

# Fostering the Development of Master Adaptive Learners

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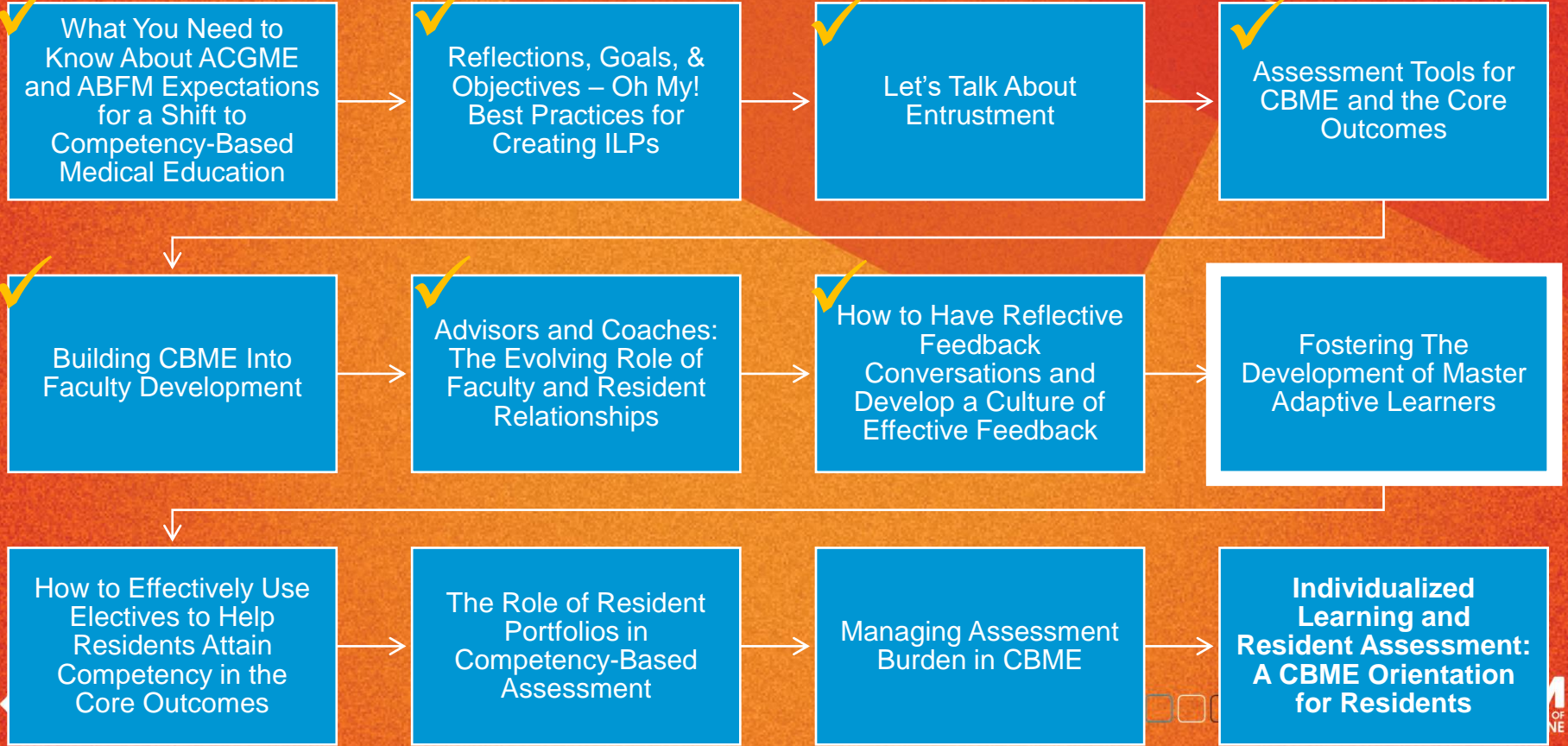
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Professor Learning Health Sciences, Family Medicine  
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Community Health and Family Medicine

# Faculty Development Webinars

[stfm.org/cbmewebinars](http://stfm.org/cbmewebinars)



# Poll Question

My comfort level with the term “master adaptive learner” is:

- A. What *IS* that?
- B. I have some idea but could not explain it.
- C. I am a master adaptive learner!
- D. I foster the development of master adaptive learners in my program.



£1.4  
Million







# Objectives

- To understand the master adaptive learner(MAL) conceptual framework
- To gain tools to the incorporate MAL framework into curricula
- To understand the clinical learning environment in which MALs thrive

# Doubling time of medical knowledge

**50**

**years**

x  $\longrightarrow$  2x

1950

**73**

**days**

x  $\longrightarrow$  2x

2020

**30**

**days**

x  $\longrightarrow$  2x

2050

- Peter Densen



# Doubling time of medical knowledge

- What was learned in the first 3 years of medical school will be just 6% of what was known at the end of the decade from 2010 to 2020.
- Knowledge is expanding faster than our ability to assimilate and apply it effectively.
- This is as true in education and patient care as it is in research.
- Clearly, simply adding more material and or time to the curriculum will not be an effective coping strategy—fundamental change has become an imperative.

