Thinking Critically about Critical Thinking

Lunch and Learn Series
Institute for Learning & Teaching

Presented by Linda Elmose
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AGENDA

1. Why Critical Thinking?
2. Defining Critical Thinking and Skills
3. ‘Best Practices’ to Enhance Students’ Critical Thinking
4. Caveats and Concerns about Critical Thinking
5. Summary of Recommendations to Teachers
LEARNING OBJECTIVES

- To encourage participants to apply critical thinking to, or be reflexive about:
  - diverse (often disciplinary specific) notions of critical thinking
  - various “best practice” techniques said to enhance critical thinking skills of post-secondary students
  - the risks and concerns of a focus on critical thinking

- To equip participants with the information and reflexive mindset to build their own individualized action plans to develop students' critical thinking.
1. Why Critical Thinking?

- Educators long have been striving to instill thinking skills—often in the guise of “logic” or “rhetoric”-- since ancient times dating back to the Greek thinkers and the beginnings of that 800-year-old institution, the university.

- In recent years critical thinking (CT) has become a buzzword in educational circles with nearly every college/university claiming that they are instilling in students the needed CT skills to thrive in school and in life.

- Educators and administrators are pressured to instill CT in their teaching and curricula at all educational levels.
Examples from Okanagan College Courses

• **Strategic Management (BUAD 340)**
  This course “will draw upon critical thinking concepts and techniques to evaluate alternatives in a strategic management context. The case method will be used extensively.”

• **Introduction to Logic and Critical Thinking I (PHIL 114)**
  This course is intended to develop critical thinking and reasoning skills. Topics include the diverse functions of language, analysis and resolution of confusion, ambiguities, fallacies, techniques of persuasion, and the place of reasoning in human knowledge. (3,0,0)

• **Nursing School’s “Professional Growth I” (PNUR 112)**
  This course introduces the learner to the evolution and position of practical nursing as a health professional within the health care system. This course explores reflective writing, practice and critical thinking skills.

• **Modern Languages**
  The study of language broadens cultural horizons and helps to develop critical thinking and communication skills.
Critical Thinking as a Solution to the Problem of “Passive Learning”

- Critical thinking is a partial “active learning” solution to the deficits of “passive learning” – associated with the lecture methodology, demands for rote memorization or lower levels of thinking -- which has been shown to restrict students’ ability to learn and retain learning.

- In passive learning, the student's traditional role is that of a passive note-taker and regurgitator of factual information.

- Educators are interested in teaching “thinking skills” or “effective thinking” rather than merely teaching information and content that students might not retain or find relevant.

- Spurring the movement to “active learning” and “critical thinking” Halpern and Hakel (1984, p. 32) observed that “…it would be difficult to design an educational model that is more at odds with current research on human cognition than the one that is used in most colleges and universities.”
* Disturbingly, despite our best efforts and intentions as educators and administrators, there remains **limited and mixed evidence** that we teach critical thinking skills in higher education.
• A recent large-scale study of the educational development of 2322 American college students between 2005-2009 concludes that 45% made no significant improvement in critical thinking or reasoning skills in the first 2 years of college.

• An assessment of university students showed that they made no significant improvement after 4 years of college in their ability to:
  - Sift fact from opinion
  - Clearly present an objective review of 2 or more conflicting reports
  - Determine a cause of an imaginary problem, without being influenced by persuasive spin.

• A 2009 study shows that students:
  - “are unable to understand, evaluate or write arguments”.
  - “frequently failed to distinguish between acceptable arguments from structurally flawed arguments”.

2. So, What is Critical Thinking?

* In answering, you might wish to reflect on your own thinking, or on your own past experiences as a student.
Common Answers Amongst Teachers

- Discerning fact from opinion.
- Identifying core argument/s in a piece of writing.
- Identifying assumptions or biases in a position.
- Evaluate evidence for an argument.
- Creating a persuasive argument, supported by empirical evidence.
- Providing a balanced viewpoint – i.e. both sides of an issue.
- Doing more than merely describing an event or phenomenon, but also being able to explain (How? Why?) or analyze causes or consequences.
- Problem solving.

