

# **GROWING A GRITTY EDUCATIONAL CULTURE:**

## **DEVELOPING A GROWTH MINDSET TO BUILD PASSION AND PERSEVERANCE IN OUR LEARNERS**

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- **No conflicts of interest**

# **EDUCATIONAL OBJECTIVES**

- **Explain the concepts of**
  - **Grit**
  - **Growth vs. Fixed Mindset**
- **Assess learning styles for Grit and Mindset.**
- **Apply these concepts to the health care education environment.**
- **Apply these concepts to address clinical examples of struggling learners/faculty.**
- **Utilize these concepts to build a supportive clinical educational environment**



### THE GRIT SCALE

How gritty are you? Below is a version of the Grit Scale I developed for my study at West Point and which I used in other studies described in this book. Read each sentence and, on the right, check off the box that makes sense. Don't overthink the questions. Instead, just ask yourself how you compare—not just to your coworkers, friends, or family—but to “most people.”

	Not at all like me	Not much like me	Somewhat like me	Mostly like me	Very much like me
1. New ideas and projects sometimes distract me from previous ones.	5	4	3	2	1
2. Setbacks don't discourage me. I don't give up easily.	1	2	3	4	5
3. I often set a goal but later choose to pursue a different one.	5	4	3	2	1
4. I am a hard worker.	1	2	3	4	5
5. I have difficulty maintaining my focus on projects that take more than a few months to complete.	5	4	3	2	1
6. I finish whatever I begin.	1	2	3	4	5
7. My interests change from year to year.	5	4	3	2	1
8. I am diligent. I never give up.	1	2	3	4	5

9. I have been obsessed with a certain idea or project for a short time but later lost interest.	5	4	3	2	1
10. I have overcome setbacks to conquer an important challenge.	1	2	3	4	5

To calculate your total grit score, add up all the points for the boxes you checked and divide by 10. The maximum score on this scale is 5 (extremely gritty), and the lowest possible score is 1 (not at all gritty). You can use the chart below to see how your scores compare to a large sample of American adults.\*

Percentile	Grit Score
10%	2.5
20%	3.0
30%	3.3
40%	3.5
50%	3.8
60%	3.9
70%	4.1
80%	4.3
90%	4.5
95%	4.7
99%	4.9

\*Keep in mind that your score is a reflection of how you see yourself right now. How gritty you are at this point in your life might be different from how gritty you were when you were younger. And if you take the Grit Scale again later, you might get a different score.

- **Angela Duckworth's Grit Scale**

- from her book- *Grit: The Power of Passion and Perseverance*



- Carol Dweck's
- Mindset Profile

from her book- Mindset: The New Psychology of Success.

**MINDSET ASSESSMENT PROFILE** Name: \_\_\_\_\_

This is NOT a test! It is an opinion survey about beliefs and goals regarding ability and performance. It is very important that you give your honest opinion, not what you believe someone else would think best. Read each statement, decide how much you agree or disagree with the statement, and circle your answer.

Do you Agree or Disagree?	Disagree A Lot	Disagree	Disagree A Little	Agree A Little	Agree	Agree A Lot	Profile Number
1. No matter how much intelligence you have, you can always change it a good deal.	1	2	3	4	5	6	
2. You can learn new things, but you cannot really change your basic level of intelligence.	1	2	3	4	5	6	
3. I like my work best when it makes me think hard.	1	2	3	4	5	6	
4. I like my work best when I can do it really well without too much trouble.	1	2	3	4	5	6	
5. I like work that I'll learn from even if I make a lot of mistakes.	1	2	3	4	5	6	
6. I like my work best when I can do it perfectly without any mistakes.	1	2	3	4	5	6	
7. When something is hard, it just makes me want to work more on it, not less.	1	2	3	4	5	6	
8. To tell the truth, when I work hard, it makes me feel as though I'm not very smart.	1	2	3	4	5	6	
<b>MINDSET ASSESSMENT PROFILE NUMBER</b>							



### Creating Your Mindset Assessment Profile

1. First, determine your Profile Number for each question.
  - For questions with odd numbers (1, 3, 5, 7), write the number of your answer into the boxes in the right column.
  - For questions with even numbers (2, 4, 6, 8), use the table below to fill in the gray boxes in the right column.

If you chose this answer:	Then write <u>this</u> number in the gray box on the right (Profile Number).
Disagree A Lot (1)	6
Disagree (2)	5
Disagree A Little (3)	4
Agree A Little (4)	3
Agree (5)	2
Agree A Lot (6)	1

2. Now, add up all your Profile numbers.
  - Add up all the numbers in the Profile column on the right, and write the total in the last box in the bottom right corner.
3. What does your Mindset Profile Number mean?
  - Find the group that includes your number in the chart below and circle it.
  - Now, read what it says about your MAP group.

If your profile number falls into this range:	Then your MAP (Mindset Assessment Profile) group is:	People in this MAP group usually believe the following things:
8-12	F5	You strongly believe that your intelligence is fixed—it doesn't change much. If you can't perform perfectly you would rather not do something. You think smart people don't have to work hard.
13-16	F4	
17-20	F3	You lean toward thinking that your intelligence doesn't change much. You prefer not to make mistakes if you can help it and you also don't really like to put in a lot of work. You may think that learning should be easy.
21-24	F2	
25-28	F1	You are unsure about whether you can change your intelligence. You care about your performance and you also want to learn, but you don't really want to have to work too hard for it.
29-32	G1	
33-36	G2	You believe that your intelligence is something that you can increase. You care about learning and you're willing to work hard. You do want to do well, but you think it's more important to learn than to always perform well.
37-40	G3	
41-44	G4	You really feel sure that you can increase your intelligence by learning and you like a challenge. You believe that the best way to learn is to work hard, and you don't mind making mistakes while you do it.
45-48	G5	

4. Do you think the description under your MAP group matches the way you think and feel about your school work? Which parts are true for you and which are not?