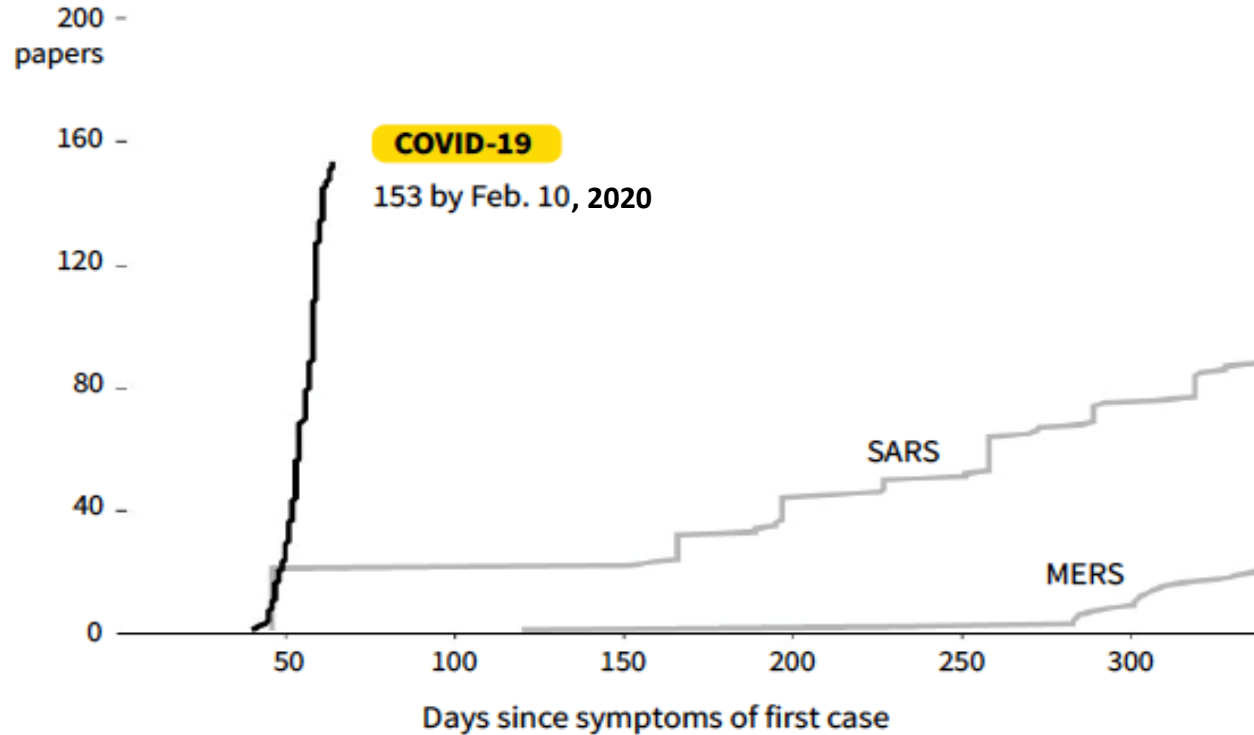
- Peter Densen

# 26 seconds



# Sorting Through Speed Science

**Number of papers published at the beginning of the pandemic:**



# Slow Uptake of Best Practices

Fasting labs



Annual pap



Daily glucose monitoring



Manual BP cuff

Ebell MH, Shaughnessy AF, Slawson DC, "Why are we so slow to Adopt Some Evidence-Based Practices?" American Family Physician December, 2018 Vol 98, 12



“Many clinicians may NOT be learning effectively in practice.”

**TOO BUSY?**

Regehr G, Mylopoulos M. Maintaining competence in the field: Learning about practice, through practice, in practice. J Contin Educ Health Prof 2008; 28 1 suppl1):S19-S23  
Mylopoulos M, Brydges R, Woods NN, Manzone J, Schwartz DL. Preparation of future learning: A missing competency in health professions education? Med Educ. 2016;115-123

We are  
HERE



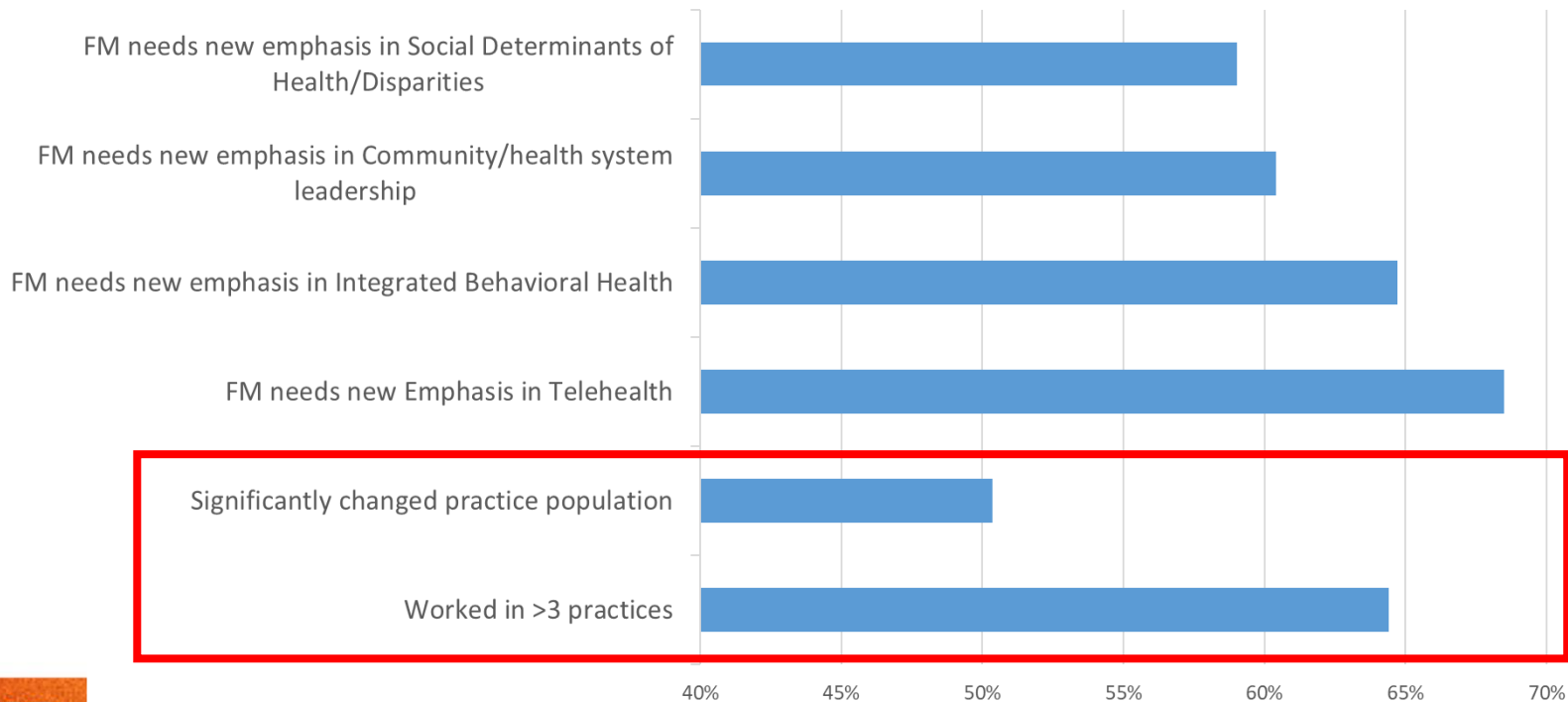
Remain Curious  
Thrive



CAREER



# ABFM Diplomate Survey Supports Need for MAL (Late Career Diplomate Responders)



# Adaptive Expert

- Physician who balances routine expertise with innovative problem solving in response to practice challenges
- Explores new concepts
- Invents new solutions





