

SOME DEFINITIONS OF CRITICAL THINKING

1. "Active, persistent and careful consideration of a belief or supposed form of knowledge in light of the grounds that support it, and the further conclusions to which it tends." (John Dewey, 1909)

2. "Reasonable reflective thinking that is focused on deciding what to believe or do. In addition to 12 CT abilities, CT also includes 14 dispositions. Namely: to seek a clear statement of the thesis or question; to seek reasons; to try to be well informed; to use credible sources and mention them; to take into account the total situation; to try to remain relevant to the main point; to keep in mind the original or basic concern; to look for alternatives; to be open-minded; to take a position when the evidence and reasons are sufficient to do so; to seek as much precision as the subject permits; to deal in an orderly manner with the parts of a complex whole; to use one's CT abilities; to be sensitive to feelings, level of knowledge, and degree of sophistication of others." (Robert H. Ennis, 1987.)

3. "It comes in two forms. If thinking is disciplined to serve the interest of a particular individual or group, to the exclusion of other relevant persons and groups, . . . it is sophistic or weak-sense critical thinking. If the thinking is disciplined to take into account the interests of diverse persons or groups, it is fair-minded or strong-sense critical thinking." (Richard W. Paul, 1988.)

4. Critical thinking is a process that begins with an argument and progresses toward evaluation. The process is activated by three interrelated activities:
 - a. Asking key questions designed to identify and assess what is being said,
 - b. Answering those questions by focusing on their impact on stated inferences, and
 - c. Displaying the desire to deploy critical questions. (Browne and Keeley, 2000).

What Is Critical Thinking?

Critical thinking is what is sometimes termed a “virtue phrase”, one that everyone embraces eagerly and, unfortunately, reflexively. It shares this awkward status with freedom, creative thinking, and cooperation.

Critical thinking is a set of skills and attitudes that are deployed selectively to **evaluate** arguments (reasons and their companion conclusions) according to explicit standards of rationality. Like any definition of a complex idea, this one contains knotty ambiguity. For instance, just how broad-minded is this idea of rationality? What is the role of emotional commitments and the moral dimension in these rational standards? These questions are extremely important; they certainly perplex all of us. But let’s focus on a shared recognition that critical thinking begins after an argument has been made and ends with a judgment about the worth of the argument.

As a virtue word, critical thinking is commonly conflated with current practice, whatever that practice may be. Teachers usually think that they should be encouraging critical thinking, so they are tempted to declare victory in that endeavor based on their current form of teaching, again whatever that current practice may be. To resist that tendency and to try to provide greater clarity, I want to suggest what critical thinking is **NOT**.

Critical Thinking Is Not:

just THINKING--- What silliness is afoot here? Of course, it is “thinking”; even the words are almost identical! Critical thinking IS most certainly a form of cognition, but thinking occurs in many useful forms. Critical thinking is just one of these. Who cares? If critical thinking is a special form of thinking, as we tend to think it is, then it can and does often get ignored in a learning setting where “thinking” is being taught. For example, comprehension is an important dimension of thinking, but it is quite distinct from critical thinking in tone and purpose.

Problem solving--- The starting point for this important set of skills is a problem. This problem requires a solution. We wonder: How can we optimally solve the problem? While critical thinking will certainly come into play as soon as someone offers a tentative solution and the attendant rationale, those of us who want to solve a problem need many skills that extend beyond critical thinking. In fact, the premature use of critical thinking skills and attitudes can hinder problem solving by providing impediments to the generative process through which multiple possible solutions are put forward.

Negative thinking--- Critical thinking bears a burden. It just does not sound nice. Who wants to be, or associate regularly with anyone who is, grouchy or picky? A recent Dean of our College would often castigate such people by relegating them to the social dumpster with a sneering reference to “those nay-sayers.”

That critical thinking might result in a torrent of negative comments in a certain context misses an important dimension. The criticisms are offered, or should be offered in search of a better argument. In that regard, critical thinking is essentially positive, friendly, developmental, and productive.

