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**CRITICAL THINKING...WHAT IS IT GOOD FOR?
(IN FACT, WHAT IS IT?)**

Nearly everyone is in favor of critical thinking. This is evidence that the term is in danger of becoming meaningless. Skeptics should spearhead the effort to clarify what critical thinking is—and what it is not. The stakes are high.

Howard Gabennesch

Respect for the truth comes close to being the basis for all morality.

—Frank Herbert

A lady said, "What's your solution?" I said, "There are no solutions. There are only trade-offs." She said, "The people demand solutions!"

—Thomas Sowell

When “republic” is used in such expressions as “The People’s Republic of...” or “lies” refers reflexively to an adversary’s interpretation of the facts, damage is done to the concepts—liberal government, truthfulness—that stand behind the words. “Critical thinking” is another concept whose value is being diminished by terminological disarray.

I suggest that one of our major responsibilities as skeptics is to maintain a continuous exploration of fundamental questions involving critical thinking, including:

- (1) What are the essential components of critical thinking?
- (2) Are those who claim to be promoting critical thinking doing justice to the concept or corrupting it?
- (3) What is the value of critical thinking, and how do the benefits justify the undeniable costs of studying, teaching, and practicing it?

But haven’t we been pursuing such questions for quite a while? Amazon.com lists over 2,000 titles on “critical thinking.” Haven’t we largely ironed out the conceptual fundamentals by now?

Apparently not. Here are some indicators from my discipline of sociology that illustrate some of the work that needs to be done. I draw these examples from four mainstream, college-level introductory sociology textbooks, three of which are best-sellers in a crowded market. As is true in virtually all such texts, the preface and promotional material of each book explicitly assure instructors and students that the book attaches much importance to critical thinking.

IS THIS CRITICAL THINKING?

----A text currently in its fifth edition discusses the influence of social forces on definitions of aging by stating (Kendall 2006, 101):

Negative images also contribute to the view that women are “old” ten or fifteen years sooner than men...The multi-billion dollar cosmetics industry helps perpetuate the myth that age reduces the “sexual value” of women but increases it for men. Men’s sexual value is defined more in terms of personality, intelligence, and earning power than by physical appearance. For women, however, sexual attractiveness is based on youthful appearance. By idealizing this “youthful” image of women and playing up the fear of growing older, sponsors sell thousands of products that claim to prevent the “ravages” of aging.

Certainly there is some truth to this, but is it fair to say that it is a *myth* that age reduces the sexual value of women more quickly than for men? After all, a society that generally considers older women as physically attractive as younger ones has yet to be discovered, whereas the attractive older man is an anthropological commonplace. The author is ignoring the more fundamental possibility that sexual value has something to do with *reproductive* value, making nature partly (largely?) responsible for the double standard of aging. A more educational analysis might suggest that a huge cosmetics industry is both cause and effect of the link between youth and female beauty.

However, the idea that sex differences in reproductive biology could underlie sex differences at the psychological and sociological levels is ideologically off-limits to most sociologists. Of course, textbooks are entitled to emphasize a certain theoretical point of view. But are we still practicing and teaching critical thinking if we actually direct students away from likely pieces of the truth?

----One of the leading introductory sociology texts for many years cites the Israeli kibbutz (a utopian agricultural settlement) as evidence of the cultural construction of gender (Macionis 2006, 253):

In kibbutzim, both sexes share most everyday jobs. Both men and women take care of children, cook and clean, repair buildings, and make day-to-day decisions concerning life in the kibbutz. Girls and boys are raised in the same way and, from the first weeks of life, children live together in dormitories. Women and men in the kibbutzim have achieved remarkable (though not complete) social equality, evidence of the wide range that cultures have in defining what is feminine and what is masculine.

The kibbutz as evidence of the wide latitude cultures have in defining gender? This interpretation would astonish Spiro (1996) and Tiger and Shepher (1975), anthropologists known for their research on gender in the kibbutz. These authors (and others) make it clear that the attempt to eradicate gender distinctions is instructive precisely because it did not succeed. Despite intense socialization pressures to the contrary, many familiar differences between the sexes appeared in the kibbutz: boys and girls preferred different toys, activities, subjects in school, and clothing styles; men gravitated toward outdoor work and leadership positions;

mothers wanted to spend more time with their children than the design of the kibbutz originally allowed. To his own surprise, Spiro (1996, x) concluded that...