* A majority of definitions of CT place considerable importance on reasons or reasoning, that is, identifying and evaluating the reasons for certain realities, beliefs, traditions, ideas.
KEY POINTS:

* The answers to the question “What is Critical Thinking” will vary based on one’s discipline.

  e.g. Teachers of the hard/natural sciences tend to focus on logic -- illuminating the strengths and weaknesses of arguments, or evaluating evidence.

  e.g. Teachers of nursing might focus on asking appropriate questions to patients.

* Teachers must consider: Is my understanding of critical thinking sufficiently broad to assist students in this course, other courses, and in life skills?
For many teacher-scholars, Bloom’s Taxonomy is the best tool for enhancing students’ critical thinking skills.

Bloom’s Taxonomy of Higher Order Thinking

# Bloom’s Taxonomy of Learning Objectives and Critical Thinking Skills

<table>
<thead>
<tr>
<th>Learning Objectives</th>
<th>REMEMBER</th>
<th>UNDERSTAND</th>
<th>APPLY</th>
<th>ANALYZE</th>
<th>EVALUATE</th>
<th>CREATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Critical Thinking Skills</td>
<td>know, define, memorize, list, recall, name, relate</td>
<td>restate, discuss, describe, recognize, explain, identify, locate</td>
<td>translate, interpret, apply, employ, demonstrate, dramatize, practice, illustrate, operate</td>
<td>distinguish, analyze, differentiate, calculate, experiment, compare, contrast, criticize, solve, examine</td>
<td>compose, plan, propose, design, assemble, construct, create, design, organize, manage</td>
<td>judge, appraise, evaluate, compare, value, select, choose, assess, estimate, measure</td>
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</tbody>
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Limitations of Bloom’s Taxonomy

• Bloom’s taxonomy does assist teachers in providing a set of questions – based on higher order learning – for students. (See next slide).

• However, critics feel that the taxonomy of thinking levels supplies an overly limited and unrealistic conception of critical thinking.

→ Case in point, the Institute for Teaching and Learning’s “Okanagan College Teaching Guide” lists many of Bloom’s categories of thinking under “passive learning” (p. 14).

SPECIFICALLY, BLOOM’S TAXONOMY FAILS BECAUSE IT UNDERAPPRECIATES THE COMPLEXITY OF LEARNING:

- Learning is **not as sequential**, linear, or straightforward as the taxonomy suggests.
  
  e.g. A person might skip from knowledge to application then analyze the application, come to a conclusion (evaluation) and then re-analyze the conclusion all working toward a greater synthesis of information.

  ➔ Teachers need to spread higher-order thinking skills throughout a task or a course, rather than to begin with the imparting of knowledge.

* The taxonomy is too **precise**. Classifying and separating learning into categories and hierarchies is a very scientific approach to learning, yet we are not all that endowed with knowledge about how the mind works, or how learning occurs.

* The taxonomy is overly **individualistic**, focusing heavily on how an individual learns. It misses the value of collaborative learning, or students teaching others what they have learned or what they think.
<table>
<thead>
<tr>
<th>Category &amp; Learning Objective</th>
<th>Questions</th>
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<tbody>
<tr>
<td>Remembering (Knowledge)</td>
<td>What is...? Where is...?</td>
</tr>
<tr>
<td></td>
<td>How is...? Describe x?</td>
</tr>
<tr>
<td>Understanding (Comprehension)</td>
<td>How would you classify...?</td>
</tr>
<tr>
<td></td>
<td>Which facts show x?</td>
</tr>
<tr>
<td></td>
<td>What is the main ideas..?</td>
</tr>
<tr>
<td>Application</td>
<td>How would you use x?</td>
</tr>
<tr>
<td></td>
<td>What would result if...?</td>
</tr>
<tr>
<td>Analysis</td>
<td>How is x related to y?</td>
</tr>
<tr>
<td></td>
<td>What inference can you make..?</td>
</tr>
<tr>
<td></td>
<td>What is the function of x?</td>
</tr>
<tr>
<td>Evaluation</td>
<td>How would you evaluate or rate x?</td>
</tr>
<tr>
<td>Creation</td>
<td>How would you improve x?</td>
</tr>
<tr>
<td></td>
<td>Can you formulate a theory for ...?</td>
</tr>
</tbody>
</table>
A Few of the Most Important Definitions of Critical Thinking

• The following brief chronological survey shows that there is no consensus conception of “critical thinking”, and that the notion has changed over the course of the 20th century.