**PASSION + PERSEVERANCE = GRIT**

# CAN WE GET GRITTIER?

**Growing from the Inside Out**

**Interest**

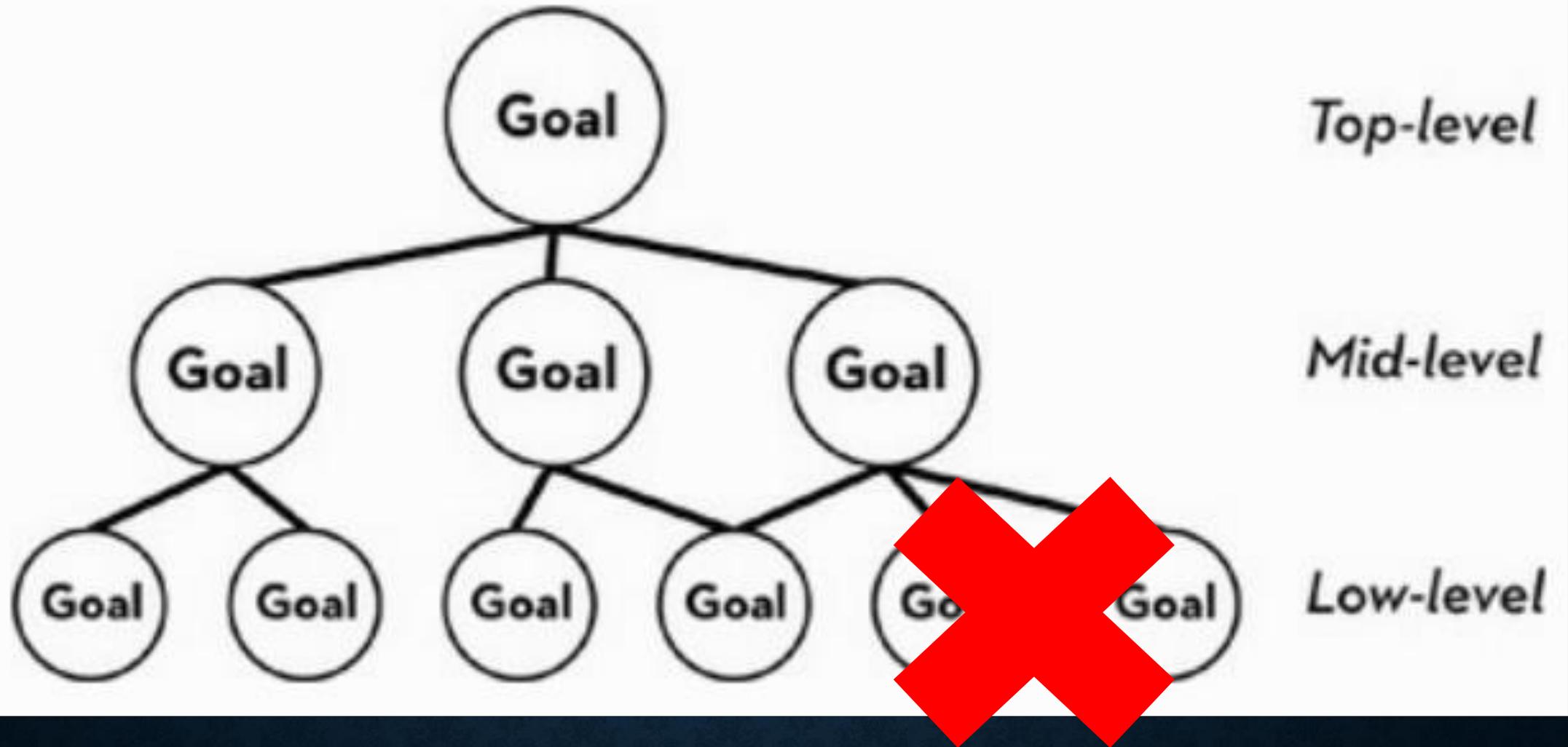
**Practice**

**Purpose**

**Hope**



*no grit, no pearl*



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

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• - *Albert Einstein* •

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# GROWING GRIT FROM THE OUTSIDE IN

**Building a supportive educational environment**

- **Emphasize the effort not the talent.**
- **Give clear expectations and expect them to achieve.**
- **Give honest coaching/feedback that pushes them to the next level.**

# EMPHASIZE THE **EFFORT** NOT THE TALENT

“Wow. You must be smart at these problems.”

Vs.

“Wow. You must have worked hard at these problems.”

Emphasize the...

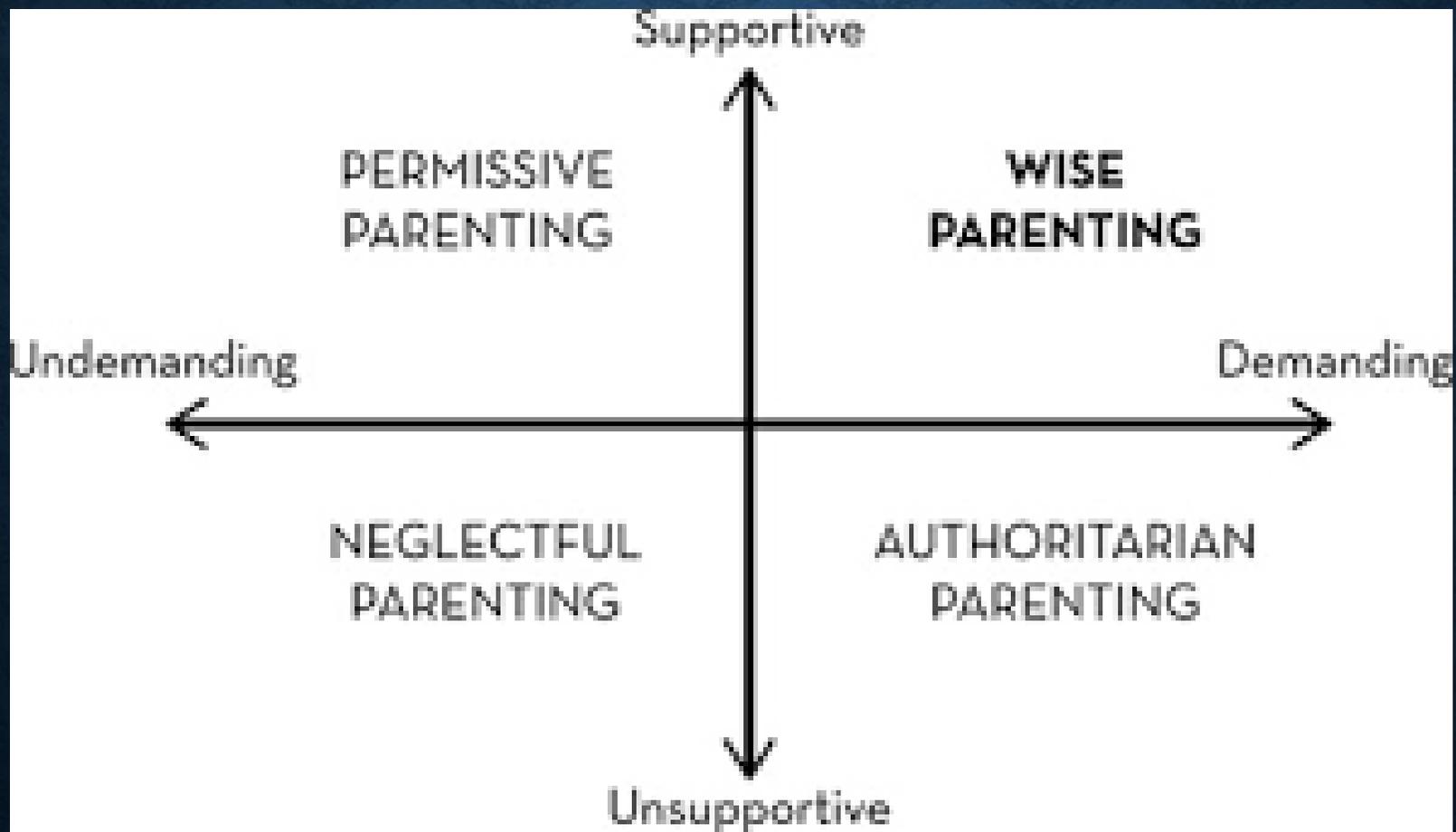
- Struggle
- Seeing a task through
- Acting on criticism
- Taking initiative

