

Understanding Knowledge Gaps as a Driver of Master Adaptive Learning: Encouraging and Guiding the Process



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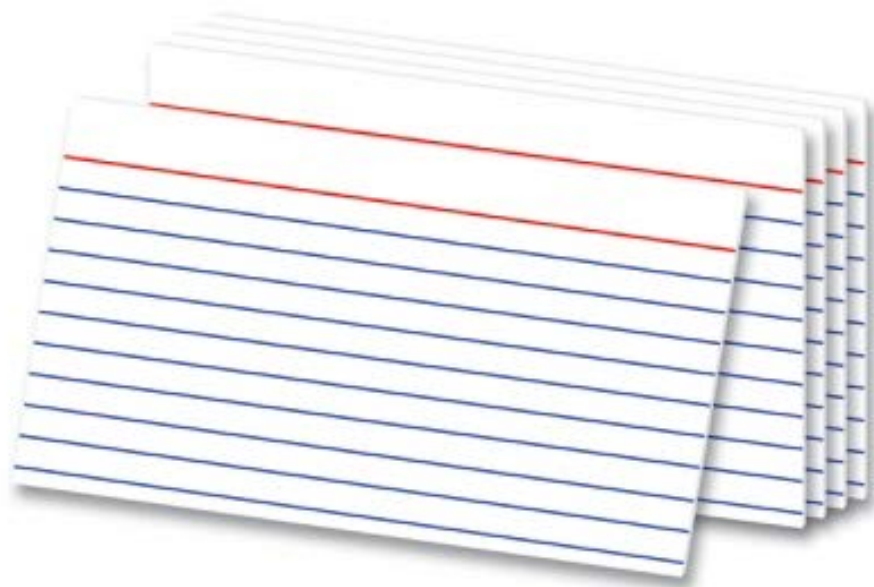
Disclosures

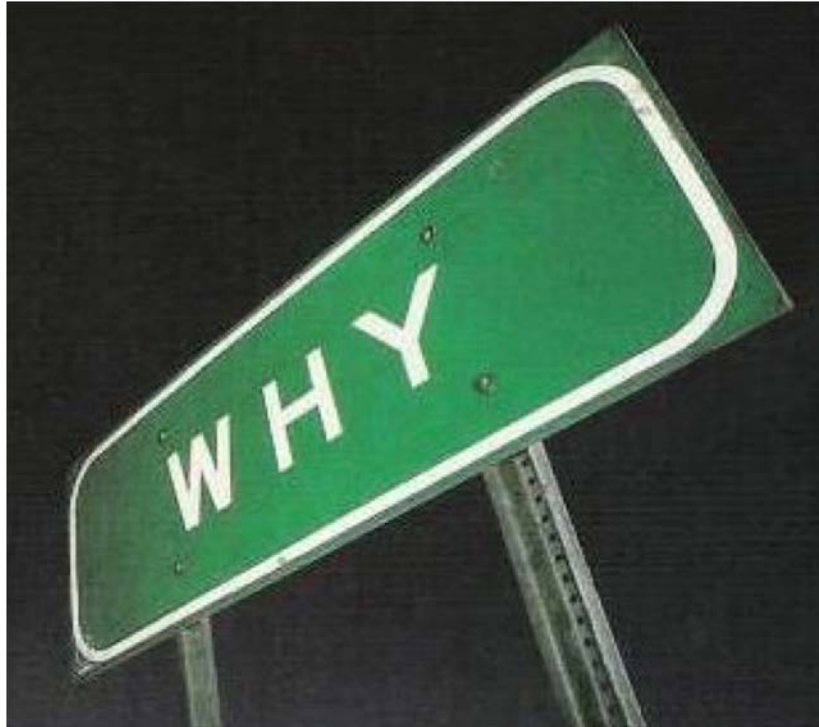
- ▶ I have no conflicts of interest to disclose
- ❖ *This presentation was prepared with financial support from the American Medical Association (AMA) as part of the Accelerating Change in Medical Education Initiative. The content reflects the my views and does not necessarily represent the views of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



One more disclosure...







