

Transforming Lifelong Learning from Cliché to Reality:

Developing Master Adaptive Learners



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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 the my views and does not necessarily represent the views of VUSM, the AMA or other participants in this Initiative.*



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One More Disclosure...



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Gap #1



What We Do

What is Known



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Practicing Healthcare Providers

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

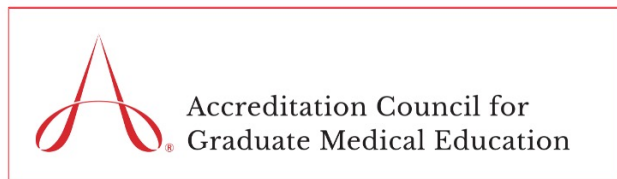
Regehr & Mylopoulos (2008) *JCEHP*

This is WHY

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



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Code of Ethics for the Physical Therapist



Principle #6: Physical therapists shall enhance their expertise through the lifelong acquisition and refinement of knowledge, skills, abilities, and professional behaviors.

(Core Value: Excellence)

- 6A. Physical therapists shall achieve and maintain professional competence.
- 6B. Physical therapists shall take responsibility for their professional development based on critical self-assessment and reflection on changes in physical therapist practice, education, health care delivery, and technology.
- 6C. Physical therapists shall evaluate the strength of evidence and applicability of content presented during professional development activities before integrating the content or techniques into practice.
- 6D. Physical therapists shall cultivate practice environments that support professional development, lifelong learning, and excellence.



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<https://www.apta.org/siteassets/pdfs/policies/codeofethicshods06-20-28-25.pdf>



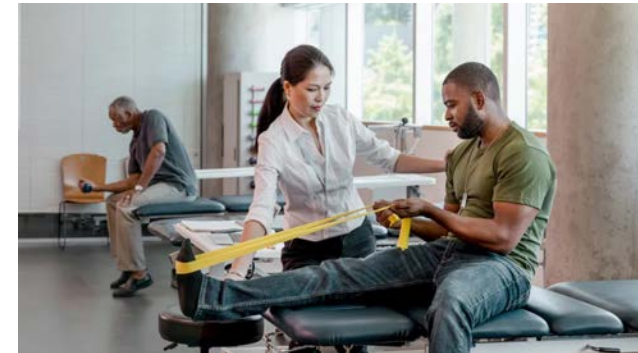
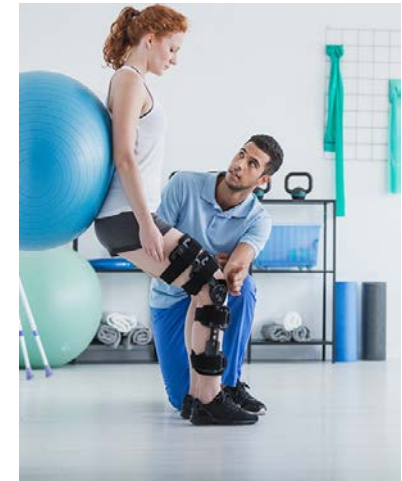
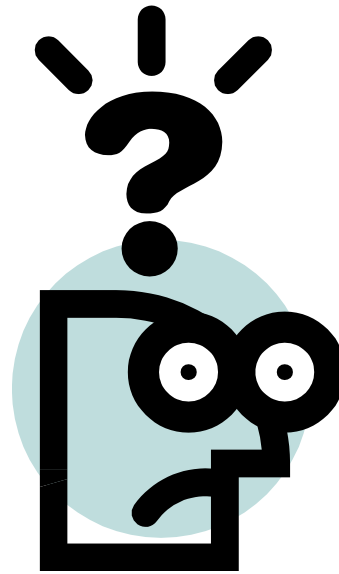
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Why is Lifelong Learning ACTUALLY important?



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Need for Expertise



Routine Expertise

But also...



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Gap #2



What is Known

**Solutions to
Novel
Challenges**



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Healthcare today...

“The imperative for developing adaptive expertise in health professions education is growing as the workplace increasingly causes clinicians to confront new challenges.”



Mylopoulos & Woods (2017) *Med Ed*



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Need for Expertise



Routine Expertise

But also...

Adaptive Expertise

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

Mylopoulos & Woods (2017) *Med Ed*



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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
- “any illusion that we as individuals are good self-assessors is based on a set of distorting cognitive processes applied to ourselves”



Regehr & Mylopoulos (2008) *JCEHP*

4 Assumptions about Practicing Physicians

3) Try to address weaknesses when identified through learning

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

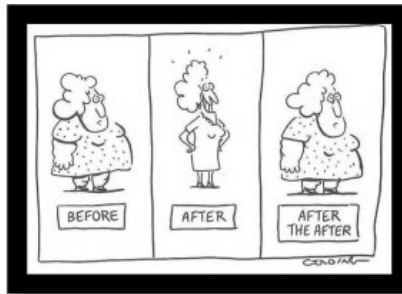


Regehr & Mylopoulos (2008) *JCEHP*

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



Regehr & Mylopoulos (2008) *JCEHP*

Need for Expertise



Routine Expertise

But also...

Adaptive Expertise

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

Mylopoulos & Woods (2017) *Med Ed*



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Overview

1) Why is Lifelong Learning Needed?

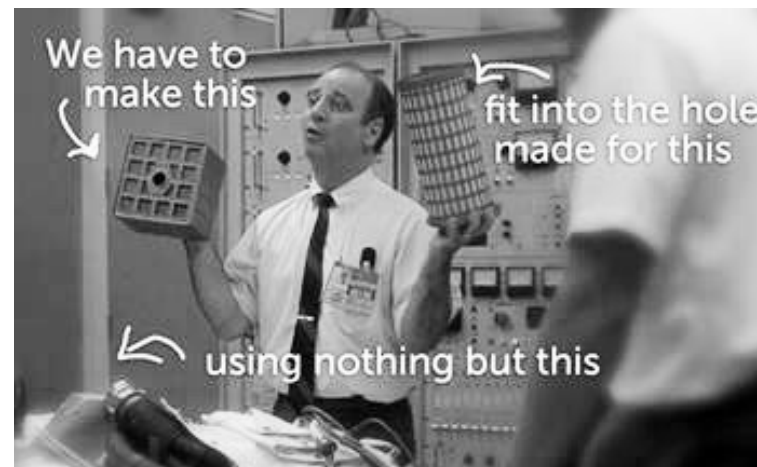
2) What is Expertise?

3) How Do We Develop Expertise?