• But it also shows that there is a core set of ideas that have remained strongly entrenched in educators’ and philosophers’ ideas about CT in the past 100 years.
Dewey’s ideas continue to powerfully influence the study of critical thinking today.

Dewey defined “reflective thinking” as: Active, persistent and careful consideration of a belief or supposed form of knowledge in light of the grounds [evidence] which support it and the further conclusions to which it tends. (Dewey 1909, p. 9)

* Which elements of this definition stand out as important or interesting?
Important Elements of Dewey’s Conception:

Critical Thinking generally is:

(a) *an “active”* process requiring students think for themselves, rise questions themselves, find relevant information themselves, among other CT skills, rather than being involved in a largely passive, one-sided, and often uncritical reception of ideas from others.

(b) *“persistent”* and thus is different from thinking that is uncritical or unreflective – forms of thinking that we all sometimes engage in. (e.g. jump to conclusions, make ‘snap’, impulsive decisions).
- Persistence of thought means that we need to think things through in order to improve not only our thinking skills, but also our life’s choices.

(c) *“careful”* in considering evidence, looking for new evidence, find new strategies, to cope with problems and find solutions, and for evaluating our own beliefs and their implications.
Dewey’s (1933) theory of reflective thinking identifies three attributes of reflective individual:

(i) **open-mindedness**: a desire to listen to more than one side of an issue, to give attention to alternative views, and to recognize that even firmest beliefs may be questioned.

(ii) **responsibility**: implies the desire to actively search for truth and apply information gained to problem situations.

(iii) **wholeheartedness**: implies that one can overcome fears and uncertainties to make meaningful change and can critically evaluate ourselves, students, schools, and society.
Later Refinements of Dewey’s Definition

Edward Glaser (1941), building on Dewey’s definition, defines CT as:
“a persistent effort to examine any belief or supposed form of knowledge in
the light of the evidence that supports it and the further conclusions to which it
tends.

For Glaser, critical thinking is:
(1) Knowledge of the methods of logical inquiry and reasoning; and
(2) Some skill in applying those methods. (esp. to apply “methods of logical enquiry and
reasoning”).
(3) An attitude of being disposed to consider in a thoughtful way the problems and
subjects that come within the range of one’s experience;

=> Having CT is not enough, particularly if a student lacks the inclination to use
them, or lacks the knowledge about which situations CT skills leaned in the classroom can
or should be applied.
Robert Ennis created a widely used definition of CT, suggesting that:
“Critical thinking is reasonable, reflective thinking that is founded on deciding what to believe or do.
-- Ennis
website: http://faculty.education.illinois.edu/rhennis/index.html

• Following Dewey and others, Ennis views critical thinking as:
(1) “reasonable” and “reflective”, following Dewey and others.
(2) entailing sound, logical decision making.

Interestingly, Ennis sees critical thinking as:
(3) a broad-based notion that will exist in all aspects of students’ lives, inside or outside the classroom.
(4) Decision making by students need to be reflected critically upon, but so too do the decisions of the elites or powerful who run the economy, polity, or organization in which we work or belong.

*When CT involves basic aspect of decision making, and becoming educated citizens, we truly begin to see CT’s great relevance.
Michael Scriven’s (1997) view is that:
“Critical thinking is skilled and active interpretation and evaluation of observations and communications, information and argumentation.”

For Scriven, critical thinking is:
(1) “an academic competency akin to reading and writing”, but is a skill quite different from reading and writing.
⇒ As many critics of the seeming “obsession” with CT in contemporary educational thinking and policy argue, a student’s CT skills might be vital, but these skills do not necessarily produce coherent, grammatically correct writing. Thus, a focus on CT alone in our classrooms would be misplaced.

(2) a “skilled” activity. Thinking does not count as being critical or reflective merely because this is the intention of the thinker. To be critical, thinking has to meet certain intellectual standards.
⇒ The question is: Which standards? (e.g. clarity, relevance, balance of viewpoints, reasonableness etc.).