...the findings of this study (like those of Tiger and Shepher) constitute a direct, if implicit, challenge to some central assumptions of gender and women's studies, including (a) gender and gender differences are culturally constructed...

Some critics have claimed that the kibbutz was not a true test of the cultural malleability of gender, but it is distinctly misleading to offer the kibbutz as *evidence* of such plasticity. Perhaps this is simply an innocent error by the author. But complying as it does with the powerful "blank slate" orthodoxy among sociologists, this tendentious presentation has survived the scrutiny of scores of the book's reviewers and adopters.

-----In a discussion of "heredity or environment" intended to emphasize the role of environment, another highly successful text devotes several paragraphs to a description of two identical twins, Oskar and Jack, who were separated early in life. When reunited in adulthood, they turned out to be quite different in most respects (Henslin 2006, 57). The author grants that the men showed some uncanny similarities (e.g., "Both flushed the toilet both before and after using it"), and he notes that heredity establishes "the *limits* of certain physical and mental abilities." But the focus is on the ability of different environments to produce different people, even when their genes are the same.

It is fine to teach that social experience may override the influence of biology on behavior. But what about the rest of the story that has emerged from the study of twins and adoptees? The case of Oskar and Jack comes from the Minnesota Center for Twin and Adoption Research headed by Thomas Bouchard. One waits in vain for the text to present—or somehow to acknowledge the existence of—the *main* outcomes of that research. For example:

Adult identical twins reared in the same family are no more similar than identical twins reared apart.

Identical twins raised apart are more similar, in almost every physical and psychological trait, than fraternal twins raised together.

Even after growing up in the same home, unrelated adults are no more alike in intelligence than complete strangers.

Twin studies of various kinds consistently find that between 40 and 80 percent of the variance in intelligence is due to genetic factors.

As Bouchard (1997, 54) notes, "Such findings fly in the face of the emphasis on the role of the environment in child development that has pervaded American psychology until very recently." Results like these have drawn widespread attention to the twin studies at the

University of Minnesota and elsewhere. They are a foundation of the field of behavioral genetics. But they are nowhere to be found in this text's treatment of "heredity or environment." ----A text that promises to emphasize *how* to think more than *what* to think fires a broadside at the field of evolutionary psychology by listing its fallacious claims (Brym and Lie 2004, 65-67). These alleged errors include "men are promiscuous and women are not" and "what exists is necessary." In rebuttal, the authors assert "it would be wrong to conclude that variations among people are due just to their genes," "genes *never* develop without environmental influence," and "the pattern of your life is not entirely hardwired by your genes."

But this is waging war on straw men—tired ones. No contemporary evolutionary psychologists support the crude biological determinism imputed to them here. And no young reader of this text would imagine that the burgeoning study of evolution, genes, and human behavior has attracted many sophisticated scholars from a variety of disciplines.

This is teaching students *how* to think?

TOWARD A SHARPER DEFINITION

When academic textbooks come to resemble hymnals that celebrate a religious denomination's theology, and when this goes by the name of critical thinking, it is time for some definition adjustments.

No one should pontificate a definition of critical thinking, nor should we expect to achieve unanimity. But I offer the following for consideration: *Critical thinking is the use of rational skills, worldviews, and values to get as close as possible to the truth.* Here critical thinking is conceived as consisting of three essential dimensions.

--The Skills Dimension

By critical thinking skills, I mean the various higher-order cognitive operations involved in processing information, rather than simply absorbing it: analyzing, synthesizing, interpreting, explaining, evaluating, generalizing, abstracting, illustrating, applying, comparing, recognizing logical fallacies.

It is primarily the skills dimension that most people appear to have in mind when speaking of critical thinking. This narrow focus has permitted critical thinking to become a hot topic in American education—reasoning skills can be taught in virtually any academic course at any level, and, importantly, they can be taught without venturing into sensitive areas. We can, if we wish, restrict our critical thinking skills to the safe and sanitary.

Proficiency on the skills dimension is necessary but not sufficient for anyone who claims to be a critical thinker. One could excel at reasoning while failing badly at other components of

critical thinking. Indeed, this is not uncommon. A more fully developed conception of critical thinking that includes the worldview and values dimensions is both more difficult to teach and more dangerous to display than a narrow conception that focuses on logical reasoning.