Learner completes a task well. Instead of praise, say “guess that was too easy, let’s do something you can really learn from”

# GROWING GRIT FROM THE OUTSIDE IN

**Building a supportive educational environment**

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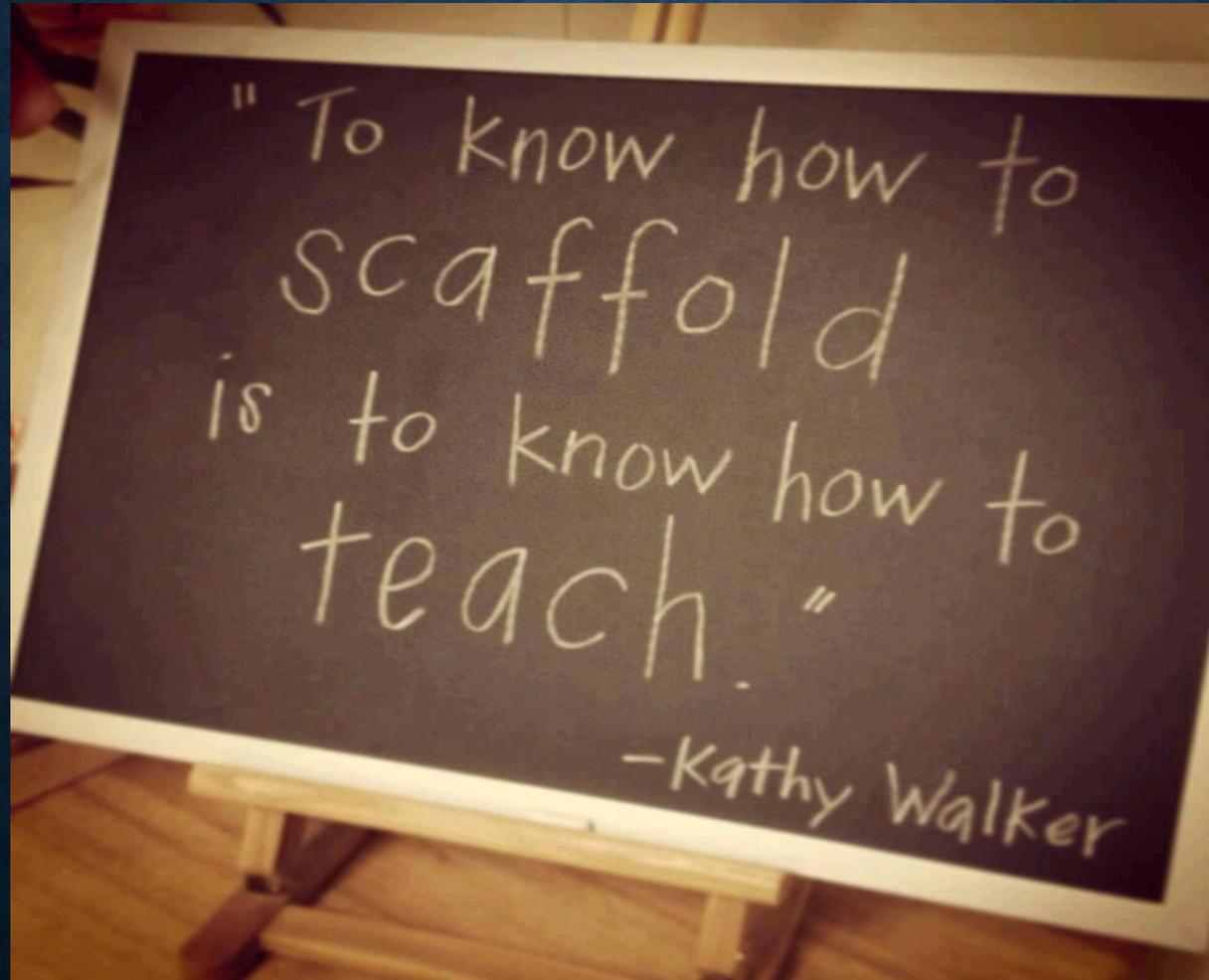


# GROWING GRIT FROM THE OUTSIDE IN

## Building a supportive educational environment

- **Emphasize the effort not the talent.**
- **Give clear expectations and expect them to achieve.**
- **Give honest coaching/feedback that pushes them to the next level.**

**GIVE HONEST COACHING/FEEDBACK THAT  
PUSHES THEM TO THE NEXT LEVEL.**





In a growth mindset, challenges are exciting rather than threatening. So rather than thinking, oh, I'm going to reveal my weaknesses, you say, wow, here's a chance to grow.

— Carol S. Dweck —

AZ QUOTES

*GRITTY PEOPLE  
HAVE A GROWTH  
MINDSET; WHEN BAD  
THINGS HAPPEN,  
THEY DON'T GIVE UP.*

**ANGELA DUCKWORTH**

**#WomenWhoWork**

ABILITY VS.  
EFFORT PRAISE



# Intelligence vs. Effort Praise

(Mueller & Dweck, 1998)

“Wow, you did very well on these problems. You got [X] right. That’s a really high score.”