# Preparation for Future Learning

- Capacity to learn new information
- Make effective use of resources
- Invent new procedures to support learning and problem solving in practice



# Preparation for Future Learning

- Openness to reflecting on practice
- Recognition that routine expertise is not working
- Critical thinking to challenge current assumptions



# Master Adaptive Learners *become* Adaptive Experts

# The Model/Framework for Master Adaptive Learners

## Gears

- **Planning**
- Learning
- Assessing
- Adjusting



Fostering the Development of Master Adaptive Learners: A Conceptual Model to Guide Skill Acquisition in Medical Education. Cutrer, William; MD, MEd; Miller, Bonnie; Pusic, Martin; MD, PhD; Mejicano, George; MD, MS; Mangrulkar, Rajesh; Gruppen, Larry; Hawkins, Richard; Skochelak, Susan; MD, MPH; Moore, Donald

Academic Medicine. 92(1):70-75, January 2017.



# Planning Phase

Identifying knowledge **GAP**

Schön's "surprise"

Cognitive dissonance

**Optimal learning**

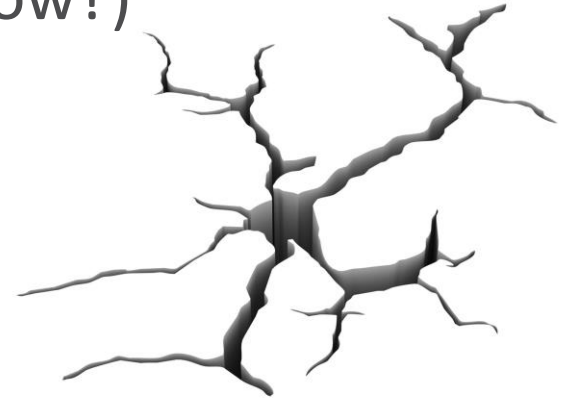


# Planning Phase

Identifying **GAPS** in knowledge (what?)

Selects an **OPPORTUNITY** for learning (when?)

Searches for **RESOURCES** for learning (how?)



# Planning Phase

Aggressively seeks gaps and thinks about how and when to fill them

Does critical self-reflection

Elicits feedback



# Planning Phase

Selects an **OPPORTUNITY** for learning

Usefulness Equation

$$U = \frac{R \times V}{W}$$

U = useful

R = relevant

V = valid (correct)

W = work (requires little effort to obtain)

# Searches for **RESOURCES** for learning





# Planning Phase

## Searching

Includes human and material resources

Driven by level of cognitive dissonance

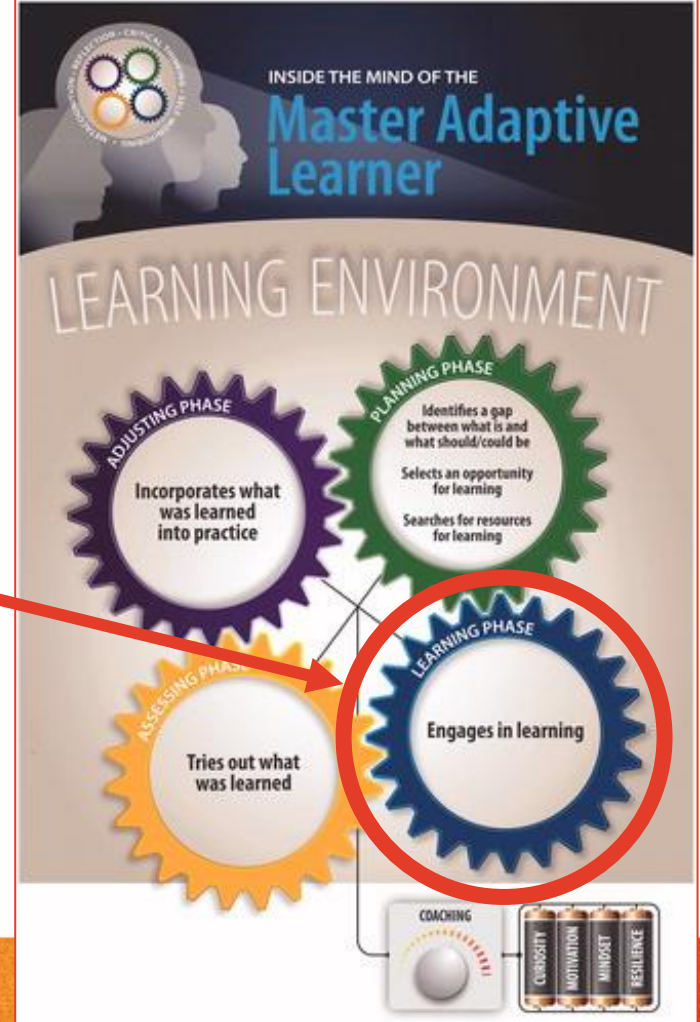
7-pancake example



# The Model/Framework

## Gears

- Planning
- **Learning**
- Assessing
- Adjusting



# Learning Phase

## Ineffective learning strategies:

Highlighting

Underlining

Re-reading

## More durable learning strategies:

Knowledge Retrieval Practice

Spaced Repetitious Learning

Concept Interleaving



# Knowledge Retrieval Practice

Axillary freckles

Neurofibromas

Café au lait spots

Lisch nodules

Mental retardation

Short stature

von Recklinghausen Neurofibromatosis (NF1)