--The Worldview Dimension

In his classic *Invitation to Sociology*, Peter Berger (1963, 23) states, “It can be said that the first wisdom of sociology is this—things are not what they seem.” I would alter the wording slightly—things are not *always entirely* what they seem—and propose it as the first wisdom of critical thinking. The recognition that the world is often not what it seems is perhaps the key feature of the critical thinker’s worldview.

From this perspective the world is a deceptive place—not just occasionally but inherently. Such a worldview goes beyond the usual suspects (e.g., deceptive TV ads and phony crop circles) to incorporate a broader recognition of the deceptive nature of the world, including such insights as:

- ~Like fish who are unconscious of the water that envelops them, we are often unaware of the constraints imposed on our thinking by the taken-for-granted social forces surrounding us—not to mention the gene-based forces within us.
- ~Some aspects of the social world appear natural, but are actually human contrivances. And vice versa.
- ~The social roles we play can shape not just our behavior but our identity—often we unwittingly become what we play at.
- ~We are often ignorant of our ignorance. And the more incompetent we are, the more likely we are to overestimate our competence.
- ~It is normal for seemingly contradictory things to occur together.
- ~All good things have costs. Many bad things have benefits.
- ~Issues frequently appear black-and-white, when in fact they usually consist of grays.
- ~We typically mistake pieces of the truth for the whole truth.
- ~Partial truths can be just as misleading as outright lies.
- ~We are more likely to be misled by people who sincerely believe what they are saying than by liars.
- ~Self-deception can be an even bigger problem than deception by others.

In short, since it is so easy to misperceive reality, a critical thinker is disinclined to take things at face value, suspicious of certainties, not easily swayed by conventional (or unconventional) wisdom, and distrustful of the facades and ideologies that serve as the ubiquitous cosmetics of social life.

In other words, critical thinkers are necessarily skeptics. Skepticism can be summarized as concisely as this (Skeptic 2005):

- (1) Skeptics do not believe easily. They have outgrown childlike credulity (Dawkins 1995) to a greater extent than most adults ever do.
- (2) When skeptics take a position, they do so provisionally. They understand that their knowledge on any subject is fallible, incomplete, and subject to change.
- (3) Skeptics defer to no sacred cows. They regard orthodoxies as the mortal enemy of critical thought—all orthodoxies, including those that lie close to home.

Convincing people that their worldview underestimates the extent to which things are not what they seem requires a wide range of no-holds-barred examples such as these:

~From the beginning, AIDS has been exaggerated as a significant threat to heterosexuals in the U.S.

~It is far from clear that Abraham Lincoln cared deeply about social equality between whites and blacks.

~Martin Luther King, Jr. cheated on his doctoral dissertation and on his wife.

~We fall out of love with our children less often than with our lovers/spouses because our children carry our genes.

~Despite what is widely assumed by professionals in the counseling and education industries, self-esteem has not been shown to be causally related to academic and behavioral outcomes.

~Whatever intelligence tests measure is related to many academic, occupational, economic, and behavioral outcomes—and it is substantially heritable.

~It is far from clear that many returning Vietnam vets were spat upon.

~It is far from clear that child sexual abuse produces devastating and long-lasting effects in nearly all of its victims.

~Studies have found that many gender stereotypes contain an element of truth.

~There may be credible UFO sightings that science is currently unable to explain.

~Chance alone caused the 46th word from the beginning of Psalm 46 to be “shake” and the 46th word from the end to be “spear”—in the King James Bible, which was published in the year Shakespeare turned 46 (Myers 2002).

Developing a skeptic’s worldview means that one’s foundational assumptions will be disturbed, not to mention those of others. Toes will be stepped on, tempers could flare, mortified members of the audience may stagger from the room. Hence, there is still more to full-fledged critical thinking.

--The Values Dimension

Imagine a juror in the trial of a defendant accused of murdering a child. The juror listens to the prosecution's case, which is accompanied by grisly photos, testimony from a detective who becomes visibly shaken when describing the crime scene, and audible sobs from the victim's family. Then, roiled by emotions ranging from grief to outrage, she is called upon to do something remarkable: Listen to the defense just as receptively as she did to the prosecution.