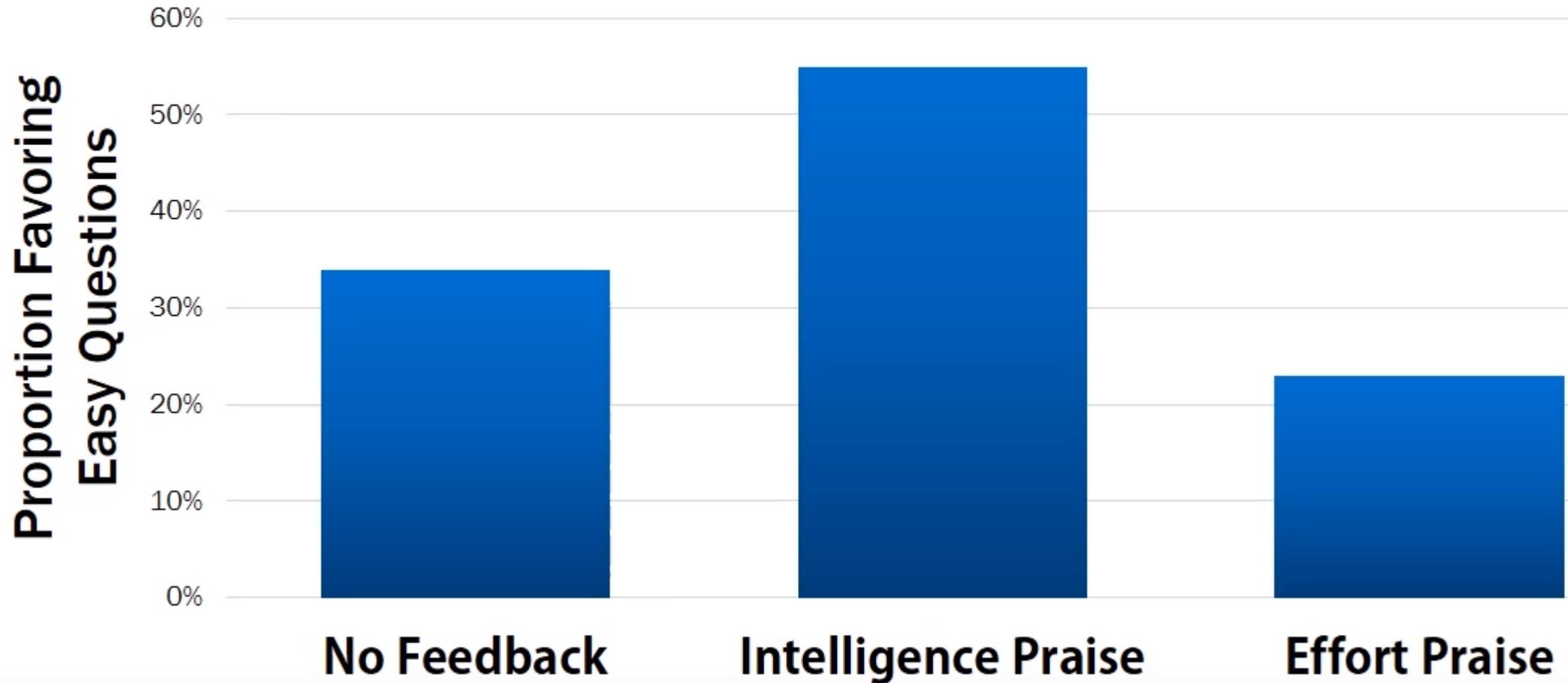
**“You must be smart at these problems.”**

**“You must have worked hard at these problems.”**

# Which problems next?

Choose from:

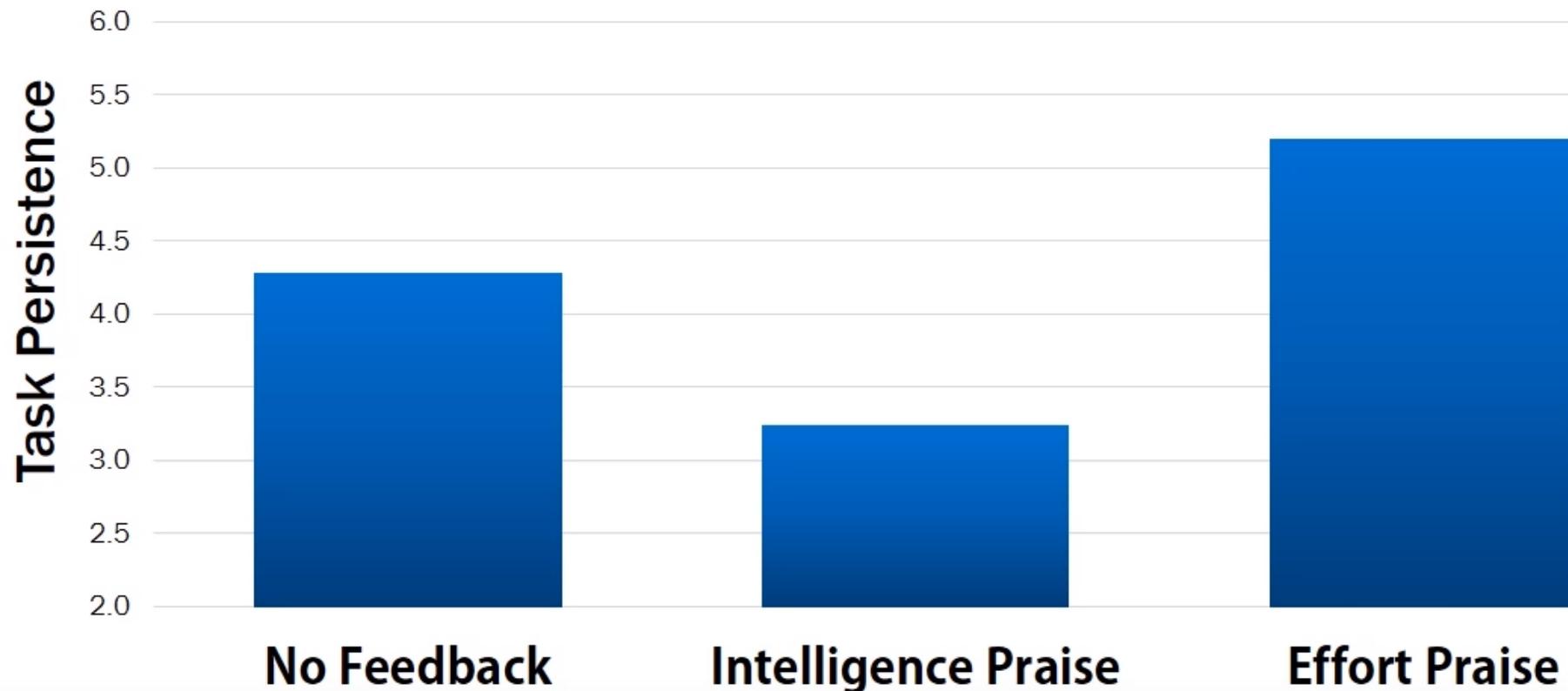
- “Problems that are pretty easy, so I’ll do well.”
- “Problems that I’ll learn a lot from, even if I won’t look so smart.”



