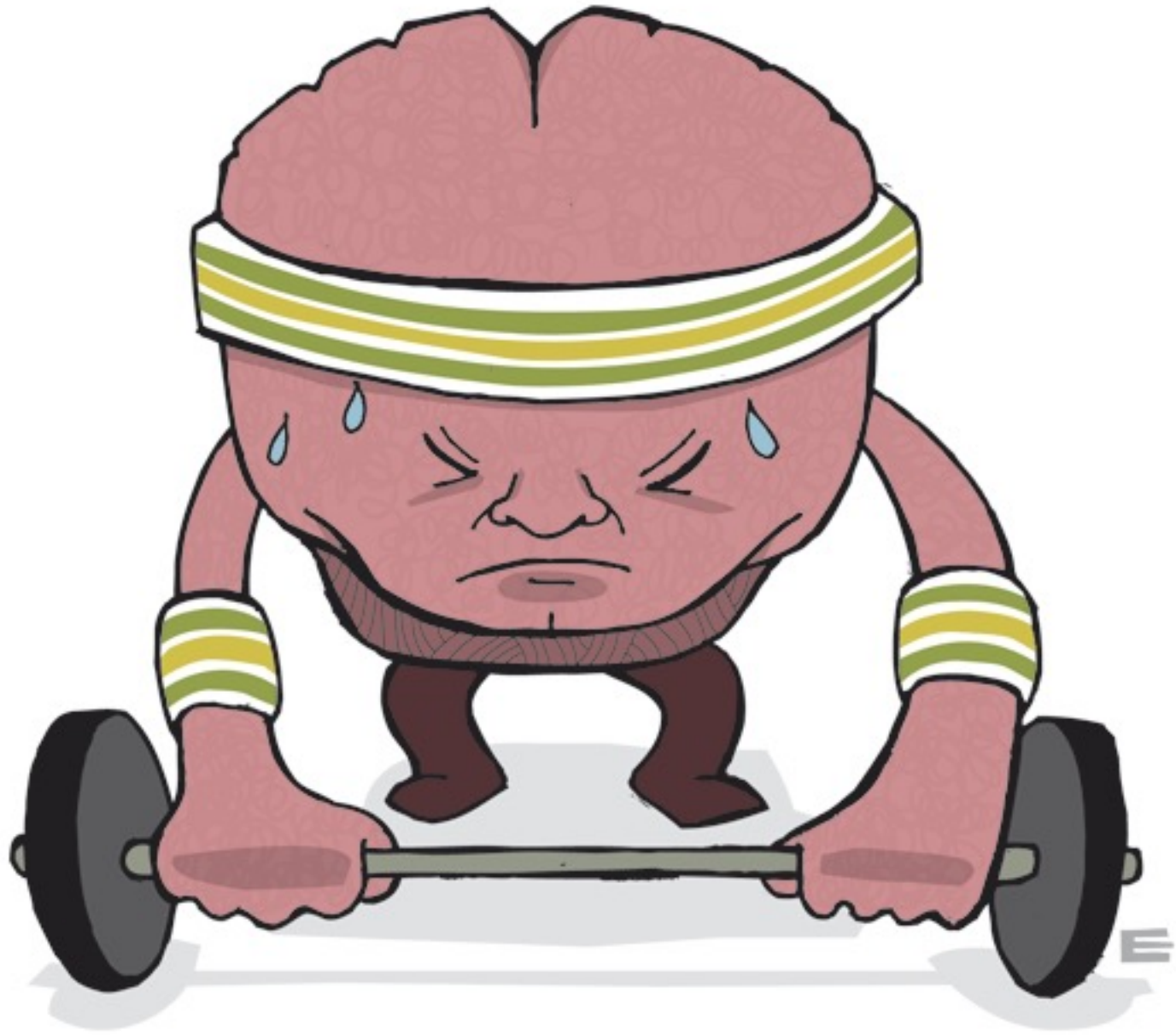
- Control
- ▨ Wise Feedback: High Standards + Assurance



How Can Instructors Create a Whole *Classroom Culture* of Wise Feedback?

A journey of learning









The National Study of Learning Mindsets

Two Years of Development and Testing

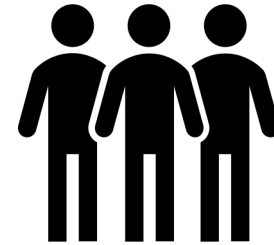
Yeager, Hanselman...Dweck, *Nature*, 2019



Asks for
students' help



Teach
brain science



Peers'
testimonials



Writing Exercises

- Mentor struggling schoolmates
- Write about how building a stronger brain in H.S. can help them achieve their goals in life

Scalable Growth Mindset Interventions

< Go Back

Section 1: Welcome Back

Welcome back!

Thank you for joining us again. As you may remember, last time we discussed three big ideas.

1. People can **make their brains stronger** when they take on difficult work.
2. The teenage years are **a time when the cells in the brain are ready to grow**,
3. And when the brain grows stronger, it allows you to **achieve goals that matter to you and the people you care about**.

We'll share some more about these ideas today. But, remember, this program still needs your input so that it can be more powerful for next year's 9th grade students.

Continue



Your brain learns when you...



Work hard on your writing and math assignments...



And gain writing and math skills that you can use in the future...

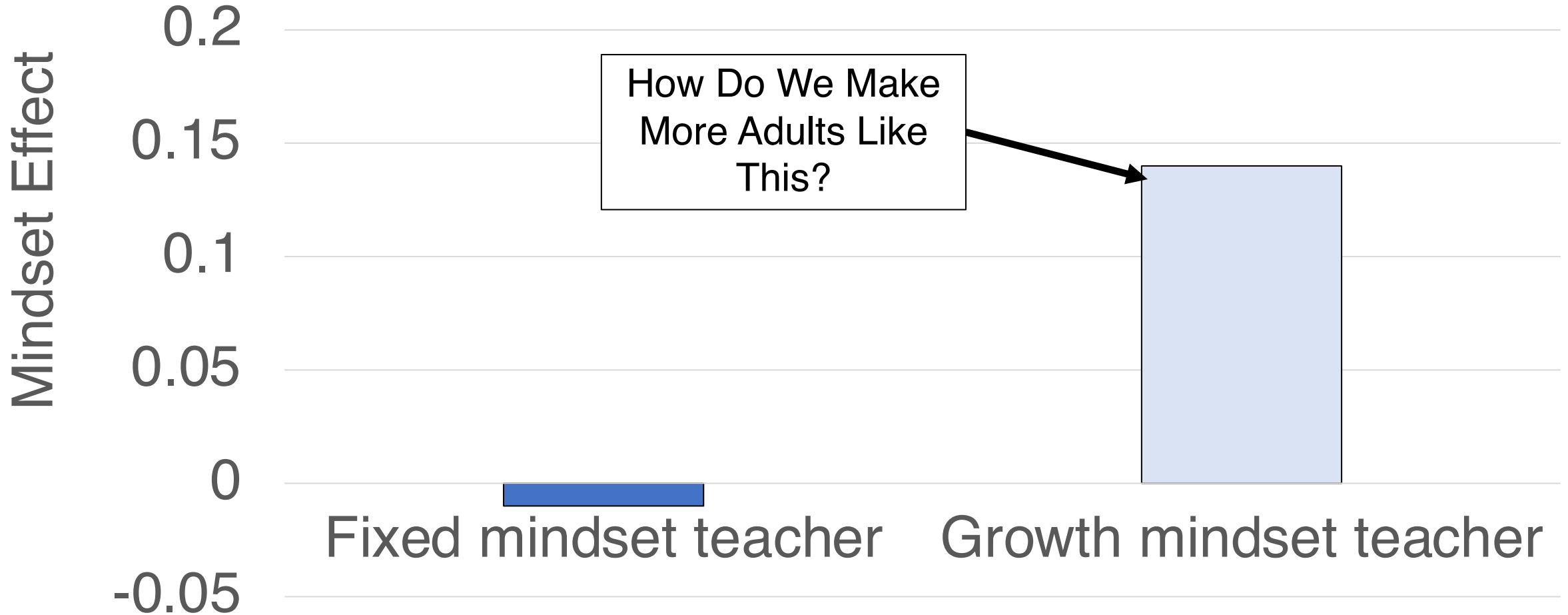
and this helps you to...



