

Targeting Adaptive Expertise: Moving Lifelong Learning from Cliché to Reality



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Disclosures

- I have no conflicts of interest to disclose
- *This presentation was prepared with financial support from the American Medical Association (AMA) as part of the Accelerating Change in Medical Education Initiative. The content reflects my views and does not necessarily represent the views of VUSM, the AMA or other participants in this Initiative.*
- *I was an editor on the Master Adaptive Learner book. All proceeds go to the AMA.*



One More Disclosure...





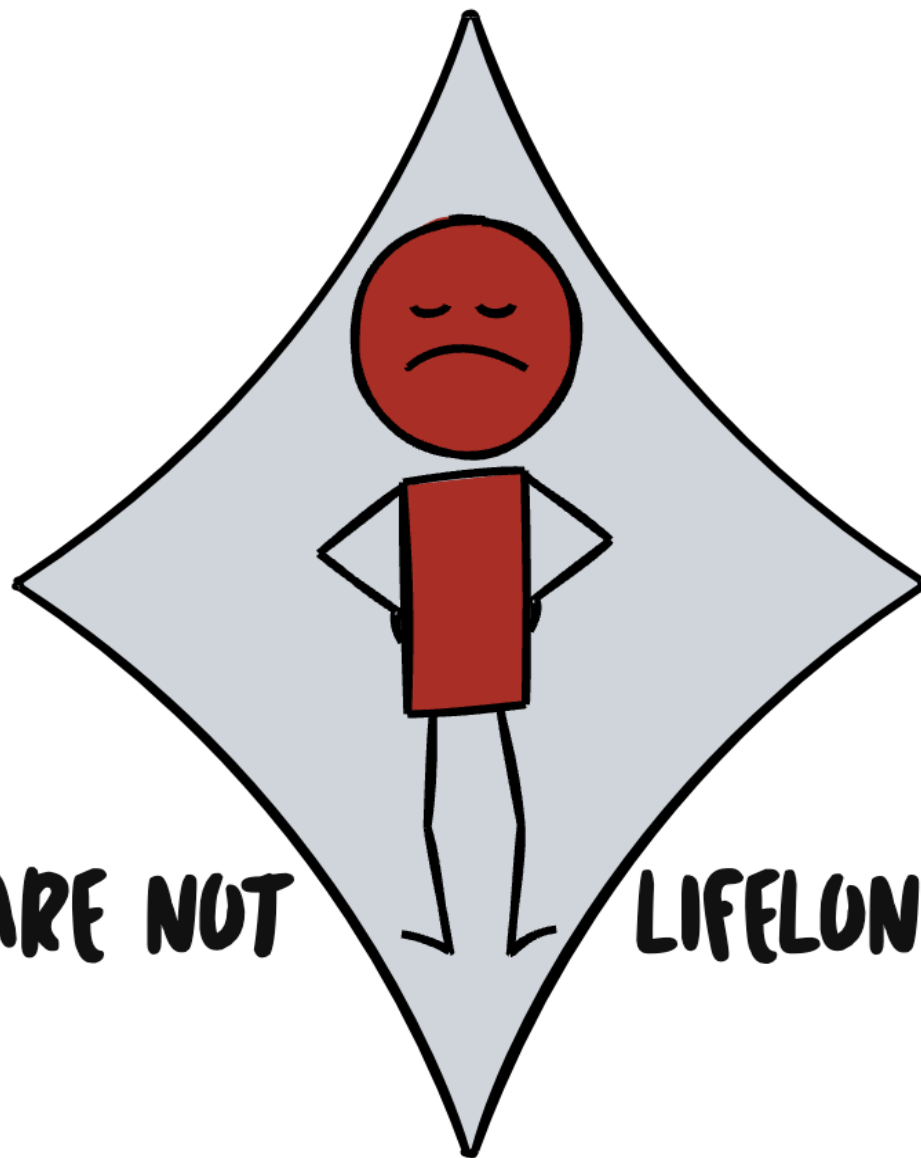
Gap #1



What We Do

**What is
Known**



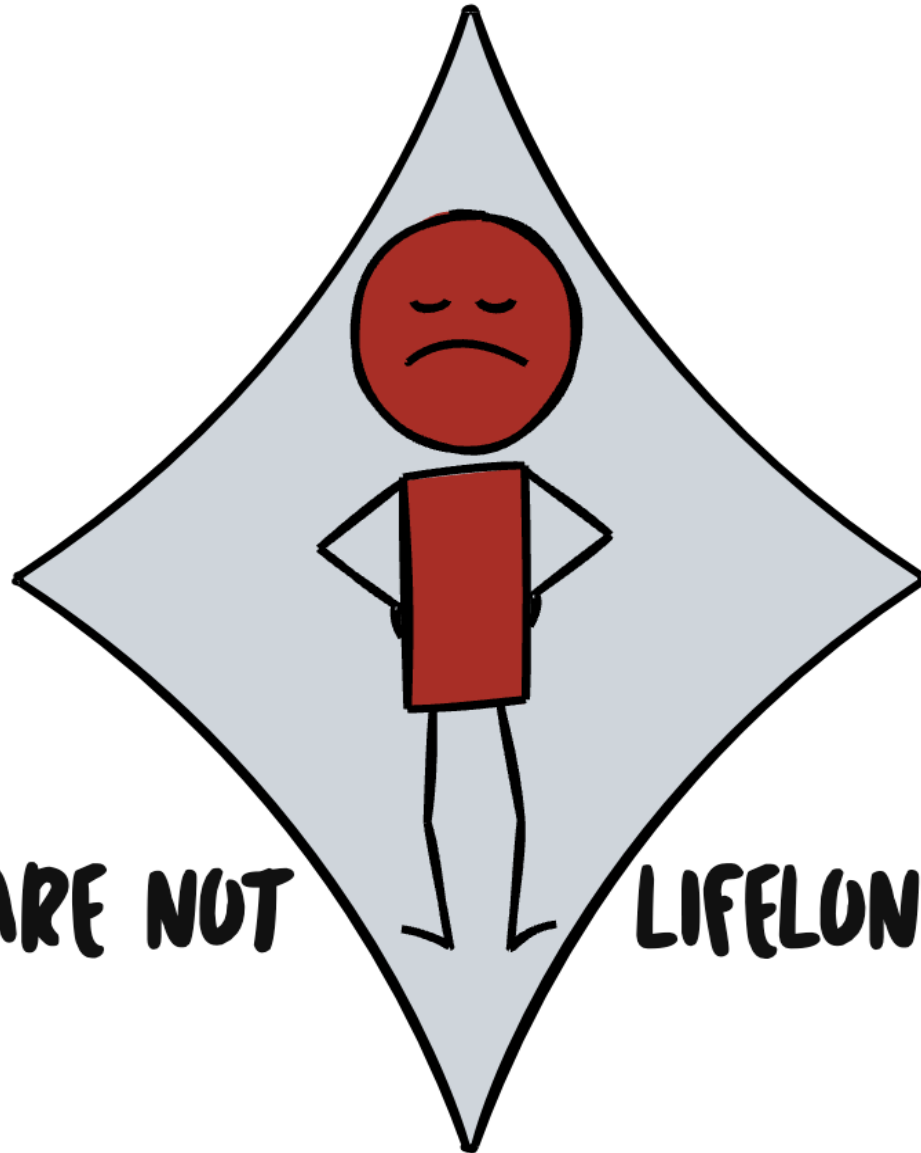


DOCTORS ARE NOT

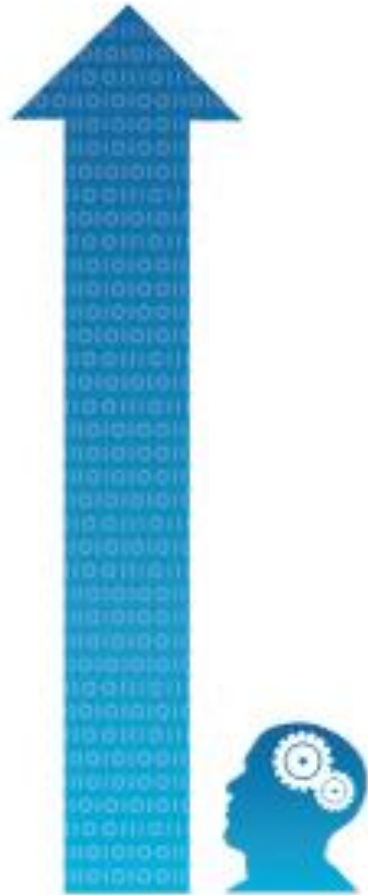
LIFELONG LEARNERS

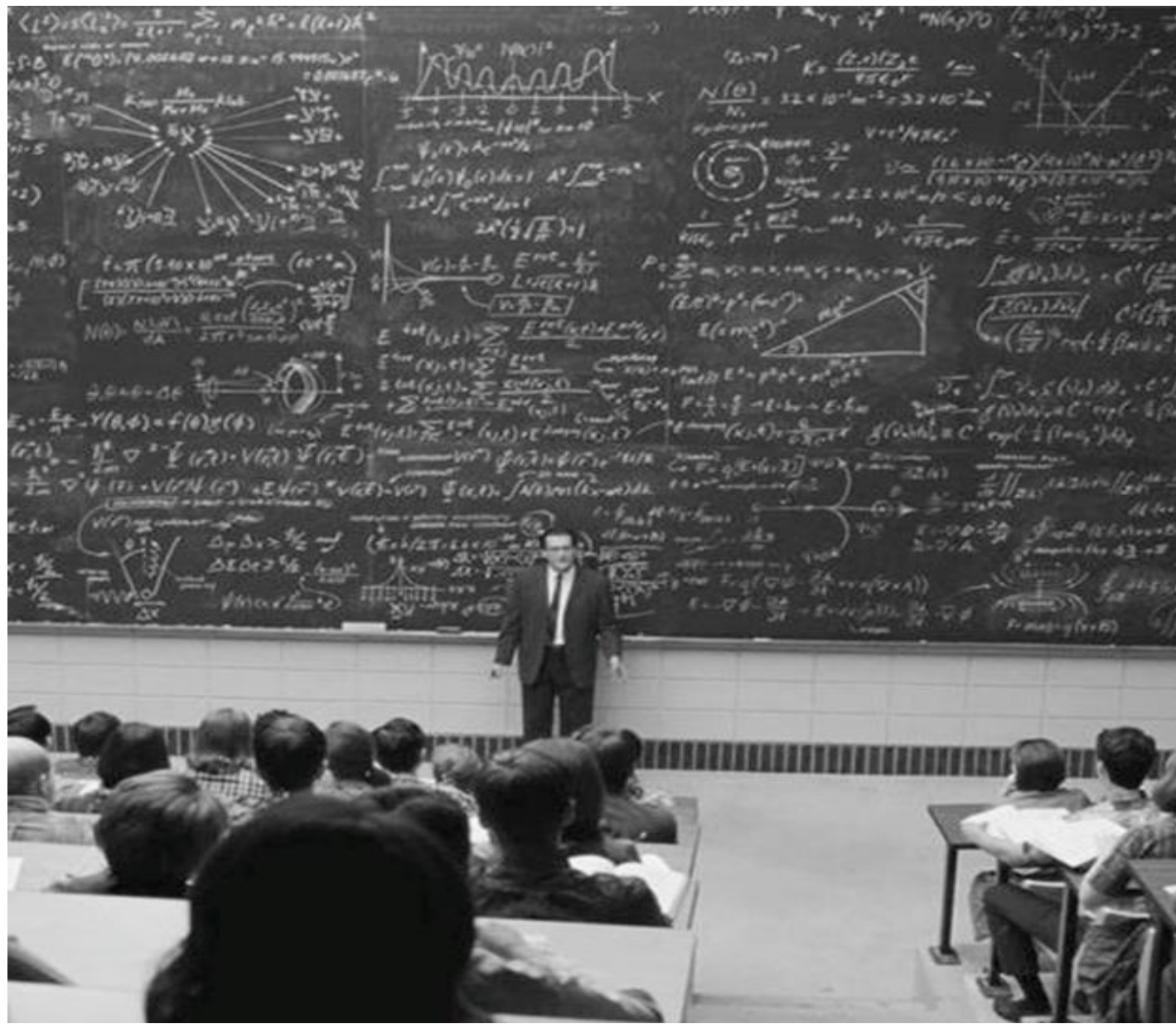


Health Professionals ARE NOT LIFELONG LEARNERS ?



Too Much Information:





**And we will have a test on this on Friday.
Any questions?**



Practicing Healthcare Providers

“Much of an experienced practitioner’s daily practice has less to do with solving problems than remembering solutions”

Regehr & Mylopoulos (2008) *JCEHP*

This is WHY

- **Physicians generally practice they way they did when they graduated residency**
- **Gap between what is known and what we do**
- **17 year lag from discovery to practice**



Need for Expertise



What
We Do

What is
Known

Routine Expertise

But also...



Gap #2



**What is
Known**

**Solutions to Novel
Challenges**



Healthcare Facing Novel Challenges

NBC NEWS HEALTH NEWS

'We have arrived in the post-antibiotic era': WHO warns of too few new drugs for deadly superbugs

Health officials are sounding increasingly urgent alarms about the need for powerful new drugs to treat increasingly resistant infections.



Just 27 new antibiotics are in the clinical trial stage of drug development, and only six are considered innovative enough to overcome antibiotic resistance. Justin Gaudin / NBC News / Getty Images

March 29, 2017, 9:00 AM CDT
By Caroline Hopkins

MANAGED Care

Editor's Desk PharmD Corner

Physician Burnout: A Public Health Crisis?

Health care CEOs look for solutions

March 29, 2017



THE IRISH TIMES

NEWS SPORT BUSINESS **OPINION** LIFE & STYLE

Editorials | Letters | Columnists | An Irishman's Diary | Opinion & Analysis

Obesity: A public health crisis

Need for Expertise



Routine Expertise

But also...

Adaptive Expertise

“They are complementary, equally necessary forms of expert activity”

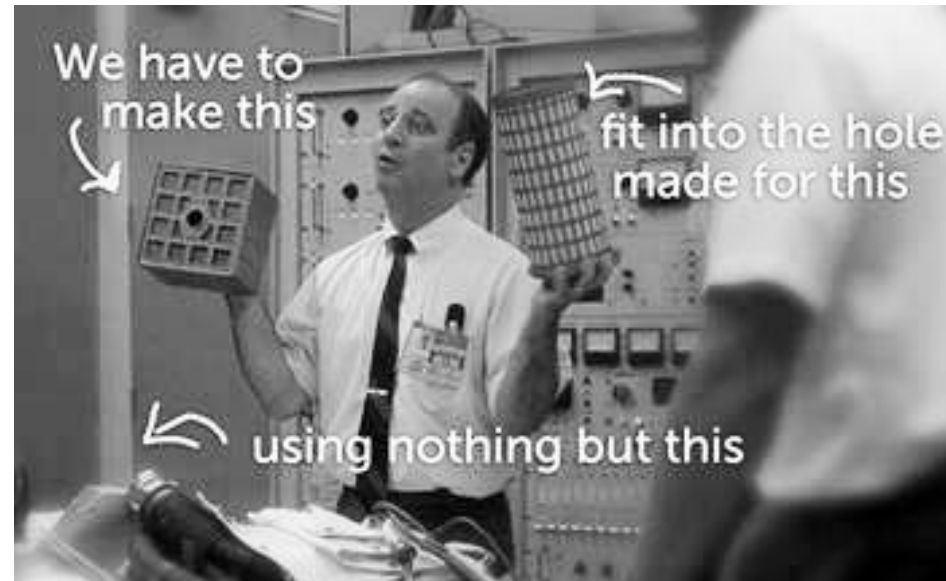
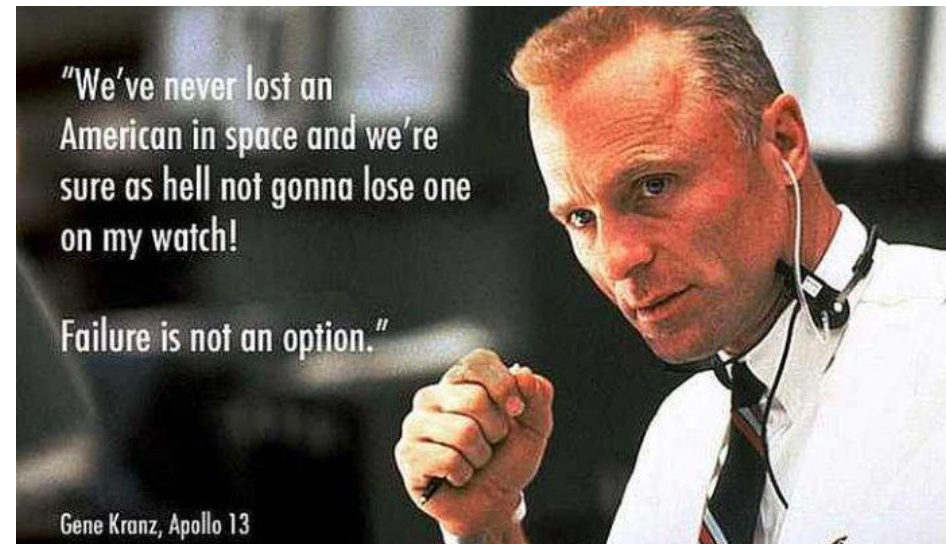
Mylopoulos & Woods (2017) *Med Ed*



What is Expertise?



Any Movie Fans?