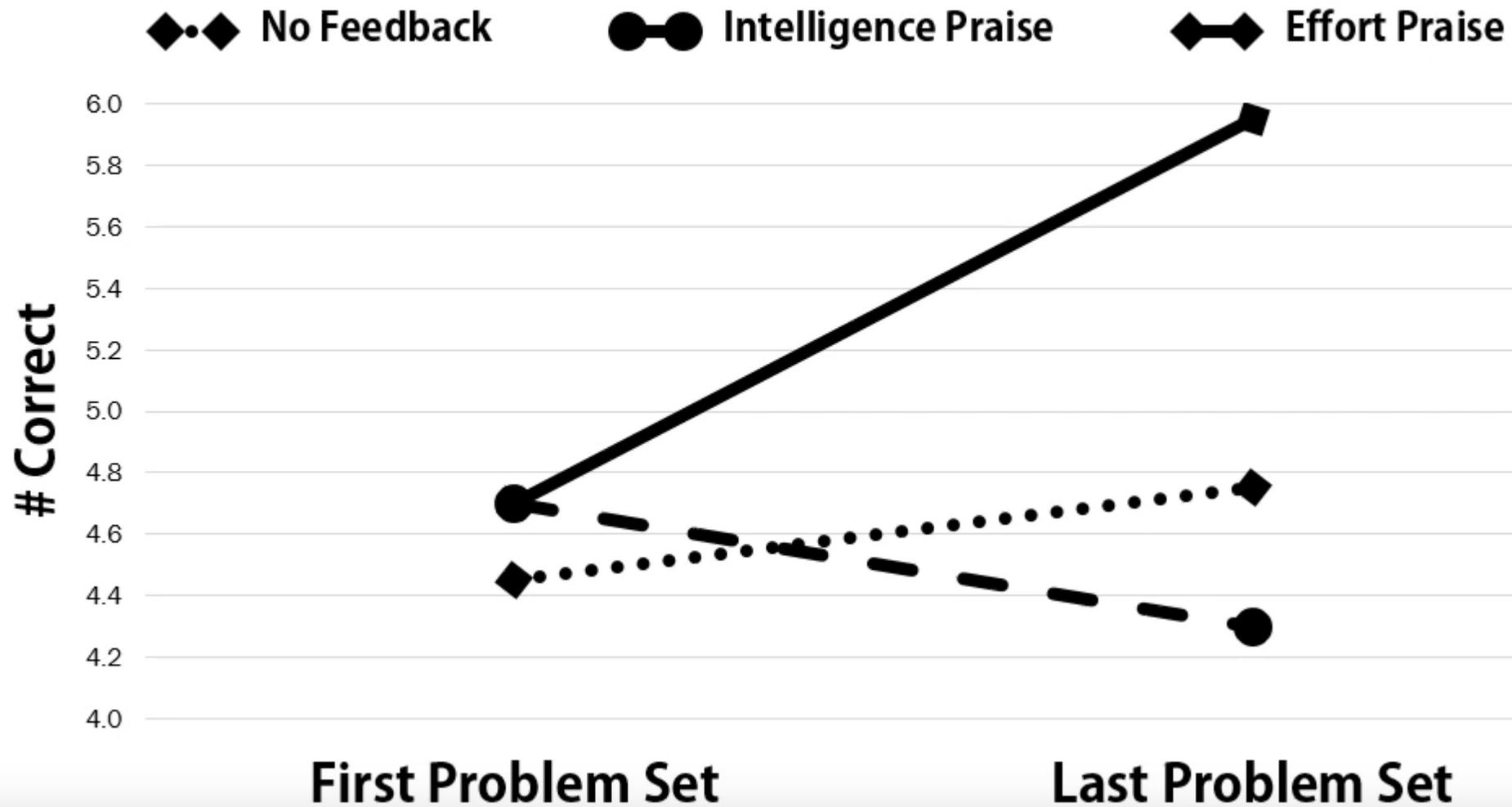
Another set of more difficult problems.

Everyone told they did “much worse” on these problems

**“How much would you like to take these problems home to work on?”**

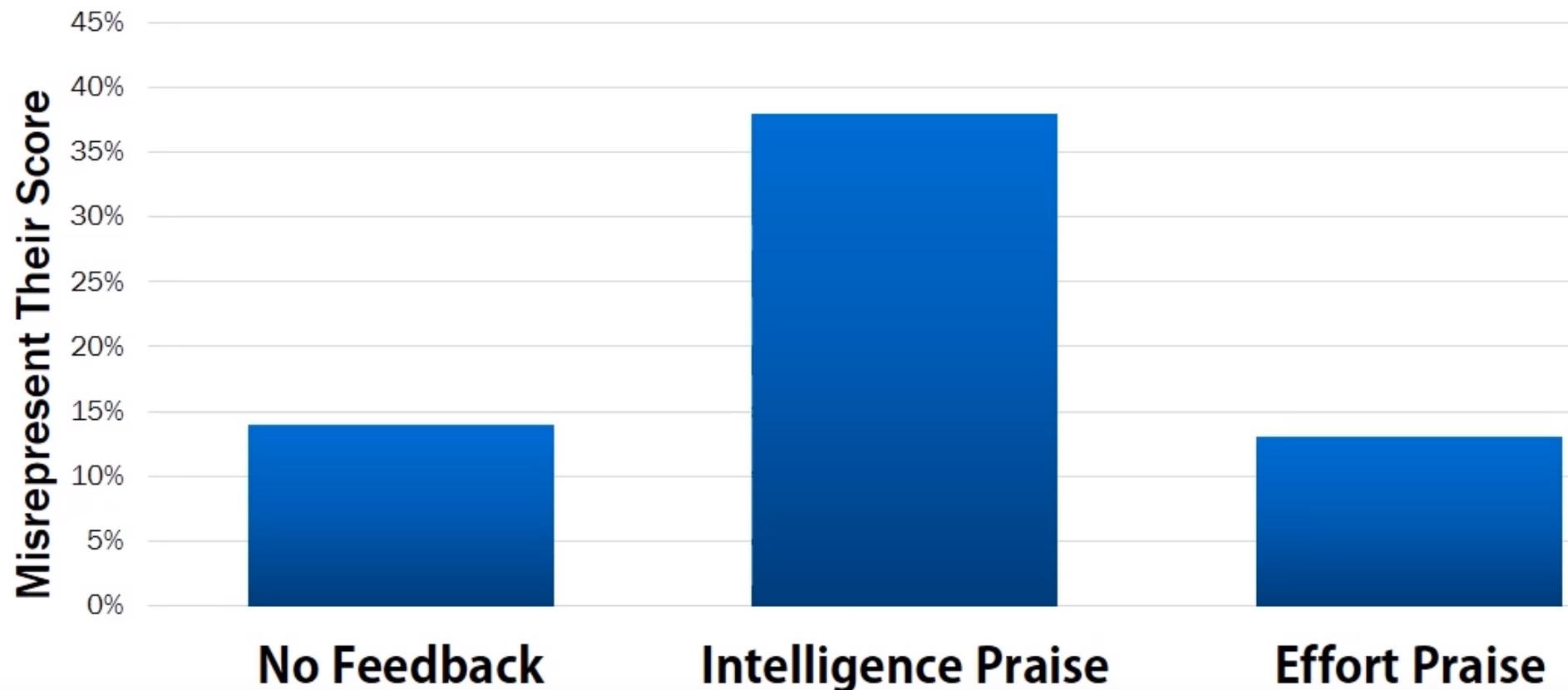


# They do one more set of problems.



**“Write a description of these problems for children in another state and indicate how many problems you answered correctly.”**