Reproduction of someone else’s critical thinking--- This confusion is especially frequent because, I suppose, it allows the hierarchy of expertise to take its course in our classrooms. But reproduction is reproduction; taking a photograph of a sculpture and then displaying the print proudly does not justify your advertising yourself as a sculptor.

Creative thinking--- Critical thinking, at certain stages, requires our creative best efforts; but critical thinking represents a moment of judgment, rather than the imaginative leaps associated with emergent guesses, strategies, or patterns.

I hope these distinctions do not seem tedious or unnecessary. They are offered so that multiple aspects of thinking all get the attention they deserve.

TYPICAL QUESTIONS ABOUT CRITICAL THINKING

1. *What is critical thinking?*

It is a set of skills and attitudes that result in the evaluation of the reasoning of a speaker or writer, using specific generally accepted criteria for strong reasoning. For example, that a conclusion should have a reason in the first place is a standard that requires explicit attention.

Multiple strategies could advance the learning of critical thinking. I prefer to teach CT by emphasizing the **asking of questions** because that approach seems optimal to me in terms of acknowledging and activating curiosity, while emphasizing the worth of ongoing wonder. But others might opt for a more didactic approach.

2. *Is critical thinking just another name for higher order cognition?*

Not really! Higher order cognition encompasses much more than is intended by critical thinking. For example, the idea of synthesizing experiences and knowledge is certainly an important element of human thought and higher order cognition, but it is not critical thinking, at least, as we understand it.

Critical thinking is a central skill, but not by any means the only important educational objective. To emphasize critical thinking is in no manner to minimize the importance of other forms of cognition. We focus on critical thinking because we think it is extremely important and largely ignored.

3. *Will I have time to teach it?*

This question is extremely important because all of us who love our disciplines are already very busy. Whenever someone says, “A Oh, you need to be doing X or Y,” we all visibly wince.

Critical thinking is not an IT that you either do or do not teach. Instead, it is a buffet of useful attitudes and skills, each facilitating the process of critical thinking. Encouraging even a little critical thinking is an outstanding contribution to your students and the community they share. How much you will want to encourage depends on how important you see the goal in relation to your other important objectives.

4. *Will teaching critical thinking interfere with the amount of content I teach?*

This question is a tough one to answer because I want to say both yes and no. The affirmative answer is appropriate because time is our most visible constraint. Encouraging critical thinking is not an activity that can be achieved, while you or I cover as many concepts as we can.

But the negative response to the question is now apt. No. Teaching critical thinking does not interfere with content. On the contrary, it brings it to life. When we say we cover a concept, principle or model, what exactly do we see ourselves as having accomplished? For those of us who wish to see our beloved disciplinary concepts internalized into the thinking of our students, we have no choice but to take the time to teach students how to do so and then mentor them as they practice.

5. *How do I start?*

First, I bet you already do teach some critical thinking. But your students would probably benefit from your being more explicit about what you are teaching them in that regard and why you have chosen to do so.

To help in that regard, borrow or buy a critical thinking text, and ask yourself: Which of these skills and attitudes are so important to the development of understanding in my discipline that I absolutely must encourage them in my students? Alternatively, ask yourself: what are the criteria by which a reasonable person should evaluate reasoning in my discipline? Then pledge yourself to explicitly address the application of those criteria a little more than you currently are.

6. *Will students enjoy critical thinking?*

Oh, most of them will enjoy the end result immensely. But very few of them beg us to elevate the cognitive demands implicit in our teaching. Their resistance to participating in reasoned discourse is understandable and predictable. Watching reasoned conversation is much easier than active participation in its assessment.

Part of our responsibility is to sell them on the joy and social contribution associated with critical thinking. I have had the best luck asking them to imagine a world in which classrooms never encouraged critical thinking. They generally want no part of a so-called educational process that fails to prepare them for active engagement with the knowledge claims that they will certainly encounter on a regular basis.

7. *How would we know whether we are encouraging critical thinking?*

Let me answer in two ways, one simple and one more complicated. First, ask yourself: am I moving learners toward the evaluation of reasoning using intellectual standards that they can articulate and assess? If you answer, “yes”, then you are encouraging critical thinking.

