

## Unlocking the Mystery of Critical Thinking

By Linda B. Nilson, PhD

Critical thinking. We all endorse it. We all want our students to do it. And we claim to teach it. But do we? Do we even understand and agree what it means to think critically?

According to Paul and Elder's (2013a) survey findings, most faculty don't know what critical thinking is or how to teach it. Unless faculty *explicitly* and *intentionally* design their courses to build their students' critical thinking skills and receive training in how to teach them, their students do not improve their skills (Abrami et al., 2008).

This common blind spot is understandable. The critical thinking literature is quite abstract and fragmented among different scholars who don't seem to talk to each other:

- Stephen Brookfield (2012), a critical theory and adult education specialist, focuses on assumptions.
- Diane Halpern (2003), who's been awarded for her teaching and research, takes the perspective of a cognitive psychologist.
- Richard Paul and Linda Elder (2013b), founding leaders of the Foundation for Critical Thinking, hail from philosophy and education psychology, respectively.
- Peter Facione (2013), a leadership consultant and former university executive, worked intensively with philosophers in the Delphi Group.



- Susan Wolcott (2006), an accounting professor, created a developmental model of complex thinking.

If you want to avoid the whole mosaic, you can also make a case that the higher levels of Bloom's (1956) taxonomy of cognitive operations and Perry's (1968) advanced stages of undergraduate cognitive development represent critical thinking.

Can you find common ground? Yes. In general, the scholars listed above agree that critical thinking entails an interpretation or analysis, usually followed by evaluation or judgment. It requires that learners have mastered some subject matter to think about, so it can't be done in a knowledge vacuum. It is difficult and unnatural, and it takes time and effort to learn. And it involves not only cognition but also character and metacognition/self-regulated learning. This means that learners must be willing to pursue "truth" to wherever it may lie, persist through challenges, evaluate their own thinking fairly, and abandon faulty thinking for new and more valid ways of reasoning. These are intellectual "virtues" that don't come easily to people and must be cultivated.

The scholars also generally agree that students learn critical thinking by answering challenging, open-ended questions that require genuine inquiry, analysis, or assessment. These examples call upon students to think critically:

- What are your reasons for coming to that interpretation/evaluation?
- What are the arguments on this issue pro and con?
- How strong are those arguments? What is the evidence behind them and how solid is it?
- What are the main assumptions behind this line of reasoning?



- How can we interpret these data? What conclusions can we draw, if any?
- What additional information do we need to resolve this issue?
- What are the trade-offs, implications, and consequences of each solution we've discussed?
- By what standards and priorities will you judge the quality of different solutions?
- What are the limitations of your chosen solution?
- How can you defend it against the arguments in favor of other solutions?
- What are some alternatives that we have not yet explored?

Paul and Elder (2013) recommend asking questions that hold students accountable for meeting their eight standards for critical thinking: clarity, accuracy, precision, relevance, depth, breadth, logic, and fairness, such as:

- How can you validate the accuracy of this statement/evidence?
- How is that information relevant here?
- How well does that conclusion handle the complexities of the problem?
- What is another interpretation or viewpoint on the issue?
- How does this conclusion follow from the data or earlier statements?
- How can both these interpretations be true when they lead to such different conclusions?



- Do you have a vested interest in one position or another? How honestly and impartially are you representing the other viewpoints?

One other important element in the learning process: Students must get feedback on their responses, whether from you, a teaching assistant, or their peers, so they can refine their thinking accordingly.

Certain learning experiences incorporate inquiry more naturally than others. Among the most amenable are class discussions, debates, structured controversy, targeted journaling, mock trials, inquiry-guided labs, POGIL-type worksheets, and debriefings of complex cases, simulations, and role plays. Using these methods, you can nurture their curiosity, encourage their questions, and ensure they can explain and justify their claims.

As the instructor, you, too, provide a key learning experience by serving as a role model. Students need to see you demonstrating the courage to question your own beliefs and values, the fair-mindedness to represent multiple perspectives accurately, and the open-mindedness to give viewpoints opposed to your own their due. In such instances, you should point out to students that you are practicing critical thinking. In their "Religion in American Life" course, Mel Seesholtz, a known critic of dogma-based organized religion, and Bryan Polk, a college chaplain, format some of their lectures as debates between the two of them. While sincerely trying to advance their point of view, they consciously model civil discourse, critical thinking, and the accompanying dispositions for their students (Seesholtz & Polk, 2009), showing an alternative to the loud, blustery, belligerent wrangling so common on talk radio, certain news channels, and some television shows. Students may not otherwise see an alternative way to disagree, and they need to in order to co-exist peacefully



and respectfully with others in this diverse world.

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