To do her job well she will need more than good reasoning skills and the sturdy skepticism that is appropriate when listening to dueling lawyers. She will also need a certain set of values that will motivate her to do the difficult things necessary to reach an honest verdict. It takes a principled person to force aside her personal suspicions and preferences long enough to determine whether the prosecution has proved its case beyond a reasonable doubt.

Like the honest juror, the critical thinker is ethically committed to the concept of due process—*intellectual* due process—as the best way to increase the likelihood of finding the truth. This code of intellectual conduct demands giving ideas their day in court before rendering an informed and reasoned verdict. It requires such traits as these:

- ~being unwilling to subordinate one's thinking to orthodoxies that demand to be swallowed whole—at the risk of being charged with heresy
- ~refusing to dismiss possible merits in ideas that otherwise may be deeply repugnant—at the risk of appearing immoral
- ~being capable of saying "I don't know"—at the risk of appearing unintelligent
- ~being willing to judge the truth value of ideas sponsored by demographic and cultural groups to which one does not belong—at the risk of being accused of prejudice
- ~being willing to change one's mind—at the risk of appearing capricious
- ~being open to the arguments of adversaries—at the risk of appearing disloyal
- ~having an acute awareness of the limits and fallibility of one's knowledge—at the risk of seeming to suffer from that dreaded malady, low self-esteem.

In short, this aspect of critical thinking can be the most difficult of all. Subjecting ideas to intellectual due process can require more integrity, humility, tolerance of uncertainty, and raw courage than most of us find easy to summon. No wonder we will join a wild-eyed, slobbering lynch mob from time to time.

BENEFITS

Is critical thinking worth the costs? Consider for a moment how costly *uncritical* thinking can be.

Stephen Jay Gould (1997, x, xii) calls attention to two precious human potentials that together constitute “the most powerful joint instrument for good that our planet has ever known.”

Only two possible escapes can save us from the organized mayhem of our dark potentialities—the side of human nature that has given us crusades, witch hunts, enslavements, and holocausts. Moral decency provides one necessary ingredient, but not nearly enough. The second foundation must come from the rational side of our mentality. For, unless we rigorously use human reason...we will lose out to the frightening forces of irrationality, romanticism, uncompromising “true” belief, and the apparent resulting inevitability of mob action...Skepticism is the agent of reason against organized irrationalism—and is therefore one of the keys to human social and civic decency.

According to this striking claim, critical thinking is one of the most important resources a society could develop. This is because bad things do not emanate only from bad people. Bad things can also occur because of the mistaken thinking of decent people. Even when a bad idea originates with a psychopath, the real danger occurs when it is accepted by the gullible and condoned by the sincere who have little more than a child’s understanding of what intellectual due process entails.

It is likely that an important link exists between critical thinking, broadly defined, and democracy itself. The American jurist Learned Hand (1952, 190) described this connection as follows:

Liberty lies in the hearts of men and women; when it dies there, no constitution, no law, no court can save it...The spirit of liberty is the spirit which is not too sure that it is right; the spirit of liberty is the spirit which seeks to understand the minds of other men and women; the spirit of liberty is the spirit which weighs their interest alongside its own without bias.

So by cultivating genuine critical thinking, we strengthen the crucial underpinnings of democracy (Kuhn 2003). People who are careful about the truth are less likely to be fooled by the ideologies that justify illiberal practices or promise simple solutions. Moreover, such people are more likely to recognize the value of intellectual and ideological diversity—they understand that the truth comes in pieces and is unlikely to be found in one place. They are the best counterweight to true believers of all stripes. Ultimately, intellectual due process is no less integral to democracy than is due process of law.

Within a democracy, the social world remains a deceptive place—for the sophisticated and the innocent alike. The tendency of leaders and large numbers of citizens to underestimate this fact is a source of enormous human misery.

Here is an example. In his book a few years ago and in the 2003 Oscar-winning documentary “The Fog of War,” former defense secretary Robert S. McNamara (1995) identifies the mistakes made by him and others that led to calamity in Vietnam. His account describes

confident, mostly decent men who did what they thought was best, but who fell prey to a chilling list of errors that could serve as chapters in a critical thinking textbook: dualistic thinking, wishful thinking, absence of intellectual humility, underestimating complexity, groupthink, childlike credulity, rigid adherence to orthodoxy. These were intelligent, educated men whose logical reasoning skills were far above average. Yet McNamara finds it “incredible” that “[w]e failed to analyze our assumptions critically.”

