Disclosures

- No financial disclosures or conflicts of interest.

- We are not experts on the topic, but are interested in the subject.

- Collective expertise gathered in this zoom will make this session valuable.

- Images were shamelessly borrowed from "Dr. Google"

To receive credit for today's BCH Academy Session:

Text 3162 ➔ 617-648-7950

Objectives

By the end of this session, participants will learn to:

1. Define and appreciate critical thinking as it applies to clinical medicine (and health professions education across the continuum)
2. Use frameworks with learners that maximize critical thinking
3. Apply questions that encourage learners to use and refine their critical thinking skills

Our Roadmap

○ Intro
  ○ Thought exercise
  ○ Defn of critical thinking (CT)
  ○ Importance

○ 3 Strategies for Teaching CT
  ○ Framework exercise
  ○ Questioning
  ○ Modeling

○ Wrap up

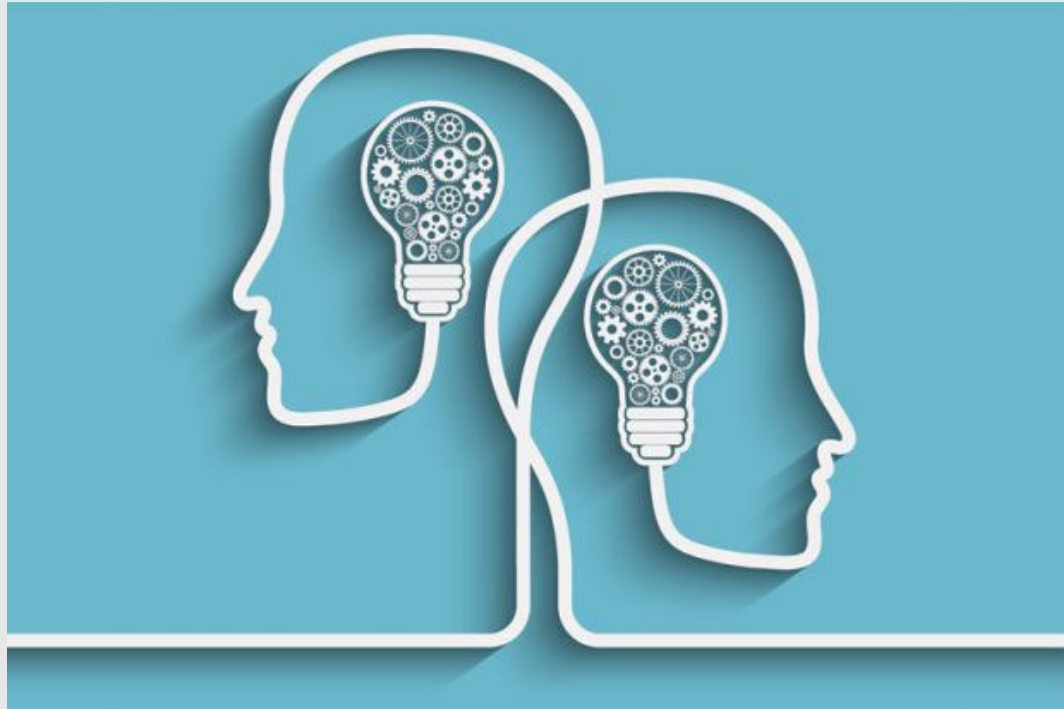# GET YOU THINKING

Does the space inside get bigger or smaller?

Our Roadmap

○ Intro
  ○ Thought exercise
  ○ Defn of critical thinking (CT)
  ○ Importance

○ 3 Strategies for Teaching CT
  ○ Framework exercise
  ○ Questioning
  ○ Modeling

○ Wrap up

What is Critical Thinking?

Use the chat function or unmute to share

A Proposed Definition

"The intellectually disciplined process of actively and skillfully conceptualizing, applying, analyzing, synthesizing, and/or evaluating information gathered from, or generated by observation, experience, reflection, reasoning, or communication, as a guide to belief and action"

(Scriven & Paul, 2007)

GET YOU THINKING

Does the space inside get bigger or smaller?