Make a difference for your family, community, or the world around you

Adults' Mindsets Matter

National Study of Learning Mindsets,
 $N = 6,958$ US High School Students

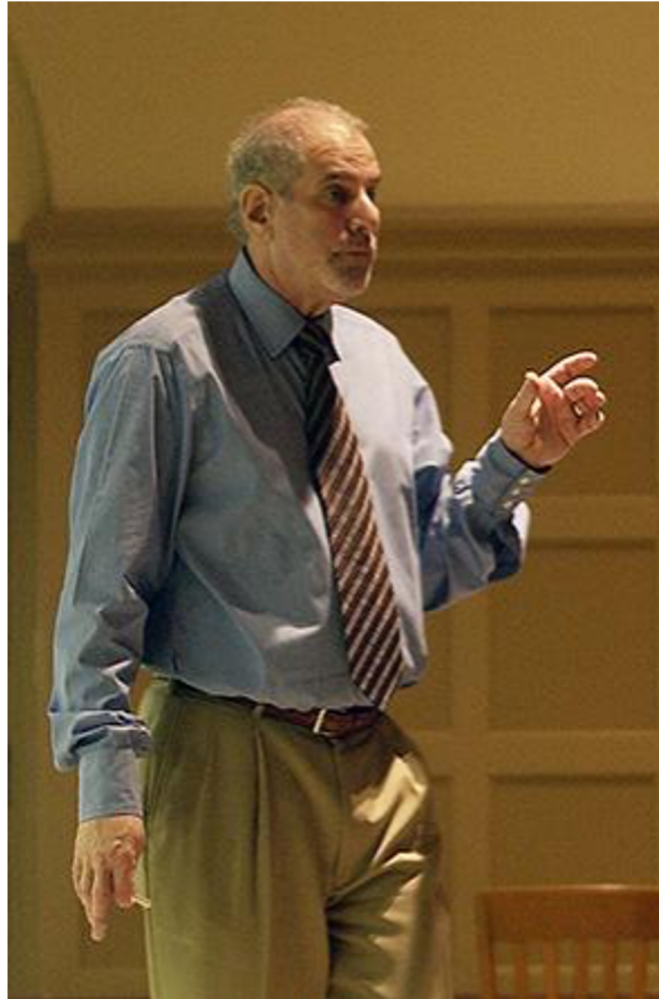
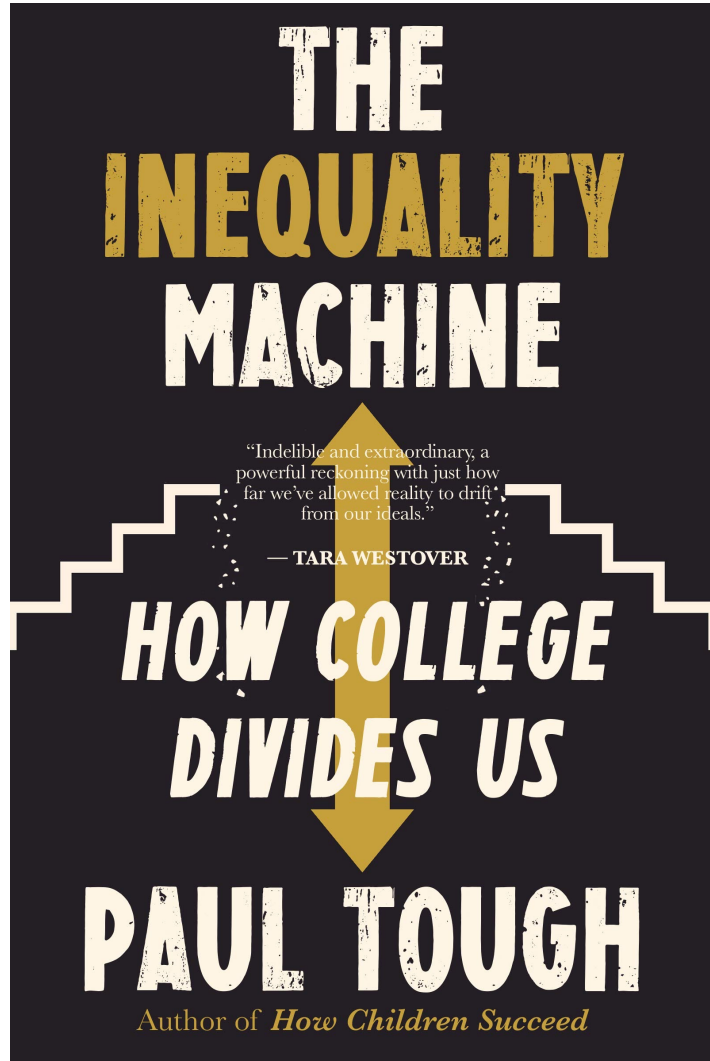


What Were They Doing? First Try

Validation sample of $N = 368$ teachers

	Correlations with Teachers' Growth Mindset Beliefs
Learning-focused practices composite	$r = .30$
It slows my class down to encourage lower achievers to ask questions (reverse-coded).	$r = .17$
There is usually only one correct way to solve a math problem. (reverse-coded)	$r = .21$
Mathematics mostly involves learning facts and procedures. (reverse-coded)	$r = .15$
Imagine a student was feeling discouraged in math class in the way just described on the previous page. How likely would you be to say each of the following statements?	
Let's see what you don't understand and I'll explain it differently.	$r = .13$
Ability-focused practices composite	$r = -.28$
Imagine a student was feeling discouraged in math class in the way just described on the previous page. How likely would you be to say each of the following statements?	
Don't worry - it's okay to not be a math/science/computer science person	$r = -.20$
Imagine a student was doing well in your math class in the way just described on the previous page. How likely would you be to say each of the following statements?	
You're lucky that you're a math/science/computer science person	$r = -.27$
It's great that it's so easy for you	$r = -.18$