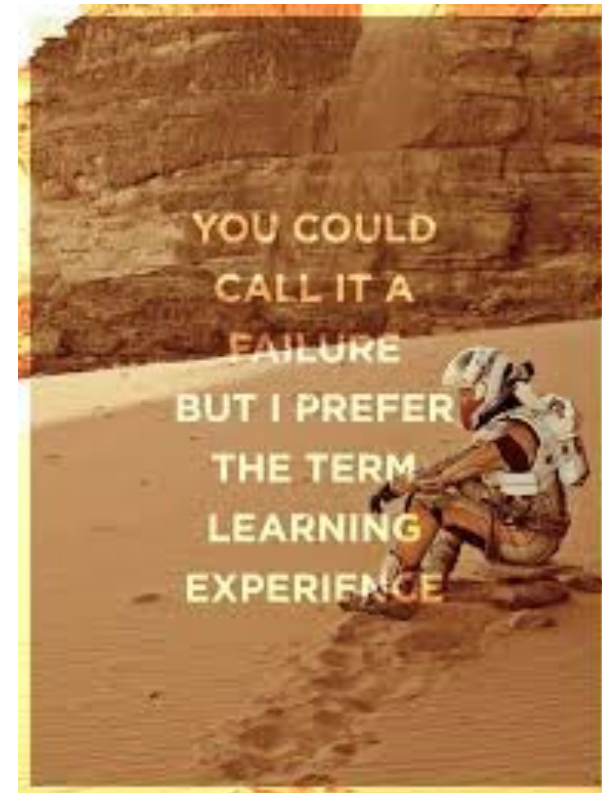
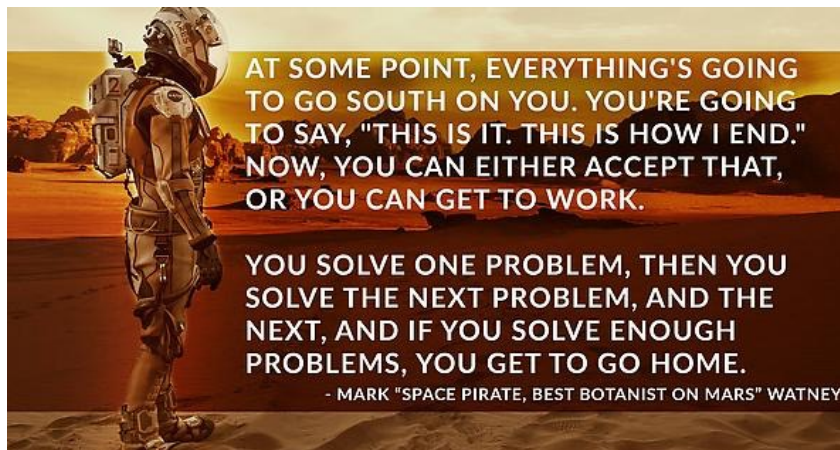


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Any Movie Fans?



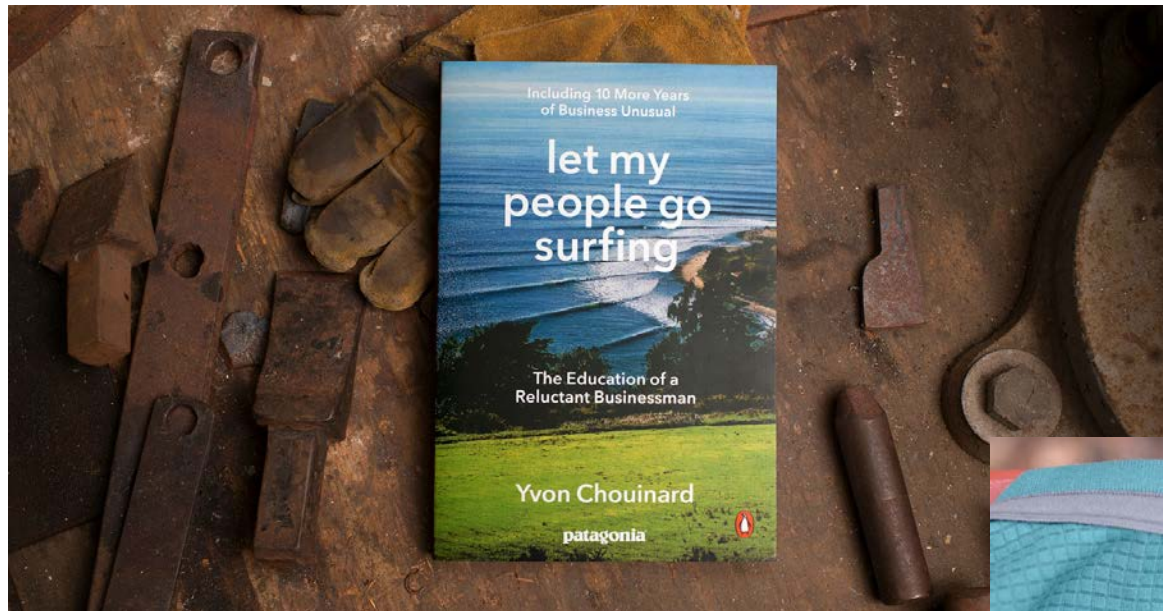
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ADAPTIVE Expertise

- Expertise to function efficiently on everyday tasks
- Expertise to create solutions for workplace challenges
- Skills of **adaptive expertise** used when an individual
 - Recognizes that a “routine” approach will not work
 - 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*
Woods & Mylopoulos (2015) *Med Ed*
Mylopoulos & Woods (2017) *Med Ed*

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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Overview

1) Why is Lifelong Learning Needed?

2) What is Expertise?

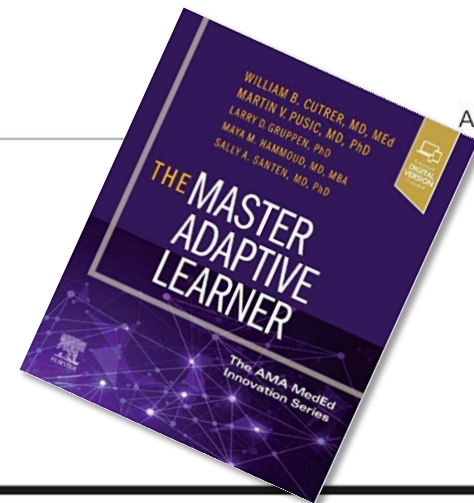
3) How Do We Develop Expertise?



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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



Article

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.



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Master Adaptive Learner

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

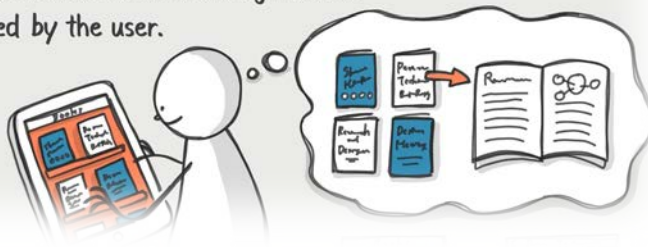


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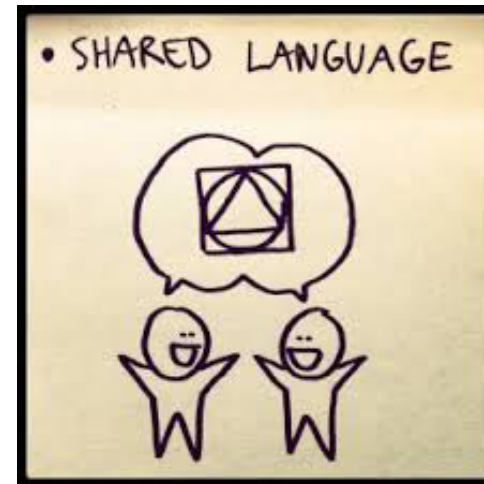
Cutrer et al. (2017) *Acad Med*
Cutrer et al. (2018) *Med Teach*

Mental Model

Make behaviors meet the usage model
imagined by the user.