Offer a Prompt

Esquire.com

Livinghomegrown.com

GET YOU THINKING

Does the space inside
get bigger or smaller?

A Proposed Definition

"The intellectually disciplined process of actively and skillfully conceptualizing, applying, analyzing, synthesizing, and/or evaluating information gathered from, or generated by observation, experience, reflection, reasoning, or communication, as a guide to belief and action"
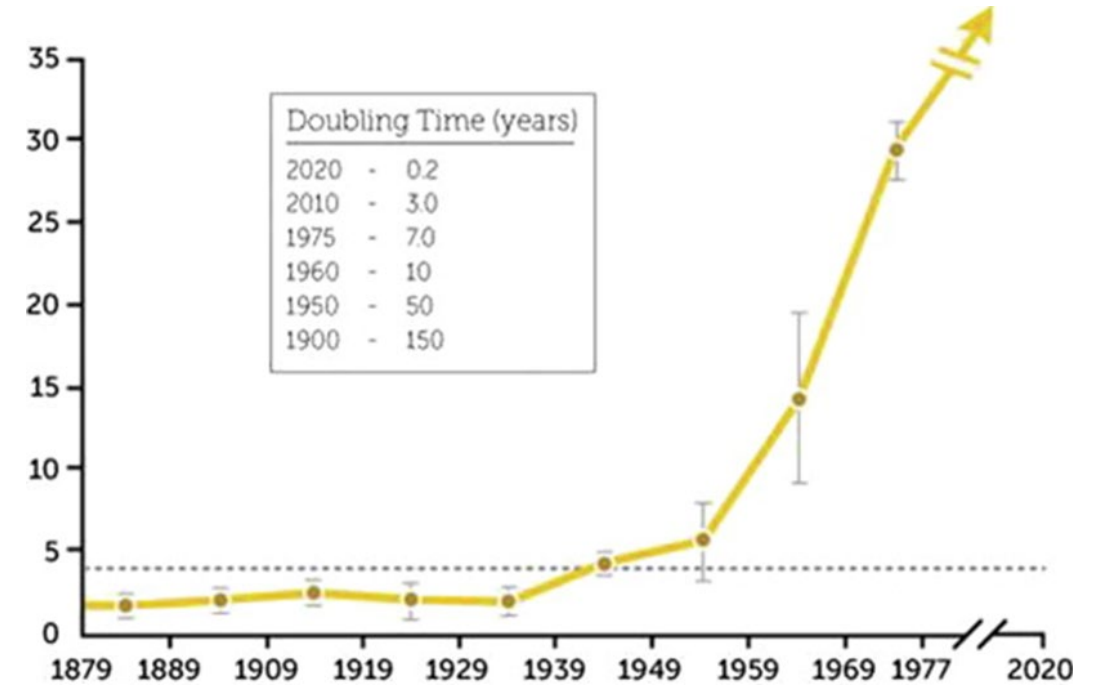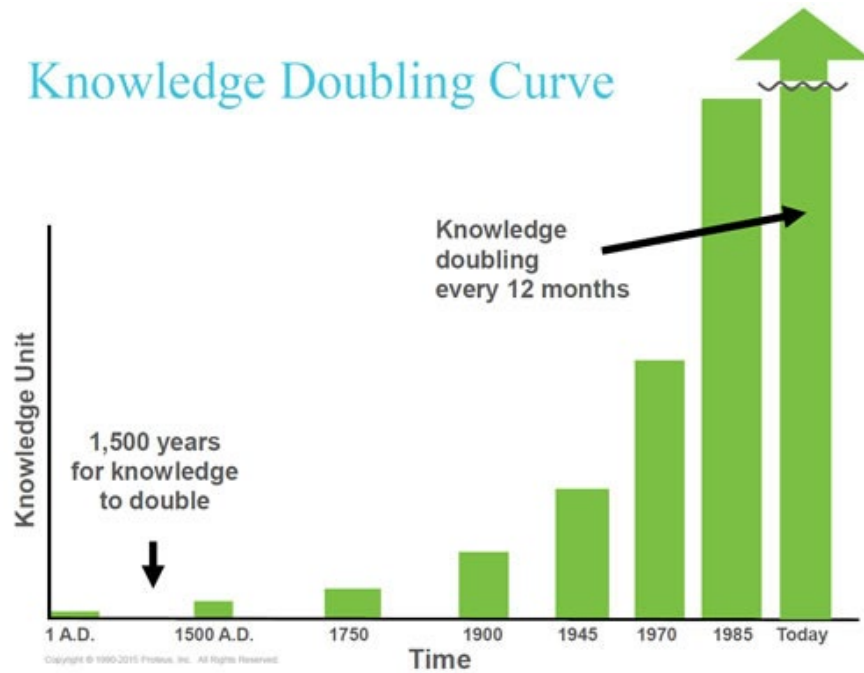
(Scriven & Paul, 2007)