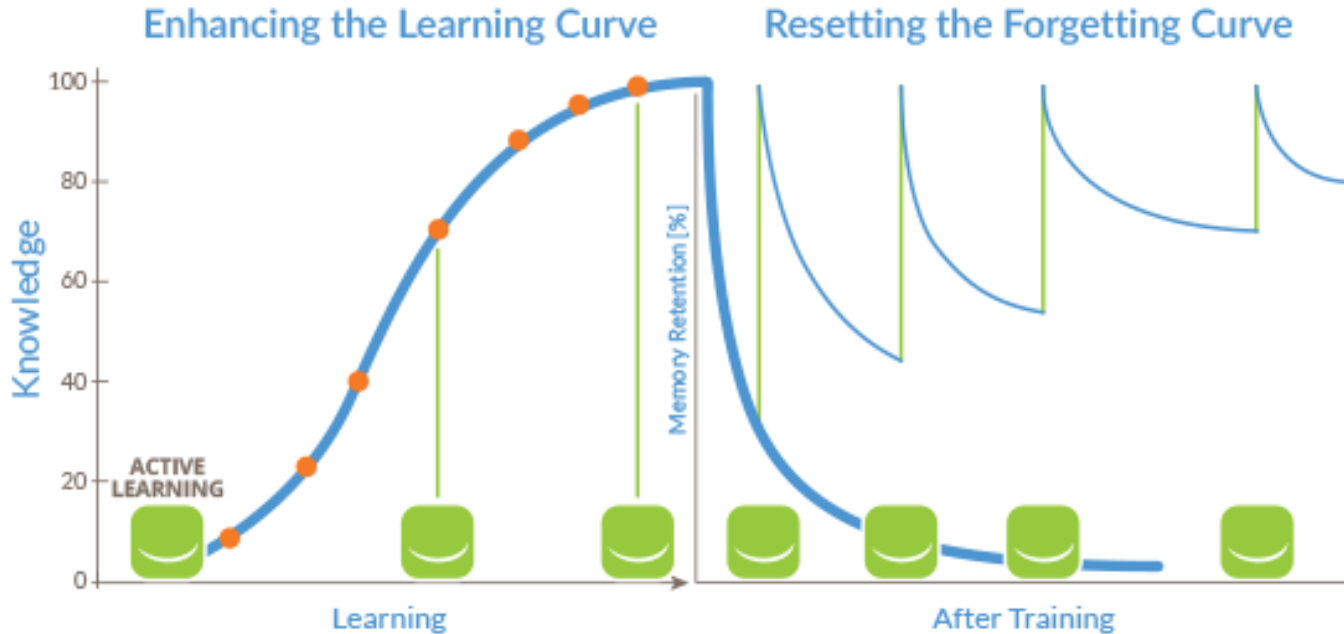
RESTATE LIST FROM MEMORY







# Spaced Repetitious learning



# Concept Interleaving

Single-topic noon conference

Mon	COPD
Tues	ABC's of PFTs
Wed	Asthma

vs

Half-day single session

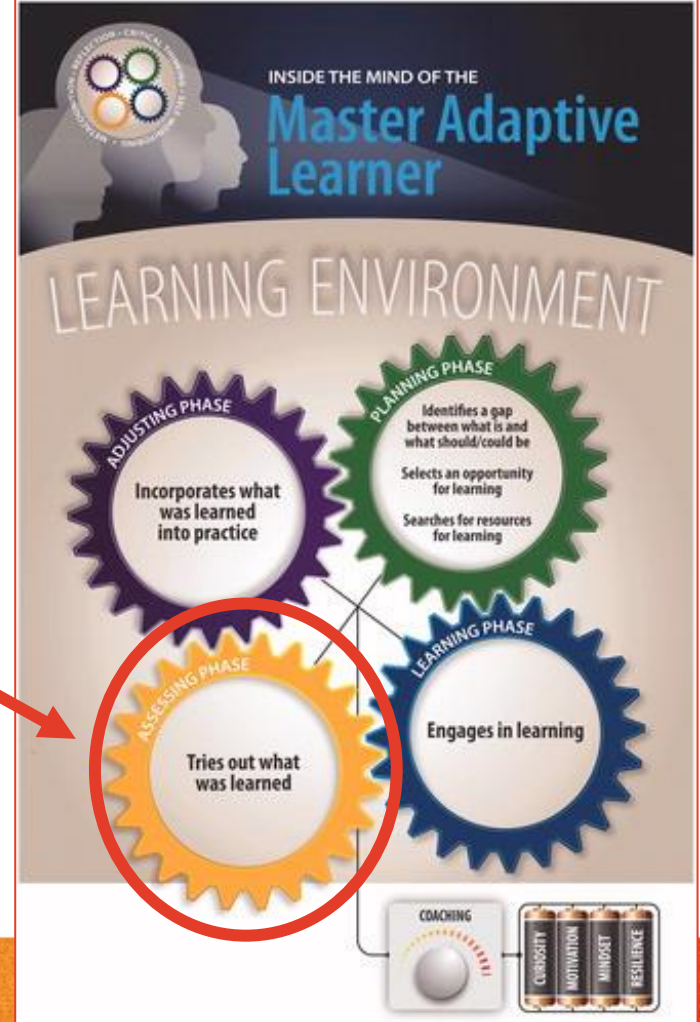
12p	COPD
1p	ABC's of PFTs
2p	Asthma

Clustering similar topics in the same learning session

# The Model/Framework

## Gears

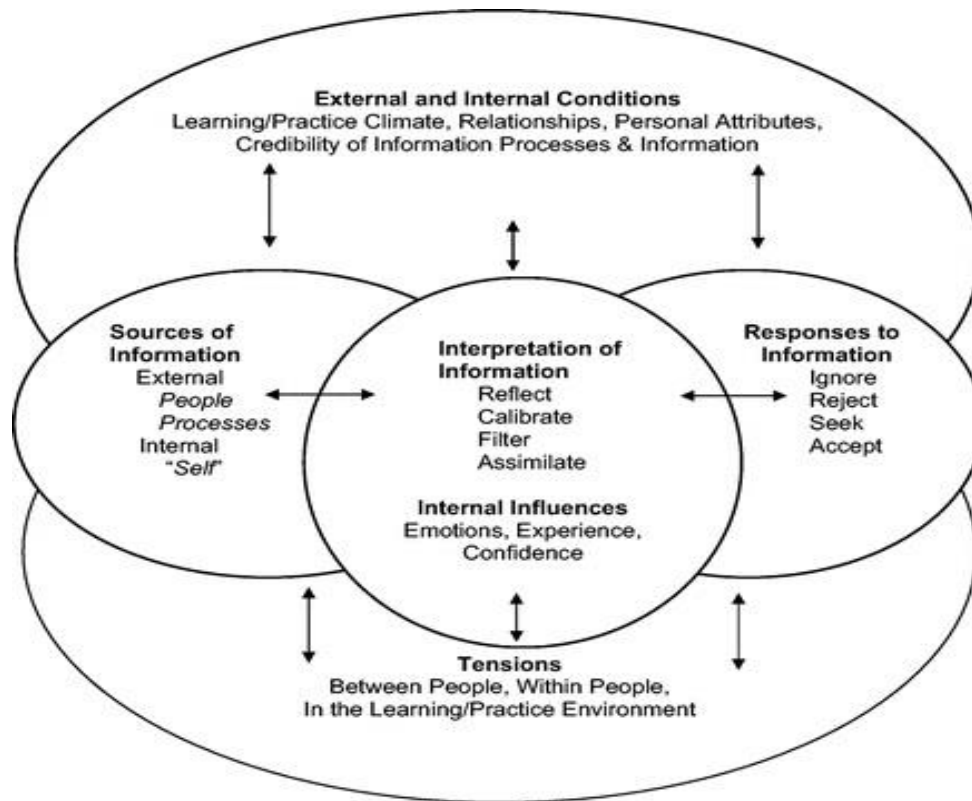
- Planning
- Learning
- **Assessing**
- Adjusting