ADAPTIVE Expertise

- Expertise to function efficiently on everyday tasks
- Expertise to create solutions for workplace challenges

Hatano & Inagaki (1986) *Child Development and Education in Japan*
Schwartz & Bransford (1998) *Cogn Instruc*
Mylopoulos & Woods (2009) *Med Ed*
Carbondell et al. (2014) *Educ Res Rev*
Woods & Mylopoulos (2015) *Med Ed*
Mylopoulos & Woods (2017) *Med Ed*
Pusic et al. (2022) *Adv Health Sci Edu*



ADAPTIVE Expertise

- Skills of **adaptive expertise** used when an individual
 - Recognizes that a “routine” approach will not work

Routine Practice



Adaptive Practice

Adaptive Expert

Shifts approach based on problem

Branzetti, Hopson, Gisondi, Regan (2023) *Acad Med*

- Reframes the problem in a way that allows her
 - To explore new concepts (learning)
 - To invent new solutions (innovation)

Hatano & Inagaki (1986) *Child Development and Education in Japan*

Schwartz & Bransford (1998) *Cogn Instruc*

Mylopoulos & Woods (2009) *Med Ed*

Carbondell et al. (2014) *Educ Res Rev*

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ADAPTIVE Expertise

What is it?

- “product of a learned skill set, characterized by habits of mind that develop over time and with practice”
- **Characterized by:**
 - Better developed metacognitive skills
 - Flexibility
 - Ability to innovate
 - Continuous learning
 - Seeking out challenges
 - Creativity

Hatano & Inagaki (1986) *Child Development and Education in Japan*

Schwartz & Bransford (1998) *Cogn Instruc*

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**Does the Current System
Produce this Type of Clinicians?**

**Is the Status Quo of Training
Accomplishing this Goal?**



4 Assumptions about Practicing Physicians

- 1) **Naturally reflect on their performance for purposes of highlighting own weaknesses/gaps**
 - **Individuals reinterpret evidence of poor performance to better fit their self-concept as competent**
 - **Individuals often ignore or discount feedback inconsistent with their beliefs about their own abilities**



Regehr & Mylopoulos (2008) *JCEHP*



4 Assumptions about Practicing Physicians

2) Able to identify their own weaknesses when looking for them

- Ability to self-assess areas of weakness is generally poor
- We all face this flaw, particularly in our own areas of weakness



Regehr & Mylopoulos (2008) *JCEHP*



4 Assumptions about Practicing Physicians

3) Try to address weaknesses when identified through learning

- Learning in areas of weakness if difficult
- Gravitate towards areas where learning is easy and fun (immediately rewarding) → generally focus on areas of strength



Regehr & Mylopoulos (2008) *JCEHP*



4 Assumptions about Practicing Physicians

4) Effectively incorporate knowledge acquired in educational settings into practice

- New knowledge seldom leads to sustained practice changes
- Faculty Continuing Education event
 - Only 64% planned a change in practice
 - Less than 50% of those made any changes



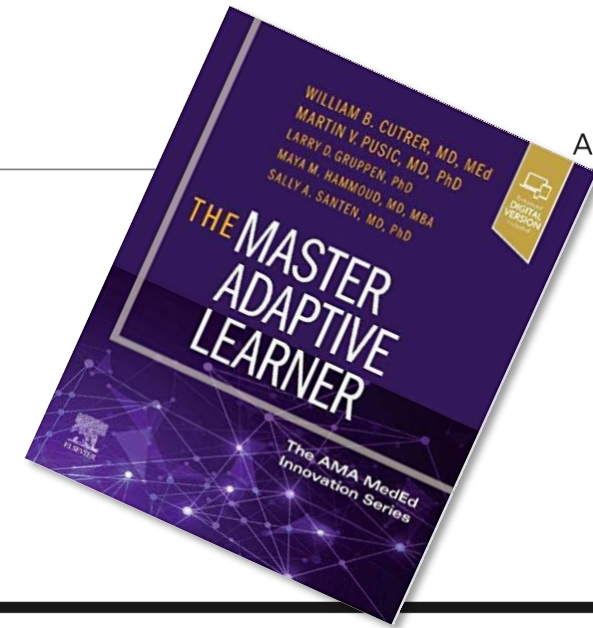
ADAPTIVE EXPERTISE IS THE GOAL





Fostering the Development of Master Adaptive Learners: A Conceptual Model to Guide Skill Acquisition in Medical Education

William B. Cutrer, MD, MEd, Bonnie Miller, MD, Martin V. Pusic, MD, PhD, George Mejicano, MD, MS, Rajesh S. Mangrulkar, MD, Larry D. Gruppen, PhD, Richard E. Hawkins, MD, Susan E. Skochelak, MD, MPH, and Donald E. Moore Jr, PhD



Abstract

Change is ubiquitous in health care, making continuous adaptation necessary for clinicians to provide the best possible care to their patients. The authors propose that developing the capabilities of a Master Adaptive Learner will provide future physicians

with strategies for learning in the health care environment and for managing change more effectively. The concept of a Master Adaptive Learner describes a metacognitive approach to learning based on self-regulation that can foster the development and use of adaptive

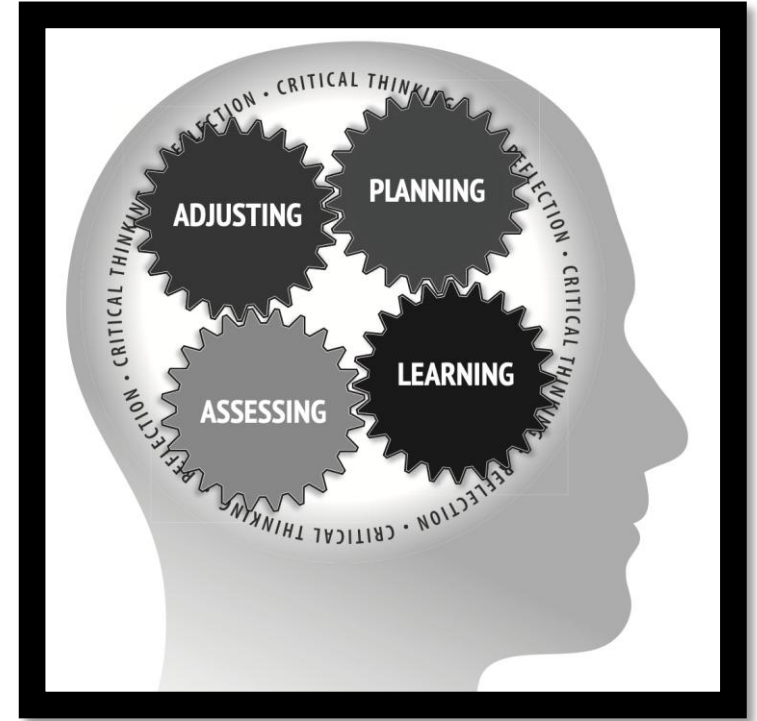
expertise in practice. The authors describe a conceptual literature-based model for a Master Adaptive Learner that provides a shared language to facilitate exploration and conversation about both successes and struggles during the learning process.

