Promoting Critical Thinking

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Welcome!

- Please sign in

- Thanks to TACC & Marriott Library
By the end of this workshop, you should be able to:

1. Define critical thinking and explain why it is important
2. Identify at least 2 approaches to promoting critical thinking that you can implement in your teaching
3. Outline considerations which must be made when assessing critical thinking
What is critical thinking and why is it important?
Think-Pair-Share

1. Think about (a) your definition of critical thinking and (b) why you think it is important and write on one side of the index card

2. Pair with the person beside you and share your responses

3. Share with the larger group
What is critical thinking?
What is critical thinking?

“It is the kind of thinking involved in solving problems, formulating inferences, calculating likelihoods, and making decisions...When we think critically, we are evaluating the outcomes of our thought processes – how good a decision is or how well a problem is solved.”

– Diane Halpern, *Teaching for critical thinking: Helping college students develop the skills and dispositions of a critical thinker*
What is critical thinking?

“Being a critical thinker involves more than cognitive activities such as logical reasoning or scrutinizing arguments for assertions unsupported by empirical evidence. Thinking critically involves our recognizing the assumptions underlying our beliefs and behaviors. It means we can give justifications for our ideas and actions. Most important, perhaps, it means we try to judge the rationality of these justifications.”

– Stephen Brookfield, Developing Critical Thinkers: Challenging Adults to Explore Alternative Ways of Thinking and Acting
The Critical Thinking Checklist:

• Distinguish between verifiable facts and value claims.
• Determine the reliability of a claim or source.
• Distinguish between warranted and unwarranted claims.
• Detect bias.
• Recognize logical inconsistencies.
• Determine the strength of an argument

(developed in 1962 by Robert Ennis)
Peter Facione, *Critical Thinking: What it is and why it counts*
Higher Order Thinking Skills

Evaluation
Synthesis
Analysis
Application
Comprehension
Knowledge

Lower Order Thinking Skills

Create
Evaluate
Analyze
Apply
Understand – Describe, Explain
Knowledge – Remember

Based on an APA adaptation of Anderson, L.W. & Krathwohl, D.R. (Eds.) (2001)

Bloom’s Taxonomy (Revised)
What is critical thinking?

• Problem-solving involving open-ended or ill-structured problems
• Developing support for a position
• Requires higher-order cognitive and metacognitive skills
Why are critical thinking skills important?
Why are critical thinking skills important?

• In the workplace
  – business, medicine

• In everyday life
  – news reports, purchasing products, seeking advice

• In the World of Wikipedia
“The changing nature of technology has...increased the need for the skills of critical thinking. The easy availability, with just a few keystrokes, of massive amounts of information has made the ability to evaluate and sort information more important than ever. Furthermore, much of the information available on the Internet is not reliable, and some of it is deliberately and dangerously deceptive (as on sites that tout miracle cures for serious illnesses or offer deliberately biased accounts of history or current events). Thus the ability to judge the credibility of an information source has become an indispensable critical thinking skill that needs to be deliberately and repeatedly taught in college and earlier.”

– Diane Halpern, *Teaching for critical thinking: Helping college students develop the skills and dispositions of a critical thinker*
Why aren’t college undergraduates skilled in critical thinking?
Some possibilities…

• High-stakes standardized testing in K-12
• Content focus in college-level courses

“The characteristically American view that there is not “time” to allow students to think has probably done considerable damage to learning and appreciating science in the United States.”

Some possibilities…

• Characteristics of the Millennial Learner
  – e.g., conventional, risk-averse, accustomed to structure

• Intellectual Development
  – William Perry
I. Dualism

• Either/or thinking
• A single right answer
• One body of knowledge (facts)
• Dependence on authority
• Have difficulty thinking independently, drawing their own conclusions, or stating their own point of view
II. Multiplicity

• Encounter disagreements
• Subjective knowledge
• Everyone has an opinion
• All opinions are equally valid
• Dominant among college students
III. Relativism

- Instructors ask for evidence to support opinions
- Constructed knowledge
- Knowledge is influenced by values, assumptions, and perspective
- Ambiguity is a part of life
IV. Commitment in Relativism

• Begin to take a stand based on experience and analysis of available evidence
• Integrate knowledge from others with personal experience and reflection
• How can we help students transition from dualistic or multiplistic understandings of knowledge?

• Who is responsible for teaching critical thinking skills?
  – General CT courses vs. CT within the discipline
Should we offer introductory courses in how to construct arguments?

• When given training in CT skills, along with examples of transfer across disciplines, students can generalize to some extent
• However, also see need for critical thinking to be contextualized (need something to think about)
• Furthermore, what constitutes a good argument may be discipline-specific
  – Different types of evidence (e.g., legal statutes, statistics, etc.)
  – Different criteria used to evaluate evidence
What do we teach?

(1) Declarative Knowledge: The subject matter or discipline content of the course ("what to think")

(2) Procedural Knowledge: The correct way to obtain, analyze, and communicate information in a discipline ("how to think")

(3) Metacognition: Cognitive control strategies such as monitoring comprehension, outlining one’s own biases, reconsidering conclusions based on new information ("thinking about thinking")
Content is important! BUT…

• Having content knowledge doesn’t guarantee that students will know how to apply it when presented with a critical thinking task
  – Knowledge acquired by rote memorization is not helpful in solving unfamiliar problems (Kurfiss, 1988)
  – Neuroscientific findings support that more meaningful thinking leads to more enduring learning and greater accessibility of information (Halonen, 2006; Kurfiss, 1988)

• Don’t withhold critical thinking tasks until basic knowledge is mastered
How can instructors promote critical thinking?

• Design tasks/assignments that require CT

• John Bean: Engaging Ideas (Chapter 7)
  – 10 Strategies for Designing Critical Thinking Tasks
Jigsaw Activity

- Each table has 1 strategy to learn
- Familiarize yourself with the strategy and share with your group how you would use it in your discipline
- Create new groups – each member has a different strategy
- Teach your new group your strategy
  - Identify at least one other strategy you could use
- Brainstorm additional strategies
How can instructors promote critical thinking?

- Design courses that are problem-based and assignment-centered
- Address fewer topics in greater depth
- Connect discipline to experiences and questions that are meaningful in students’ lives
- Require students to justify their ideas/opinions
- Encourage entertaining alternative points of view
- Model thinking skills
How can instructors promote critical thinking?

• Normalize the experience of dealing with uncertainty
  – Can be difficult and overwhelming to be confronted with multiple points of view (especially if criticizing one’s own beliefs or ideas)
  – Explain that there is no shame in changing one’s mind
How do you assess critical thinking?
Not everything that can be counted counts, and not everything that counts can be counted.

--- Albert Einstein
Not all assignments need to be graded!

- Exploratory writing tasks
- Group problem-solving tasks
- Class discussions
- In-class debates
- Mock trials
- Simulations
- Etc…
How do you assess critical thinking?

- Grading may appear subjective to dualistic and multiplistic students
- Must make grading criteria explicit
- Consider involving students in development of grading criteria
- Illustrate application of criteria to specific examples of student work
  - Discuss good and not-so-good examples

(Kurfiss, 1988)
GENERAL DISCUSSION

• What questions do you have?

• What would you like to know more about?
Thanks to:

- Sarah Molokhia for contributions to this presentation
- TACC and Marriot Library
- CTLE

- And YOU!
Reminders and Announcements

• Please leave index cards and brainstorming sheets
• Video and resources will be available online

NEXT WORKSHOP: October 21
Using technological tools to increase efficiency & support learning (Cory Stokes)

• Please provide us with your feedback