(3) about the “interpretation and evaluation of observations”. Much of what we do is about “evaluation” -- as “the process of determining the merit, quality, worth or value of something” -- and “interpretation” of what we see or hear, say in the media or on the grapevine.

(4) “communications” (i.e. inclusive of questions, commends, linguistic/social signals).
CRITICISMS OF CRITICAL THINKING

• There exist far too many distinctive definitions of critical thinking, with teachers and teacher-scholars divided and confused over what “critical thinking” means.

• Even, if teachers do have a strong grasp of critical thinking, they often fail to express this to students, who often don’t know, or have different conceptions of, the meaning of CT.

• Critical thinking might not adequately be applicable to real-world skills, that students will carry with them outside the school walls and beyond school life.
Solutions

• **Be Selective**: Teachers should select a few of the crucial elements or skills of critical thinking for a given course or for a given in-class exercise.

• **Be Expressive**: Indicate clearly to students what is the instructors’ view of critical thinking (for the course, for the exercise at hand), and continually explain to students what is critical thinking, and how the students are employing it.

• **Be Future Thinking**: Which critical thinking skills will assist students beyond their school life?
Glaser’s (1941) List of Critical Thinking Skills

This list has informed most of the later lists that have emerged in CT scholarship.

**CT Skills:**

(a) to recognize problems
(b) to find workable means for meeting these problems
(c) to gather and marshal pertinent information
(d) to recognize unstated assumptions and values
(e) to comprehend and use language with accuracy, clarity and discrimination
(f) to interpret data
(g) to appraise evidence and evaluate statements
(h) to recognize the existence of local relationships between propositions
(i) to draw warranted conclusions and generalizations
(j) to put to test the generalisations and conclusions at which one arrives
(k) to reconstruct one’s patterns of beliefs on the basis of wider experience
(l) to render accurate judgements about specific things in everyday life.
Regarding CT Skills:

- Which of this list of CT skills strikes you as the most important, or as necessary skills to teach in the classroom?

Consider: How would you go about teaching this skill in the classroom or in online learning?
Do the following activities involve CT as you understand it?

And, which specific CT skills are demonstrated?

(a) Solving a routine math problem.
(b) Deciding which courses to take in a new term.
(c) Attempting to install new software on the computer but not working properly, so now you’re trying to follow instructions for “trouble-shooting”.
(d) Buying a used car, bringing with you a trusted mechanic for advice and a security check.
(e) Voting
(f) Deciding whether to go to class, or to accept a job offer.
3. “Best Practices” to Enhance Students’ Critical Thinking
What are some of the techniques or “best practices” that you use to develop students’ critical thinking?

How can we ensure that these CT skills are part of our classroom lectures, discussions, lab work, as well as oral and written assignments?
According to a broad search in the available literature...

- Here is a selected list of “best practice” techniques proposed in the literature.

1. Selectivity and Focus
2. Transparency & Directness in Teaching CT
3. Active Learning Techniques
4. Dialogue, Discussion, and Questioning Strategies
5. Creating Disequilibrium & Focusing on Dilemmas or Crises
6. Diversifying CT Development Activities
1. Selectivity and Focus

The Issue:
The existence of myriad of varied definitions of CT and a long list of CT skills, makes it very difficult to know where to begin in developing students' CT abilities.

Techniques:
(a) It is useful to instruct students on a select few of these CT skills. Select one or two skills (e.g. developing a causal explanation, or evaluating an author’s claims) for each task or for a lecture or for the entire course.

(b) Educators who do take CT seriously will need to consider how much time in a given course/term will be spent on teaching CT skills— as one of many skills to teach.

By carefully selecting core aspects of critical thinking, and building these up to include as many as possible, educators can arm students with a fair number of analytical and evaluative CT tools.
2. Transparency and Directedness in Teaching

The Issue:
Students often lack CT skills from their previous educational experiences – at secondary and tertiary levels – or they do not really understand what CT skills are or what CT entails. This suggests that there is a lot of work to be done. Also, we cannot expect students to supply CT if teachers merely demand it. Nor is CT learned via osmosis.