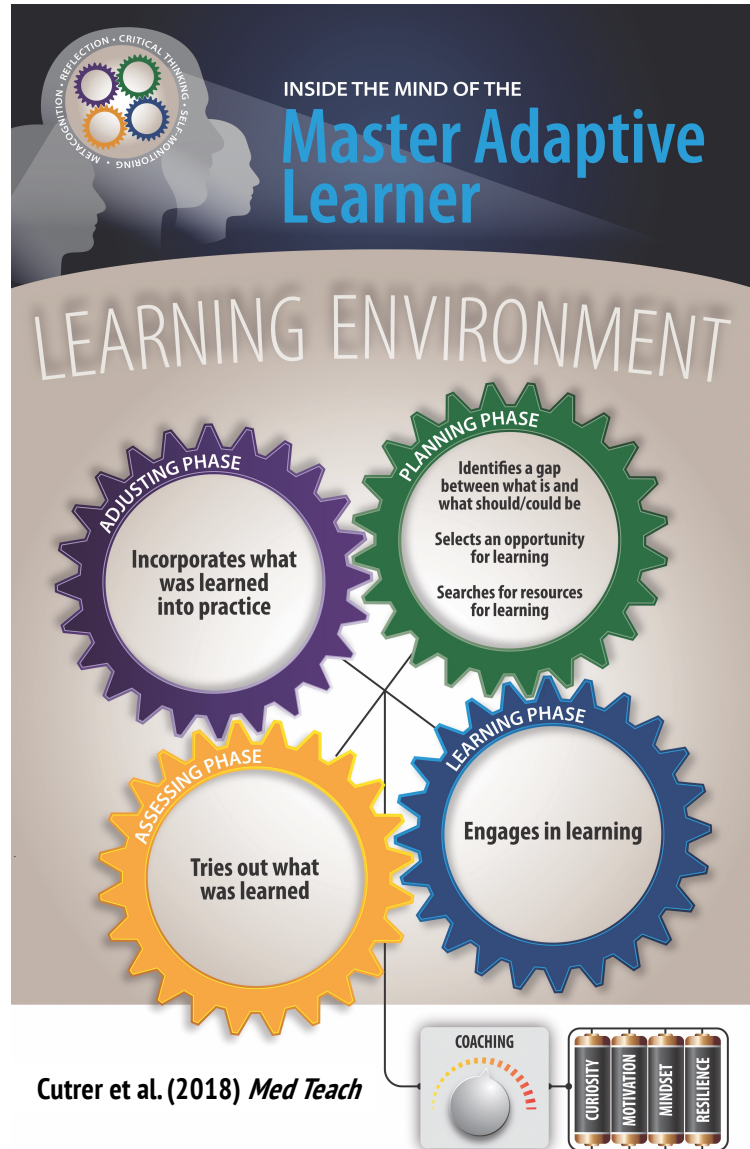
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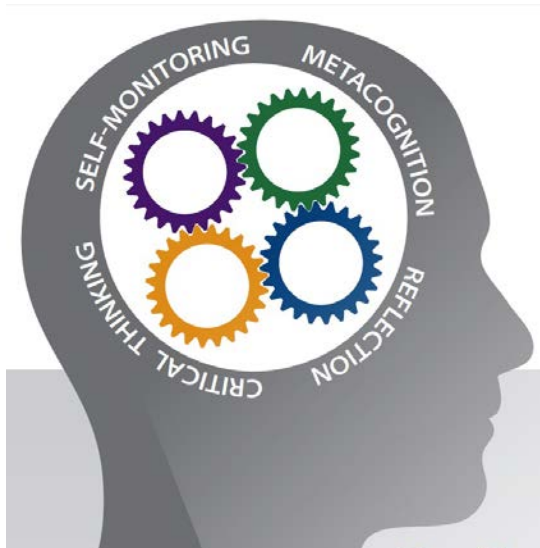


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Self-Monitoring

- “the ability to **notice our own actions**, curiosity to examine the effects of those actions, and willingness to use those observations to improve behavior and thinking in the future”

Epstein et al (2008) *Cont Educ Health Prof*

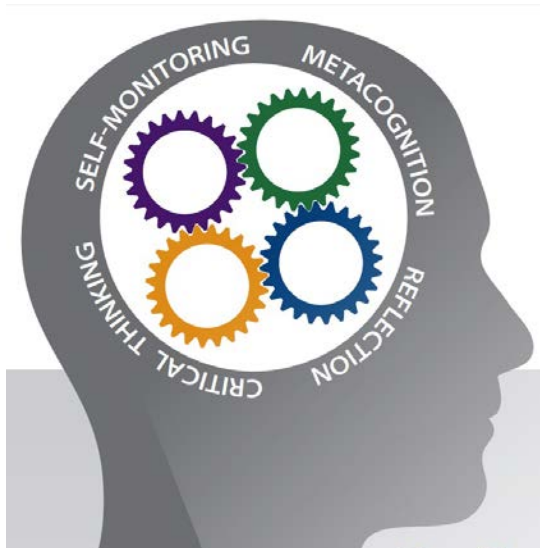
Metacognition

- “the skill that **sets goals, plans an approach** to accomplish a goal, **monitors progress** toward the goal, and **makes adjustments** as needed along the way”

Colvin Clark (2008) *Building Expertise*



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Reflection

- “is a metacognitive process that occurs **before, during** and **after** situations with the purpose of developing **greater understanding** of both the self and the situation so that future encounters with the situation are informed from previous encounters.”

Sandars (2009) Med Teach

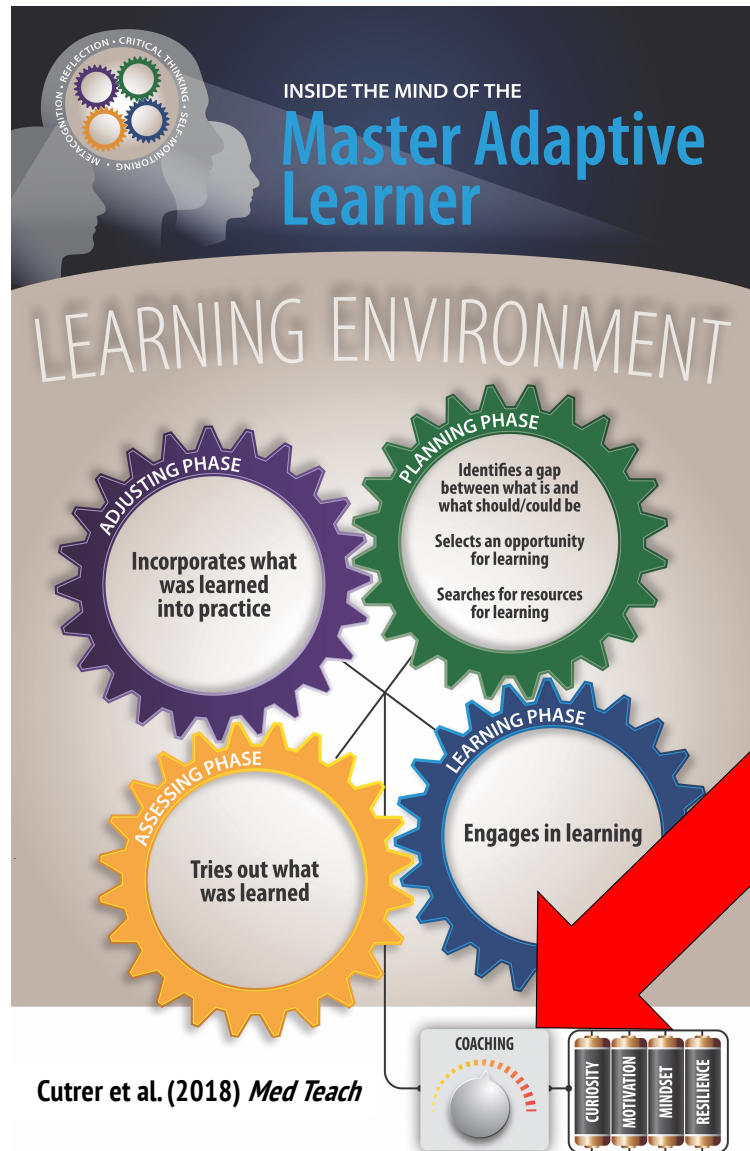
Critical Thinking

- “ability to apply **higher-order cognitive skills** (conceptualization, analysis, evaluation) and the disposition to be **deliberate about thinking** (being open-minded or intellectually honest) that lead to action that is logical and appropriate”

Papp et al. (2014) Acad Med



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THE NEW YORKER

ANNALS OF MEDICINE

PERSONAL BEST

Top athletes and singers have coaches. Should you?

BY ATUL GAWANDE

OCTOBER 3, 2011



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No matter how well trained people are, few can sustain their best performance on their own. That's where coaching comes in.

Learner Characteristics





Cutrer et al. (2018) *Med Teach*

LEARNING ENVIRONMENT

- **Rapidly changing**
 - **Lack of Time**
- **Inter-team dynamics**
 - **Complexity**
 - **Conflicting priorities**
- **Physical/Space constraints**
- **Policies and Procedures**
 - **Etc, Etc, Etc**

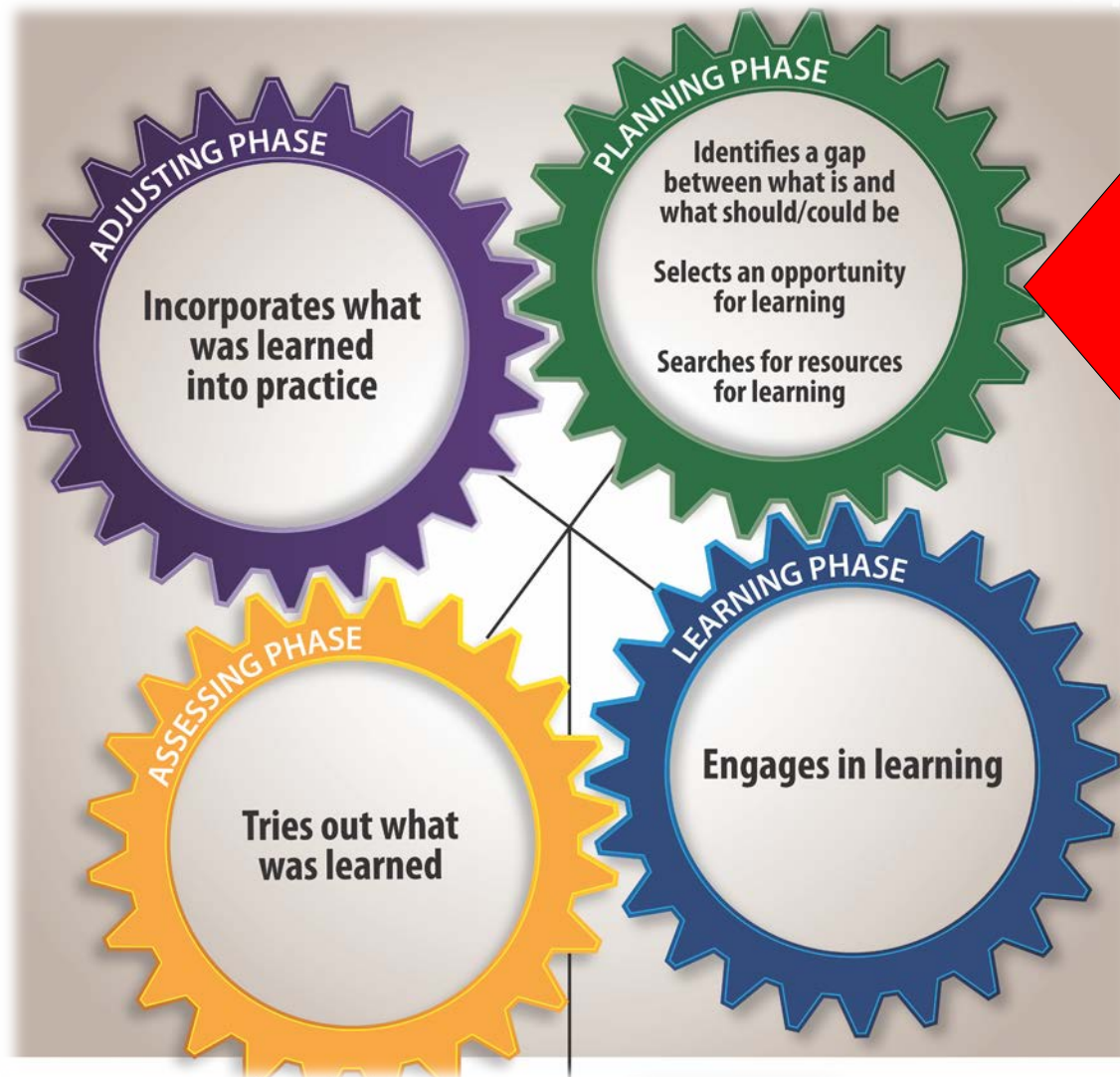


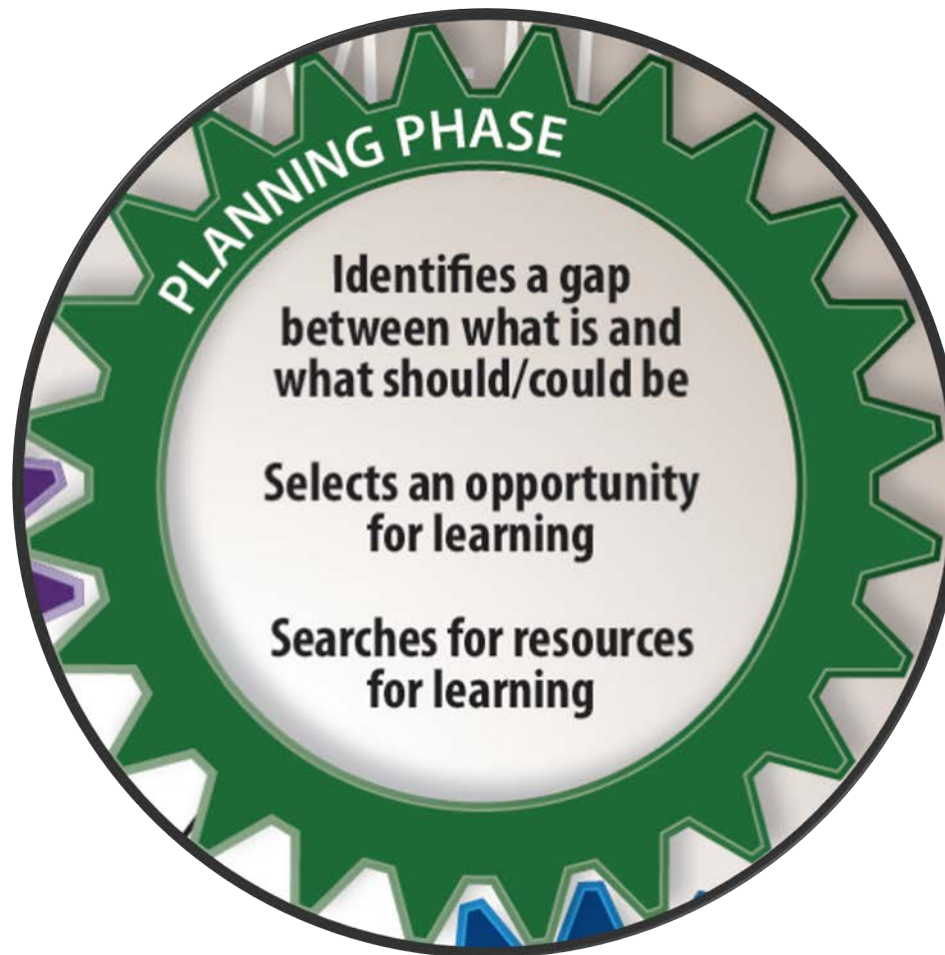


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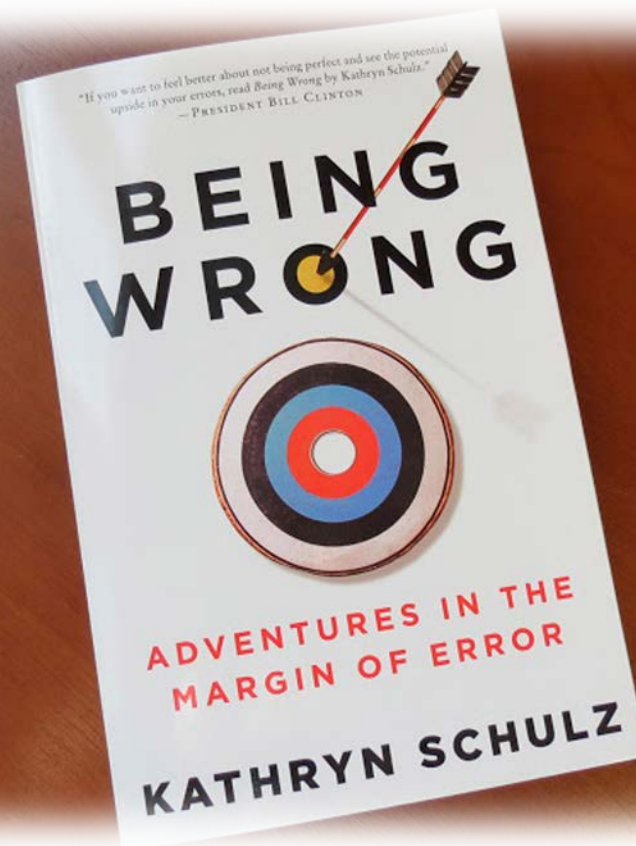
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Planning Phase



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Planning Phase Entry Step...

Identifies a gap between what is and what should be/could be

→ Can be related to different areas:

- Knowledge
- Skills
- Attitudes

→ Impact the provider's ability to provide expert care