# Assessing

## INFORMED SELF-ASSESSMENT

Tries out what was learned



<https://www.ncbi.nlm.nih.gov/pubmed/20375832>

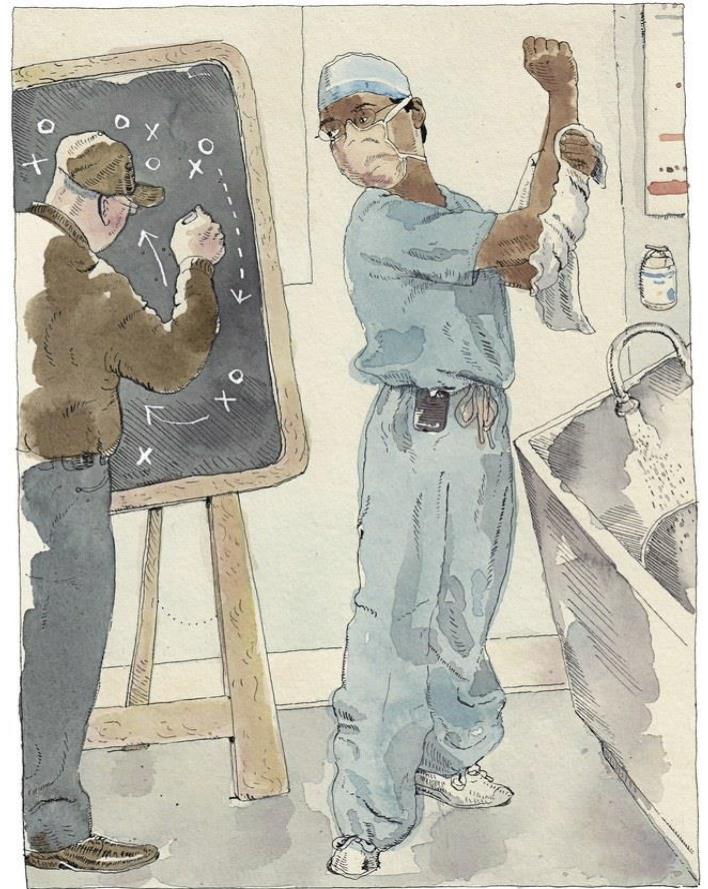
# Assessing

*“No matter how well-trained people are, few can sustain their best performance on their own. That’s where coaching comes in.”*

*Atul Gawande*

<https://www.newyorker.com/magazine/2011/10/03/personal-best>

Siddiqui ZS, Jonas-Dwyer D, Carr SE, Twelve Tips for Peer Observation of Teaching, Medical Teacher, 29:4,297-300