Quick Poll



Objectives:

- 1) Describe the key elements of the Master Adaptive Learner framework
- 2) Examine the process, motivational influences and consequences of learner gap identification
- 3) Evaluate current UME/GME educational processes and their impact on learner gap identification and learning
- 4) Propose improvements and interventions to foster trainee gap identification



Overview

- 1) **Setting the Stage**
- 2) Small Group Activity #1
- 3) Small Group Activity #2
- 4) Large Group Report Out



WHY is expertise needed?



What We Do

What is Known



Medicine today...

Continually changing practice context

- Changing patient demographics
- Changing expectations of society/patients/profession
- Increasing rates of chronic disease
- New Diseases/Re-emergence of “old” diseases
- Shifting standards of care and practice guidelines
- Improving health information technology
- Skyrocketing costs
- Advances in medical science → Expanding knowledge base



The physician's conundrum: Too much information, too little time

July 25, 2013 | Denise Basow, MD - Vice President/General Manager and Editor-in-Chief, UpToDate

Big Ideas

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Too much information - how do doctors keep up?

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For doctors, too much information?

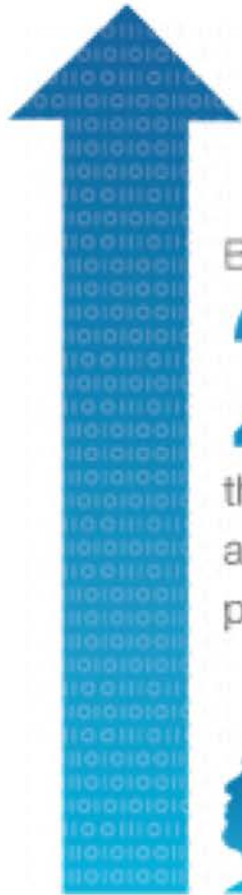
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By [KATHRYN SMITH](#) | 3/5/13 4:43 AM EST



Too Much Information: The Doctor's Data Dilemma



By 2020, doctors will face

200x

the amount of medical data
and facts that a human could
possibly process.¹



And it will get worse...
The volume of medical data
doubles
every five years.²



81% of physicians
can't even spare
5 hours
per month
to keep up.²



Practicing Physicians

“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





What We Do

What is Known

Routine Expertise

But also... Adaptive Expertise

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

Mylopoulos & Woods (2017) *Med Ed*



What is Known

Solutions to Novel Challenges



Medicine 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*



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 Instru*

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*

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How Do We Develop Expertise?