Utilizing (Competency-Based Assessment) Data

Sources of Feedback to Consider:



Course assessment
(including any written feedback)



Faculty verbal feedback



Quiz and examination
performance



Multisource feedback from peers,
interprofessional colleagues



Peer performance on examinations
(benchmarking data)



National Board Examinations



Performance on standardized
patient assessments

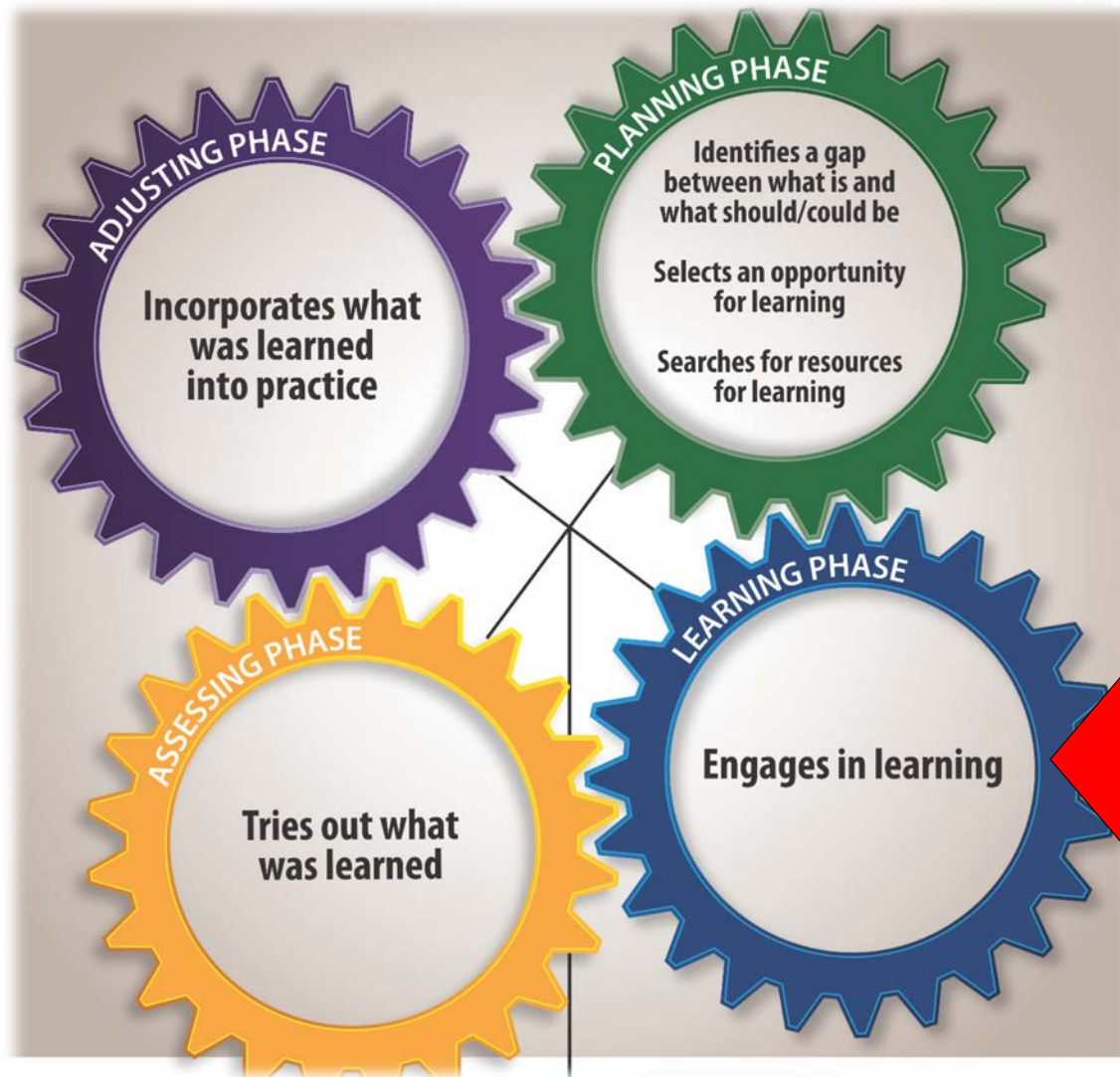


Self-testing of content



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Deiorio & Miller Juve (2019) Chapter 12—How Can I Best Support Master Adaptive Learners Using Coaching
Deiorio & Hammoud (2017) *Coaching in Medical Education Handbook*





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Learning Strategies

Bad strategies

- Rereading
 - Time consuming
 - No durable memory
 - Self-deception/false sense of familiarity
- Highlighting and underlining
- Cramming

"Learning is deeper and more durable
when it is effortful."