A caution is in order here. Any of us are clever enough to rationalize at this point. Virtually any mental activity could be said to move learners toward critical thinking. But only when the objective of the pedagogy is to reach the evaluative stage is critical thinking being encouraged. All of us have been in classes where the learning activity **could** have become a critical thinking activity, but the instructor had no intention of reaching that level of intellectual achievement.

A more complex way to think about whether we are encouraging critical thinking is by using the following litmus test:

- A. Are conclusions in my classroom praised to the extent that they are offered in partnership with reasons?
- B. When reasons are offered in my classroom, do the students and I assess the reasoning?
- C. When students leave my classroom, do they possess an enlarged understanding of the criteria we should use to distinguish among arguments?
- D. Do my students learn to devote uncommon attention to the ability to hear and reword an argument **prior** to forming a judgment about the quality of the reasoning?
- E. Do I encourage a search for **alternative** solutions to problems, strategies for solving a dilemma, causes, inferences, and perspectives as an antidote to a kind of persuasion by default? In other words, do my assignments and classroom activities reveal the excitement and robustness of learning, as opposed to the pre-fabricated gems of the common textbook?

8. *You refer several times to intellectual standards as the testing ground for reasoning. But are not these standards debatable?*

Certainly! We would be disappointed if we did not debate these standards regularly. Yet, there seems little point in exaggerating the extent of the disagreement. For instance, while someone somewhere would no doubt disagree, most of us could surely agree that reasoning should be liberated from ambiguity on most occasions if the audience for the reasoning is to have a fair chance to think deeply about the worth of the reasoning.

9. *Can you give us a sense of the process or standards that you provide your students as the basis for critical thinking?*

Our standards for good argument are memorialized in the questions that mark each of the chapters in Asking the Right Questions. I would invite you to articulate your own after you have thought about ours. Are there intellectual criteria that we have ignored or given short shrift because we are untrained in the thought processes of every discipline? For example, a legal scholar would notice immediately that we focus only slightly on the criteria for evaluating analogical reasoning, the very fiber of jurisprudential thought.

A Critical Thinker's Credo

1. I admit that I see the world from a highly limited viewpoint.
2. Before I offer an argument, I consider the best case against my argument.
3. I take stands. To correct errors (my intent), I must sometimes make them.
4. I justify an argument by whether it meets certain explicit reasonable standards.
5. I distinguish the quality of an argument from both the worth of the person giving the argument *and from the merit of the conclusion.*

Hog Heaven?

Members of South Dakota's Rosebud Sioux tribe don't like the smell of their latest economic development project.

There is no word for "pig" in Lakota, the ancient language of the people who live on the Rosebud Sioux Reservation in South Dakota; the closest is kukuse, which means "large stinking animal." Yet over the past year, hogs have come to outnumber tribal members by more than 2-to-1. The project that brought them to this remote tribal territory is the focus of a multimillion-dollar battle that pits tribal members against one another and has drawn the scrutiny of federal agencies and the courts.

At issue is a plan by North Dakota based Bell Farming Group to build the country's third largest hog farm, a complex that could raise nearly 1 million hogs each year in the confines of more than 200 steel roofed barns. The first installation, 24 barns housing almost 50,000 animals, has been in operation since mid_1999; Bell Group managing partner Rich Bell promises that when completed, the project will create more than 200 jobs on the reservation, a tempting incentive to a community where unemployment stands at 85 percent. He has also offered the tribe 25 percent of the plant's profits and an option to buy the operation in 15 years. Bell says he chose the Rosebud site as "an opportunity to help the Indian people."

But Oleta Mednansky, a tribal member and land appraiser, says the tribe doesn't need Bell's kind of help. In her view, the hog project is merely another attempt to dump a high polluting industry on Indian land. According to an assessment conducted by the Bureau of Indian Affairs, the facility would require nearly 1.7 million gallons of water from the nearby Ogallala Aquifer daily; in addition, the hogs would generate about three times as much fecal waste as the entire human population of South Dakota. Mednansky says she recalls one public meeting at which Bell was asked why he chose the reservation. "He said, 'There are no people here.' Were we ever surprised. 'What are we?' I said."