A Proposed Definition

"The intellectually disciplined process of actively and skillfully conceptualizing, applying, analyzing, synthesizing, and/or evaluating information gathered from, or generated by observation, experience, reflection, reasoning, or communication, as a guide to belief and action"

(Scriven & Paul, 2007)

Our Roadmap

○ Intro
  ○ Thought exercise
  ○ Defn of critical thinking (CT)
  ○ Importance

○ 3 Strategies for Teaching CT
  ○ Framework exercise
  ○ Questioning
  ○ Modeling

○ Wrap up

IMPORTANCE: A LOT TO LEARN

Dunkin B. *Surg Clinic NA*, 2015

Media.execunet.com/m/knowledge-doubling-curve-slide.jpg

Importance: Lifelong Learning

Our Roadmap

○ Intro
  ○ Thought exercise
  ○ Defn of critical thinking (CT)
  ○ Importance

○ 3 Strategies for Teaching CT
  ○ Framework exercise
  ○ Questioning
  ○ Modeling

○ Wrap up

Frameworks

Framework	Focuses On:	Best For	Pitfalls	Steps
SNAPPS	Data processing	Experienced learners with intrinsic motivation Longitudinal relationship	Leaner needs to drive the process Most focus on diagnosis (but can be used for planning)	(1) Summarize briefly the history and findings (2) Narrow the differential to two or three relevant possibilities (3) Analyze the differential by comparing and contrasting the possibilities (4) Probe the preceptor by asking questions about uncertainties, difficulties, or alternative approaches (5) Plan management for the patient's medical issues; and (6) Select a case-related issue for self-directed learning.
Diagnostic Timeout	Metacognition	Diagnosis seems wrong High risk of bias Case isn't making sense Seems to jump to conclusion	Need to identify that there may be error/inaccuracy Diagnosis specific	(1) Purposefully step back and ask: *what is our working diagnosis?* (emphasis on working, not defined) (2) Using this as a hypothesis, go back and review data to find what does and does not fit (3) Refine working diagnosis (4) Can ask learners to directly compare/contrast diagnoses

Problem Representation	Data processing	Early learners (later stage learners may do this naturally)	Can force into buckets that may not fit perfectly	(1) Have the learner to summarize the case using *semantic qualifiers*
				(Last night → "acute onset"; Has happened before → "Recurrent"; Same knee → monoarticular)
				(1) Can ask learners to
				   a. Compare and contrast diagnoses
				   b. Identify the "typical" presentation and similar/different
				   c. Name supporting and contradictory evidence