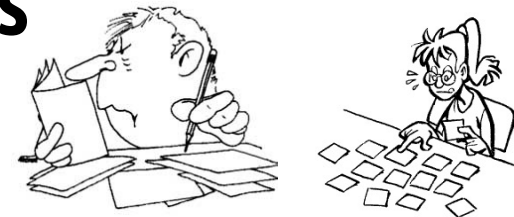
Brown et al (2014) *Make it Stick*



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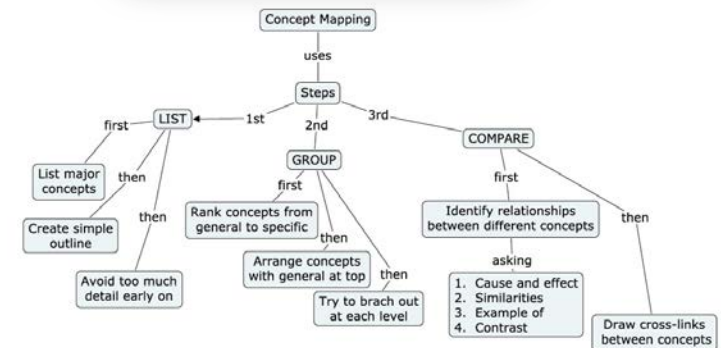
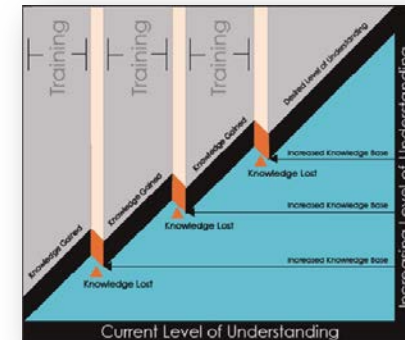
Learning Strategies



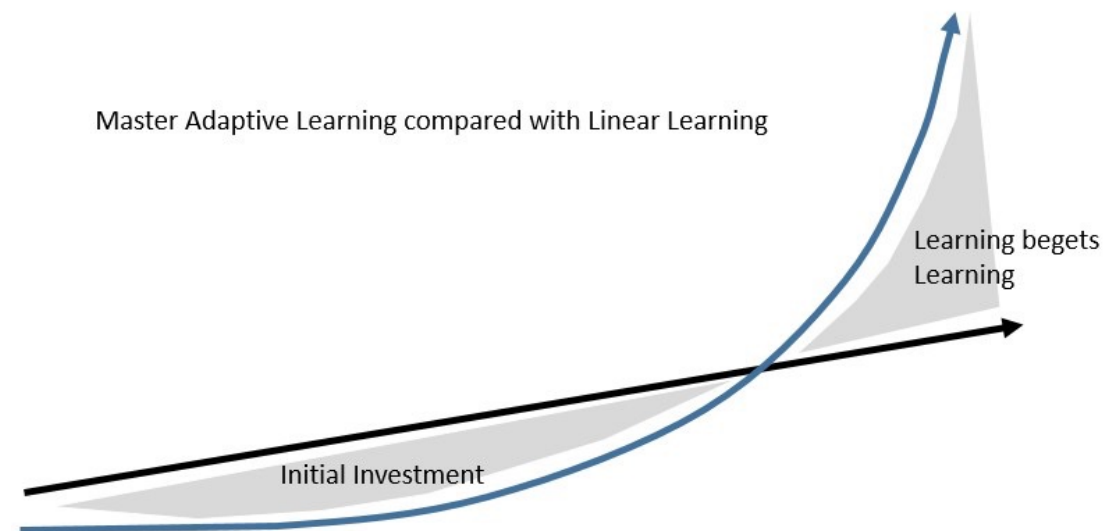
1) Knowledge Retrieval Strategies

2) Spaced Repetitious Learning

3) Concept Mapping



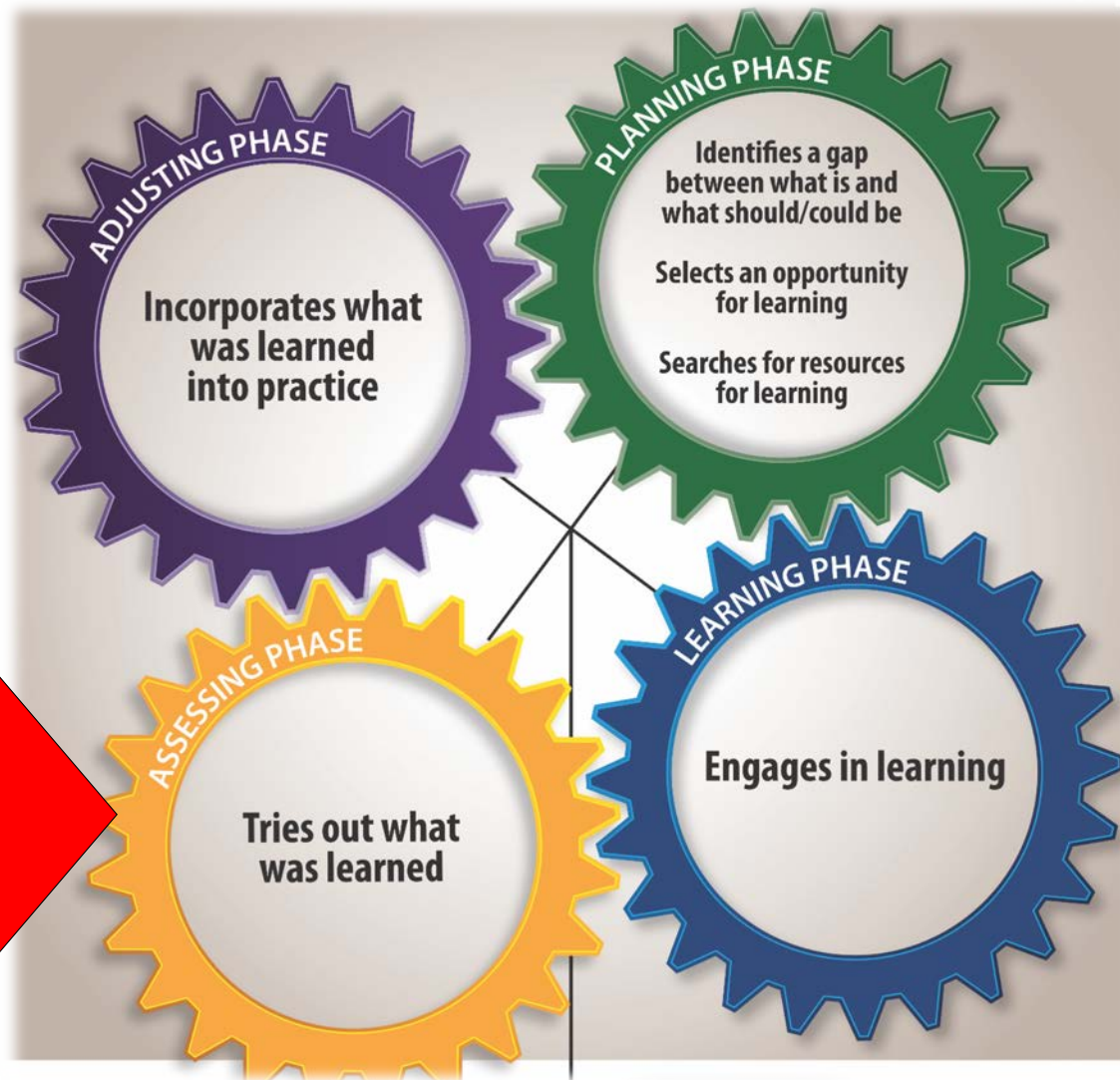
“But...It’s takes too long”



Pusic, Cutrer, Santen (2019) Chapter 2 – “How does Master Adaptive Learning Advance Adaptive Expertise Development?”