Academic Medicine. 2017 Jan;92(1):70-75.



Master Adaptive Learner

“Individual who utilizes the **meta-cognitive approach** to **self-regulated learning** that leads to **adaptive expertise development**”

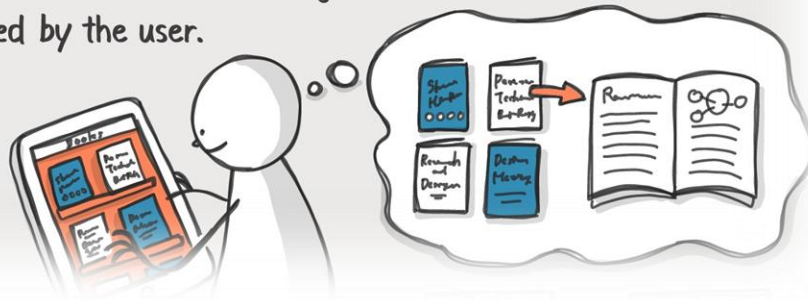


Cutrer et al. (2017) *Acad Med*
Cutrer et al. (2018) *Med Teach*

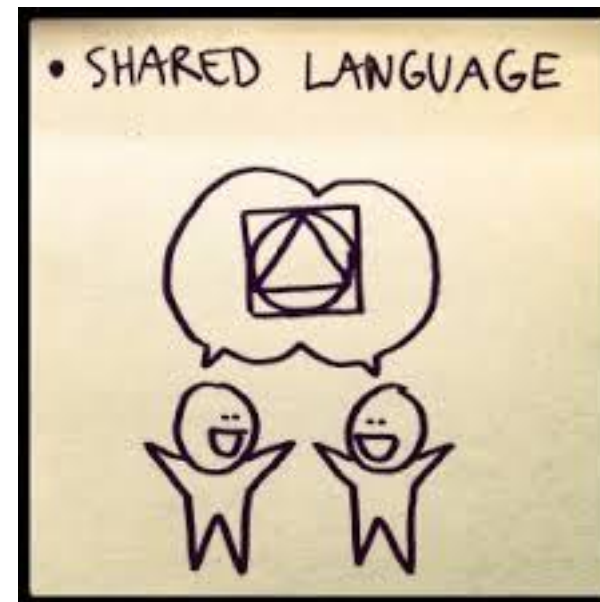


Mental Model

Make behaviors meet the usage model
imagined by the user.