Murtagh's Diagnostic Strategies	Diagnostic Reasoning/ Data processing	Any stage	Diagnosis specific	(1) Most likely diagnosis (2) Serious disorders not to be missed (Can't miss) (3) Pitfalls (often missed) (4) Masquerades– what else can present like this? (5) Is this patient trying to tell me something else? (History or findings that are inconsistent)
ACTFAST	Data processing	Early learners, although can be used at any stage	May be challenging for cases with many problems/issues to discuss	(1) Ask a clinical question (2) Categorize the question into one of 4 categories (diagnosis, level of risk, trajectory, management decision) (3) Tell your most likely answer (4) For – provide evidence for (5) Against – identify information that is contradictory or supports another hypothesis (6) Synthesis – put together prior steps into an assessment (7) Test – create a plan

SNAPPS

Diagnostic "Time Out"

ACTFAST

Murdagh's Diagnostic Strategies

Problem Representation

The Scenario

◦ A learner is presenting his formulation regarding a patient to his preceptor:

◦ "Amanda is 16 years old and lives in Boston, MA with her parents and 14 yo brother. She has a history of depression and was brought to the ED from her PCP's office where she was being seen for a follow up visit and disclosed thoughts of cutting herself. Biologically she is predisposed to depression given a strong family history. Psychologically, she has a history of depression. And socially, she has started in a new school recently and has had difficulty making friends. Due to concerns for safety and SI, she would benefit from inpatient level of care."
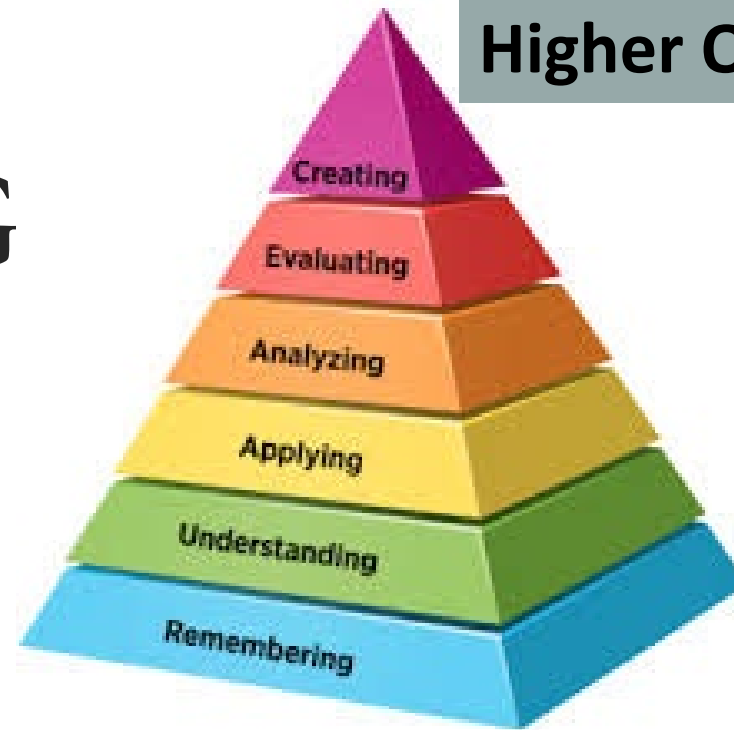
Our Roadmap

- Intro
  - Thought exercise
  - Defn of critical thinking (CT)
  - Importance
- 3 Strategies for Teaching CT
  - Framework exercise
  - Questioning
  - Modeling
- Wrap up

QUESTIONING

Bloom's Taxonomy

Creating

Evaluating

Analyzing

Applying

Understanding

Remembering

MATCHING QUESTIONS TO BLOOM

1. **Knowledge/Remembering**
   Exhibits previously learned material by recalling facts, terms, basic concepts and answers.
   - What is…..?
   - How would you describe…..?

2. **Comprehension/Understanding**
   Demonstrating understanding of facts and ideas by organizing, comparing, translating, interpreting, giving descriptions and stating main ideas.
   - How would you compare…..? contrast…..?
   - What facts or ideas show/support…..?