## **Did they inflate their score?**



# MINDSET IN THE LITERATURE

## Growth mindset

**accepts negative feedback / remediation**

**believes CAN improve**

**uses failure as opportunity to grow**



## Fixed mindset

**defensive when self esteem threatened**

**believes CANNOT improve**

**validates fixed competence by rejecting  
feedback, "at least I am better than those  
people"**





Success is not final;  
failure is not fatal: it  
is the courage to  
continue that counts.

– Winston Churchill

*“Teaching is a very  
deliberate action”*

-John Hattie



# BUILDING A GROWTH MINDSET ENVIRONMENT

## Teachers' Mindsets:

**Growth:** encourages risk / effort  
learn from mistakes

**Fixed:** praises talent  
labels ability / "comforts"



May hold "Growth" mindset but actions reflect "Fixed"

Can demotivate and lower students' self-expectations

-De Karaker-Pauw et al. 2017

# MINDSET IN THE LITERATURE

## CHANGING STUDENTS' MINDSETS

- **Build growth mindset through education on neuroplasticity**
- **Encourage risk/praise learning from mistakes**



**Brief on-line educational intervention raised achievement in large group of underperforming high school students**

# GROWTH MINDSET IN MEDICAL EDUCATION

**Suggested as a way to train students to deal with medical error**

- **Give opportunities for error in diagnostic reasoning and learn from those errors**
- **Role of simulation training**
- **Feedback to reinforce learning as a result of mistake**
- **Clinical spaces with shared learning from errors**



**Schwartz Rounds**

**Grand Rounds/ M&M**



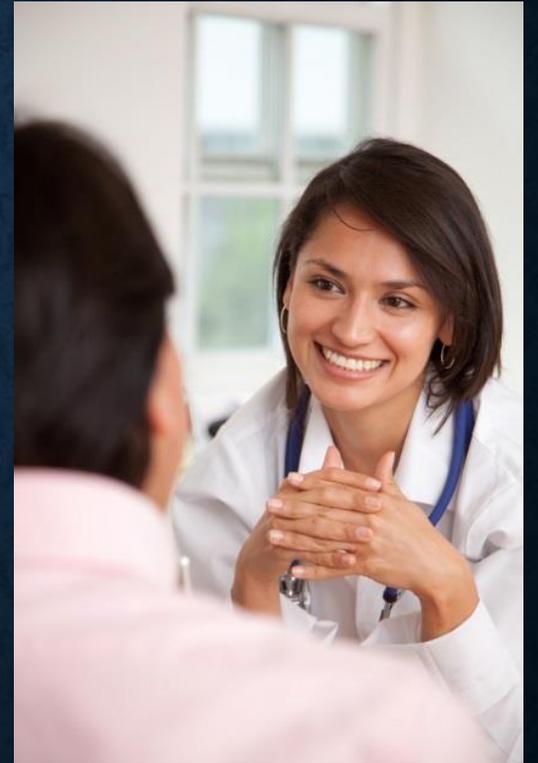
**Klein J et al 2017**

# MINDSET IN CLINICAL MEDICINE

**Survey of pediatric MDs at tertiary teaching hospital  
residents/fellows/attendings**

**176/349 (50%) responded**

- **No dominant mindset**
- **Mindset did not correlate with reports of medical errors**



# **TOLERANCE OF FAILURE IN HEALTHCARE**

**"We are slow to acknowledge our faults because we do not believe in redemption."**

**"The only real failure is the failure to try."**

**"Everything will be all right in the end. If it is not all right, it is not the end."**

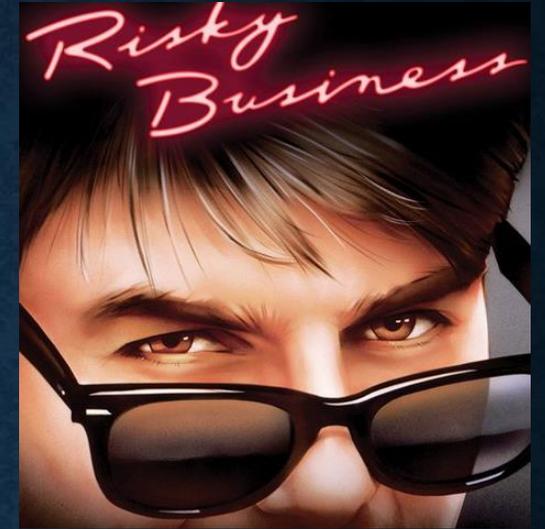
# WU 1991

- **Do House Officers Learn from their Mistakes?**
- **254 residents 45% response rate and reported a serious mistake**
- **33% diagnostic error**
- **29% prescribing**
- **21% evaluation**
- **11% procedural complication**

# WU 1991

- **90% serious outcome, 31% death**
- **54% discussed with attending**
- **24% discussed with family**
- **Accepted responsibility and discussed, more likely to learn**
- **Blamed overload/judgmental institution, did not discuss, less likely to learn**
- **Of those cases discussed in conferences, almost half said**
  - **“The tough issues were not addressed.”**

# RISKY BUSINESS...



- Positive association between **PSYCHOLOGICAL SAFETY** and residents' satisfaction with the clinical learning environment.
- Key is how faculty and colleagues respond to mistakes.
- May mitigate or exacerbate risks of learning.