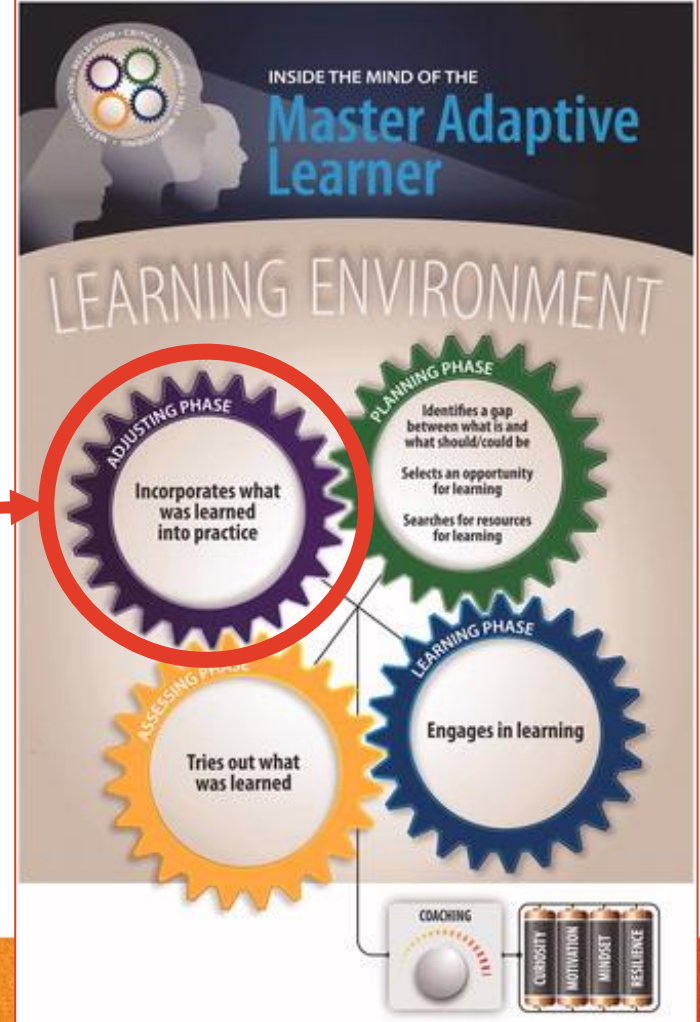




# The Model/Framework

## Gears

- Planning
- Learning
- Assessing
- **Adjusting**



# Adjusting

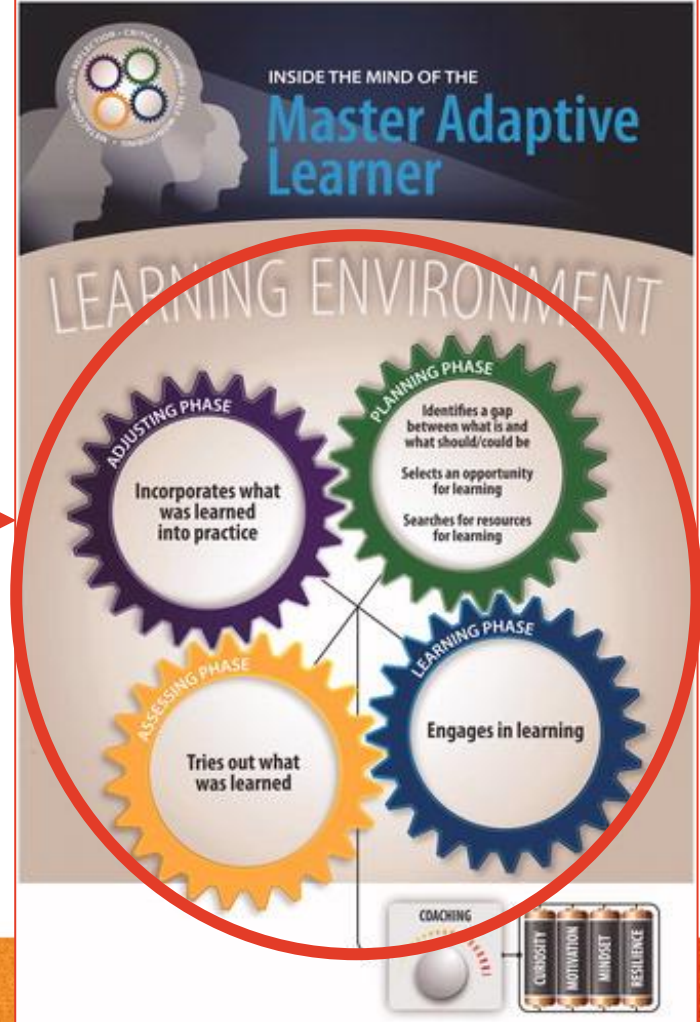
Incorporates what was learned into practice



# The Model/Framework

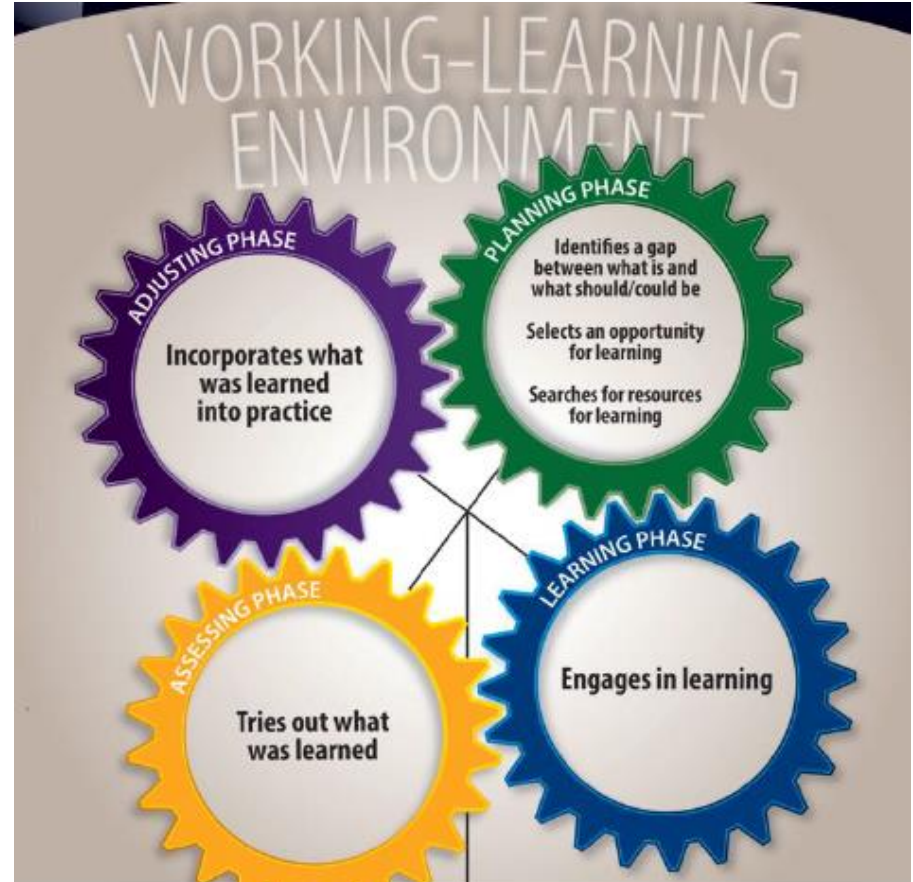
## Gears

- Planning
- Learning
- Assessing
- Adjusting



# Think

- You work with trainees (interns, students, others)
- Think about how you can engage them to become MAL



Created by William B. Cutler, MD, MEd., Don Moore, PhD and the American Medical Association Master Adaptive Learner workgroup.

Heavily influenced by: White, C. B., Gruppen, I. D., & Fantone, J. C. (2010). Self-regulated learning in medical education. Understanding medical education: Evidence, theory and practice, 271-82.

AMJ-2-10720P-112010



# Poll Question

What part of the master adaptive learner cycle interests you the most?