**How Do We Help our Trainees
Develop Expertise?**





INSIDE THE MIND OF THE

Master Adaptive Learner

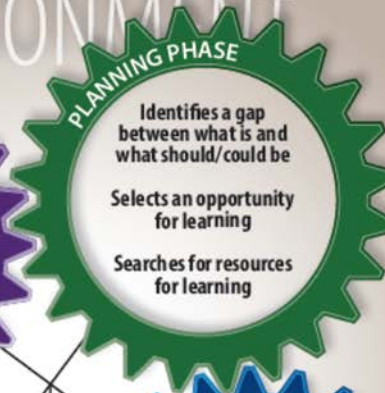




INSIDE THE MIND OF THE

Master Adaptive Learner

WORKING-LEARNING ENVIRONMENT



Adapted for publication in Cutrer, et al. (2016) *Academic Medicine*





THE NEW YORKER

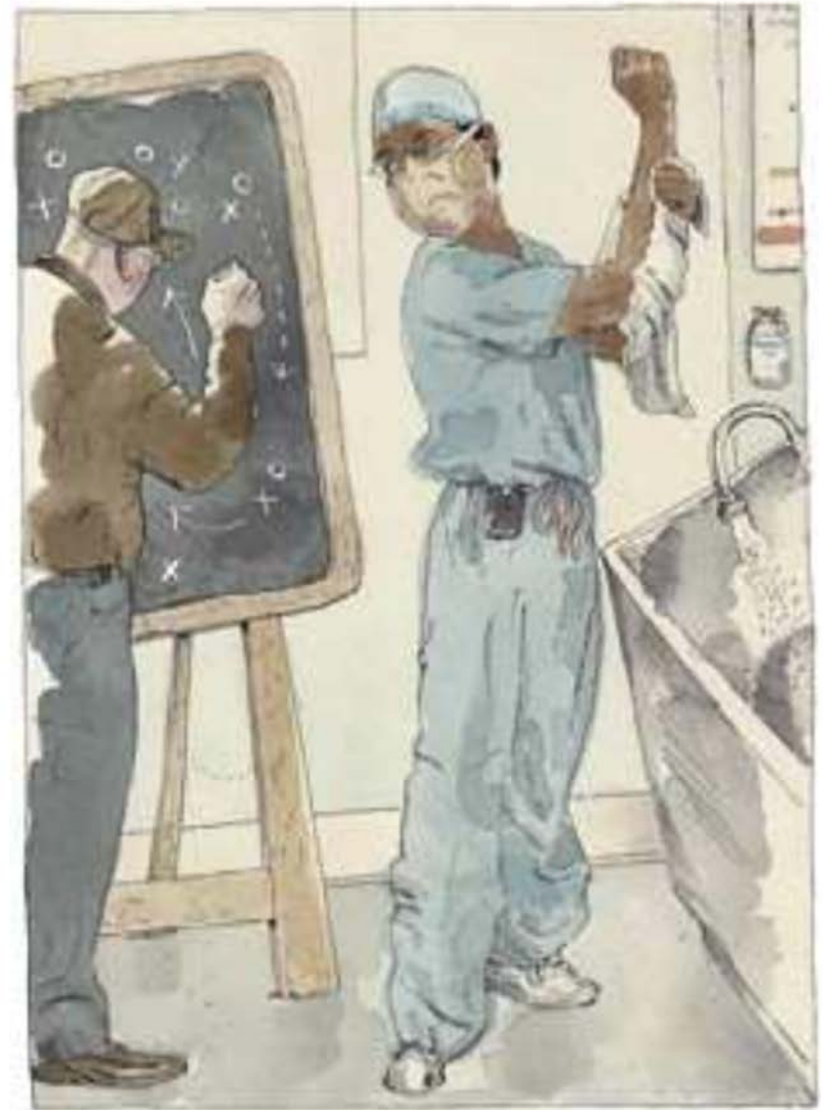
ANNALS OF MEDICINE

PERSONAL BEST

Top athletes and singers have coaches. Should you?