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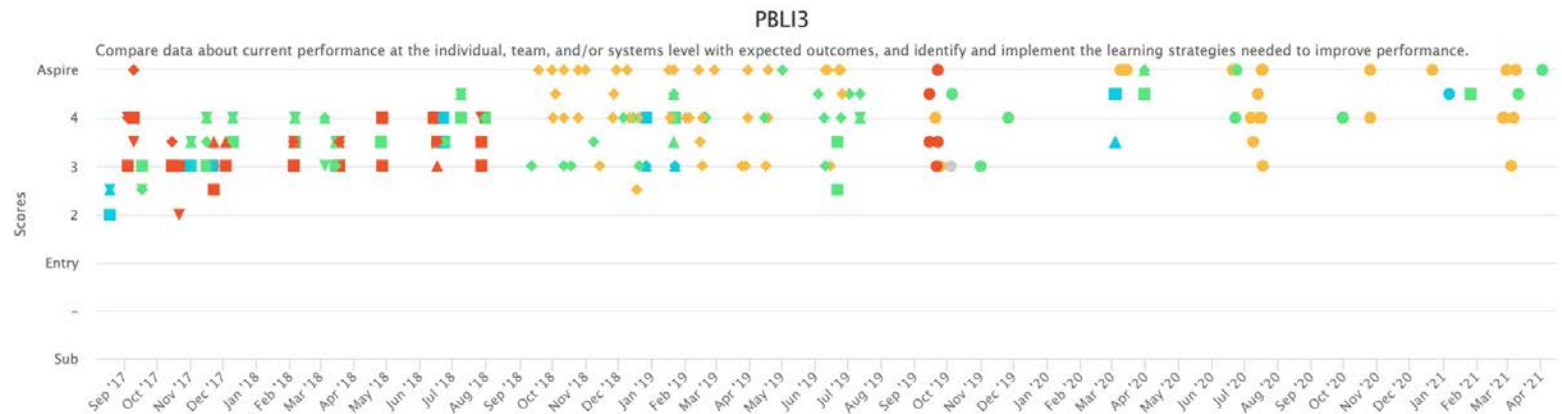
Utilizing (Competency-Based Assessment) Data

Careful review all learner data (Portfolios, Dashboards, etc.)

- Inquire about learner's self-assessment/feedback-seeking behaviors

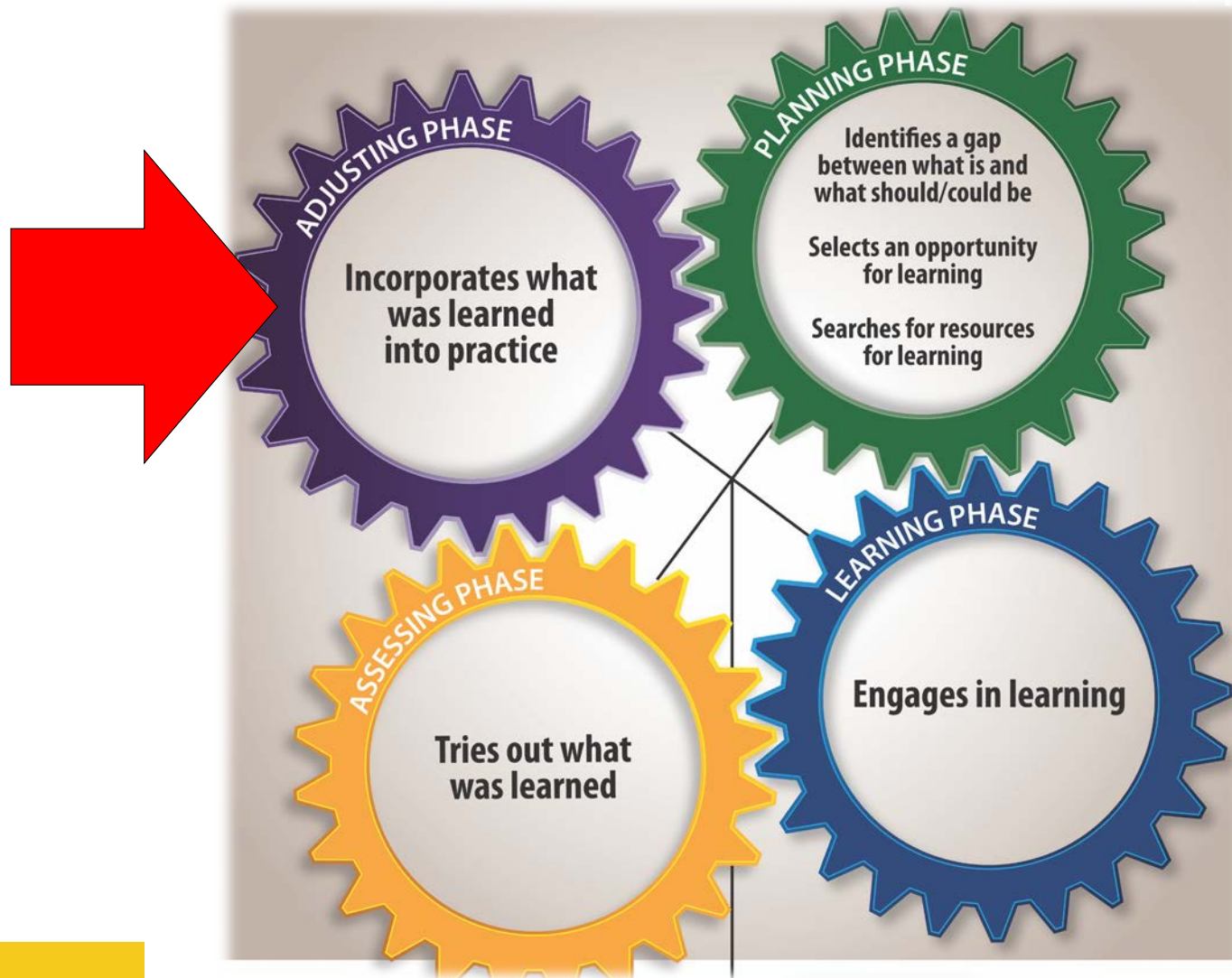
Medical Knowledge Patient Care Interpersonal and Comm... Professionalism **Practice-Based Learnin...** Systems-Based Practice

Practice-Based Learning and Improvement: Physicians must be able to continuously improve patient care by investigating and evaluating outcomes of care and by engaging in learning activities which involve critical appraisal and assimilation of scientific evidence and application of relevant knowledge to individual patients and populations. [Learn more](#)



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VSTAR Portfolio





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Adjusting Phase

- **Change Management**
 - How big is the required change?
 - Are you the only one who will have to change?
 - What emotions are involved with the change?