- A. Planning
- B. Learning
- C. Assessing
- D. Adjusting



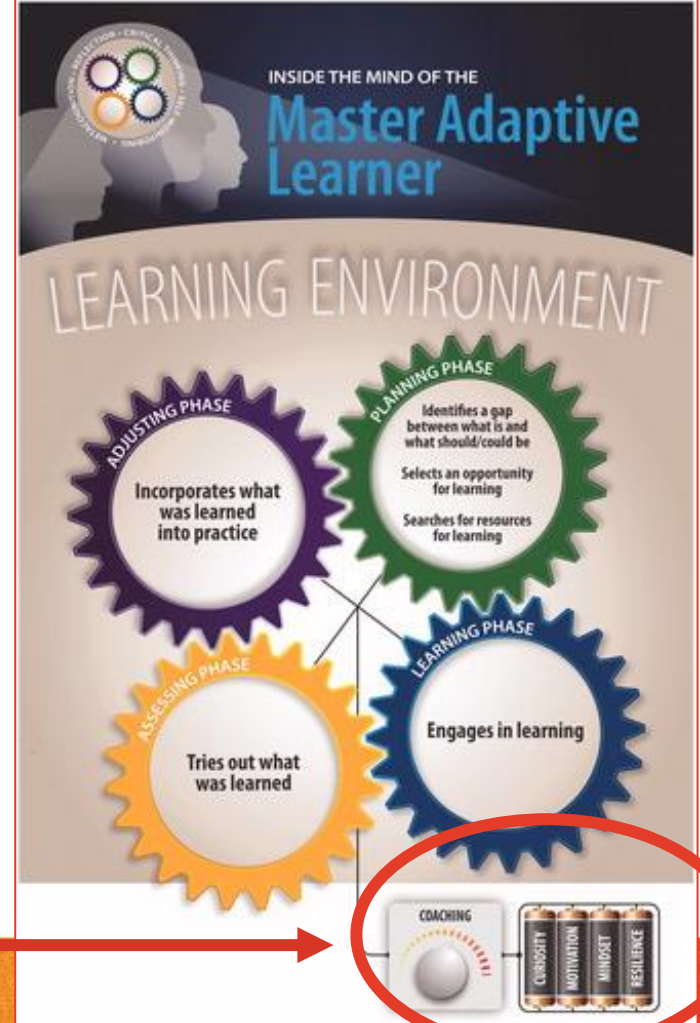
# The Model/Framework

## Gears

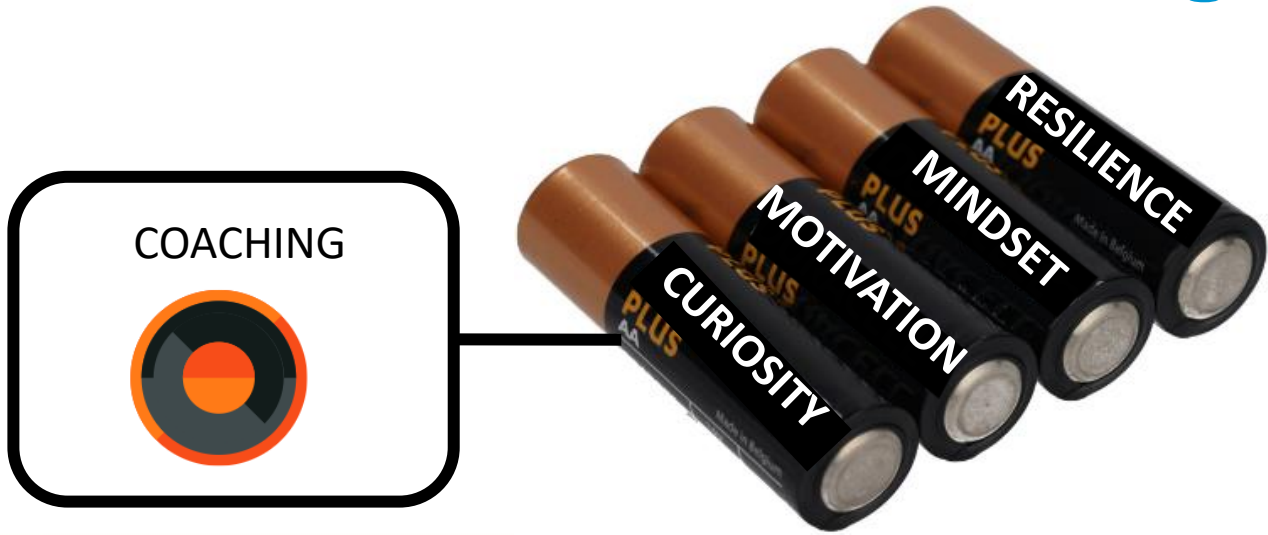
- Planning
- Learning
- Assessing
- Adjusting

## Batteries:

Curiosity  
Motivation  
Mindset  
Resilience



# Fostering the Development of Master Adaptive Learners and a Growth Mindset in Your Program



# Curiosity

- Appetite to find information to fill a knowledge or skill gap
- How we make sense of things
- Opportunity to challenge conventions and assumptions



# Benefits of Curiosity



# Maintaining curiosity

- Ask
- Pause
- Experiment
- Reflect
- Adapt





# Curiosity for residency training.

- New expectations
- New levels of responsibility
- Safe place to practice and master new skills



# How do I encourage curiosity in others?

- Share questions
- Foster dialogue
- Invite differing viewpoints

# Motivation



# Leveraging intrinsic motivation



SCAFFOLDING



FEEDBACK



COOPERATION



We have never arrived.  
We are in a constant  
state of becoming.

Bob Dylan

quote fancy

## Growth Mindset



# Growth Mindset vs. Fixed Mindset

<b>Growth Mindset</b>	<b>Fixed Mindset</b>
I can learn anything I want to	I am either good at it, or I am not
When I am frustrated, I persevere	When I am frustrated, I give up.
I like to challenge myself	I don't like to be challenged.
When I fail, I learn	When I fail, I am no good.
I like being told that I try hard	I like being told that I am smart
If my classmates succeed, I'm inspired	If my classmates succeed, I feel threatened
My effort and attitude determine everything	My abilities determine everything
<b>I am building Grit</b>	<b>I often feel Irritated</b>

# In the face of setbacks

## Growth Mindset

- It's about learning
  - Capitalize on mistakes
  - Confront deficiencies



## Fixed Mindset

- It's about me
  - Hide mistakes
  - Conceal deficiencies



# Growth Mindset

- Everyone is sometimes in a fixed mindset and sometimes in a growth mindset
- We all can exemplify either at any time
- We can choose our mindset
- We can change our behavior and response
- Staying in a growth mindset takes effort and mindfulness
- We can use “yet” to change “I can’t do it” to “I can’t do it yet!”

# Not Yet !

- Think of something that you cannot do right now.
  - I cannot do \_\_\_\_\_.
- Now add the word Yet to the end of the thought.
  - I cannot do \_\_\_\_\_ Yet.