BY ATUL GAWANDE

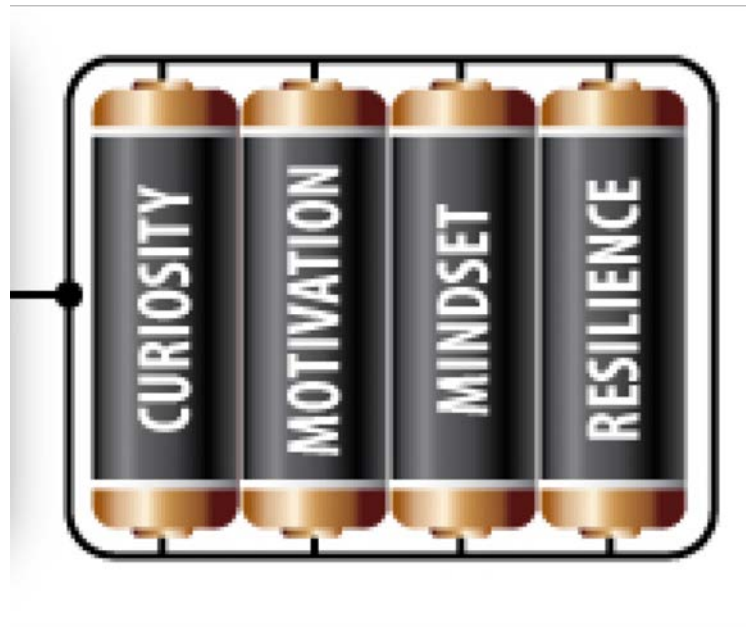
OCTOBER 3, 2011



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



Learner Characteristics

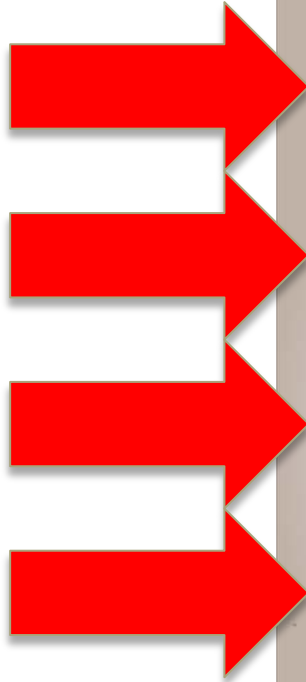