Techniques:
(a) Start from the basics. Teach CT skills rather than assume students possess them.
(b) Explain the conception of CT and the CT skills clearly and directly to students. Do this at the beginning of the course, throughout the course, prior to and after an assignment.
(c) Be transparent about your expectations for students' expression of CT in a given in-class exercise either orally or in grading rubrics. A grading rubric could indicate what percentage of the mark for the assignment will be devoted to assessments of demonstrated CT, and tell students exactly which elements or skills of CT you are looking for.
(d) Devise some kind of “good model” or framework or set of standards in order to show students-- and the educator her/himself-- what counts as CT.
3. Active Learning Techniques

The Issues:
Critical thinking imperative attempts to move beyond the teacher’s role in providing information to students as “empty receptacles” with a sufficient attention span to take in massive amounts of information at one sitting.

Techniques:
(a) “Active” or “student-centred” learning provides excellent tools and activities for building up students' CT abilities. Active learning parallels CT in that teachers who attempt to promote these skills in their students think of teaching and learning as a process of giving students ample opportunities to clarify, question, apply, and consolidate new knowledge. ➔ e.g. think-pair-share; group activities such as problem solving; debates, brainstorming, quiet reflection; concept/mind maps; explaining to others.

(b) The benefits to using such activities include improved CT skills, in addition to increased retention and transfer of new information, increased motivation, and improved interpersonal skills.
In answer to the question “Can CT be taught, and how?” Stones (1994) notes that:

“The human brain is neither a jug to be filled or a letterbox to receive a delivery. Teaching depends on the interaction between human beings, not one-way traffic.

Skilled teaching involves structuring learners’ environment so that change will occur thus enabling learners to do what they could not do before teaching” (p. 311-312).
4. Dialogue, Discussion, and Questioning Strategies

More Active Learning Techniques:

(a) Facilitating discussion and debate in class or in online discussions/chats offers many opportunities for building critical thinking skills.

Dialogue offers a way for students to externalize thinking skills and develop a clear, thought-out point of view (Kuhn 1992). Students can also be encouraged to examine and discuss theoretical frameworks and their utility for situations in the real world (Zeichner and Liston, 1987).

(b) Supervised direction and instruction is needed. Certainly, not all the in-class/online discussions promotes the level of CT or reflectivity desired, and often shallow or insubstantial dialogue occurs. Teachers might need to continually re-direct and guide the conversation (say by focusing on the differing interpretations of a certain concept, or reasons why a belief is held, or finding solutions to a social problem).

(c) It is also helpful that the teacher establish clearly the CT skills that s/he would like to hear in the classroom. (Hatton and Smith 1995).
5. Creating Disequilibrium & Focusing on Dilemmas or Crises

**Techniques:**

(a) In one view, the best discussions for inspiring CT are those which disequilibrate and challenge, students, making them feel uncomfortable or aware of cognitive dissonance (cognitive conflict).

→ Disequilibrating students, or “troubling” their long-held assumptions, is vital CT skills training, and also makes learning more memorable.

(b) Focusing on crises – in the world, or in an organization – or a dilemma can bring out the tensions that require students to see different interpretations and points of views, and to use reason to select the more persuasive ideas or arguments.

(c) Assign students to argue for a point of view that counters their own view, and thus brings some emotionality to the development of CT skills.

→ This also moves away from the tendency to teach these skills as rational, unemotional evaluations of statements or truth claims.

**NOTE:** See the literature on “teaching through discussion”.
According to Kenneth Goodman (1984, p. 16) “Students are made to feel uncomfortable by complexities, uncertainties, or difficult situations, and any attempts to challenge their preconceived notions.

By contrast, studies show that there is less opportunity for practising CT skills when our in-class discussions instead focus on creating a learning environment that focuses on good feelings rather than allowing for dissent and challenge.
6. Diversifying CT Development Activities

Technique:

(a) With critical thinking as with active learning, it is always useful to employ a variety of techniques, activities, and a variety of skills such as: reading, writing, researching, discussing and formulating oral arguments, posing and answering questions, etc.
4. Caveats and Concerns about Critical Thinking
• Ongoing debates over critical thinking pervade the literature.