**I have lots of learning experiences!**

*~ Coach Byrnes Gibson*

# Failure/Success

1. An event, not a character trait
2. Is a gift



# Acknowledging the tension

- Effort is not everything or equal
  - Different resources and opportunities
  - Rich, educated, connected effort works better
  - People with less resources are derailed more easily
- Your potential is not easily predictable
  - Unknow what can be accomplished through years of toil, passion and training
  - Even 'geniuses' have to work hard for their achievements
  - You choose to what you want to devote effort

# Resilience



# Resilience: How we bounce back



- **S**: Social Connection
- **A**: Attitude
- **V**: Values
- **E**: Emotions
- **S**: Silliness



**Doctors are human.**



**We make mistakes of knowledge, technique and judgement.**



**What characterizes physicians is not infallibility, but a personal and professional obligation to strive for excellence, humanism, accountability and altruism.**

Stern, DA 2006





# Battery development in residency

- Lean on/embrace the skills of your behavioral scientists
- Role model using the “language” of the batteries in communication with others
- Role model seeking personal development of the batteries in your own life
- Consider adding the element of coaching to your curriculum

# Think

Take a few minutes and write down how you rejuvenate or rely on each of the batteries

- Curiosity
- Motivation
- Mindset
- Resilience



# Poll Question

Which of the batteries are you interested in learning more about?

- A. Curiosity
- B. Motivation
- C. Mindset
- D. Resilience

# The Model/Framework

## Gears/Cogs:

- Planning
- Learning
- Assessing
- Adjusting

## Batteries:

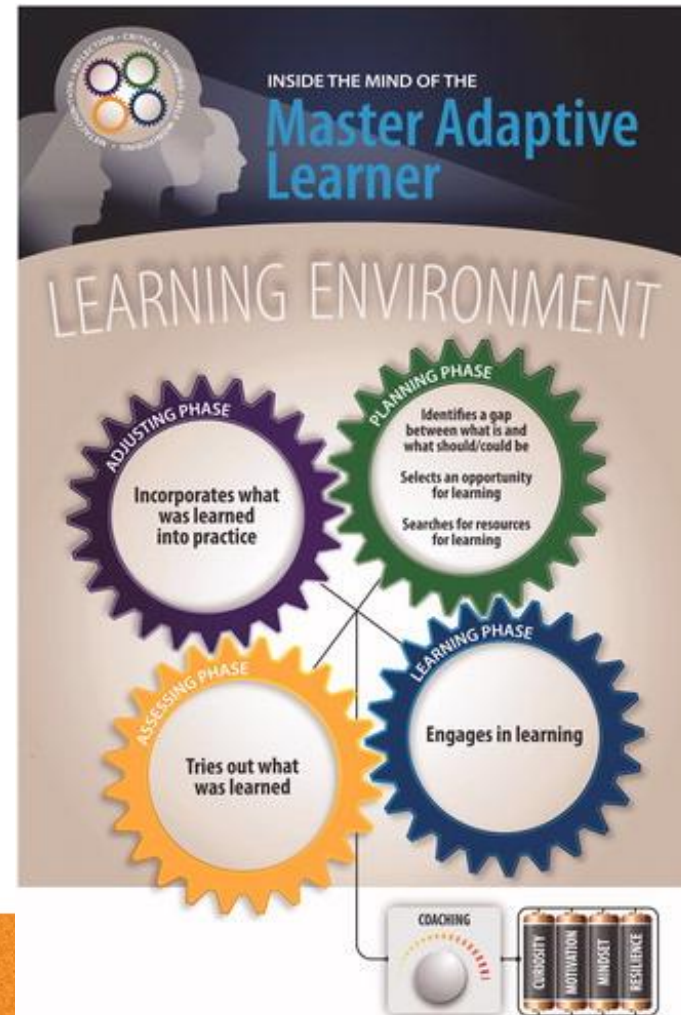
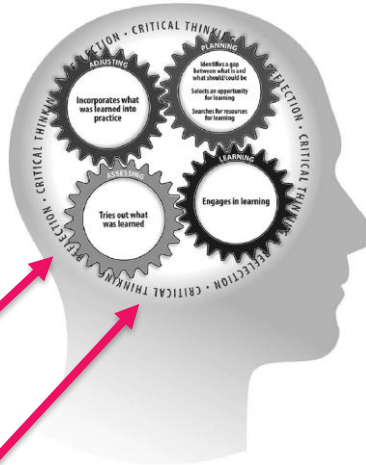
- Curiosity
- Motivation
- Mindset
- Resilience

## Trainee Skills:

- Reflection
- Critical Thinking

## Grease

- Coaching





SPECIAL ARTICLES

# Training Future Family Physicians to Become Master Adaptive Learners

Louito Edje, MD, MHPE | David W. Price, MD

Fam Med. 2021;53(7):559-566.

DOI: 10.22454/FamMed.2021.192268



UPDATED EDITION

CAROL S. DWECK, Ph.D.

# mindset

THE NEW PSYCHOLOGY OF SUCCESS

HOW WE CAN  
LEARN TO FULFILL  
OUR POTENTIAL

- parenting
- business
- school
- relationships



"Through clear research studies and engaging writing, Dweck illuminates how our beliefs about our capabilities can determine how far we go in life and which jobs we take on." —Bill Gates, *Goodreads*

"Lays out a transparent way to be a terrific leader by drawing on and improving your best traits."  
—*New York Times*

Dr. Henry Cloud  
author of the million-copy bestseller *Boundaries*

# integrity

the courage to meet  
the demands of reality

HOW SIX ESSENTIAL QUALITIES  
DETERMINE YOUR SUCCESS  
IN BUSINESS

# the dip

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# THE MASTER ADAPTIVE LEARNER

The AMA MedEd Innovation Series

TEDx Cultivating resilience | Greg Eells | TEDxCo...

# PEAK

SECRETS FROM  
THE NEW SCIENCE  
OF EXPERTISE

Anders Ericsson  
and Robert Pool

"Of the most significant and transformative insights that ought to influence how people educate children, manage employees and spend their time... The good news is that to meet our need only look within." —*The Economist*

# Objectives were:

- To understand the master adaptive learner(MAL) conceptual framework
- To gain tools to the incorporate MAL framework into curricula
- To understand the clinical learning environment in which MALs thrive

# Summary

- We are responsible for preparing learners for *future* learning
- Future adaptive experts start as master adaptive learners who:
  - **Plan, learn, assess and adjust**
- We need to intentionally provide a clinical learning environment that fosters MAL development
  - **Curiosity, motivation, mindset, and resilience**

Thank you!

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