Perhaps the architects of the Vietnam War went wrong because they indulged in what Thomas Sowell (2002) calls “shibboleths” as substitutes for critical thinking. A shibboleth is a belief that serves the purpose of identifying the believer as one of the good guys, prominently planted on the side of the angels. Shibboleths “transform questions about facts, causation and evidence into questions about personal identity and moral worth.”

Mere facts cannot compete with shibboleths when it comes to making people feel good. Moreover, shibboleths keep off the agenda the painful question of how dangerous it is to have policies which impact millions of human beings without a thorough knowledge of the hard facts needed to understand just what that impact has actually been... Shibboleths are dangerous, not only because they mobilize political support for policies that most of the supporters have not thought through, but also because these badges of identity make it harder to reverse those policies when they turn out to be disastrous.

Like many other forms of uncritical thinking, shibboleths derive their power from the fact that humans are designed to be social animals more than truth-seeking ones. For all the societal benefits of critical thinking, at the individual level uncritical thinking offers social and psychological rewards of its own.

PROMOTING CRITICAL THINKING

If the societal benefits of multidimensional critical thinking are great, so is the task of raising the level of such thinking in our society. On whose shoulders does this responsibility fall?

Thomas Gilovich (1991, 193-194) has argued that social scientists, by virtue of their “way of looking at the world, the habits of mind that they promote” are in the best position to educate others about the importance of “question(ing) our assumptions and challeng(ing) what we think we know.”

This is not encouraging, since social scientists appear to be as prone to orthodoxies, wishful thinking, ad hominem, and shibboleths as anyone else (Horowitz 1996; Berger 2002; Goldberg 2003). As our glimpse inside the sociology texts suggested, there are problems with trying to teach genuine critical thinking in disciplines that are several parts social for each part science.

Are the hard sciences doing much better? In the first place, science education is not producing high levels of scientific literacy in the population (National Science Foundation 2004). Besides, there appears to be only a weak relationship between science knowledge and disbelief in various forms of nonsense (Walker and Hoekstra 2002; Johnson and Pigliucci 2004).

As many have noted, we teach science as a collection of facts and theories about a certain category of phenomena, rather than as a set of principles for understanding the world. A course in “Science, Pseudoscience, and Anti-science” would stimulate broader critical thought than the typical Chem 101. But the problem is deeper than this. Full-blown critical thinking is not coterminous with good scientific thinking. Critical thought is the principles of scientific thought projected to the far reaches of everyday life, with all the attendant demands and complications. This expansive generalization of the scientific method is hardly spontaneous or self-evident for most people. Just as learning the truth about Santa does not shatter the typical child’s credulous worldview, learning the principles of science can easily fail to fully penetrate the larger vision of science students—and indeed, of scientists. By themselves, science classrooms are little competition for the powerful obstacles to highly developed critical thinking that reside in human social life and in the wiring of the human brain.

Multidimensional critical thinking is not simply a byproduct of something else. It must be taught. Well, then, what about the “critical thinking” trend that has permeated American education across the curriculum at all levels? Are these efforts succeeding in materially strengthening the quality of critical thinking in society at large? Again, the various indicators of uncritical thought in our society suggest not. It is doubtful that what students learn from those classrooms and texts does much to alter their worldviews and values regarding the truth. A primary cause of this shortfall is the antiseptic nature of the “critical thinking” typically taught to students. Either most teachers and authors do not possess a highly multidimensional conception of critical thinking themselves, or they are reluctant (perhaps with good reason) to approach the perilous territory—way past logical fallacies and weeping Madonna statues—to which full-fledged critical thinking inevitably leads. The result is the routine teaching of quasi-critical thinking.

It is naïve to expect social science education, natural science education, or education in general—at least in their present form—to elevate critical thinking to something more than a pedagogical fashion that everyone applauds but few conceptualize very deeply. This leaves the skeptical community. We identify ourselves as champions of science and reason. But this is a broad mandate. We should avoid concentrating our skepticism too narrowly on the realms of superstition, pseudoscience, and the supernatural—for the ultimate challenge to a critical

thinker is posed not by weird things but by insidiously mundane ones. If we hope to realize the promise of critical thought, it is important that skeptics affirm a multidimensional definition of critical thinking—reasoning skills, skeptical worldview, values of a principled juror—that exempts no aspect of social life.

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