What Were They Doing? First Try



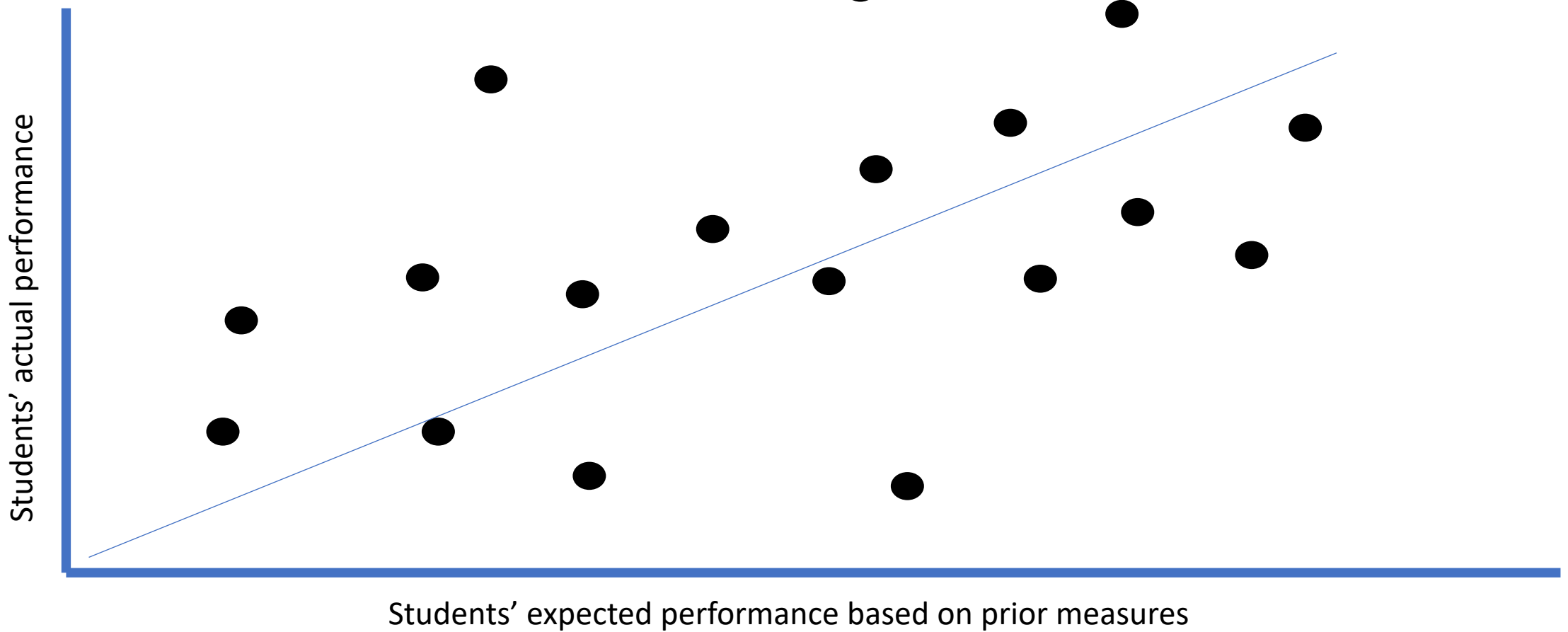
Uri Treisman, MacArthur winner
UT's best calculus professor,
Founder and Director, UT Dana Center

Exceptionally *high standards* (e.g. same test as Harvard class)

Exceptionally *high supports* (e.g. study groups, forgiving grading scheme, mindset language, former student TAs)