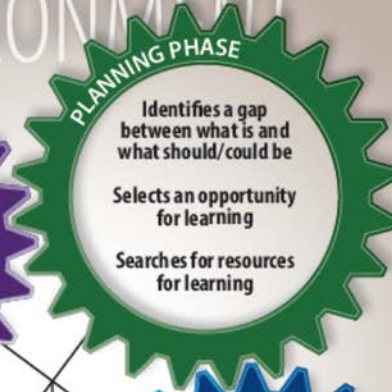




INSIDE THE MIND OF THE

Master Adaptive Learner

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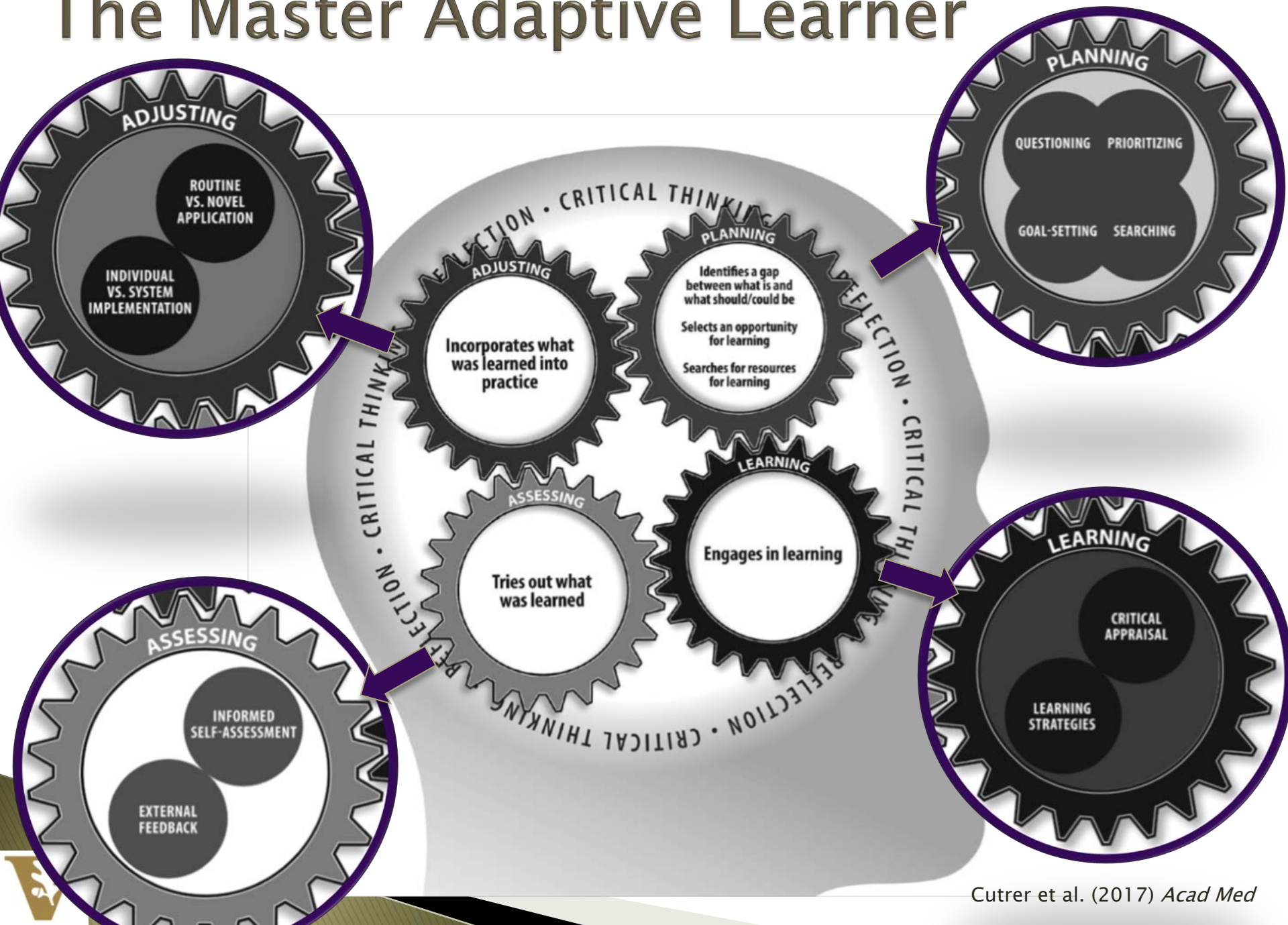
Working-Learning Environment