• Generally, these debates ask:
  - What critical thinking actually means?
  - How can teachers best teach its application by students (inside and outside the classroom)?
  - How can critical thinking be measured and assessed?
  - Why does there exist so little evidence that we teachers are actually teaching CT skills?

• Moving beyond these important issues, here is a select list of other debates transpiring in the literature that relate more directly to improving students’ CT skills in the classroom, and beyond.

• A discussion of these debates fits with the overarching theme of this seminar to get teachers to think critically, or reflexively, about CT. We need to keep in mind the view of critics and skeptics who argue that:
  - there exists an uncritical “obsession” with CT as some kind of panacea in educational circles, both in theory and policy,
  - There is a need to “demythologize” or “defetishize” CT by pointing out its weaknesses and exclusions.
Select List of Concerns over Critical Thinking

1. Relevance & Applicability of CT
2. CT in a Broader Social, Ethical and Intellectual Context
3. Dealing with CT that is Overly Critical or Skeptical
4. Are we actually teaching CT in useful ways?
1. Relevance & Applicability of CT

The Problem:
- Students might express boredom about yet another course/assignments that stresses CT, or suffer from a lack of deep understanding of what CT entails.

- Many of today’s students are not interested in learning how to think; they want hard skills to get a job and to earn a living.

- As noted in Glaser's (1941) definition of CT accentuates, students might have CT abilities, but lack the “disposition” or inclination to demonstrate these skills where an appropriate situation arises.

Any solutions?
Possible Solutions:

(1) If demonstrating their CT abilities might be considered either hum-drum or simply another hoop to jump through to get grades, then perhaps the utility or relevance of CT has not been sufficiently explained to them.

(2) Motivate students about the importance of these skills, to attain jobs, but also for an enhanced life and life decisions. This can be done by employing relevant examples (e.g. conflicts between roommates, parents or bosses; or the importance in making good decisions like buying a car.

(3) Point out the lack of CT skills in the real-world, evidenced by the poorly made decisions by political and economic elites that led to the current economic turmoil and continuous recession.

This reveals the relevance of CT, in particular to the creation of citizens who will challenge the poor CT of our leaders, and endeavour to change the status quo. In this way, CT is vital to creating good citizens.
The Problem:
-Critics of CT argue that its lack of relevance of CT stems from the fact that it is often narrowly construed in scientific terms, focusing on the assessment of truth claims or assessing the weaknesses of arguments.

- Notwithstanding the importance of these skills, there are many other forms of thought, or valuable skills that deserve equal attention from educators.

-Also, when viewed as a scientific skill, CT lacks an embrace of the contextual elements of the broader social/political world. CT is “disembedded” from wider contexts (e.g. social, historical, moral/ethical).

Any solutions?
Possible Solutions

(1) Developing and using frameworks (or intellectual standards, or models) to allow students to consider their CT skills in a wider social context.

– e.g. making persuasive arguments, making inferences from others' arguments, using analogies, discerning biases or assumptions can all be types of CT skills that could be appraised based on social idea(l)s, or ethics (i.e. doing the “right thing”), or historical reality.

(2) CT instruction that only helps students to, say, make arguments/inferences but is silent about how to teach students to assess the arguments/inferences they make misses the point of teaching CT.

⇒ The idea is not to help students to make more inferences but to make sound ones; not to help students to assess arguments, but to assess these arguments in terms of historical or contemporary societal values or goals.

(3) Focus on imparting other ways of thinking, and other skills that are not related to CT. For instance, rather than evaluating the strengths and weaknesses of an argument, ask students why people have these ideas, why they are or were legitimated by society at the time, or how and why these ideas have changed over time.

(4) Develop CT skills along with reading, and writing skills, which are not directly related to CT skills we’re teaching.
3. Dealing with CT that is Overly Critical or Skeptical

The Problem:
-Critics of CT observe that many students are able to criticize or to “deconstruct” an argument, an idea, a poem or story, but they are unable to show any creative, innovative skills of “constructing” something to replace the disparaged idea.