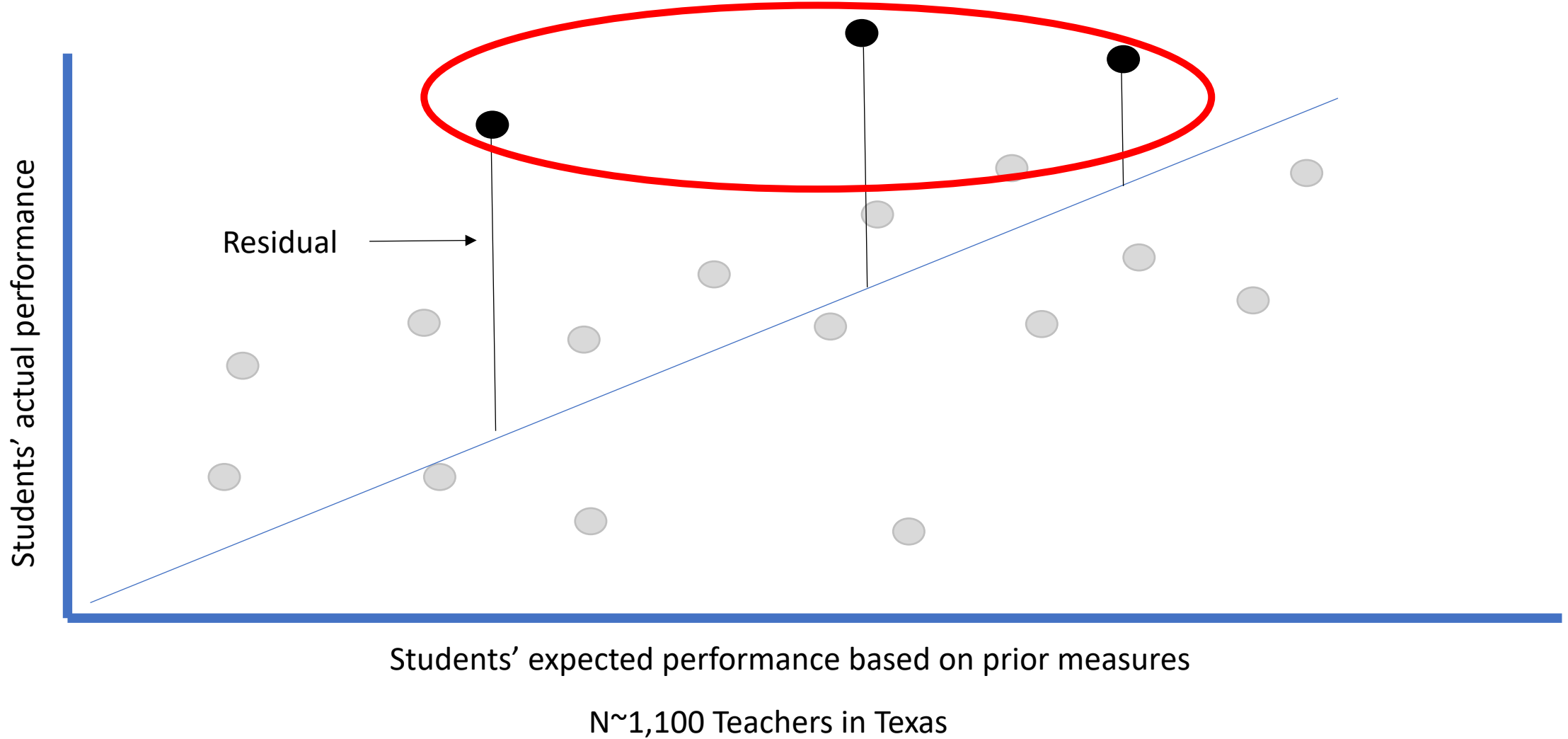
What Were They Doing? Third Try

“Bright Spot” Analysis



What Were They Doing? Third Try

“Bright Spot” Analysis





“People seem to think that science is difficult, but I believe with the right support and by seeing the connection to the world around you, science can be extremely rewarding...” | Sergio Estrada