- ▶ Rapidly changing
- ▶ Lack of Time
- ▶ Inter-team dynamics
- ▶ Duty hours
- ▶ Complexity
- ▶ Conflicting priorities
- ▶ Etc, Etc, Etc



The Master Adaptive Learner



HOW IS ALL OF THIS USEFUL?

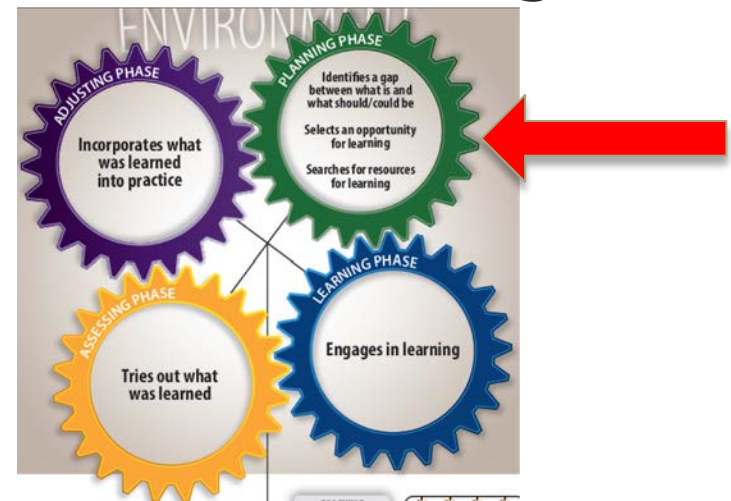


**KEEP
CALM
AND
DO SOMETHING
USEFUL**



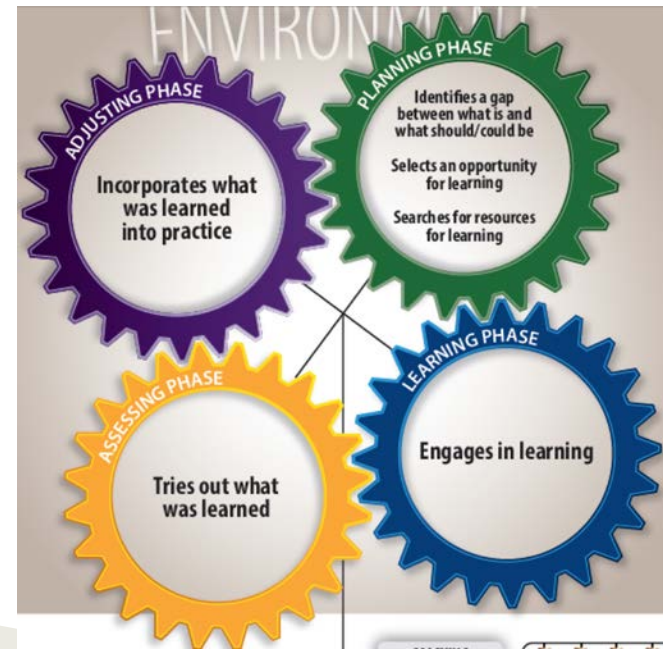
Case 1: Struggling Medical Student

- ▶ Suzie is a 3rd year student on her OB/GYN clerkship. She is excited to be in L&D because she thinks she wants to be an Obstetrician. She is overwhelmed at the end of each day with all of the things she didn't know. She dutifully keeps a list of unanswered questions in her notebook, but can't seem to ever find the time to investigate answers to her questions.



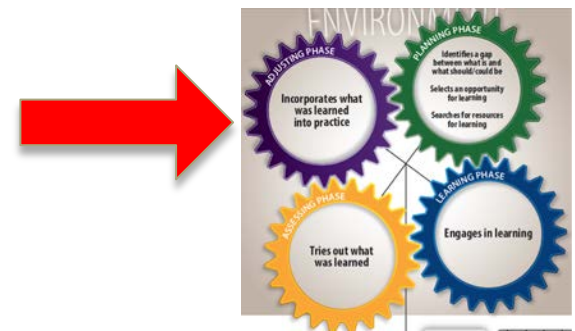
Case 2: Struggling Resident

- ▶ Tommy is a 2nd year Medicine resident who really wants to do well. He tries to spend time each night reading and re-reading systematically through Harrison's Textbook. He underlines and highlights as he goes, but never seems to remember what he has read.



Case 3: Struggling Faculty Member

- ▶ Sandra is a busy junior faculty member who works in a family medicine office. A month ago, she realized her diabetic patients weren't as well controlled as she would like. She invested time and energy in searching and appraising the literature and identified an evidence-based intervention to address the problem. She feels like it should really be effective and has buy-in from her partners about the idea. She is stuck with how to practically implement the new program in her clinic which has led to frustration.