<https://dh7v91d7bn08y.cloudfront.net/media/20190205213232/5c59825c578f0.jpg>

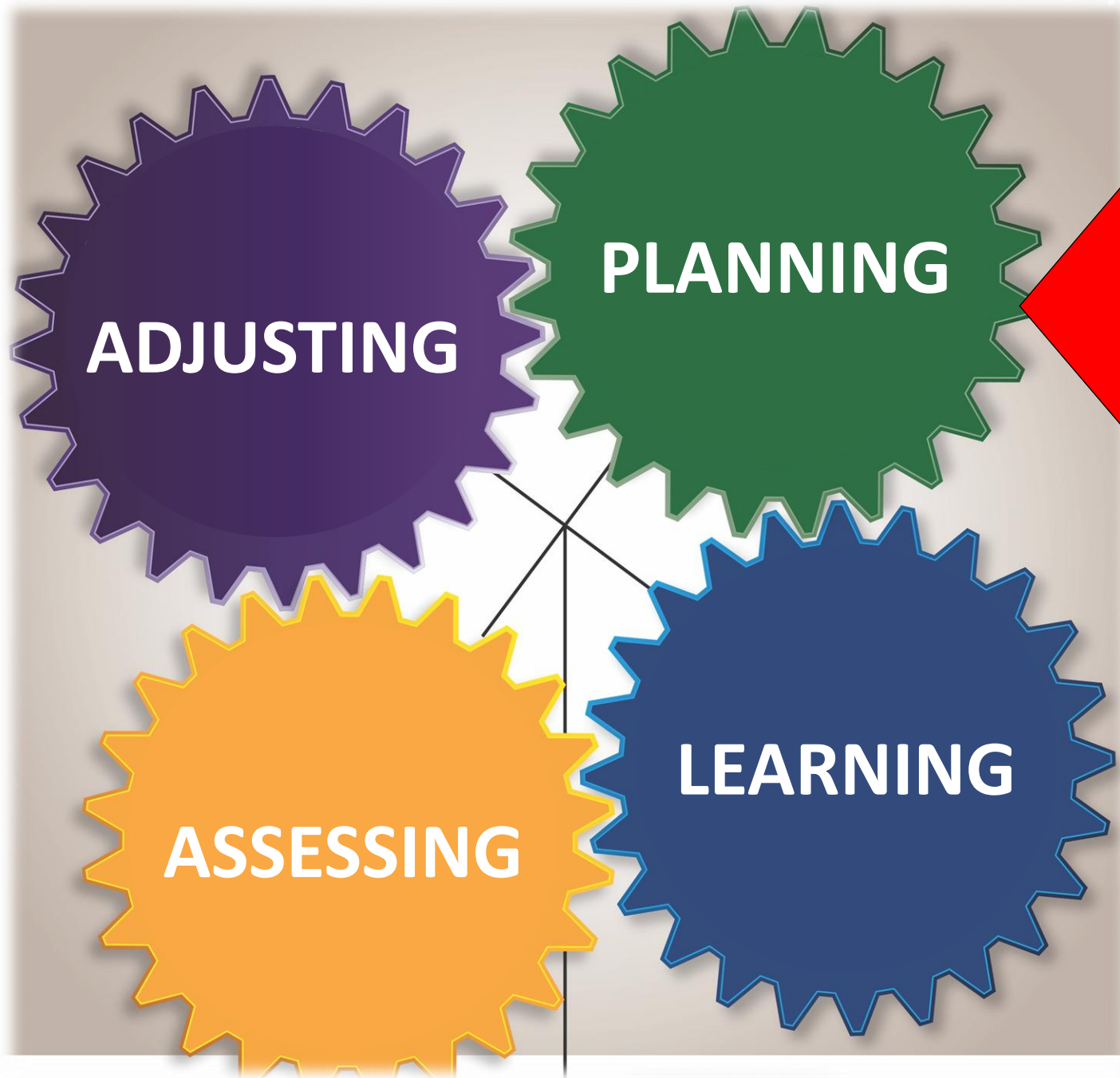


<https://techofcomm.files.wordpress.com/2019/07/image.jpeg>





Adapted from Cutrer et al. (2018) *Med Teach*





Learning is deeper and more durable when it's effortful. Learning that's easy is like writing in sand, here today and gone tomorrow.

Make It Stick
Peter C. Brown



make it stick



The Science of Successful Learning

Peter C. Brown

Henry L. Roediger III





Mark A. McDaniel

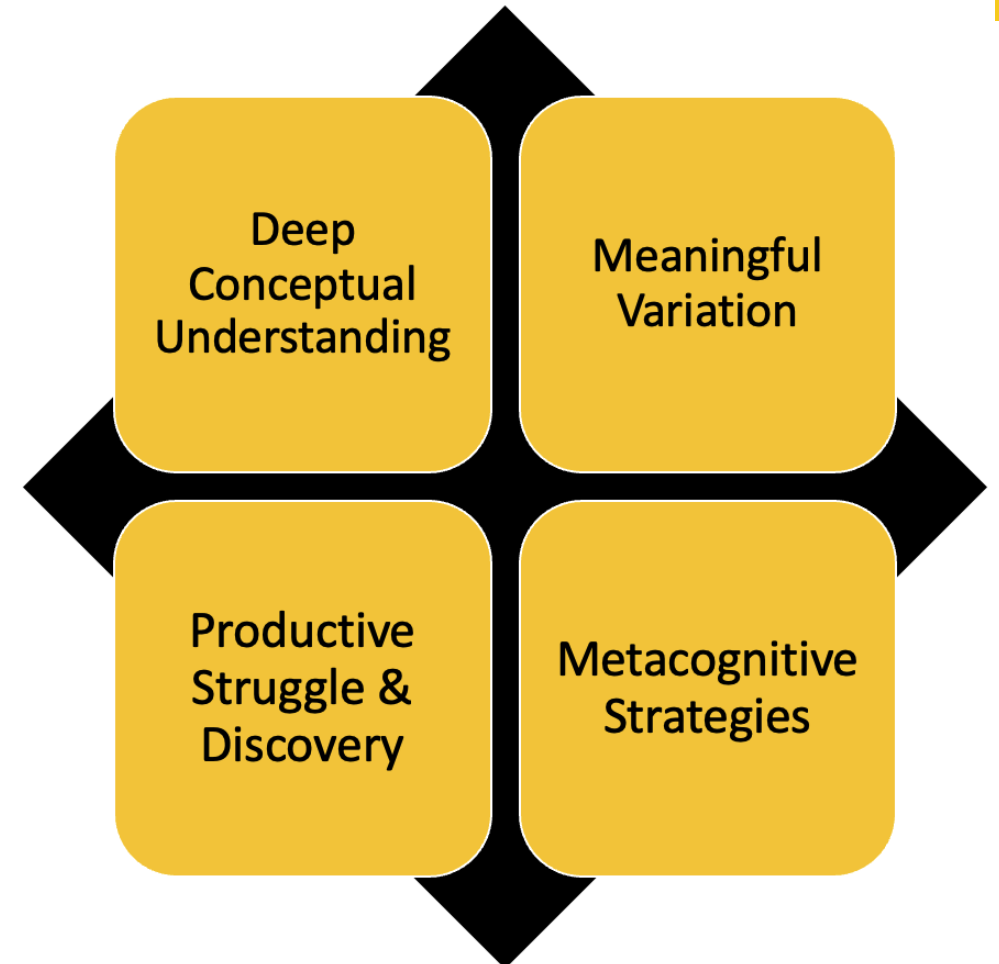
Brow PC, Roediger HL, & McDaniel MA. (2014) *Make It Stick*