Riverside High School’s Sergio Estrada wins Texas Medical Association award



Anita Latham

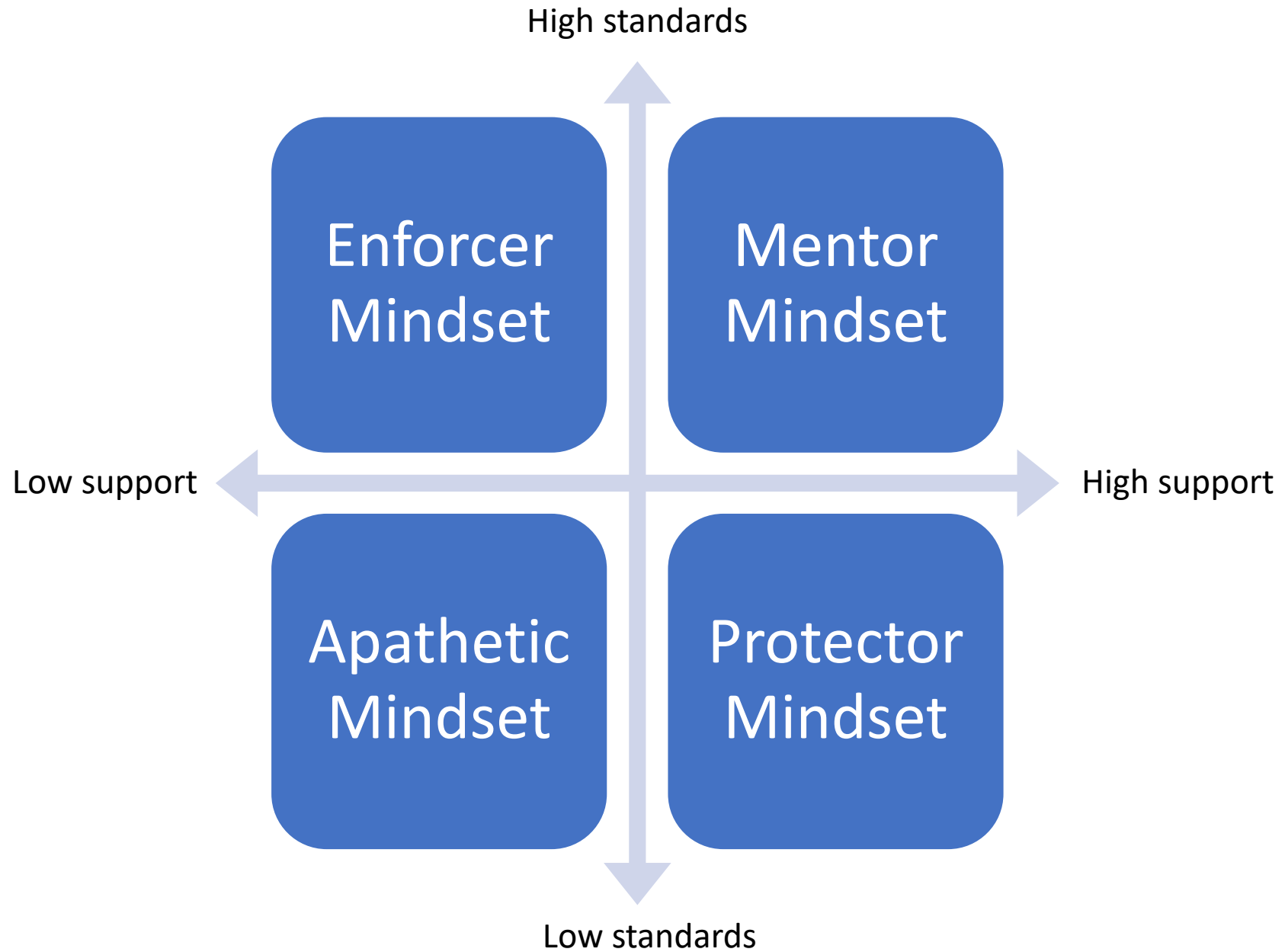


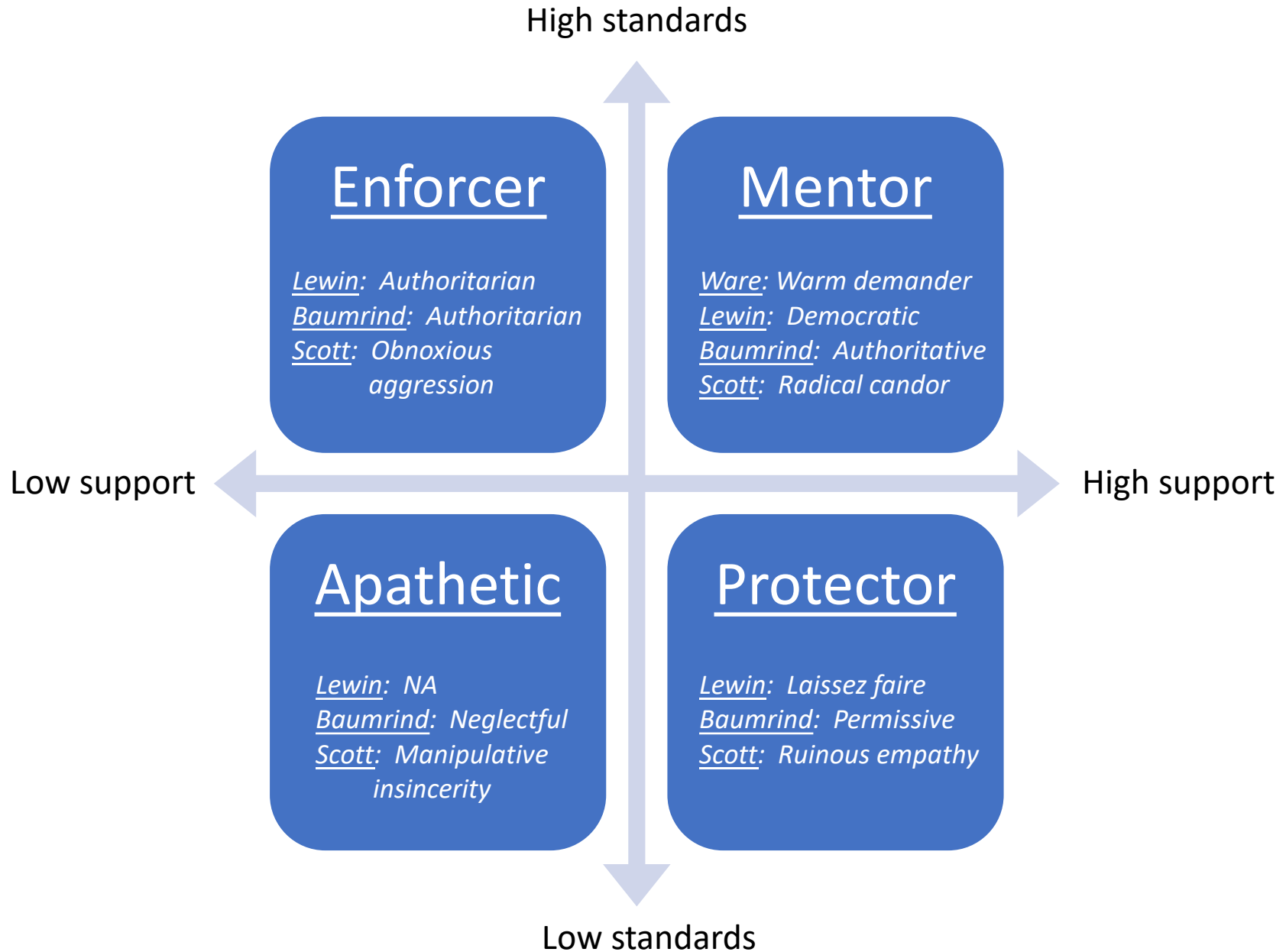
Ruth Buskirk

and more...

It's more than just growth mindset.

It's a *mentor mindset*.





Hypothesis:

People are stuck thinking that there are only two extremes, each with positive/neg qualities



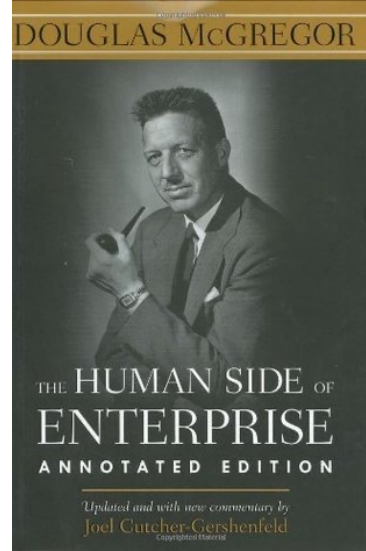
Why?

Because we have the wrong underlying beliefs about young people

“Theory X”

*People dislike working;
Avoid responsibility;
Need constant direction;
Have to be controlled,
forced, and threatened;
Have no desire to work
for ambition; Must be
enticed with rewards or
threats of punishment.*

“Theory Y”



McGregor (1959)

“Theory X”

*People are lazy, untrustworthy,
irresponsible, incapable.*

Tough

Soft

Enforcer

Role: Uphold
standards

Failure response:
Blame, shame, “I
did my part, you
didn’t do yours”

Protector

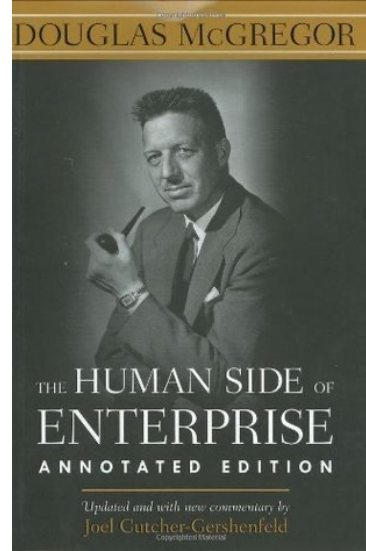
Role: Reduce
discomfort

Failure response:
Compassion but
no effort to
improve

“Theory X”

“Theory Y”

*People can enjoy work;
They want decision-
making authority; They
can be self-motivated;
They can be inspired to
take ownership; They
seek out responsibility;
They crave work that is
fulfilling and challenging.*



McGregor (1959)

“Theory X”

*People are lazy, untrustworthy,
irresponsible, incapable.*

Tough

Soft

Enforcer

Protector

“Theory Y”

*People can be motivated and
independent if given meaning,
purpose, status and respect*

Mentor

Role: Form an
alliance

Failure response:
Presume positive
intent, + supports

Sergio's Transformation Story



Sergio Estrada,
AP / OnRamps Physics Teacher,
Riverside High

From: Chip, Arroyo and
“performing Escalante”
(Theory X) ...

To: Mentor mindset legend
(Theory Y)...

Common Concerns

- Does the mentor mindset take too much time?
 - It's an up-front investment (and hard in a crisis) but pays off in the end
- I'm not a mentor!
 - Everyone can have a mentor *mindset* even if it's not your formal role
- What about people who could never meet a high standard?
(ability, motivation, circumstances, poverty)
 - Everyone can make progress toward a standard, with the right support
 - The mentor mindset is especially good at promoting equity

Three mentor mindset practices (that resolve the mentor's dilemma)



1. Transparency



2. Leveraging
peer stories



3. Managing
stress

Review

- The mentor’s dilemma is everywhere, and it’s infuriating
- There are two “short-term” solutions that backfire eventually
 - Enforcer mindset
 - Protector mindset
- Science is showing the effects of a third way: *Mentor mindset*
 - Maintaining high standards that are matched with equally high support
- To shake our organizations out of the old mindsets, we need to help them adopt “Theory Y” rather than “Theory X”

1. Transparency

- Clarity about intentions
 - E.g. wise feedback
- Why?
 - Power disparities can create distrust
 - Higher-power person should seek to be *overstood*
- Especially important during “mindset moments”
 - *i.e.* – *moments of discomfort that could threaten trust or belonging*
 - Start of class (e.g. first day speech) or start of unit
 - Inviting students to “office hours” (e.g. drop-in hours)
 - Explaining a difficult policy (e.g. rigorous standard; intensive project)
 - Handing back a low grade