- That students believe that simply criticizing an idea is sufficient to demonstrate CT is completely understandable in our “sound-bite” culture where ideas are not deeply developed in media, websites, tweets or Facebook postings.

- Moreover, in the current era of mistrust of our political and economic leaders, who have not themselves exhibited sound decision-making or problem-solving CT skills, a strong value is placed on being negative or skeptical about all authorities.

-The problems with this overly negative, and even cynical approach to deconstructive “CT” is that it is not at all reflective of the CT discussed in this seminar (e.g. careful, balanced, persistent, open-minded)
- Lost in this adversely critical approach to CT is the ability of students to truly appreciate or value the idea/argument/story/poetry for its own sake, which bodes ill for their ability to enjoy a “good life” filled with appreciation for impressive ideas or artistic outputs.

Any solutions?
Possible Solutions

(1) Teachers should clarify the value of ideas/arguments/concepts/beliefs that they are presenting in class. By revealing the historical setting of the idea and why it became popular, as well as showing the evolution of the idea over time, enables students to appreciate the value of an idea. Then, they can discern both its weaknesses and strengths.

(2) Don’t allow students to merely “score points” by criticizing an idea or argument/idea/writing for its own sake.
⇒ Invite other students to provide counter-views.

(3) Ensure that CT does not involve only criticizing an idea, by encouraging students to think creatively. Creativity involves innovating new solutions; considering novel solutions or approaches to problems/ideas; imagining different alternatives; or considering different points of view.
⇒ The ability to appreciate other points of views, or to construct improved alternatives will assist the student in their careers and collaboration with others in the real world.

(4) Reveal to students the details, relations, patterns that they do not see when they act as judge, jury and executioner to an idea/argument/poem. These are the CT skills that will end up enriching the lives of students after their school life ends.
4. Are we actually teaching CT in useful ways?

The Problem:

- In spite the high and growing interest in developing CT skills in students, there exist quite a few concerns with the weak evidence of successfully improving CT skills amongst our students. (See earlier slide).
- How can educators ensure that their efforts to enhance students' CT skills are working?

Any solutions?
Expressing the concern about the development of overly skeptical students in the university environment, Ross (2010) states that:

“It is my hope that as guides, not judges, we can show our students how to engage in the practice of exploring objects, norms, and values that inform diverse cultures. In doing so, students will develop the ability to converse with others about shaping the objects, norms, and values that will inform their own lives. They will develop the ability to add value to (and not merely criticize values in) whatever organizations in which they participate.

They will often reject roads that others have taken, and they will sometimes chart new paths.” In this way, students will increase their ability to find ways of living with others in society, and live a life of meaning.”
Possible Solutions

(1) The best solution, and main theme of this seminar, is that teachers should remain reflective, or apply critical thinking skills themselves in their efforts to enhance students' CT skills.

- Teachers should think closely about:
  (a) Their preferred conception of CT and its utility
  (b) The many other conceptions and skill of CT that might prove useful to students in other courses, and in life in general.
  (c) The variety of techniques or “best practices” in active learning that could enhance students CT skills inside and outside of school.

(2) Teachers should continue learning and thinking about what is the best way to help create intellectually curious students-for-life, good citizens, and enlightened consumers, all through CT skills development.
A Review of Recommendations

• **Breadth:** There are many diverse conceptions of critical thinking, predominantly based on disciplinary views. Teachers should ensure that they are aware of the varied conceptions from other disciplines, and the limits of one’s own discipline, in order to promote different kinds of critical thinking skills.

• **Selectivity:** At the same time, the vast array of critical thinking skills and conceptions is unwieldy, requiring teachers to be selective in focusing on specific critical skills for a given course, or exercise.

• **Articulation:** Students might not know what their teacher means by critical thinking, suggesting teachers should explain the concept/skill to students.

• **Continuity:** Critical thinking skills should be a pervasive and fundamental part of the teaching approach; not something to be introduced near the end of the semester, just before papers are due.

• **Relevance:** If critical thinking skills are ALL our students retain 5 years after their school life, have we done a sufficient job in enhancing their life?

• **Evaluation:** How do we know that we’re teaching critical thinking skills?
Main Recommendation

Continue to think critically about teaching critical thinking!