# MINDSET AND FEEDBACK

Resident perception management

Stage performance based on perception

Consequences = fixed mindset

Trust in supervisor = growth mindset



Huffman BM et al. Med Ed 2020

# GRIT IN THE MED ED LITERATURE

**Has been positively associated with**

- **surgical resident well being**  
-Salles et al
- **completion of surgical training**  
-Walker et al



# GRIT IN THE LITERATURE



**Has been negatively associated with**

- **attrition from surgical residency**

-Burkhart et al

- **burnout in surgical residents**

-Salles et al

- **risk of suicidal ideation**

-Blalock et al 2015

# **“EARLY ADOPTERS” OF GRIT FOR RECRUITMENT**

**Shih et al JGME 2017**

- **recommend in UME/GME application assessment**
- **suggest review resumes for evidence**
- **note has NOT been validated in medical education**

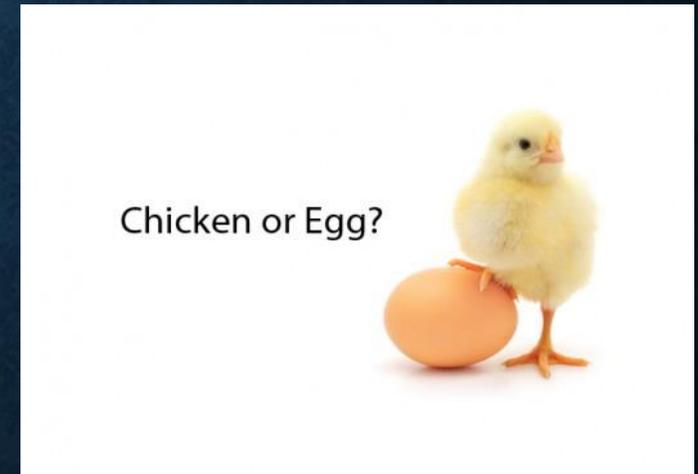
**Kelly AM et al Journal of Surgical Education 2017**

- **screened orthopedic residents and med student applicants**
- **all high in Grit scores**
- **recommend adding non-cognitive variable to selection process**

# GRIT IN THE LITERATURE

**Resilience training recommended for medical students**

- **Little evidence that training affects grit levels**
- **Lack long term follow up**



# ORGANIZATIONAL GRIT

- we recommend carefully **reviewing an applicant's track record**. In particular, look for **multiyear commitments** and objective evidence of advancement and achievement, as opposed to frequent lateral moves, such as shifts from one specialty to another. When checking references, listen for evidence that candidates have **bounced back from failure in the past, demonstrated flexibility** in dealing with unexpected obstacles, and sustained a habit of continuous self-improvement. Most of all, look for signs that people are **driven by a purpose bigger than themselves, one that resonates with the mission of your organization**.

Lee and Duckworth 2018

# LET'S APPLY GRIT/GROWTH IN OUR LEARNING ENVIRONMENTS

- **How could MINDSET or GRIT help understand what is going on with these situations?**



# The “helpless” medical student

## The “Helpless” Medical Student

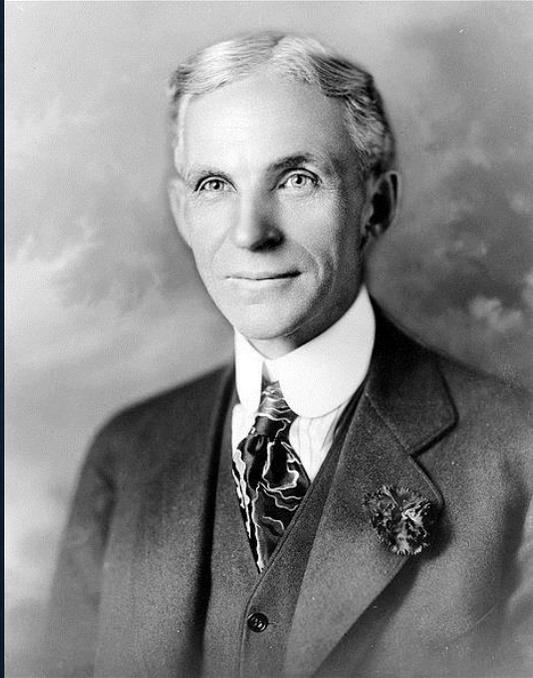
Marie is a third year student on your clerkship. She had done well in her pre-clinical years but now is reported as not participating on her team. She is pleasant but very quiet and does not volunteer information on her patients on rounds. When asked, she usually answers questions about disease entities well but has trouble applying her knowledge to clinical problems. She is hesitant to venture a diagnosis or suggest a plan making residents question her fund of knowledge.

# The “overwhelmed” resident

Nick is an intern in OBGYN. He was high on the Match list with good grades from a strong school. He had good evaluations on his first rotation in outpatient GYN a relatively easy rotation. However, on his second rotation, GYN Oncology which is quite challenging, he was not able to efficiently gather the needed patient information for rounds and sometimes forgot to follow up on important details. The Onc attendings said he didn't know his patients and was “clueless” in the OR. By the third rotation, L&D days which is also challenging, he is clearly overwhelmed. Senior residents find him spending too much time on small tasks and neglecting emergent needs. He doesn't seem to be willing to ask for help. He tells you he is considering switching into Family Practice.

# The “burning out” faculty member

Jeff is a sub-specialty attending who joined your faculty two years ago as an Associate Professor. He brings new clinical expertise and the department was very happy to recruit him. From the beginning, he has made many references to how things were done at “his” school. He is not willing to allow house staff to develop plans that differ from his preferred approach. He often clashes with chief residents about how poorly they run their teams or care for their patients. When he gets back poor teaching evaluations from the residents, he says that is what you would expect from such weak residents when someone tries to hold them to high standards.



***“Failure is simply the opportunity to begin again, this time more intelligently. There is no disgrace in honest failure; there is disgrace in fearing to fail.”***

***- Henry Ford***

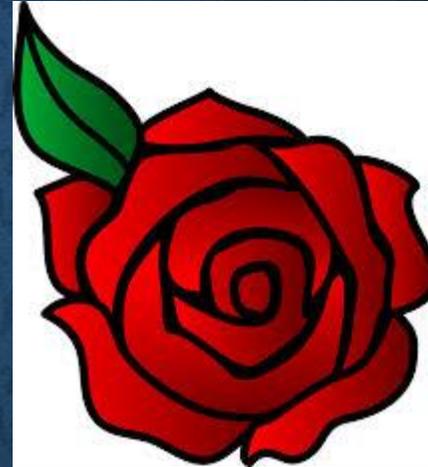
[www.dailyinspirationblog.com](http://www.dailyinspirationblog.com)



But is it enough?

# GRIT BY ANY OTHER NAME

- **Perseverance**
- **Conscientiousness**
- **Personality**
- **Optimism**
- **Attributional style**



## Jungle Fallacy?



But is it  
enough?

# Rethinking Positive Thinking

INSIDE THE NEW SCIENCE  
OF MOTIVATION



Gabriele Oettingen

# **MENTAL CONTRASTING IMPLEMENTATION INTENTIONS**

**MCII Duckworth 2013**



**WOOP**

## WOOP steps

### Wish

*I want to learn more about sepsis*

### Outcome

*I will feel much more in control when managing these patients by myself*



### Obstacle

*I spend too much time on Facebook*



### Plan: "If [obstacle], then I will [action]"

If... *I am looking through Facebook posts*

Then... *I will turn off my phone and read one of my sepsis articles*

## WOOP tips

- The goal should be important to you.
- It should be attainable but challenging.