1. Transparency

- **Activity:** Write a transparency statement for a “mindset moment”
 - Start of class (e.g. first day speech) or start of unit
 - Explaining a difficult policy (e.g. rigorous standard; intensive project)
 - Handing back a low grade

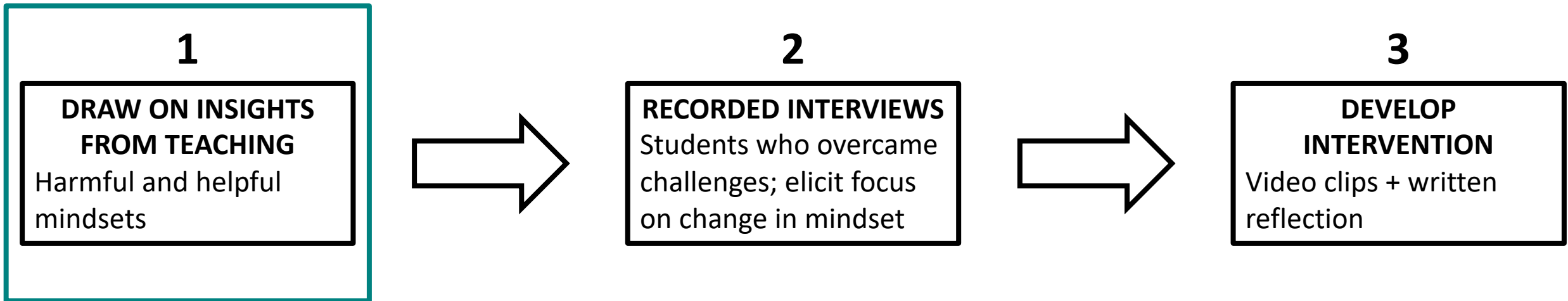
2. Leveraging Peer Stories

Peers provide information:

- How to interpret our circumstances
- How to behave (norms)
- How to respond to challenges



PEER-MODELED MINDSETS



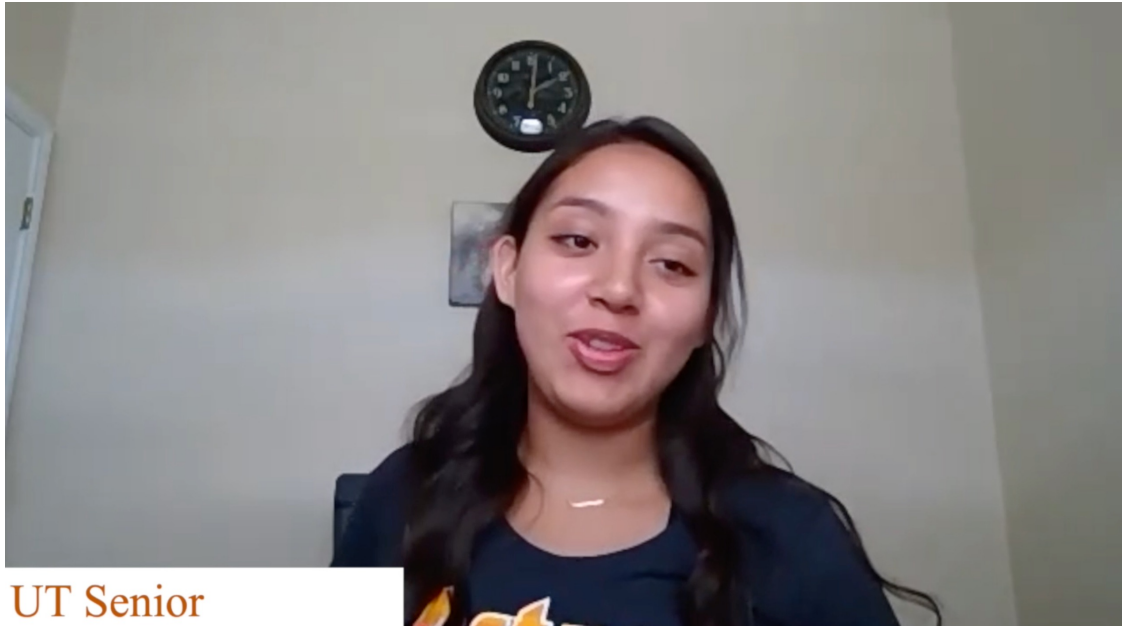
INSIGHTS FROM INTRODUCTORY BIOLOGY INSTRUCTORS

- Common high-school study strategies are insufficient for college biology
- Many students struggle early in the course (e.g., Exam 1)

Harmful mindset: Many students attribute this struggle to lack of potential

Helpful mindset: Students find that they *can* succeed with better study strategies

INTERVIEWS WITH FORMER STUDENTS



UT Senior

Structured interviews

- Initial struggle + interpretation of struggle
- Change in approach to studying
- Change in interpretation of struggle
- Result of these changes

INTERVENTION: 3 ~15-min activities

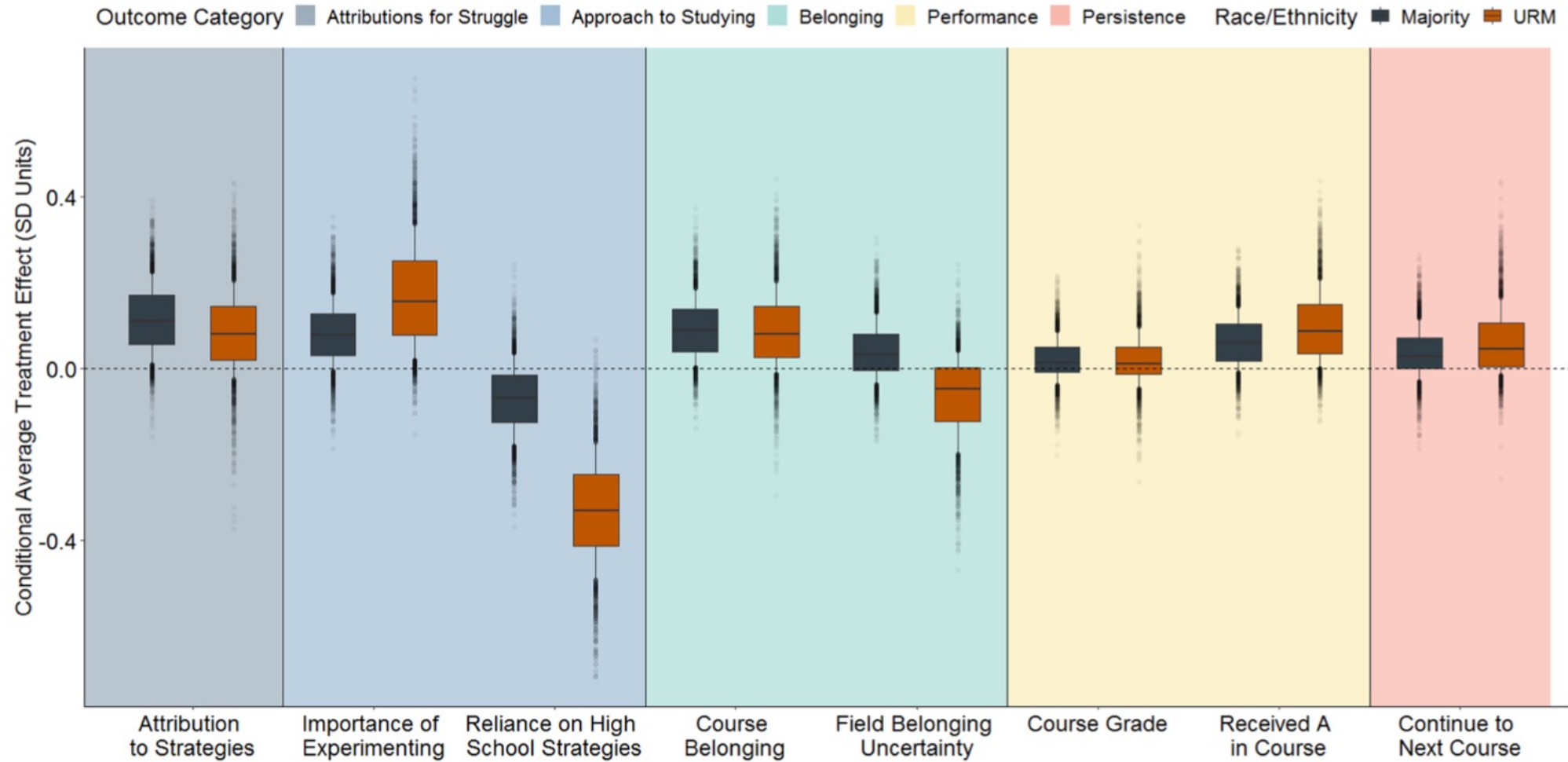
Clips emphasized:

- Initial interpretation of struggle: lack of potential or belonging
- Change in study strategies
- Change in interpretation: struggle was attributable to use of surface-level strategies
- Change in outcomes (eventual success)

Reflective writing activity:

- Relate to own experiences and changes in the class

Introductory biology students ($N = 917$)



Hecht et al. (2022), *CBE-Life Sci. Ed.*



3. Stress

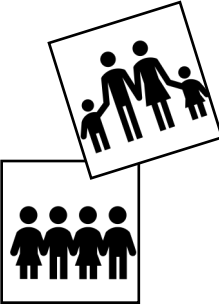
- **Activity:** What would you say?

My name is _____ and I am in your class. I am emailing you to let you know that after nine months of fighting, my mother lost her battle to cancer this weekend and has passed away. Being back home knowing that my family is not doing well, and that my mother just died, my mental health is at an all time low. She is quite literally the closest person in my life and I do not have the emotional capacity to attend class for the rest of this week, or possibly more.

I will do my absolute best to get back on track as soon as I am able to process all of this, especially once I am able to make sure that my brother and dad will be okay by themselves once I come back to Austin. I let my group know about my situation, and they understand that I need to take some time off, but will get right back in the groove once I'm back. I will not be able to do any toolkits or discussions (including the one due last night), so I sincerely hope that this will not negatively impact my grade in your class, as I would not skip your class or any assignments if it was not this detrimental to me. Please understand.

Is Stress Good or Bad?

- Definitions:
 - Stressor – the demands that your body has to respond to
 - Stress response – how you respond to a stressor (perceptions and bodily responses)
- **Stressors** aren't inherently good or bad, but **stress responses** can be good or bad
- The number one purpose of our stress response is to protect us.



Types of Stress Responses

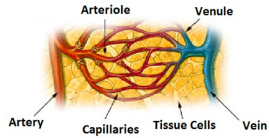
Threat-Type

Challenge-Type

Appraisal

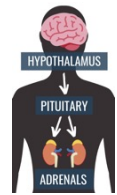
“I CAN’T cope with this”

“I CAN cope with this”



↑ *Vascular Constriction*

↑ *Vascular Dilation*



↑ Cortisol

↓ Cortisol

Coping

↓ Mental Health

↑ Mental Health

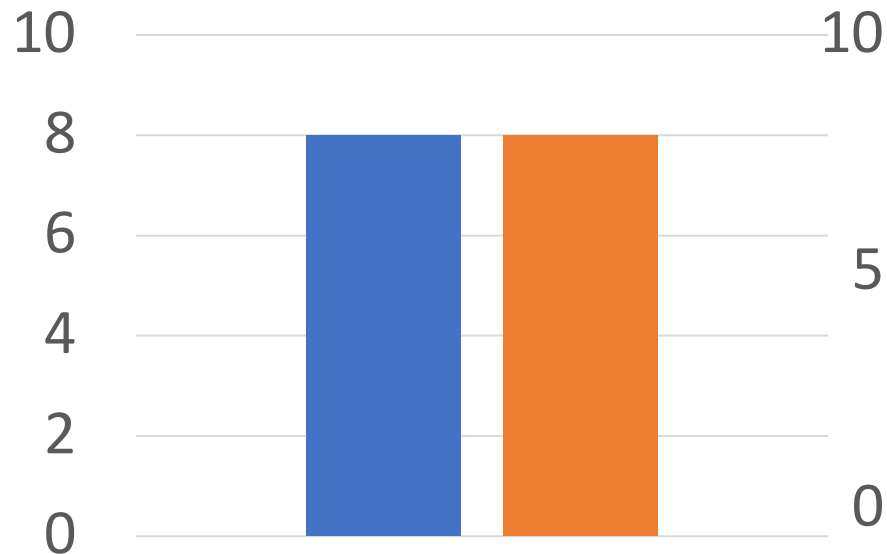


Types of Stress Responses

**“Good” Stress:
(Challenge)**

Demand \leq Resources

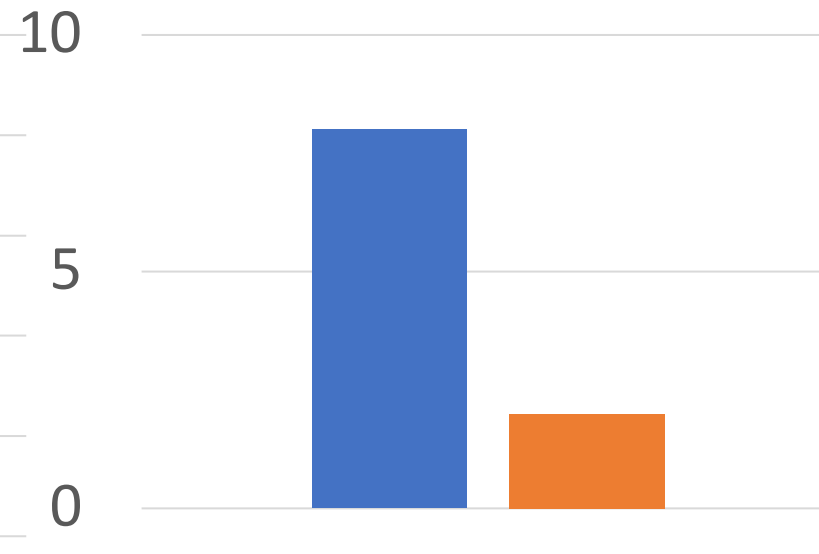
■ Perceived demand
■ Perceived resources