3. **Application/Applying**
   Solving problems by applying acquired knowledge, facts, techniques and rules in a different way.
   - What examples can you find to…..?
   - How would you show…..?
   - What approach would you use to…..?

4. **Analysis/Analyzing**
   Examining and breaking information into parts by identifying motives or causes; making inferences and finding evidence to support generalizations.
   - What inference can you make from…..?
   - How would you classify/categorize…..?
   - Which evidence is there to support…..?

5. **Evaluation/Evaluating**
   Presenting and defending opinions by making judgments about information, validity of ideas or quality of work based on a set of criteria.
   - Why do you think…..?
   Which do you think is better…..?
   What would you have recommended if…..?

6. **Creation/Synthesis**
   Compiling information together in a different way by combining elements in a new pattern or proposing alternative solutions.
   - What might have happened if…..?
   Can you propose an alternative interpretation…..?

Opportunity to Practice:

A Clinical Vignette

A 5 year old child with a history of seizure disorder is being evaluated for recurring seizures. Testing at the visit shows very low levels of the medication in the blood consistent with underdosing. The parents show a team member a syringe that is smaller than the one they should be using to administer the medication. Both parents work rotating shifts and leave the child with a neighbor during the evenings. You are discussing the case with a learner in your profession.

○ What are lower-order questions related to this case you could propose to your learners?

○ What are some higher level thinking questions you would propose to the learner in order to strategize a plan of care?

○ (Use padlet link from chat to add questions)

Opportunity to Practice:

An Education Vignette

One of your mentees is preparing to offer an educational session on providing effective feedback to peers. She shares that she thinks it should be offered in a hybrid format to optimize access and learning for those who join.

- What type of "lower-order thinking" type questions might you ask this mentee?

- What are examples of questions that would promote higher order critical thinking?

Our Roadmap

○ Intro
  ○ Thought exercise
  ○ Defn of critical thinking (CT)
  ○ Importance

○ 3 Strategies for Teaching CT
  ○ Framework exercise
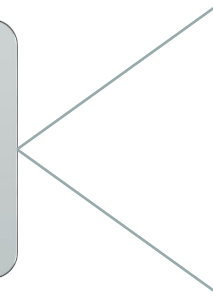 ○ Questioning
  ○ Modeling

○ Wrap up

Modeling

Prior experience? Successes?
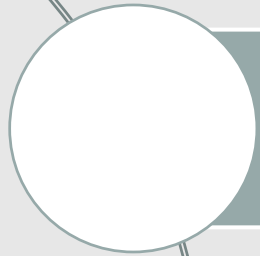
Some tips

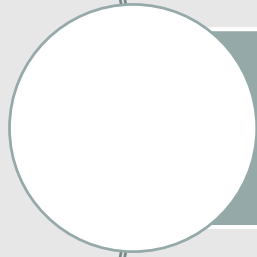Be explicit

Use pauses

Federman's rule

Federman's Rules

- Be nice/Be kind
- Keep it simple/Stick to the basics
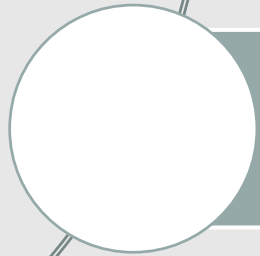- Think out loud

Nagler^2/Harper Rules
(critical thinking skills)