- This should be the single best outcome of achieving the goal for you.
- You must imagine the outcome.

- The obstacle should be internal (something you can control), not external (eg, "I don't have time").
- You must imagine the obstacle.

- The planned actions should promote your goal.
- The action should be one that you plan to enact in the moment the obstacle arises.

# RESIDENT STUDYING BEHAVIORS

34 Anesthesia Residents  
1 mo ICU Rotation

Intervention  
WOOP to study more

- Digital collection of articles
- Daily diary tracking

Comparison  
Set goals to study more

30 min Intervention  
Activities

# RESIDENT STUDYING BEHAVIORS

34 Anesthesia Residents  
1 mo ICU Rotation

Intervention  
WOOP to study more

Comparison  
Set goals to study more

4.3 hours of  
studying

1.5 hours of  
studying

**THERE'S AN APP FOR THAT!**



# **PENN RESILIENCY PROGRAM (PRP)**

Program to prevent depression by teaching the principles of learned optimism

Implemented successfully in early adolescents in primary care setting

PRP effects strongest when group leaders are intervention developers/research team

Effects inconsistent, smaller, non significant when taught by teachers/counselors

# **MENTAL TOUGHNESS TRAINING INTERVENTION**

**Australian football team**

**pre-season intervention to improve grit, optimism and performance**

**most effective for those players yet to reach consistent top performance**

**US Military**

**Comprehensive Soldier and Family Fitness**

**Master Resilience Training**

**increased self reported resilience/psych health**

**decreased mental health dx and substance abuse**

Harms PD 2013

# GROWTH MINDSET- OLDER CONCEPT



But some recent concerns regarding reproducibility....

Li and Bates 2017

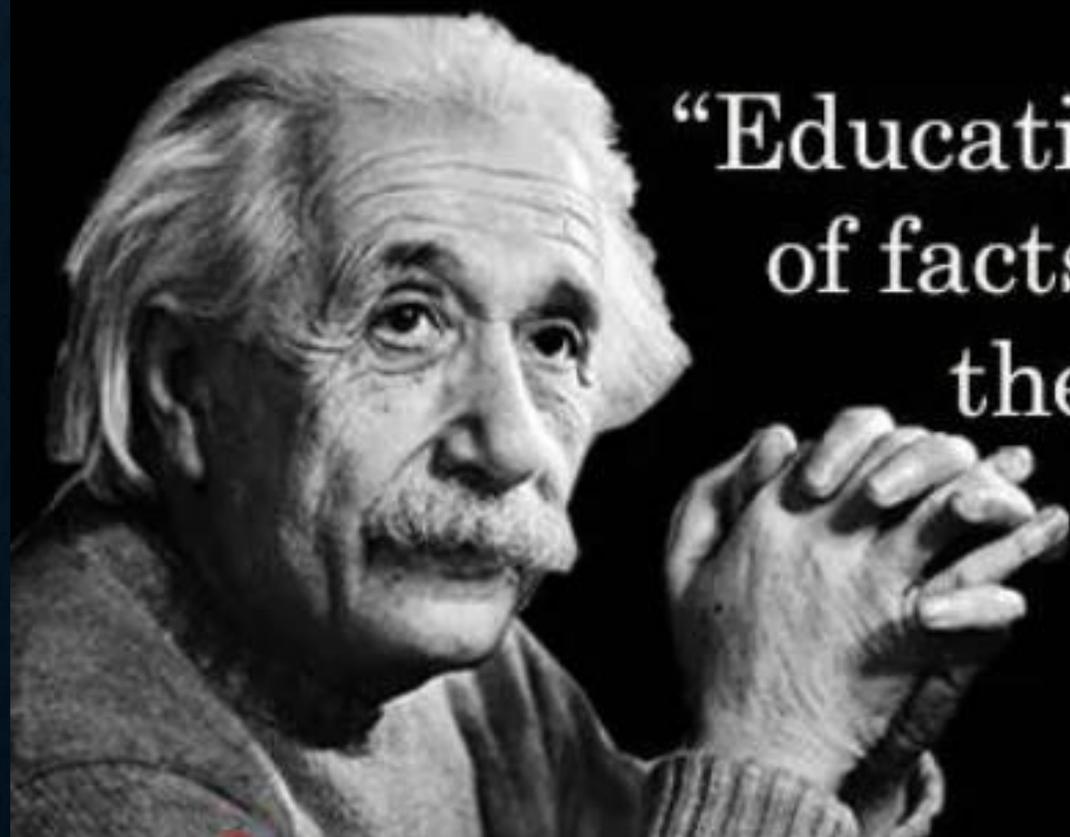
# CHALLENGES

What do I use?

What's best to  
consider for my  
learners?

Why is this getting  
so complicated?





“Education is not the learning  
of facts, but the training of  
the mind to think.”

— **Albert Einstein**

# INDIVIDUAL LEARNERS:

Constructive supportive feedback

Psychological safety

Goal setting / WOOP

Counseling for problems



# GROUP LEARNING ENVIRONMENT ORGANIZATIONAL WORK ENVIRONMENT

Psychological safety

Supportive learning environment

Support of life-long learning

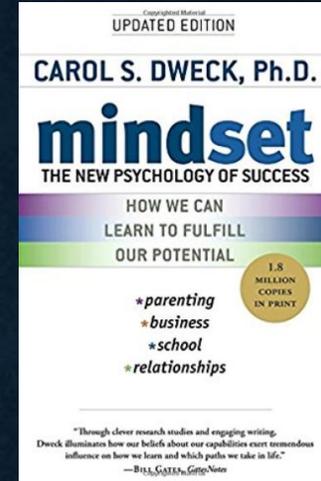
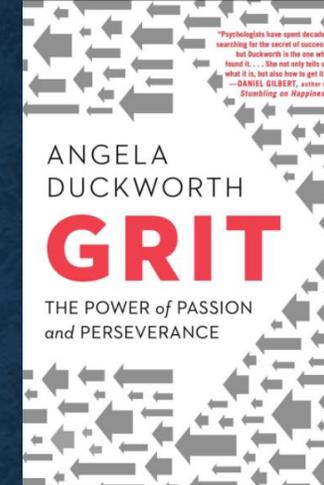


- Angela Duckworth's TED Talk
  - <https://ed.ted.com/on/1xgK6Cat>
- Carol Dweck's TED Talk
  - [https://www.ted.com/talks/carol\\_dweck\\_the\\_power\\_of\\_believing\\_that\\_you\\_can\\_improve/discussion](https://www.ted.com/talks/carol_dweck_the_power_of_believing_that_you_can_improve/discussion)
- Dweck's 5<sup>th</sup> Grader Experiment
  - <https://youtu.be/4SH0Ho0FNd8>

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