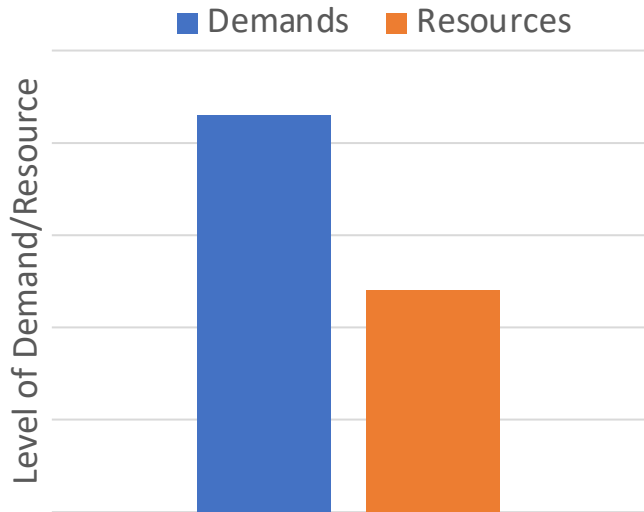
**“Bad” Stress:
(Threat)**

Demand $>$ Resources

■ Perceived demand
■ Perceived resources



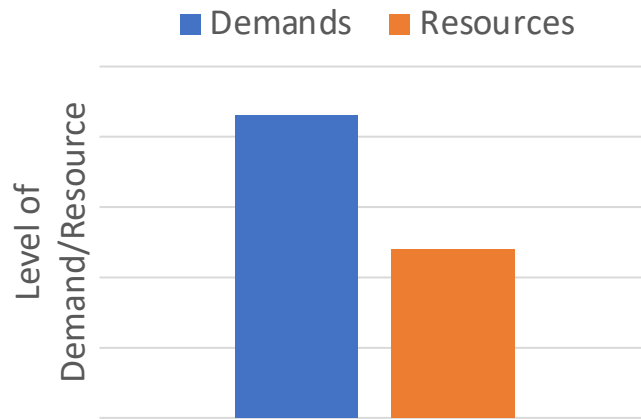
How do we respond?



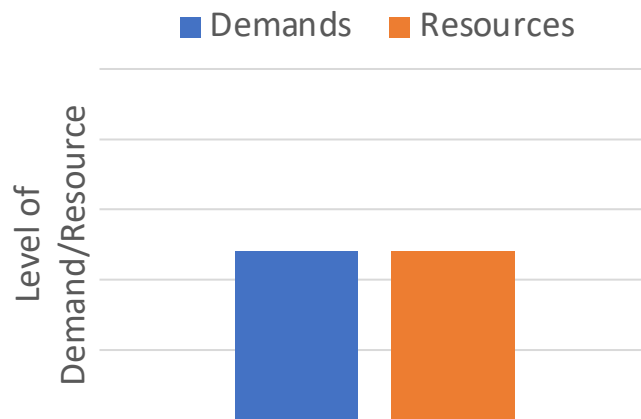
Maintain high standards,
No new supports

Lower standards

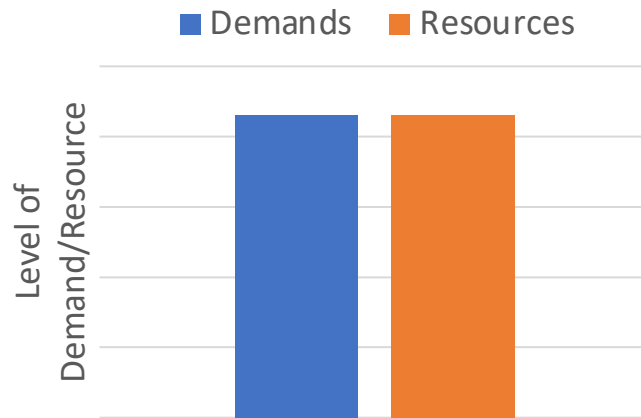
Maintain high standards,
Add new supports



Enforcer



Protector



Mentor

Types of Resources

- Internal resources
 - Re-appraisal of anxiety/stress
- External resources
 - Guidance, support, flexibility, etc.

All College Applicants in Texas



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ABOUT US

About ADVI

ADVi – which is short for “advisor” – is a chatbot powered by Mainstay. ADVi uses artificial intelligence to provide on-demand support to students looking to attend or return to higher education, reaching students with critical college access information.

ADVi uses text messages to provide student-friendly, accurate, and engaging information about key college access milestones, common questions, and action steps. If a student’s inquiry is unable to be answered by ADVi or they need personalized support, the Virtual Advising Project’s trained advisors step in to provide support.

Right now, any student in Texas may access ADVi by texting COLLEGE to 512-829-3687 or by starting a freshman application in ApplyTexas and opting to receive messaging.

About the Virtual Advising Project

The [Texas Higher Education Coordinating Board](#) (THECB) developed the Virtual Advising Project to reach students with critical, timely information to support their postsecondary journey. The goal of the Virtual Advising Project is to help ensure more Texans have the information they need to access higher education and complete their credentials at Texas colleges and universities. This project supports the [60x30TX](#) higher education strategic plan, and provides a safe and cost-effective way for the state of Texas to help advise students and ameliorate the potentially devastating impacts of the Coronavirus pandemic on educational attainment.

What Would You Say?

“Am I good enough for college?”



What Would Sergio Say?

“Am I good enough for college?”



Feeling like you are not good enough is normal. There are many successful people that have felt this way and still feel this way. Let me start off by saying that you are good enough. You are good enough. It is important to recognize where these feelings are coming from. Why do you feel you are not good enough? Not good enough for what? Often, when I compare myself to others, I can lose perspective of my own achievements and the contexts of those achievements. There are times people have not been good enough, but they practiced and grew in order to become better.

Talking With Students About Stress

Do:

- Validate feelings (present an argument for why they're coming from a good place)
- Ask questions to understand where they're coming from
- Find advice that matches what they need and that they haven't tried yet
- Offer to collaborate

Don't:

- Diminish feelings (you shouldn't feel that way; or suppress)
- Give lots of advice (fire hose - without tailoring it)
- Delegate responsibility (now go do all these things and come back to me)

Three mentor mindset practices (that resolve the mentor's dilemma)



1. Transparency



2. Leveraging
peer stories



3. Managing
stress