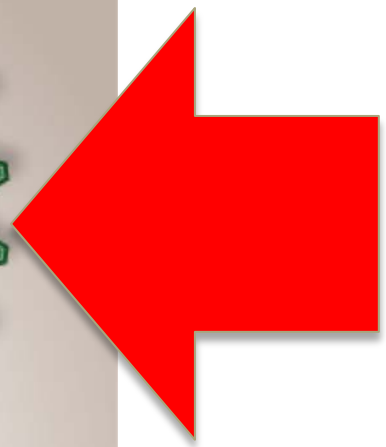
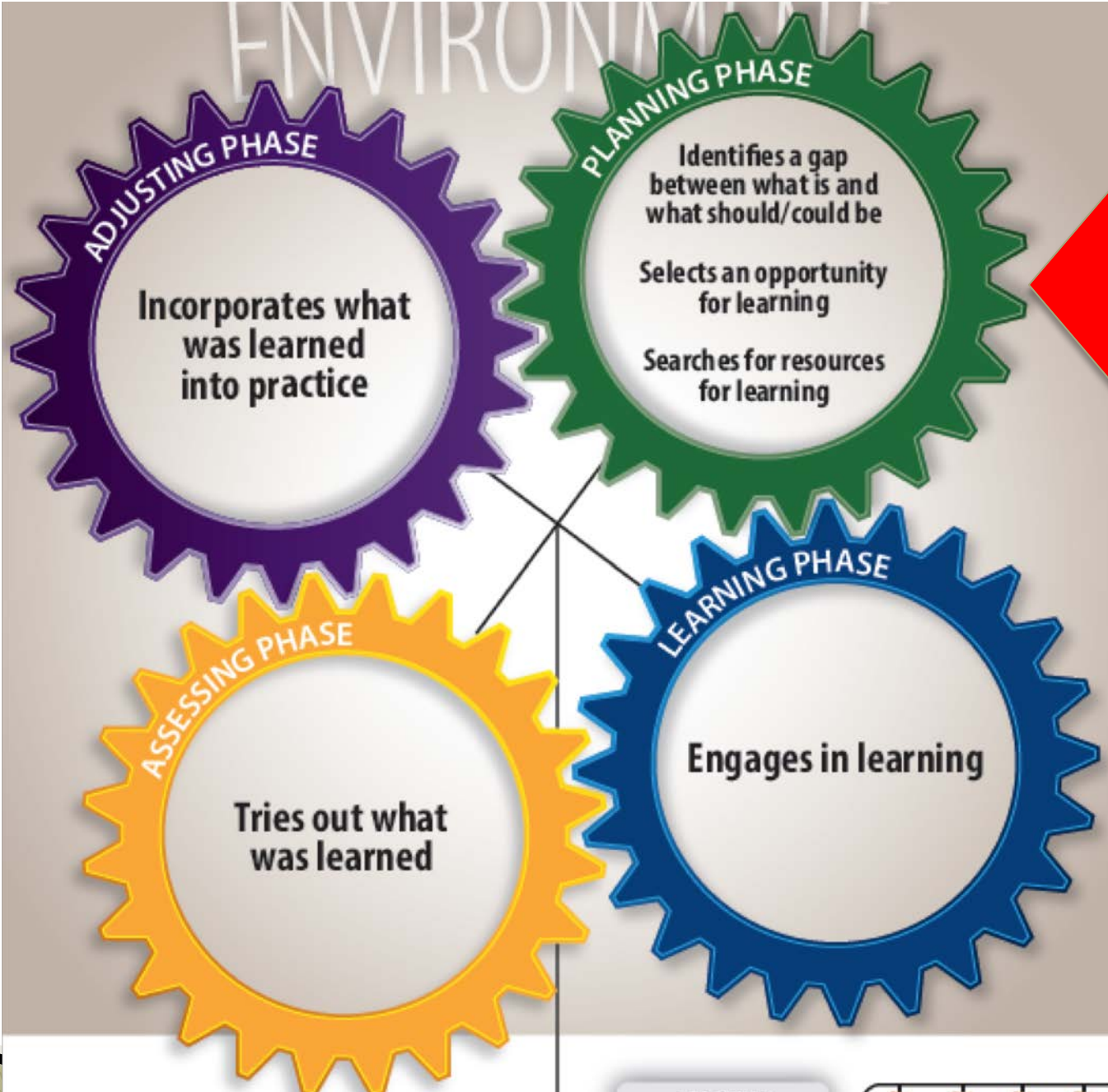


Overview

- 1) Setting the Stage
- 2) **Small Group Activity #1**
- 3) Small Group Activity #2
- 4) Large Group Report Out