- Be able to admit a lack of understanding

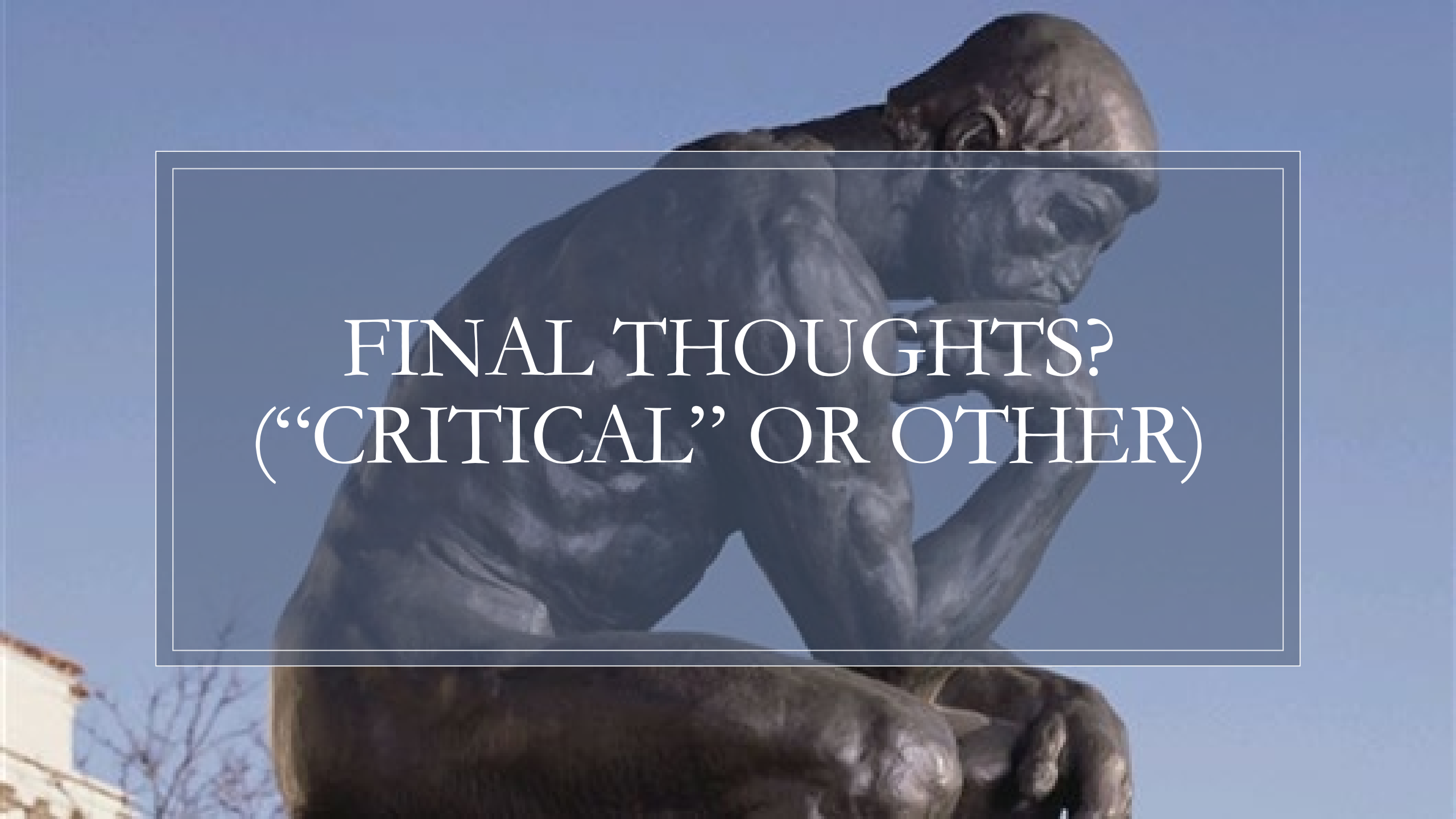- Be willing to adjust opinions with new facts

- Recognize critical thinking as a lifelong process

Our Roadmap

○ Intro
  ○ Thought exercise
  ○ Defn of critical thinking (CT)
  ○ Importance

○ 3 Strategies for Teaching CT
  ○ Framework exercise
  ○ Questioning
  ○ Modeling

○ Wrap up

FINAL THOUGHTS?
("CRITICAL" OR OTHER)

To receive credit for today's BCH Academy Session:

Text 3162 ➡ 617-648-7950