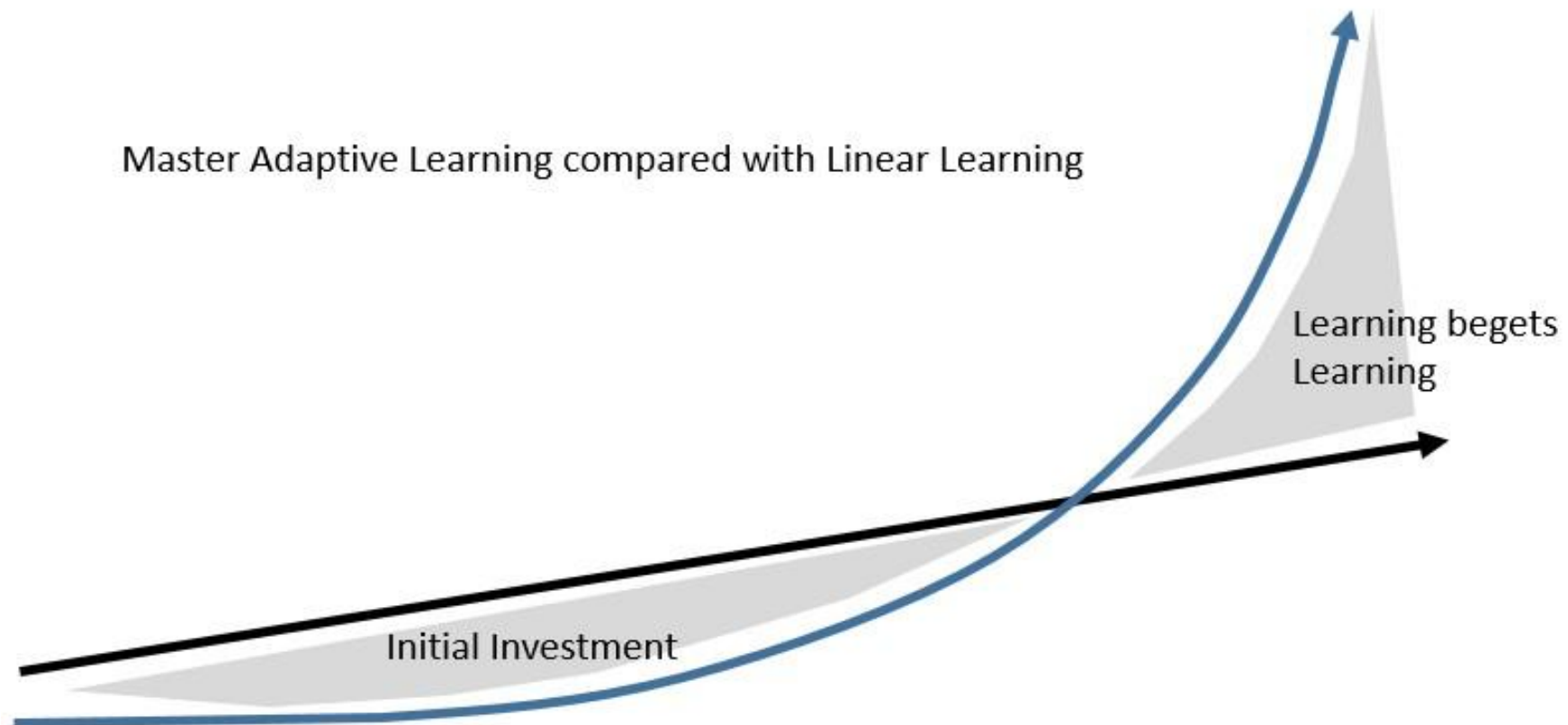


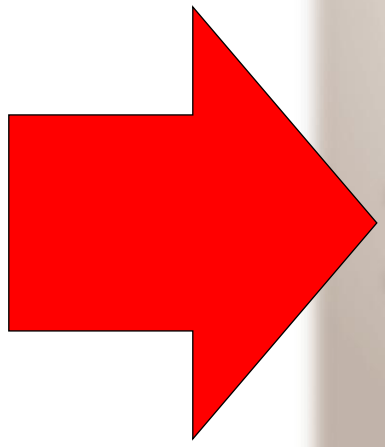
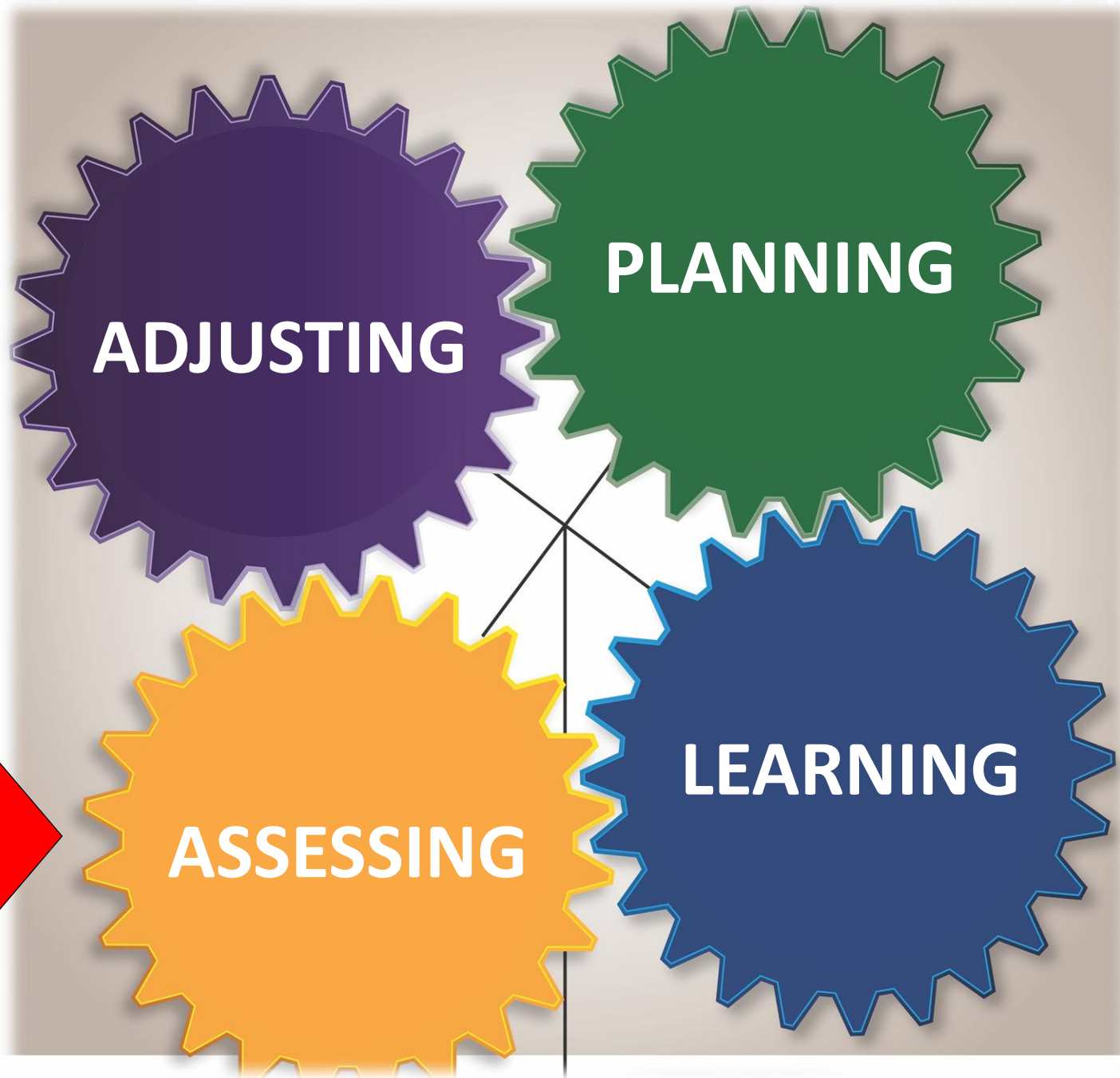
Educating for adaptive expertise: case examples along the medical education continuum