ENVIRONMENTAL





PLANNING PHASE

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

**Selects an opportunity
for learning**

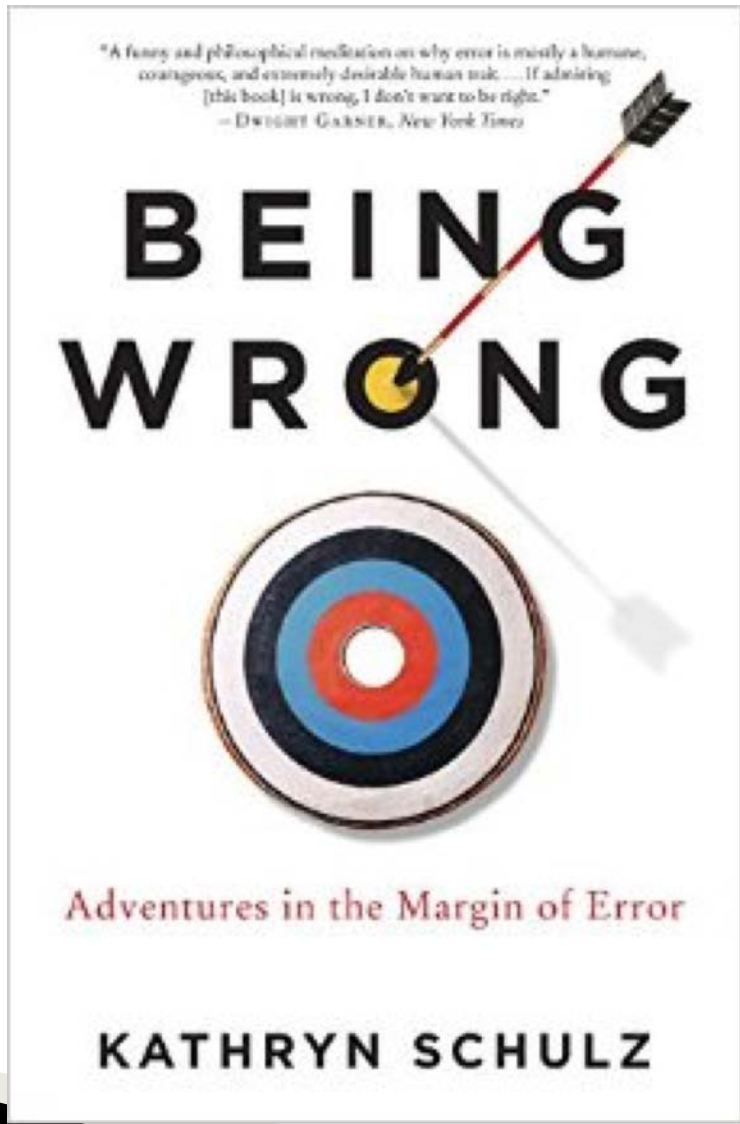
**Searches for resources
for learning**

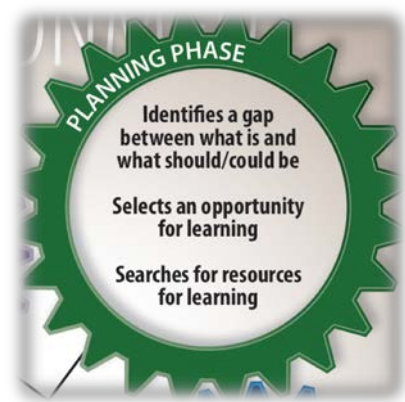


PLANNING PHASE

- Identifies a gap between what is and what should/could be
- Selects an opportunity for learning
- Searches for resources for learning

Planning Phase





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 physician's ability to provide expert care



GROUP PARTICIPATION

- Identify a recorder and a reporter for each table
- Record key observations, challenges, and ideas
 - 20 minutes for initial discussion

“How do trainees identify gaps?”



GROUP PARTICIPATION

Brainstorm for solutions

- Further group discussion
- Summarize for report out

“What practical initiatives might improve the identification of gaps?”



Overview

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GROUP PARTICIPATION

- Identify a recorder and a reporter for each table
- Record key observations, challenges, and ideas
 - 20 minutes for initial discussion

“What are the motivational influences and consequences of gap identification?”



GROUP PARTICIPATION

Brainstorm for solutions

- Further group discussion
- Summarize for report out

“What practical initiatives might improve how students respond to gaps?”



Overview

- 1) Setting the Stage
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- 4) **Large Group Report Out**



Large Group Report Out

Report from each of the groups

–Major themes/ideas identified

- Feasibility?
- Implementation issues?
- Research Opportunities?



Take Home

What was most meaningful for you in the last 90 minutes?



What is **ONE** idea or strategy that you **WILL** try in the next time you work with trainees?



Questions



Email Bill.Cutrer@Vanderbilt.Edu



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