Fox et al (1989) *Changing and Learning in the Lives of Physicians*



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LEADERSHIP AND LEARNING

ARE INDISPENSABLE TO EACH OTHER

John F. Kennedy



celebquote.com

**The ability to
learn is the
most
important
quality a leader
can have.**

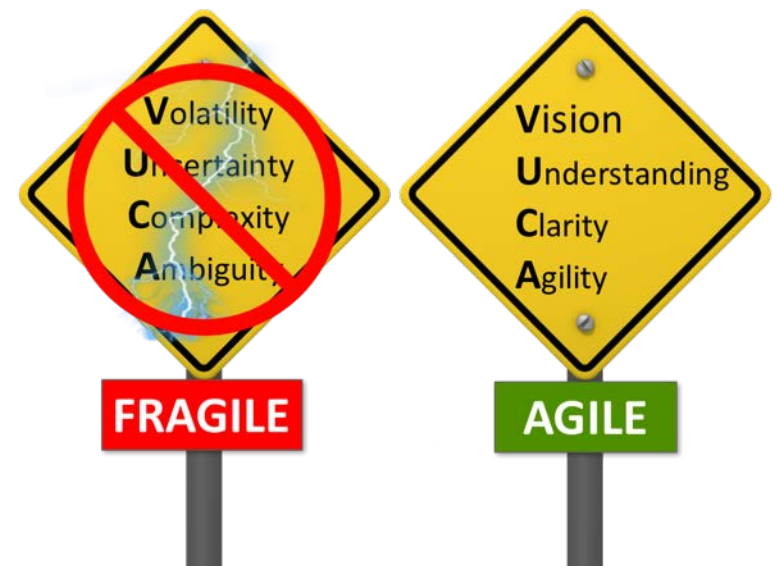
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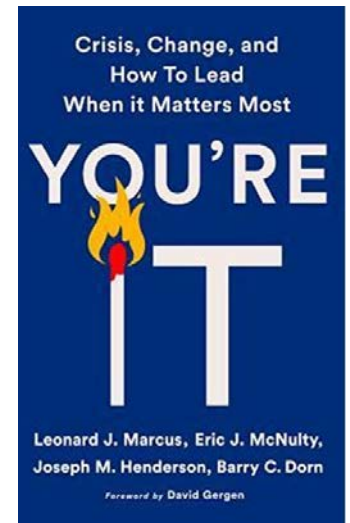
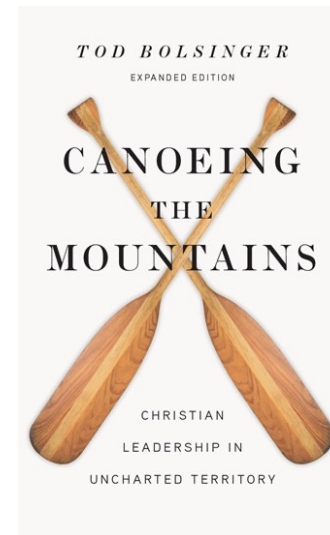
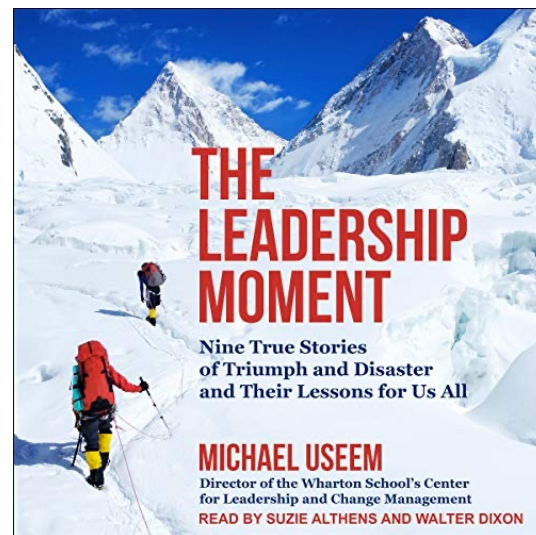
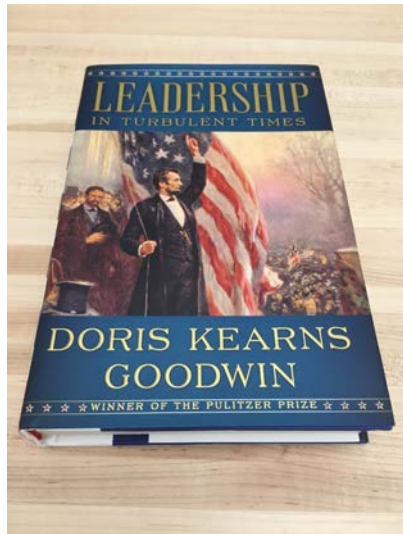


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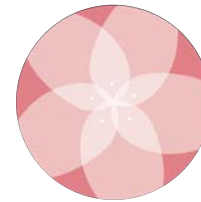
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Leadership

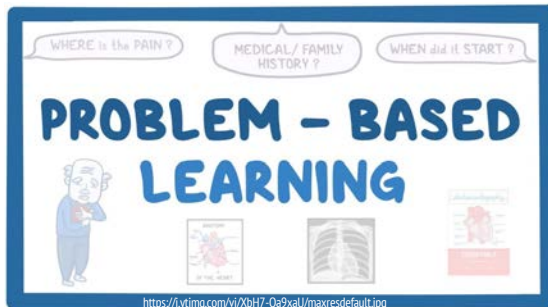


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Leadership in ...



PHYSICAL
THERAPY
LEARNING
INSTITUTE



Progression
Competency-Based?
Time-Variable?



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Summary

1. Why is Lifelong Learning Needed?

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

2. What is Expertise?

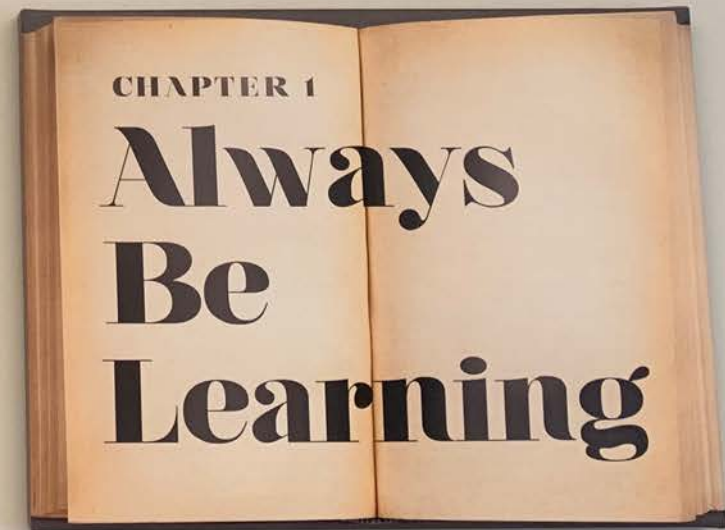
- Routine Expertise—Efficient application of known solutions
- Adaptive Expertise—New Learning & Innovation to Solve Novel Challenges

3. How Do We Develop Expertise?

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

Bonus—Leadership Applications





Questions

Email Bill.Cutrer@Vanderbilt.Edu