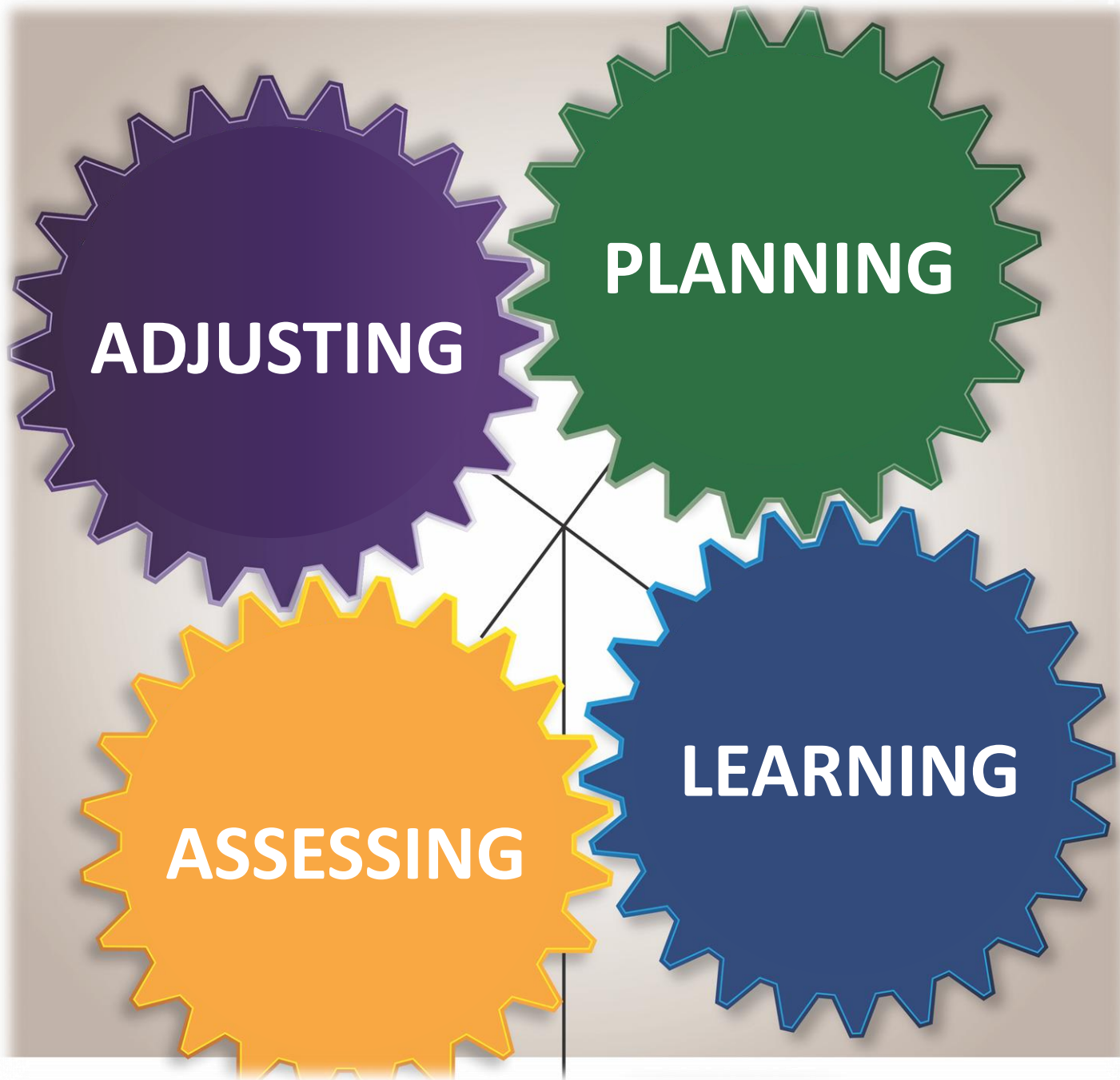
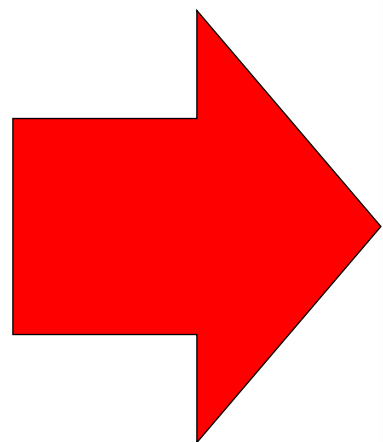
Martin V. Pusic¹  · Elissa Hall²  · Heather Billings³  · Jeremy Branzetti⁴  ·
Laura R. Hopson⁵  · Linda Regan⁶  · Michael A. Gisondi⁷  · William B. Cutrer⁸ 



“But...It’s takes too long”









Adapted from Cutrer et al. (2018) *Med Teach*

Summary

1. Why is Expertise Needed?

- Gaps between What We Do and What is Known
- Gaps between What is Known and Solutions to Novel Challenges

2. What is Expertise?

- Routine Expertise—Efficient application of known solutions
- Adaptive Expertise—New Learning & Innovation to Solve Novel Challenges

3. How Do We Develop Expertise?

- Master Adaptive Learner (MAL) model
 - Planning-Learning-Assessing-Adjusting
 - Learner Capabilities
 - Coaching
 - Learning Environment