Bell could not build his plant anywhere else in South Dakota: An amendment to the state constitution, passed a few months after he made his pitch to Rosebud in 1998, prohibits large-scale corporate farms. The law does not apply to Rosebud because the reservation is a sovereign entity.

Rosebud's sparse population and sovereign status have long made the reservation attractive for controversial industries. In the 1990s, Mednansky and other activists successfully fought a proposed chicken factory and a Connecticut company's 6,000-acre landfill plan. In those cases, the tribe was largely united against the outsiders. But Bell Farms was another matter: In 1998, the tribal council, the elected body that governs the reservation, signed up as a partner in the hog operation. "Anyone against Bell was considered the enemy of the tribe," recalls Mednansky, who along with tribal member Eva Iyotte and a neighboring rancher has formed an advocacy group called Concerned Rosebud Area Citizens. "We had doors slammed in our face in supposedly public meetings we tried to attend. It was like we didn't exist."

But opposition on the reservation grew after the first phase of the project was built; in the fall of 1999, tribal voters ousted most of the council members who had supported Bell. A majority of the council now opposes the hog farm, and the tribe has joined a lawsuit to stop construction of additional sites.

Tribal business manager Mike Boltz, who voted for the hog farm as a member of the council in 1998, says many tribal members didn't learn of the project's environmental implications until after the contract was signed. "The tribal council should have done more in terms of publicizing the pollution consequences of a large hog operation," he says now. "Hog farm pollution makes people afraid. Scares me too. Pig poop is pretty deadly."

Factory style pork production has become increasingly controversial nationwide. According to a report published last year by a Minneapolis based advocacy group, the Institute for Agriculture and Trade Policy, large operations are typically flanked by lagoons of liquid manure that contain about 400 volatile organic compounds (including hydrogen sulfide, ammonia, and methane), as well as pesticides and potentially disease causing microbes. An EPA study last year identified concentrations of manure as ranking "among the greatest threats to our nation's waters and drinking water supplies."

In recent years a number of communities have banned large hog facilities, and states including North Dakota and Nebraska have enacted or strengthened restrictions on corporate farming. Agribusiness, in turn, has sought out ever more remote locations; the institute's report found that companies often locate large-scale farming operations in poor communities and on reservations. The document cited the Rosebud venture as an example of "pollution shopping."

The fate of Bell's project now hinges on the question of whether the federal Bureau of Indian Affairs erred in its environmental evaluation of the proposal. In a letter to the EPA, the South Dakota Department of Environment and Natural Resources said it had "significant concerns" about the BIA'S assessment. At the time of the review, the document noted, Bell Farms had not produced a long-term plan for cleaning up the proposed facility's 600 acres of manure lagoons. A separate EPA analysis raised concerns about groundwater hazards; it also pointed out that the BIA had failed to address odor, which the agency calls "the most widespread and controversial environmental effect caused by pork facilities."

In November 1998, the national Humane Farming Association, an animal welfare organization, along with Concerned Rosebud Area Citizens and other South Dakota groups, filed suit against the BIA. A few months later, the bureau conceded that it had erred and voided Bell's lease pending an in-depth Environmental Impact Statement. In turn, Bell and the tribal council (then still dominated by his allies) sued the BIA and the activists for illegally interfering with their business. In February 1999, U.S. District Judge Charles Kornmann issued a permanent injunction ordering construction of the project to continue. That case is currently under appeal.

For now, Bell says he plans to proceed with construction of another 24 barns this spring; the rest of the project is on hold until the new environmental analysis is complete. The company, he says, has been invited to three more reservations (according to news reports, two tribes--the Santee Sioux and Winnebago, both in Nebraska have rejected Bell's pitch). He predicts that opposition on Rosebud will fade eventually: "They are learning to appreciate what we are doing for the community."

In November, Bell presented the tribal council with its first profit-sharing check from the existing hog facility. He says he can't recall the amount, but "it sure wasn't a poke in the eye." The council turned it down. -- Judith Reitman

NOTES: