

"Language shapes the way we think, and determines what we can think about."

—BENJAMIN LEE WHORF, American Linguist

A GLOSSARY OF CRITICAL THINKING
TERMS & CONCEPTS



The Critical Analytic Vocabulary
of the English Language

By DR. LINDA ELDER and DR. RICHARD PAUL

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Introduction

This compendium of terms is testament to the fact that critical thinking entails a body of concepts and principles which, when internalized and practiced, enable people to raise their thinking to a higher level. Critical thinking, in one form or another, has been implicit in the thinking of some people from the earliest days of *homo sapiens* (the species that thinks). Once thinking was raised to the level of consciousness, it followed that at least some people would begin to think consciously about thinking (noticing its sometimes “flawed” nature). Yet we are still a considerable distance from the emergence of *homo “criticus” sapiens* (the species that thinks critically). Critical thinking has not yet become a dominant cultural value nor critical-mindedness (criticality) a common personal attribute.

Why Critical Thinking?

Humans live in a world of thoughts. We accept some thoughts as true. We reject others as false. But the thoughts we perceive as true are sometimes false, unsound, or misleading. And the thoughts we perceive as false and trivial are sometimes true and significant.

The mind doesn’t naturally grasp the truth. *We don’t naturally see things as they are.* We don’t automatically sense what is reasonable and what unreasonable. Our thought is often biased by our agendas, interests, and values. *We typically see things as we want to.* We twist reality to fit our preconceived ideas. Distorting reality is common in human life. It is a phenomenon to which we all, at times, unfortunately fall prey.

Each of us views the world through multiple lenses, often shifting them to fit our changing feelings. In addition, much of our perspective is unconscious and uncritical and has been influenced by many forces — including social, political, economic, biological, psychological, and religious influences. Social rules and taboos, religious and political ideologies, biological and psychological impulses, all play a role, often unconscious, in human thinking. Selfishness, vested interest and parochialism, are deeply influential in the intellectual and emotional lives of most people.

What is Critical Thinking?

To live successfully in this world of power, propaganda, manipulation, and exploitation, we need an orientation that enables us to exercise oversight on thinking (on our thinking and that of others). We need a systematic way to further *sound* thinking and limit *unsound* thinking. We need to take command of our cognitive processes in order to determine in a reasonable way what thinking to accept and what to reject. Critical thinking is that process, that orientation, and in the finest cases, that way of living. As William Graham Sumner put it, more than a hundred years ago:

[Critical thinking is]... “the examination and test of propositions of any kind which are offered for acceptance, in order to find out whether they correspond to reality or not. The critical faculty is a product of education and training. It is a mental habit and power. It is a prime condition of human welfare that men and women should be trained in it. It is our only guarantee against delusion, deception, superstition and misapprehension of ourselves and our earthy circumstances.”

What are its Forms and Manifestations?

Critical thinking concepts encompass a large network of interrelated ideas. To understand one such idea often entails understanding other ideas. As such, critical thinking concepts are best understood in relationship to each other and in contrast to their opposites. We have focused on concepts which are non-technical (and are thus available in any well-researched dictionary of the English language). Furthermore, we have focused on concepts of use to those interested in an **explicit, global, Socratic, and systematic** approach to critical thinking, rather than on approaches that are **implicit, sophistic, one-dimensional, or episodic**. By the way, each of these terms (descriptive of approaches to critical thinking) are included in this glossary, so if you are puzzled by any of them you can put this glossary immediately to use by looking them up.

The concept of critical thinking, comprehensively viewed, is a rich, variegated, and, to some extent, open-ended concept. There is no way to encompass it “completely” and inexhaustibly. There is no way to encompass it in a one-sentence “definition.” Nevertheless, at its base is a foundational set of meanings presupposed in all of its varied uses. Its multiplicity is given by the fact that one can pursue the improvement of thinking by somewhat different studies with somewhat different scope and trained on different foci.

Thus, critical thinking may be *implicit* in human thought, or **explicit**. It may be fostered **systematically**, or engaged in only **episodically**. It may foster **selfishness** or **fairmindedness**. It may be **global** (multi-dimensional, broad, generalizable) or **specialized** (one-dimensional, narrow, intradisciplinary).¹

Though we recognize all of these forms and manifestations of critical thinking, still we believe that the approach most essential to the non-specialist is that which is most functional across all disciplines and domains. What is more, even specialists are well-advised to master the foundations of global Socratic critical thinking since specialists need to learn to think effectively across disciplines and other domains of thought (for example, to correct for the bias and limitations of their discipline).

Final Details and Qualifications

The network of critical thinking terms in this glossary is in no way exhaustive. Many more terms might be added to it. For example, one important concept in critical thinking is captured in the term ‘intellectual standards,’ which is defined as ‘criteria used to evaluate

¹ See critical thinking forms and manifestations.

or judge the quality of reasoning.’ There is an array of such standards extant in all modern natural languages, including *clarity*, *accuracy*, *precision*, *depth*, *breadth* and *fairness*. These and a number of other intellectual standard terms are included in this glossary. However, due to space limitations, a great many other intellectual standard words have been excluded.

We have also included a significant number of terms which illuminate the barriers to the development of critical thought — for example those terms which center around the problems of *sociocentric* and *egocentric thought*.

For most entries we provide a brief definition followed by elaboration and exemplification of the concept. In a number of cases we link the terms to instruction, for the benefit of our readers who are educators or students.

Finally please note that, for every term, we have included only those definitions relevant to critical thinking, in some cases leaving out a significant number of other possible uses of the term.

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accurate: free from errors, mistakes, or distortion.

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Accuracy is an essential intellectual standard and therefore an important goal in critical thinking. However, achieving it is often a matter of degree. The extent to which we have achieved it is determined by the conditions set forth by the question at issue and/or context (and how well we have met those conditions).

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It is important for students to develop a world view supported by accurate understandings. Yet we cannot “give” students these understandings. Rather they must think their way through information and ideas, making mistakes in the process. As their perspective develops, they develop greater accuracy and depth of vision. And they come to see that thinking within any perspective may entail distortions or inaccuracies. Critical thinkers are aware of this likely phenomenon and thus strive to accurately represent their own view, as well as those of others.

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Related terms: *Correct* connotes little more than absence of error; *accurate* implies a positive exercise of one to obtain conformity with fact or truth; *exact* stresses perfect conformity to fact, truth, or some standard; *precise* suggests minute accuracy of detail. Also related: *scrupulous*, *conscientious*.

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See *intellectual standards*.

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activated ignorance: taking into the mind and actively using information that is false, though it is mistakenly taken to be true.

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Many problems are caused by activated ignorance, by people acting on beliefs

that aren't true. The philosopher René Descartes came to confidently believe that animals have no actual feelings, but are simply robotic machines. Based on this activated ignorance, he performed painful experiments on animals, interpreting their cries of pain as mere noises. Many forms of activated ignorance result from social rules and ideologies.

Critical thinkers understand the problem of activated ignorance in human thought, and therefore routinely question their beliefs, especially when acting upon them has significant potential implications for the harm, injury, or suffering of others. They recognize that everyone has some beliefs that are, in fact, a form of activated ignorance. They also recognize that it is not always easy to identify what is and is not activated ignorance.

See *activated knowledge*, *inert information*, *sociocentricity*.

activated knowledge: taking into the mind, and actively using, information that is not only true but, when insightfully understood, leads the thinker by implication to more knowledge, deeper understandings, and rational actions.

Schooling should lead to the developing of activated knowledge, when instead it often fosters *activated ignorance* or *inert information*. Consider the study of history, for example. In history classes, many students do no more than memorize isolated statements in the history textbook so as to pass exams. Some of these statements—the ones they don't understand and could not explain—become part of the students' battery of *inert information*. Other statements—the ones they misunderstand and

wrongly explain (but believe to be true)—become part of the students’ battery of activated ignorance.

What is much more powerful, from a critical thinking perspective, is learning *to think within the logic of history*. When we can do so skillfully, we have formed a basis for activated knowledge.

Consider, for example, these two powerful ideas:

- History is always told from some point of view.
- Any point of view may be biased, prejudiced, distorted.

When these two understandings are “activated” in our thinking, we routinely read history in a new way. We notice limitations in any given point of view. We notice, for instance, when facts are left out or distorted, and how the facts are interpreted. We are also able to imagine alternative historical accounts (written, for example, from differing points of view).

See *activated ignorance, inert information*.

ambiguous: having two or more possible meanings, either through deliberate intention or due to inexactness of expression; indefinite, uncertain.

Sensitivity to ambiguity and vagueness in writing and speech is essential to good thinking. A continual effort to be as clear and precise as the context allows is fundamental to developing effective and persuasive thought. Some ambiguity may, in some contexts, be appropriate—for example in poetry or the visual arts. But in everyday communication, clarity of thought usually requires unambiguous uses of language. For example, consider the statement, “Welfare is

corrupt.” Among the possible meanings of this sentence are the following:

- Those who administer welfare programs take bribes to administer welfare policy unfairly.
- Welfare policies are written in such a way that much of the money goes to people who don’t deserve it rather than to those who do.
- A government that gives money to people who haven’t earned it corrupts both the giver and the recipient.

Thus the statement “welfare is corrupt” is ambiguous. Until we know the intended meaning, we will not know whether we agree or disagree.

Ambiguous conceptions and communication lead to a vast array of problems in human life. Thus students need routine practice in clarifying thought.

See *clarify, intellectual standards*.

analyze: to decompose into constituent parts; to examine in detail so as to determine the nature of, to look more deeply into an issue or situation; to find the essence or structure of; to take apart and examine the structures of something.

Analyzing thought is a fundamental goal of critical thinking. It represents one of the three sets of essential understandings in critical thinking (the other two being the assessment of thought and the pursuit of intellectual traits). Since reasoning is a fundamental “activity” of the human animal, becoming skilled at taking reasoning apart and examining its parts for quality is essential to consistently reasoning at a high level of skill. Thus students should routinely be asked to analyze their

A ideas, claims, experiences, interpretations, judgments, and theories. They should do the same with those they hear and read.

B See *elements of reasoning, intellectual standards, intellectual traits.*

C See *elements of reasoning, intellectual standards, intellectual traits.*

D

E **argue:** two meanings of this word need to be distinguished: 1) to quarrel with during a disagreement (often involving strong, irrational, emotional displays); and 2) to attempt to persuade by giving reasons.

F In emphasizing critical thinking, faculty should routinely foster movement in their students from the first sense of the word to the second; that is, help them understand the importance of giving reasons to support their views without allowing their egos to get involved in what they are saying. Egocentric involvement in one's views is a fundamental problem in human life. To argue *reasonably* is to rely upon logic and reason, to bring forth facts that support or refute a point. This should be done in a spirit of cooperation and good will.

G See *argument, confidence in reason.*

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Q **argument:** a reason (or reasons) offered for or against something; the offering of such reasons; the word 'argument' may also refer to a discussion in which there is disagreement and suggests the use of logic and the bringing forth of facts to support or refute a point.

R Argumentation, the use of reasons in support of arguments or positions, is an important dimension of critical thinking. Skilled argumentation entails supporting one's own views using logic and sound reasoning. But it also involves sensitivity to evidence supporting opposing views.

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Z Fairminded critical thinkers consider all

relevant evidence in arguing for a position, and are willing to change their views when the evidence requires it of them. Sophistic argumentation is skilled reasoning that is misleading or inappropriately one-sided.

See *argue, intellectual empathy, sophisticated thinking.*

assessment: See *evaluation.*

associational thinking: ideas, memories, experiences, or feelings linked in the mind for any number of reasons, but not necessarily "logically."

Much human thinking is associational in nature. That is to say that the mind connects many ideas with each other, not because there is a "logical" link between them, but because they simply remind us of other ideas for any number of reasons – for example because they occurred in our experience at the same time. Thus, if we were often punished for "slamming the door," then we might associate doors being slammed with, say, fear of punishment. Our minds are filled with associations linked in our experience. Associations might take the following form: "This reminds me of that, which reminds me of that, which reminds me of this other thing." For example, "Growing up in Little Rock reminds me of hot summer days, which reminds me of playing softball, which reminds me of a softball coach I once had," so forth and so on. The human mind naturally tends toward associational, undisciplined, unrestrained thinking rather than purposeful, relevant, accurate thinking. There is a place for associational thinking when, for example, one wants to revisit a time and place in one's past, or simply relax the mind and experience

pleasant associations. But associational thinking, which is often unconscious, can also create problems. If a person who was cruel to me as a child had a particular tone of voice, I may find myself (unconsciously) disliking a person because he has the same tone of voice.

When dealing with important issues, rather than relying on random connotations and suggestions in the mind, critical thought deliberately directs one's thinking toward that which is clear, accurate, relevant, substantive, and reasonable. It values taking command of one's associations and being on the lookout for times when inappropriate associations are being made.

See *cultural associations, intellectual standards.*

assume: to take for granted or presuppose.

All thinking is based on assumptions, though not all assumptions are justifiable. Critical thinkers strive to make their assumptions explicit in order to assess and correct them when good reasons or the evidence requires it. This is important because assumptions typically lie at the unconscious level of thought. Assumptions can vary from the mundane to the complex, from the justifiable to the problematic: "I hear a scratch at the door. I get up to let the cat in. I assume that only the cat makes that noise, and that he makes it only when he wants to be let in." "A man I am in a relationship with speaks gruffly to me. I infer I have done something wrong and he is angry with me. I feel guilty and hurt. I assume he only speaks gruffly to me when he is angry with me and I have done something wrong. I assume that whenever he is angry at me I have done something for

which I should feel guilty."

People often equate making assumptions with making false or unjustifiable assumptions. When people say, "Don't assume," this is what they mean. In fact, we cannot avoid making assumptions and many are justifiable. (For instance, we have assumed that people who read this glossary can read English, or are reading a translation of it.) Rather than saying "Never assume," which isn't possible, say, "Be aware of and careful about the assumptions you make, and be ready to examine and assess them."

See *assumption, elements of reasoning.*

assumption: a statement accepted or supposed as true without proof or demonstration; an unstated premise or belief; a belief taken for granted.

By the word "assumption" we mean "whatever we take for granted as true" to figure out something else. Thus, if you infer that because a candidate is a Republican, he or she will support a balanced budget, you assume that all Republicans support a balanced budget. If you infer that foreign leaders presented in the news as "enemies" or "friends" of our country are in fact enemies or friends, you assume that the news is always accurate in its presentation of the character of foreign leaders. If you infer that someone who invites you to his or her apartment after a party "to continue this interesting conversation" is really interested in you romantically, you assume that the only reason someone would invite you to his apartment late at night after a party is to pursue a romantic relationship.

All human thought and experience is based on assumptions. Our thought must begin somewhere. We are typically unaware

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A of what we assume and, therefore, rarely question our assumptions. Much of what is wrong in human thought can be found in the uncritical or unexamined assumptions that underlie it. For example, we often experience the world in such a way as to assume that we are observing things just as they are, as though we were seeing the world without the filter of a point of view.

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J Skilled reasoners are clear about the assumptions they make, make assumptions that are reasonable and justifiable given the situation and evidence, make assumptions that are consistent with one other, and routinely seek to figure out what they are taking for granted in any given situation.

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N Unskilled reasoners are often unclear about the assumptions they make, often make unjustified or unreasonable assumptions, make assumptions that are contradictory, and ignore their assumptions.

O See *assume, inference, elements of reasoning*.

P **authority:** the power or supposed right to give commands, enforce obedience, take action, or make final decisions; an influence exerted on opinion because of recognized knowledge or expertise.

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Z Critical thinkers recognize that the ultimate authority for the justification of belief or opinion rests with reason and evidence. Much instruction discourages critical thinking by implicitly encouraging students to believe that whatever the text or teacher says is true. Consequently, students do not typically learn how to assess authority. They do not typically recognize that “authorities” sometimes, if not often, disagree. They do not learn how to reflect upon differing forms of authority and how to

assess them.

See *knowledge, confidence in reason*.

- B -

bias: a mental leaning or inclination.

It is important to distinguish two different senses of the word ‘bias.’ One is neutral, the other negative. In the neutral sense, the term refers simply to the fact that, because of one’s point of view, one notices some things rather than others, emphasizes some points rather than others, and thinks in one direction rather than others. This is not in itself a criticism, because thinking within a point of view is unavoidable.

In the negative sense, the term is closely related to the term *prejudice*, and refers to an opinion or judgment formed before the facts are known or held in disregard of facts that contradict it. This use implies blindness or irrational resistance to examining weaknesses in one’s own point of view or to exploring the strengths within a point of view one opposes.

Fairminded critical thinkers are generally aware of their biases (in sense one) and diligently work to avoid biases (in sense two). People commonly confuse these two senses. For example, many people confuse bias with emotion or with evaluation, perceiving any expression of emotion or any use of evaluative words to be biased (as in “prejudiced”). Evaluative terms (such as ‘excellent’ or ‘fair’) that can be justified by reason and evidence are not biased in the negative sense.

See *criteria, evaluation, judgment, opinion, intellectual empathy*.

- C -

clarify/clarity: to make easier to understand; to free from confusion or ambiguity; to remove obscurities; elucidate, illuminate.

“Clarity” is a fundamental intellectual standard and “clarification” a fundamental aim in critical thinking. People often do not see why it is important to write and speak clearly, why it is important to say what you mean and mean what you say. Two keys to clarification are the ability to precisely state and elaborate one’s meaning and then to provide concrete, specific examples.

See *accurate, logic of language, ambiguous, vague, intellectual standards.*

cognitive processes: generally understood as operations of the intellect that are innate or naturally occurring in the human mind.

It is important to understand cognitive processes in human thought – processes such as classifying, inferring, assuming, planning, analyzing, comparing, contrasting, synthesizing. However, we should not assume that engaging in these processes automatically ensures skilled and disciplined reasoning. For example, whenever we plan, we do not necessarily plan well. Sometimes we plan poorly. The mere fact of planning does not automatically carry with it high quality cognition. To ensure excellent thought, we need to consistently meet intellectual standards when engaging in (natural) cognitive processes.

See *intellectual standards.*

concept: an idea or thought, especially a generalized idea of a thing or class of things.

Humans think within concepts or ideas. Concepts are intellectual constructs

that enable us to identify, compare, and distinguish dimensions of our thinking and experience. Each academic discipline develops its own set of concepts or technical vocabulary to facilitate thinking within it. For example, “ethics” is dependent on a vocabulary of concepts. Thus one cannot understand ethics without a clear understanding of concepts like justice, fairness, kindness, cruelty, rights, and obligations. Every sport develops a vocabulary of concepts that enables those interested in understanding or mastering the game to make sense of it.

We can never achieve command of our thoughts unless we achieve command over the concepts or ideas in which our thought is expressed. For example, most people value education. But relatively few people have a reasonable or developed *concept* of education. Few are clear about the differences between education, training, socialization and indoctrination and thus confuse these very different ideas. Accordingly, for example, few are able to differentiate between when students are being indoctrinated and when they are being educated. This confusion is connected with the fact that few people can clearly articulate the skills, abilities and intellectual traits of the “educated person.”

Critical thinkers distinguish the concepts implicit in educated uses of terms (as found in well-researched dictionaries) from the psychological associations connected with that concept in given social groups or cultures. The failure to develop this ability is a major cause of blind acceptance of social definitions, which often leads to social injustices. For example, because of its puritanical roots, many people in the U.S. have an underlying puritanical orientation to sexuality. They uncritically accept the

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A largely arbitrary rules laid down by the culture (which dictate with whom people can have sexual experiences and under what conditions). They are, as it were, bound by society's conceptualization of sexuality.

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D They don't recognize that there are many equally plausible ways to view sexuality.

E They fail to see "sexuality" as a concept at all; rather they see their view of sexuality, with all of its arbitrary cultural associations, as "the way things are and should be." For a richer understanding of this point, consult anthropological accounts of variations of "approved" and "forbidden" sexual practices in different societies throughout human history.

J Skilled reasoners are aware of the key concepts and ideas they and others use, are able to explain the basic implications of the key words and phrases they use, are able to distinguish special, nonstandard uses of words from standard uses, are aware of irrelevant concepts and ideas, use concepts and ideas in ways relevant to their functions, and think deeply about the concepts they use.

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P Unskilled reasoners are unaware of the key concepts and ideas they and others use, cannot accurately explain basic implications of their key words and phrases, are not able to recognize when their use of a word or phrase departs from educated usage, use concepts in ways inappropriate to the subject or issue, and fail to think deeply about the concepts they use.

Q See *logic of language, associational thinking, elements of reasoning, fallacies*.

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X **conclude/conclusion:** to decide by reasoning, to infer, to deduce; the last step in a reasoning process; a judgment, decision, or belief formed after investigation or reasoning. The terms 'conclude' and 'infer' may, in many cases, be used synonymously.

However, the term 'conclude' may also be reserved to mean the final step in the reasoning process.

All beliefs, decisions, or actions are based on human thought, but do not usually result from conscious reasoning or deliberation. Everything we believe is, one way or another, based on conclusions we have come to during our lifetime. By "coming to conclusions," we mean taking something we believe we know to be true, and figuring out something else on the basis of that "truth." When we do this, we make inferences. For example, if you walk right by me without saying hello, I might come to the conclusion (make the inference) that you are angry with me. If the water kettle on the stove begins to whistle, I come to the conclusion (make the inference) that the water in it has started to boil.

In everyday life, we continually make inferences (come to conclusions) about the people, things, places, and events in our lives. Yet, we rarely monitor our thought processes; we don't usually critically assess the conclusions we come to; we don't commonly determine whether we have sufficient grounds or reasons for accepting them. People don't usually recognize when they have come to a conclusion. They confuse their conclusions with information, and so cannot assess the reasoning that took them from information to conclusion. Recognizing that human life is inferential, that we continually come to conclusions about ourselves and the things and persons around us, is essential to thinking critically and reflectively. We must be able to assess the thinking that takes us from information or evidence to conclusion or inference.

See *infer/inference, elements of reasoning*.

confidence in reason: the deeply held belief that, in the long run, one's own higher interests and those of humankind are best served by giving the freest play to reason; confidence that encouraging people to come to their own conclusions through a process of developing their own rational faculties is the best path to the development of critical societies; faith that (with proper encouragement and cultivation) people can learn to think for themselves, form rational viewpoints, draw reasonable conclusions, think coherently and logically, persuade each other by reason, and become reasonable, despite the deep-seated obstacles in the native character of the human mind and in society.

Confidence in reason is developed through experiences in which people reason their way to insights, solve problems through reason, use reason to persuade, are persuaded by reason. Confidence in reason is undermined when people are expected to perform tasks without understanding why, to repeat statements without having verified or justified them, to accept beliefs on the sole basis of authority or social pressure.

See *intellectual virtues, reason*.

consequence: the effect, result, or outcome of something occurring earlier.

Critical thinkers think through the possible consequences (or implications) of their thoughts and actions before acting, especially when dealing with an issue having important implications. They also reflect on consequences they have experienced in the past in order to make better decisions in the future.

See *implications*.

consistency: to think, act, or speak in

agreement with what has already been thought, done, or expressed; to have intellectual or ethical integrity.

Human life and thought is filled with inconsistencies, hypocrisy, and contradictions. We often say one thing and do another, judge ourselves and our friends by one standard and our antagonists by another, lean over backwards to justify what we want or negate what does not serve our interests. Similarly, we often confuse desires with needs, treating our desires as equivalent to needs, putting what we want above the basic needs of others. Logical and ethical consistencies are fundamental values of fairminded critical thinking. Social conditioning and native egocentrism often obscure social contradictions, inconsistencies, and hypocrisies, making them difficult to discern.

See *intellectual integrity, personal contradiction, social contradiction, human nature*.

contradict/contradiction: to assert the opposite of; to be contrary to, go against; a statement in opposition to another; a condition in which things tend to be contrary to each other; inconsistency; discrepancy; a person or thing containing or composed of contradictory elements.

Contradictions are common in human life, since humans often act in ways that are not in keeping with what they profess to believe. This is a natural byproduct of human egocentric and sociocentric thought, and stands in the way of intellectual integrity.

See *personal contradiction, social contradiction, egocentricity, consistency, intellectual integrity*.

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A **creative thinking:** resulting from
B originality of thought; having the ability
C or power to create or produce; having
D or showing imagination and artistic or
 intellectual inventiveness; stimulating the
 imagination and inventive powers.

E The relationship between criticality and
F creativity is commonly misunderstood, in
G part due to cultural stereotypes of creative
H and critical persons. The creative person is
I frequently portrayed as a cousin to the “nutty
J professor;” highly imaginative, spontane-
K ous, emotional, a source of off-beat ideas,
L and often out of touch with everyday reality.
 The critical person, in turn, is wrongly rep-
 resented as given to fault-finding, as skepti-
 cal, captious, severe, hypercritical, lacking
 in spontaneity, imagination and emotion.
 However, critical and creative thought are
 both achievements of thought. Creativity
 entails a process of making or producing,
 criticality a process of assessing or judging.
 The very definition of the term “creative”
 implies a critical component (e.g. “having or
 showing imagination and artistic or intel-
 lectual inventiveness”). When engaged in
 high quality thought, the mind must simulta-
 neously produce and assess, both generate
 and judge the products it fabricates. Sound
 thinking requires both imagination and
 intellectual standards. Thus creative and
 critical thought are two sides of the same
 coin.

U See *critical thinking, intellectual*
V *standards.*

W **criterion (criteria, pl):** a standard, rule,
X or test by which something can be judged
 or measured.

Y Human life, thought, and action are
Z based on human values. The standards
 by which we determine these values,
 and whether they have been achieved in

any situation, represent criteria. Critical
 thinking depends upon making explicit
 the standards or criteria for rational or
 justifiable thinking and behavior.

See *evaluation, standards, intellectual*
standards.

critical: given to judging, especially fault-
 finding, censorious; involving or exercising
 careful judgment or observation; nice,
 exact, punctual; occupied with or skillful
 in criticism; of the nature of, or constituting
 a crisis; involving suspense as to the issue;
 decisive, crucial, important, essential.

There are several distinct uses of the
 term ‘critical’ relevant to critical thinking
 and at least one use that is irrelevant.
 The irrelevant use is that which is overly
 given to fault finding, without also being
 concerned with effectively dealing with
 these “faults.” This use is connected with
 the term cynic, or pessimist, the person
 who habitually sees the negative aspects of
 life and is defeatist in view, and therefore
 rarely seeks solutions to problems.

The uses of the term ‘critical’ relevant
 to critical thinking are those focused on
 careful judgment and skillful critique, as
 well as that which is pressing, essential
 and/or important.

See *criticality, critical thinking, critical*
person.

critical listening: a mode of monitoring
 how we are listening so as to maximize our
 chances of accurately understanding what
 another person is saying.

By understanding the logic of human
 communication — that everything spoken
 expresses some point of view, uses some
 ideas and not others, has implications, etc.
 — critical thinkers can listen so as to enter

sympathetically and analytically into the perspective of others. A good test of critical listening is to state in your own words what a person has said and then ask her whether you have captured her point.

See *critical speaking, critical reading, critical writing, elements of reasoning, intellectual empathy.*

critical person: one who has mastered a range of intellectual skills and abilities and embodies intellectual traits or virtues.

When people use critical thinking skills largely to advance their selfish interests, they are critical thinkers only in a weak or qualified sense. If, on the other hand, they commonly use intellectual skills fairmindedly, routinely entering empathically into the points of view of others, they can be said to be critical thinkers in a strong sense. Of course, developing as critical persons is always a matter of degree, since no one could ever be the “ideal thinker.”

See *critical thinking, critical thinker, intellectual virtues, strong-sense critical thinker, weak-sense critical thinker.*

critical reading: critical reading is an active, intellectually engaged process in which the reader participates in an inner dialogue with the writer in such a way as to take ownership of the content read.

Most people read uncritically and so miss some part of what is expressed while distorting other parts. Critical readers realize that reading, by its very nature, entails entering into a point of view other than their own — the point of view of the writer. Critical readers actively look for assumptions, key concepts and ideas, reasons and justifica-

tions, supporting examples, parallel experiences, implications and consequences, and any other structural features of the written text in order to interpret and assess it accurately and fairly. There are multiple levels of critical reading, including: 1) paraphrasing the text accurately or logically, 2) summarizing the thesis of the text with relevant examples, 3) analyzing the text, 4) assessing the text, 5) role playing the author of the text.

See *elements of reasoning, analysis, assessment.*

critical society: a society which systematically cultivates critical thinking and hence systematically rewards reflective questioning, intellectual independence, and reasoned dissent.

To begin to conceptualize a critical society, one must imagine a society in which independent critical thought is embodied in the concrete day-to-day lives of individuals. William Graham Sumner, a distinguished anthropologist, explicitly formulated the ideal:

The critical habit of thought, if usual in a society, will pervade all its mores, because it is a way of taking up the problems of life. Men educated in it cannot be stampeded by stump orators and are never deceived by dithyrambic oratory. They are slow to believe. They can hold things as possible or probable in all degrees, without certainty and without pain. They can wait for evidence and weigh evidence, uninfluenced by the emphasis or confidence with which assertions are made on one side or the other. They can resist appeals to their dearest prejudices and all kinds of cajolery. Education in the critical faculty is the only education of which

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A *it can be truly said that it makes good citizens. (Folkways, 1906)*

B Until critical habits of thought pervade

C our society (which will likely be decades, if
D not longer, into the future), there will be a
E tendency for schools as social institutions
F to transmit the prevailing world view more
G or less uncritically, to transmit it as reality,
H not as a picture of reality. Education for
I critical thinking, requires that schools and
J classrooms become microcosms of a critical
K society. There are at present no existing
L critical societies on a broad scale. Critical
M societies will develop only to the extent that:

- N** • critical thinking is viewed as essential to living a reasonable and fairminded life.
- O** • critical thinking is routinely taught; consistently fostered.
- P** • the problematics of thinking are an abiding concern.
- Q** • closed-mindedness is systemically discouraged; open-mindedness systematically encouraged.
- R** • intellectual integrity, intellectual humility, intellectual empathy, confidence in reason, and intellectual courage are everyday social values.
- S** • egocentric and sociocentric thinking are recognized as a bane in social life.
- T** • children are routinely taught that the rights and needs of others are equal to their own.
- U** • a multi-cultural world view is fostered.
- V** • people are encouraged to think for themselves and discouraged from uncritically accepting the thinking or behavior of others.
- W** • people routinely study and diminish irrational thought.
- X** • people internalize universal intellectual standards.
- Y**
- Z**

See *dialogical instruction, intellectual virtues, knowledge, and strong-sense critical thinking.*

critical thinker: First see critical thinking. Critical thinkers are persons who consistently attempt to live rationally, fairmindedly and self-reflectively.

Critical thinkers are keenly aware of the potentially flawed nature of human thinking (when left unchecked). They strive to diminish the power of their egocentric and sociocentric tendencies. They use the intellectual tools that critical thinking offers to analyze, assess, and improve thinking. They work diligently to develop intellectual virtues: intellectual integrity, intellectual humility, intellectual civility, intellectual empathy, intellectual sense of justice and confidence in reason. They realize that no matter how skilled they are as thinkers, they can always improve their reasoning abilities. They recognize that they will at times fall prey to mistakes in reasoning, human irrationality, prejudices, biases, distortions, uncritically accepted social rules and taboos, selfish and vested interests. They strive to contribute to a more rational, civilized society in whatever ways they can. They strive to consider the rights and needs of relevant others. The extent to which anyone can be properly described as a “critical thinker” depends upon the skills, abilities and traits of critical thinking the person exhibits on a daily basis. There is no “critical thinker” in the sense of “perfect” or “ideal” thinker, nor will there ever be.

See *critical thinking, stages of critical thinking development, egocentrism, sociocentrism.*

critical thinking: the most fundamental concept of critical thinking is simple and intuitive. All humans think. It is our nature to do so. But much of our thinking, left to itself, is biased, distorted, partial, uninformed, or down-right prejudiced. Unfortunately shoddy thinking is costly, both in money and in quality of life. Critical thinking begins, then, when we start thinking about our thinking with a view to improving it.

Beyond this basic conceptualization, there are many ways to begin to explain critical thinking. Here are some:

- The art of analyzing and evaluating thinking with a view to improving it.
- Disciplined, self-directed thinking which meets appropriate intellectual standards within a particular mode or domain of thinking.
- Thinking that commonly displays intellectual skills, abilities and traits.
- Thinking about your thinking while you are thinking in order to make your thinking better: more clear, more accurate, more reasonable, and so forth.
- Self-guided, self-disciplined thinking which attempts to reason at the highest level of quality in a fairminded way.

In understanding critical thinking, it is useful to recognize that it exists in many forms and manifestations. For example, much critical thinking is *one-dimensional*; some is *global*. Much critical thinking is *sophistic*; some is *Socratic*. Some is *implicit*; some is *explicit*. And finally, some is *systematic* and integrated, some *episodic* or atomistic.

See *critical person*, *critical thinker*, *critical society*, *strong-sense critical thinkers*,

weak-sense critical thinkers, *critical thinking forms*, *intellectual standards*, *elements of reasoning*, *intellectual virtues*.

critical thinking forms and manifestations: the varieties, structures or types of critical thinking that people use.

There are eight forms of critical thinking (representing four polarities) that need to be distinguished. Each form falls into at least four categories. Thus every approach to critical thinking is either one-dimensional or multi-dimensional, sophistic or Socratic, explicit or implicit, systematic or episodic as follows:

Global critical thinking (multi-dimensional, interdisciplinary, trans-disciplinary, generalizable): any attempt to develop concepts and tools that can be used across disciplines, subjects, or domains. Global critical thinking is comprehensive and multilogical.

One-dimensional critical thinking (non-global, intra-disciplinary, specialized): an attempt to identify and use concepts and tools that enable one to evaluate and improve thinking within a given discipline, domain or specialization. One-dimensional critical thinking concepts and tools are often found in methodological treatises within a discipline. They are often heavy with technical terminology.

Socratic critical thinking (fairminded, ethical, strong-sense critical thinkers): an attempt to link critical thinking with traits of mind that enable the thinker to exercise intellectual humility, intellectual empathy, intellectual integrity, etc. Attempts to develop critical thinking by studying the traits of mind that enable the thinker to think with intellectual

A empathy and integrity usually are global in orientation (since the traits of mind that serve to improve thinking are useful in all domains of thought).

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C *Sophistic critical thinking* (unethical, selfish, narrowminded critical thinking): an attempt to develop concepts and tools that enable one to recognize how to manipulate or “trick” people into accepting poor reasoning as good and thus enable (sophistic) critical thinkers to win debates, irrationally persuade and otherwise to “misuse” or “abuse” critical thinking tools.

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I *Explicit critical thinking*: entails conscious awareness of the need to improve one’s thinking, and the deliberate designing of strategies for that purpose (by the thinker).

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L *Implicit critical thinking*: skilled thinking that functions without conscious awareness on the part of the thinker as to how it does what it is doing when thinking critically.

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O *Systematic critical thinking* (integrated): an organized, thorough, interconnected approach to knowledge using the full range of critical thinking concepts and principles.

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R *Episodic critical thinking*: reasoning at a high level of skill, but only sporadically or occasionally, not consistently or systematically; unintegrated critical thought.

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V The form of critical thinking we recommend for most purposes is that which is global, Socratic, explicit and systematic. This form fosters the universal intellectual skills and tools which, when internalized and used, enable the thinker to:

- W**
- X**
- Y**
- Z**
- reason well within any subject, discipline or domain of thought (because it is global

in nature).

- reason fairmindedly (because the thinking is Socratic rather than Sophistic).
- identify problems in his or her reasoning (because the reasoning is explicit).
- approach complex problems and issues in a systematic and integrated, rather than a fragmented or episodic way.

See *sophistic critical thinkers, Socratic critical thinkers, global critical thinking, one-dimensional critical thinking, implicit critical thinking, explicit critical thinking, systematic critical thinking, episodic critical thinking*.

critical writing: the art of thinking about one’s writing while writing to make sure the purpose of the writing is achieved; writing which is substantive, significant and adheres to relevant universal intellectual standards.

Substantive writing in essence entails *saying something worth saying about something worth saying something about*. It entails writing with clarity and depth and presupposes the skills of critical thinking. It requires thinking, in good faith, within the viewpoints relevant to the issue. Critical writing often requires developing multiple drafts of what we are writing in order to improve our writing systematically.

See *critical listening, critical reading, logic of language*.

criticality: any of multiple forms of being skillful at criticism, such as in making judgments, evaluating literary or artistic work, assessing something with skill and ability, learning the art or principles of higher order thought, or investigating scientific or scholarly texts or documents.

The word ‘criticality’ contrasts with ‘creativity.’ It accentuates the art of

assessment or judgment and thus the state of being thorough, accurate, exact, or deep. It involves judiciousness, discernment, and the embodiment of intellectual criteria and standards.

See *critical, critical thinking, intellectual standards*.

critique: an objective judging, analysis, or evaluation of something.

The purpose of critique is the same as the purpose of critical thinking: to appreciate strengths as well as weaknesses, virtues as well as failings. Critical thinkers critique in order to redesign, remodel, and improve. The primary tool for critique used by critical thinkers is the set of intellectual standards extant in natural languages — standards such as clarity, accuracy, precision, depth, breadth, significance, logicalness, fairness, justifiability, reasonability.

See *intellectual standards, evaluation*.

cultural associations: cultural associations are ideas linked in the mind, often inappropriately, due to societal influences.

Many, if not most, of our important ideas are connected with, or guided by, cultural associations. Media advertising juxtaposes and joins logically unrelated things to influence our buying habits (e.g. if you drink this particular brand of beverage, you will be “sexy”; if you drive this type of car, you will be “attractive” and “powerful”). Raised in a particular country or within a particular group within it, we form any number of mental links which, if they remain unexamined, unduly influence our thinking and behavior.

Of course, not all cultural associations are problematic. Only through disciplined

examination can we distinguish between those that are and those that are not.

See *associational thinking, cultural assumption, concept, critical society*.

cultural assumption: unassessed (often implicit) belief adopted by virtue of upbringing in a society and taken for granted.

Raised in a culture, we unconsciously adopt its point of view, values, beliefs, and practices. At the root of each of these are many assumptions. Not knowing that we perceive, conceive, think, and experience within assumptions we have formulated uncritically, we take ourselves to be perceiving “things as they are,” not “things as they appear from a cultural perspective.” Becoming aware of our cultural assumptions so that we might critically examine them is a crucial dimension of critical thinking. It is, however, a dimension largely missing from the educational process. Indeed, schools, and even colleges and universities, often implicitly and unknowingly foster blind acceptance to group ideologies.

See *sociocentricity, ethnocentricity, prejudice, social contradiction*.

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data: facts, figures, or information from which inferences can be made, or upon which interpretations or theories can be based.

Critical thinkers routinely distinguish hard data from the inferences or conclusions that may be drawn from them. Uncritical thinkers often confuse data with interpretation. Of course, it is also

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A important to recognize that all data, to
B be presented or communicated, must be
C “conceptualized” in some way. Alternative
D ways to do this are subject to analysis or
E critique.

See *information, evidence, conclude, infer/inference.*

F **defense mechanisms:** a self-deceptive
G process used by the human mind to avoid
H dealing with socially unacceptable or
I painful ideas, beliefs or situations.

J The human mind routinely engages
K in unconscious processes that are
L egocentrically motivated, and that strongly
M influence our behavior. When functioning
N egocentrically, we seek to get what we want.
O We see the world from a narrow self-serving
P perspective. Yet, we also see ourselves as
Q driven by purely rational motives. We
R therefore disguise our egocentric motives.
S This disguise necessitates self-deception.
T Self-deception is achieved by means of
U defense mechanisms. Through the use of
V defense mechanisms the mind can avoid
W conscious recognition of negative feelings
X such as guilt, pain, anxiety, etc. The term
Y ‘defense mechanisms’ is used in Freudian
Z psychoanalytic theory generally to mean
 psychological strategies used by the
 unconscious mind to cope with reality and
 to maintain a positive self-image. The theory
 of defense mechanisms is complex, with
 some theoreticians suggesting that defense
 mechanisms may at times be healthy
 (particularly in childhood). However, when
 these mechanisms operate in the mind
 of the normal adult, they pose significant
 barriers to rationality and the creation of
 critical societies. All humans engage in
 self-deception; however, critical thinkers

consistently strive to act in good faith, to
 minimize their self-deceptive tendencies,
 to understand these tendencies and work
 toward diminishing their frequency and
 power.

Some of the most common defense
 mechanisms (and those included in this
 glossary) are: *denial, identification, projection, repression, rationalization, stereotyping, scapegoating, sublimation and wishful thinking.* See also *egocentricity.*

denial: when a person refuses to believe
 indisputable evidence or facts in order to
 maintain a favorable self-image or favored
 set of beliefs.

Denial is one of the most commonly
 used defense mechanisms. All humans
 sometimes deny what they cannot face,
 for example, some unpleasant truth about
 themselves or others. A basketball player,
 for example, may deny that there are any
 real flaws in his game in order to maintain
 an image of himself as highly skilled at
 basketball. A “patriot” may deny—in the
 face of clear-cut evidence—that his country
 ever violates human rights or acts unjustly.

See *defense mechanisms.*

desire: a wishing, wanting, or craving for
 something.

Desires, coupled with emotions or
 feelings, comprise the affective dimension
 of the human mind, the other dimension
 being cognition or thinking.

Critical thinkers pursue desires
 that contribute to one’s own pleasure or
 fulfillment (without violating the rights
 of others). Critical thinkers routinely
 examine their desires to make sure they are
 reasonable and consistent with one another.

See *human mind, emotion, rational passions, thinking.*

dialectical thinking: reasoning dialogically within two or more conflicting viewpoints; thinking within more than one perspective; testing the strengths and weaknesses of opposing points of view by putting them into debate-like conflict.

When thinking dialectically, reasoners pit two or more opposing points of view against one other, developing each by providing support, raising objections, countering those objections, raising further objections, and so on. Court trials and debates are, in a sense, dialectical. Dialectical thinking or discussion can be conducted so as to “win” by defeating the positions one disagrees with — using critical insight to support one’s own view and pointing out flaws in other views. This is dialectical thinking in the weak or sophistic sense. Alternatively, dialectical thinking can entail conceding points that don’t stand up to critique, integrating or incorporating strong points found in other views, and using critical insight to develop a fuller and more accurate view. This is dialectical thinking in the strong or fairminded sense. Debates seen on TV are almost never acts of dialectical thinking in the strong sense. This is evidenced by the fact that persons debating rarely shift their position. They almost never say things like, “That is an important point you make. I haven’t considered it before. I need to think it through and evaluate its strengths and weaknesses. Thank you for bringing it to my attention.”

See *dialogical thinking, monological problems, multilogical thinking, multilogical problems, strong-sense critical*

thinkers, weak-sense critical thinkers.

dialogical instruction: instruction that fosters open discussion and debate of ideas from many perspectives.

Because dialogical instruction is essential to the development of critical thought, this form of instruction should be widely used in schooling at all levels. Dialogical instruction would foster in students the ability to bring relevant subjects to bear upon important questions. It would encourage students to consider, in good faith, the perspectives relevant to those questions, especially those important views typically ignored in mainstream thought.

See *dialogical thinking, critical society, higher order learning, Socratic questioning, knowledge, didactic instruction, lower order learning.*

dialogical thinking: thinking that involves a dialogue or extended exchange between different points of view or frames of reference.

Dialogical thinking presupposes that one is genuinely interested in understanding and thinking within viewpoints which are foreign to one’s own. It is connected with intellectual empathy, the tendency to enter viewpoints in order to fully comprehend them, and confidence in reason, the propensity to be moved by the evidence. An important part of learning entails dialogical thinking, wherein students routinely express their views to others and try to fit other’s views into their own (or accommodate their own views to the views of others).

See *dialogical instruction, confidence in reason, intellectual empathy, Socratic ques-*

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A *tioning, multilogical thinking, dialectical thinking, monological thinking.*

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C **didactic instruction:** pedantic instruction; teaching by telling.

D In didactic instruction, the teacher directly tells the student what to believe and think about a subject. The student's task is to remember what the teacher says and reproduce it on demand. In its most common form, this mode of teaching is based on the false assumption that one can directly give a person knowledge without that person having to think his or her way to it. Teachers who use didactic instruction falsely assume that knowledge can be separated from understanding and justification. They confuse the ability to *state* a principle with *understanding* it, the ability to supply a definition with being able to use it appropriately in context, and the act of *saying* that something is important with *recognizing* its importance.

See *critical society, dialogical instruction, Socratic questioning, knowledge.*

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R **domains of thought:** a logical system of meanings, each part of which is interrelated with every other part. Every domain of thought has a unique logic, with differing purposes, questions, information, concepts, theories, assumptions, and implications.

S Every area of human thought represents its own "domain," having its own unique logic. Of course, many subjects contain multiple domains. Thus, "science" is a logical system of thought which contains multiple sub-domains (such as biology, botany, astronomy, physics). Each of these sub-domains has a unique logic. And every domain of thought has some connection to

other domains. For example, psychology is intimately connected with, among other subjects, sociology, anthropology and history, since one cannot fully understand human behavior without understanding something of its social, historical and anthropological influences. Domains of thought are not limited to academic subjects and disciplines, and are often contained within them. Any interconnected logical system of ideas comprises such a domain. For example, *parenting* has its own logic. So too does budgeting, poetry, marriage. At times, a domain of thought emerges from within an academic subject (a larger domain of thought) and becomes established as a new academic subject.

Critical thinking is a unique domain of thought in that it is a system of thought that opens up every other system of thought (as it provides tools for analyzing and assessing any domain of thought). However, it is not yet recognized as an academic discipline. Instead, a number of disciplines now vie for its control (and often define it according to their own, often narrow, logic).

Critical thinkers discipline their thinking to take into account the nature of the issue and the domain, or domains within which the issue is "set."

See *the logic of questions, elements of reasoning.*

- E -

education: the process of developing the mind so as to learn the intellectual skills, knowledge and character necessary for functioning successfully and ethically in the world.

Education, properly so called, emancipates the mind from uncritically held beliefs through the development of intellectual skills and traits. It fosters the acquisition of the intellectual tools and knowledge requisite for living in an increasingly complex world. It entails a life-long search for truth -wherever truth is relevant - without regard to vested interests, parochial orientations or group ideologies. Unfortunately, this ideal is only partially achieved (at best), since schools and teachers are themselves often entrenched in social, political and religious belief systems they have not themselves critically examined, and which they in turn (often unwittingly) inculcate into their students.

In 1851, John Henry Newman delivered a series of lectures (*Discourses on the Scope and Nature of University Education*) that was then published (in 1852) in the book *The Idea of a University*. Throughout this book, Newman elaborates a concept of education which is arguably the deepest and most substantive conception ever articulated. Consider the following passage, which exemplifies the depth of Newman's conceptualization:

Education is a high word; it is the preparation for knowledge, and it is the imparting of knowledge in proportion to that preparation. We require intellectual eyes to know withal, as bodily eyes for sight. We need both objects and organs intellectual; we cannot gain them

without setting about it; we cannot gain them in our sleep, or by hap-hazard (p. 104).

It is education which gives a man a clear conscious view of his own opinions and judgments, a truth in developing them, an eloquence in expressing them, and a force in urging them. It teaches him to see things as they are, to go right to the point, to disentangle a skein of thought, to detect what is sophistical, and to discard what is irrelevant. It prepares him to fill any post with credit, and to master any subject with facility. It shows him how to accommodate himself to others, how to throw himself into their state of mind, how to bring before them his own, how to influence them, how to come to an understanding with them, how to bear with them... ..he knows when to speak and when to be silent; he is able to converse, he is able to listen; he can ask a question pertinently, and gain a lesson seasonably, when he has nothing to impart himself (p. 126).

The concepts and principles of critical thinking are essential to the development of the educated mind, for they provide the *means* to education. This is why critical thinking should be fostered in schooling at all levels.

The concept of education is often confused with other concepts such as *schooling, indoctrination, training and socialization*, all of which are included in this glossary. See also *critical societies*.

egocentricity: a tendency to view everything in relationship to oneself, to confuse immediate perception (how things seem) with reality, to be self-centered, or to consider only oneself and one's own interests; selfishness; to distort "reality" in order to maintain a particular viewpoint or

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A perception.

B One's desires, values, and beliefs (seeming to be self-evidently correct or superior to those of others) are often uncritically used as the unconscious norm for much judgment and "experience." Egocentricity is one of the fundamental impediments to critical thinking. As one learns to think critically in a strong sense, one learns to become more rational, and less egocentric.

C See *egocentric domination, egocentric immediacy, egocentric submission, defense mechanisms, human nature, sociocentrism, personal contradiction, unconscious thought, strong-sense critical thinkers.*

D **egocentric domination:** the egocentric tendency to seek what one wants through the unreasonable use of direct power over, or intimidation of, people (or other sentient creatures).

E Egocentric domination of others may be overt or covert. On the one hand, dominating egocentrism can involve harsh, dictatorial, tyrannical, or bullying behavior (e.g., a physically abusive spouse). On the other hand, it might involve subtle messages and behavior that imply the use of control or force if "necessary" (e.g., a supervisor reminding a subordinate, by quiet innuendo, that his or her employment is contingent upon unquestioning obedience). Human irrational behavior is often some combination of dominating and submissive acts. In the "ideal" Fascist society, for example, everyone (except the dictator) is submissive to everyone above him and dominating to everyone below him.

F See *egocentric submission, egocentricity.*

G **egocentric immediacy:** the irrational

tendency (noted by Piaget) wherein a person over-generalizes from a set of positive or negative events to either an "Isn't life wonderful?" or "Isn't life awful?" state of mind.

Egocentric immediacy is a common pattern of human thought which operates as a barrier to critical thinking. Instead of accurately interpreting situations, egocentric immediacy causes the mind to over-generalize, to see the world either in sweeping negative or positive terms.

See *egocentricity.*

H **egocentric submission:** the irrational tendency to psychologically join and serve "powerful" people to get what one wants.

Humans are naturally concerned with their interests and motivated to satisfy their desires. In a world of psychological power and influence, people generally learn to "succeed" in two ways: to psychologically conquer or intimidate (subtly or openly) those who stand in their way (through egocentric domination), or, alternatively, to psychologically join and serve more powerful others, who then: (1) give them a sense of personal importance, (2) protect them, and (3) share with them some of the benefits of their success. Irrational people use both techniques, though not to the same extent.

When people submit to more powerful others, they are engaging in what can be termed 'egocentric submission.' Those who use overt force and control are engaging in what can be termed 'egocentric domination.' Both of these forms of behavior can be seen publicly, for example, in the relationship of rock stars or sport stars to their admiring followers. Most social groups have an internal "pecking order," with some playing

the role of leader and most playing the role of follower. A fairminded rational person seeks neither to dominate nor to blindly serve someone else who dominates.

Opposite is *egocentric domination*. See also *egocentricity*.

elements of reasoning: the parts of thinking embedded or pre-supposed in all reasoning – purpose, question, information, inferences, assumptions, concepts, implications, point of view; also termed ‘parts of thinking,’ ‘elements of thought,’ ‘structures of thought.’

All reasoning contains a universal set of elements, each of which can be monitored for possible problems. In other words, whenever we think, we think for a purpose within a *point of view* based on *assumptions* leading to *implications* and consequences. We use *concepts*, ideas and theories to interpret data, facts, and experiences (*information*) in order to answer questions, solve problems, and resolve issues. Critical thinkers develop skills of identifying and assessing these elements in their thinking and in the thinking of others.

Analyzing reasoning into its elements or structures represents one of the three sets of essential understandings in critical thinking, the other two focus on the assessment of thought (intellectual standards) and the development of intellectual virtues.

See *analysis, purpose, question, information, inference, concepts, assumption, implication, point of view, intellectual standards, intellectual virtues*.

emotion: a feeling aroused to the point of awareness; often a strong feeling or state of excitement.

Our emotions are integrally related to our thoughts and desires. These three mental structures—thoughts, feelings, and desires—are continually influencing one another in reciprocal ways. We experience negative *feelings*, for example, when we *think* things are not going well for us. Moreover, at any given moment, our thoughts, feelings, and desires are under the influence of either our rational faculties or our native irrational tendencies. When our *thinking* is irrational, or egocentric, irrational *feeling* states are actuated. When this happens, we are excited by (what is perhaps) infantile anger, fear, and jealousy, which can cause our objectivity and fairmindedness to decrease.

Thus, emotions serve to signal whether things are working “for us or against us.” There is a range of emotional states regularly experienced by humans, from the “highs” to the “lows—from excitement, joy, pleasure, satisfaction, to anger, defensiveness, depression and so on. The same, or very similar, feeling state may be experienced in connection with rational or irrational thoughts and behavior. We may feel “satisfied,” for example, when successfully dominating someone (see *egocentric domination*), or when successfully teaching a child to read. We may feel “angry” when someone refuses to follow our irrational orders, or when we perceive some injustice in the world. Therefore, the feeling of satisfaction or anger itself may tell us little or nothing about the quality of thought leading to the feeling.

In any case, emotions or feelings are intimately connected with thoughts. For example, strong emotions can keep us from thinking rationally, may cause paralysis of thought and action. And because there is always a cognitive dimension to our emotions, having the ability to analyze the

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A thinking that causes emotions is critical to living a rational life.

B Critical thinkers, for example, strive to recognize when dysfunctional thinking is leading to inappropriate or unproductive feeling states. They use their rational passions (for example, the passion to be fair) to reason themselves into feelings appropriate to the situation as it really is, rather than egocentrically reacting to distorted views of reality. Thus, emotions and feelings are not in themselves irrational; they are irrational only when they arise from and feed egocentric thoughts. Strong-sense critical thinkers are committed to living a life in which rational emotions predominate and egocentric feelings are minimized.

C See *emotional intelligence, human mind, rational emotions/passions, intellectual virtues, strong-sense critical thinkers, irrational emotions.*

D **emotional intelligence:** bringing intelligence to bear upon emotions; using skilled reasoning to take command of one's emotional life.

E The basic premise behind this idea is that high quality reasoning in a given situation will lead to more satisfactory emotional states than low quality reasoning. Taking command of one's emotional life is a key purpose of critical thinking.

F In recent years, the term 'emotional intelligence' has been largely connected with a growing body of "brain" research in which attempts are made to connect brain chemistry to mental functioning, to connect, in other words, neurological processes that occur in the brain to cognitive/emotional processes in the mind. One must be careful not to overstep what can reasonably be inferred from this research. For example, some researchers have suggested that the

amygdale (a so-called "primitive" part of the brain) can cause an emotional response to situations before the mind has had a chance to "think." This process has been blamed for things like murder (e.g. "he emotionally reacted and killed someone before his higher order mental functions could stop him from doing it"). Yet, *every emotional response is connected with some thinking* of some kind, however primitive. If I jump in fear at a loud sound, I do so because I think something is potentially dangerous. Again the thinking may be primitive; it may be split second; *but it is thinking nevertheless.*

For the "average" person, taking command of one's emotional life does not require technical knowledge of brain chemistry and neurology. By studying the mind and its functions (thinking, feeling, wanting), we have an abundance of knowledge we can use to develop emotional intelligence. For example, if we begin with the basic premise that emotions are always connected to some thinking, we can analyze the thinking that leads to our emotions, and the ways in which our emotions keep us from thinking rationally or reasonably in given situations. We can analyze the circumstances that tend to lead to irrational thoughts, and accompanying irrational emotions.

See *emotions, human mind, rational emotions, irrational emotions.*

G **empirical:** relying or based on experiment, observation, or experience rather than on concepts or theories; provable or verifiable by experience or experiment.

It is important to distinguish those considerations based on experiment, observation, or experience from those based on the meaning of a word or concept or the implications of a theory. However,

in a deeper sense, all experiences are perceived through concepts or theories. Still, it is important to be able to distinguish between the empirical dimension (e.g. facts and data) and the conceptual dimension (the meanings we give to the empirical).

One common form of uncritical or selfish critical thinking involves distorting facts or experience in order to preserve a preconceived meaning or theory. Indeed, people commonly distort the facts before admitting to weaknesses in their favorite theory or belief. Many economists, for example, support the theory that capitalism should be allowed free reign, with little or no government regulations or intervention, believing that the market will “take care of itself” for the good of all in the long run. What they may fail to take into account is the fact that human selfishness and greed often interfere in this process.

See *data, fact, evidence, concepts, theories.*

empirical implication: that which follows from a situation or fact, not due to the logic of language, but from experience or scientific law.

Empirical implications are inherent in every situation. There is information to be considered, and implications, or possible consequences, of that information. The redness of the coil on the stove empirically implies dangerous heat. Critical thinkers carefully consider the important implications of information before acting.

See *empirical, implication.*

episodic or atomistic critical thinking: reasoning at a high level of skill, but only sporadically or occasionally, not

consistently or systematically; unintegrated critical thought.

Most people think critically (at least occasionally). But many people lack a global perspective on critical thinking and are unaware of the fact that they do not think critically in a systematic manner. Sporadic critical thinking is often combined with “atomistic” or “fragmented” critical thinking. For example, one might occasionally question information sources, but rarely dubious inferences. Episodic or atomistic critical thinking contrasts with systematic or integrated critical thinking. The distinction marks a matter of degree rather than an absolute difference.

See *systematic or integrated critical thinking, critical thinking forms.*

ethical reasoning: thinking through problems or issues that entail implications for harming or helping sentient creatures.

Despite popular beliefs to the contrary, ethical reasoning is to be analyzed and assessed in the same way as any other domain of reasoning. Ethical reasoning entails the same elements as does all reasoning, and is to be assessed by the same standards of clarity, accuracy, precision, relevance, depth, breadth, logic, significance, etc. Understanding ethical principles is as important to sound ethical reasoning as understanding principles of math and biology are to mathematical and biological reasoning. Ethical thinking, when reasonable, is ultimately driven by ethical concepts (for example, *fairness*) and principles (for example, “*Like cases must be treated in a like manner*”), as well as sound principles of critical thought.

Ethical principles are guides for human conduct and imply what contributes to good

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or harm and what one is either obligated to do or obligated not to do. They also enable us to determine the ethical value of a behavior even when that behavior is not, strictly speaking, an obligation. Ethical questions, like questions in any domain of thought, can either imply a clear-cut answer or competing reasonable answers (matters requiring our best judgment). However, they are *not* matters of personal preference. It makes no sense to say, “Oh, you prefer to be fair. Well, I prefer to be unfair!”

Ethics is often confused with other modes of thinking, such as social conventions, religion, and the law. When this happens, we allow ethics to be defined by cultural rules and taboos, religious ideologies, or legal statutes. For instance, if a religious group advocates killing the first born male, or sacrificing teen girls to the gods, and *religion is equated with ethics*, then these practices would be seen as the right way to behave, or, in other words ethically correct. Clearly this collapsing of ethics with any other system of thought has significant implications for the way we live, how we define right and wrong, what behaviors we punish and what behaviors we advocate or “allow.”

See *questions of judgment, questions of fact, questions of preference, logic of a discipline, intellectual standards.*

ethnocentricity: a tendency to view one’s own race or culture as superior to all others, and therefore judging other cultures according to one’s own cultural standards.

Ethnocentrism can be understood as a form of egocentrism extended from self to one’s group. Much uncritical or selfish critical thinking is either egocentric or ethnocentric in nature. (Ethnocentrism and sociocentrism are often used synonymously,

though sociocentricity is broader, relating to any group, including, for example, sociocentric identification with one’s profession.) The “cure” for ethnocentrism or sociocentrism is routine empathic thought within the perspective of opposing groups and cultures. Such empathic thought is rarely cultivated in the societies and schools of today. Instead, many people develop an empty rhetoric of tolerance without seriously considering the value in the beliefs and practices of other groups, the meaning of these beliefs to those others, and their reasons for maintaining them.

See *sociocentricity.*

evaluation: to judge or determine the worth or quality of.

Evaluation of thought occurs naturally in the human mind. However, people are rarely clear about the standards they use, or should use, in determining what to believe. Critical evaluation should, for example, be carefully distinguished from mere subjective preference. When evaluating reasoning we should strive at all times to meet relevant intellectual standards. Note the intellectual standards indicated by italics in the following evaluative questions:

- What *precisely* are we evaluating?
- Are we *clear* about our purpose? Is our purpose legitimate?
- Given our purpose, what are the *relevant* criteria or standards for evaluation?
- Do we have *sufficient* information about that which we are evaluating? Is that information *relevant* to the purpose?
- Have we applied our criteria *accurately* and *fairly* to the facts as we know them?

Uncritical thinkers often treat evaluation as mere preference or treat their evaluative

judgments as direct observations not admitting of error (in other words, confusing observations with interpretations).

See *intellectual standards, standards, questions of judgment, questions of preference.*

evidence: the data on which a judgment or conclusion might be based or by which proof or probability might be established; something that makes another thing evident; something that tends to prove.

Critical thinkers distinguish the evidence or raw data upon which they base their interpretations or conclusions from the inferences and assumptions that lead one from data to conclusions. Uncritical thinkers treat their conclusions as something given to them in experience, as something they directly observe in the world (rather than as inferences, which may be questionable). As a result, they find it difficult to see why anyone might disagree with their conclusions. After all, they believe the truth of their views to be self-evident. Such people find it difficult or even impossible to describe the evidence or experience without coloring that description with their interpretation.

See *information, interpret, infer.*

explicit: clearly stated, leaving nothing implied and no doubt as to one's meaning.

Critical thinking is based on the premise that the more explicit we make our thinking, the better chance we have of finding the problems existing in it. When thinking remains at the unconscious level, it often contains half-truths, distortions, prejudices, etc. that, being unconscious, we cannot monitor. The tools of critical thinking (e.g. the elements of reasoning and intellectual standards) can be used to move thinking

from the unconscious to the conscious level. It is essential, whenever we are thinking through something important, and often even when we are not, to make our thinking explicit, exact, specific, precise.

Related terms: *exact* and *precise* in this connection both suggest that which is strictly defined, accurately stated, or made unmistakably clear; *definite* implies precise limitations as to the nature, character, meaning, etc. of something; *specific* implies the pointing up of details or the particularizing of references.

See *ambiguous, clarify, unconscious thought.*

explicit critical thinking: entails conscious awareness of the need to improve one's thinking, and the deliberate designing of strategies for that purpose (by the thinker).

When people bring critical thinking to the explicit, or conscious level, they are able to identify problems in their thinking that otherwise remain hidden to them. They are able to create strategies for dealing with those problems. Routinely bringing thinking to the conscious level of thought is essential to reaching one's potential as a rational person, since unexamined thought is often ambiguous, egocentric or unreasonable.

See *explicit, implicit critical thinking, critical thinking forms.*

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fact: the thing that is known to have occurred, to exist, or to be true; verifiable by empirical means; distinguished from interpretation, inference, judgment, or conclusion; the raw data.

There are distinct senses of the term ‘factual’: 1) “true” (as opposed to “claimed to be true”); and 2) “empirical” (as opposed to conceptual or evaluative). In the first sense, it is referring to the truth of the claim (e.g. it is a fact that water is composed of two parts hydrogen to one part water). In the second sense, it is referring to the kind of claim (e.g. fact versus opinion). People often confuse these two senses, even to the point of accepting as true statements which merely “seem factual” (for example, “29.23% of Americans suffer from depression” is a factual claim, which, if true, expresses a fact {in the first sense}) Before I accept this as true, I should assess it. I should ask such questions as, “How do you know? How could this be verified?” Purported facts should be assessed for their accuracy, completeness, and relevance to the issue. Sources of purported facts should be assessed for their qualifications, credibility, and plausibility.

Schooling which stresses retention and repetition of factual claims (without students understanding those “facts” and questioning them where appropriate) stunts students’ desire and ability to assess alleged facts. This leads to myriad problems including: a misunderstanding of how it makes sense to learn content, the likelihood that students will be easily manipulated through “authorities” stating their “facts,” and a general “dumbing down” of the mind. Moreover, activities in which students are asked to “distinguish

fact from opinion” often confuse these two senses. These activities encourage students to accept as true statements which merely “look like” facts, while failing to see that opinions are based on information or facts.

See *information, knowledge, infer, interpret.*

fair: treating both or all sides equitably and without privileging one’s own view, feelings or interests.

Related terms: *just* implies adherence to a standard of rightness or lawfulness without reference to one’s own inclinations; *impartial* and *unbiased* both imply freedom from prejudice for or against any side; *dispassionate* implies the absence of passion or strong emotion, hence, connotes cool, disinterested judgment; *objective* implies a viewing of persons or things without reference to oneself, one’s interests, etc.

Fairness is an essential intellectual standard often violated.

See *intellectual standards, fairmindedness, ethical reasoning.*

fairminded critical thinkers: See *strong-sense critical thinkers, fairmindedness.*

fairmindedness: a cultivated disposition of mind that enables the thinker to treat all perspectives relevant to an issue in an objective manner, without privileging one’s own views, or the views of one’s group.

Fairmindedness implies being conscious of the need to treat all relevant viewpoints alike without reference to one’s own feelings or selfish interests, or the feelings or selfish interests of one’s friends, community, nation, or species. It implies adherence to intellectual standards without reference to one’s own advantage

or the advantage of one's group.

There are three primary reasons why people lack this disposition: 1) native egocentric thought, 2) native sociocentric thought, 3) lack of intellectual skills necessary for reasoning through complex ethical issues.

See *intellectual traits, intellectual standards, ethical reasoning, egocentricity, sociocentricity*.

faith: unquestioning belief in anything; belief not based in proof; belief in the doctrines or teaching of religion or other metaphysical systems; confidence or trust in a person or thing.

Faith, relevant to critical thinking, comes from two forms: blind or unreasonable faith versus faith based in reason. It makes no sense to accept anything blindly because if one is wrong, important negative consequences may follow. The heart of critical thought is based on checking any potential belief for its plausibility or reasonability.

Every belief is reached on the basis of some thinking, which may or may not be justified. Thus those who believe “blindly,” when questioned reveal that they think their blind faith is actually reasonable. Even religious beliefs cannot be held “blindly” in the purest sense of the term, for people believe in one religion rather than another *for some reasons*. When they give their reasons, they imply that there are good reasons for accepting one rather than another religious belief system. A Christian, for example, believes that there are good reasons for not being an atheist; and Christians often attempt to persuade non-Christians to change their beliefs. In some sense, then, everyone has confidence in the capacity of his or her own mind to

judge rightly (even when they are largely engaging in blind faith).

Critical thinkers have faith or confidence in reason, but this confidence is not “blind.” They recognize that reason and reasonability are essential to the acquisition of knowledge. Imagine a world in which there was no faith in evidence, accuracy, relevance or any of the other intellectual standards.

See *confidence in reason*.

fallacy: deception, guile, trick, trickery; a deceptive or misleading argument, sophistical reasoning; delusive notion, an error, especially one founded on false reasoning.

To be a human thinker is often to be a “self-deceived” thinker and, hence, a “fallacious” thinker. Moreover, there are an unlimited number of maneuvers one can make in camouflaging poor reasoning, making bad thinking look good, and obscuring what is really going on in a situation. Most people are resistant to recognizing poor reasoning when it supports what they intensely believe. It is as if people unconsciously accept the premise “all is fair in the scramble for power, wealth, and status.” Any argument, any consideration, any mental maneuver or construction that validates emotionally charged beliefs seems to the believer to be justified. The more intense the belief, the less likely that reason and evidence can dislodge it.

Sophistic critical thinkers are highly skilled at using fallacious thinking to their advantage. Fairminded critical thinkers consistently work to avoid it.

See *egocentricity, sophistic critical thinkers, Socratic critical thinkers*.

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A **fallacious:** an error in reasoning; flaw or defect in argument; an argument which doesn't conform to rules of good reasoning (especially one that appears to be sound); containing or based on a fallacy; deceptive in appearance or meaning; misleading; delusive.

See *fallacy*.

F **feeling:** a particular emotional response; sometimes connected with physical sensations.

H Feelings or emotions are integrally connected with thoughts. Feelings influence thoughts. Thoughts influence feelings. The relationship is reciprocal. Thus, I feel angry when I think I have been wronged. And the more I think I have been wronged, the more angry I become.

Critical thinkers use their thinking to take command of their feelings.

See *emotion, human mind, emotional intelligence*.

- G -

Q **global critical thinking:** of or relating to all of human thought; a multi-dimensional approach to critical thinking that strives to deal with thinking comprehensively—in a trans-disciplinary rather than intra-disciplinary manner, ranging across all domains of thought, not limited to any given one.

V Global critical thinking is contrasted with one-dimensional critical thinking, as it deals with thinking across all domains, subjects, and disciplines. When we use the term 'critical thinking' in this glossary and in our work generally, we mean it in a "global" sense. The essential concepts and tools of critical thinking—the *elements*

of reasoning, intellectual standards, and intellectual virtues (broadly speaking)—are useful in reasoning well through any question, within any subject, within any culture at any time in human history. A global approach to critical thinking takes into account the universal nature of human thought—the fact that all humans reason, that there are unavoidable parts of reasoning, and that, therefore, when these parts or elements of thought are understood and routinely analyzed and assessed, a higher level of thought usually results.

See *one-dimensional critical thinking, critical thinking forms, critical thinking*.

- H -

higher order learning: learning through exploring the foundations, justifications, implications, and/or value of a fact, principle, concept, subject, etc.; learning so as to deeply understand.

One can learn deeply so that ideas take root in the mind, or superficially so that information is merely stored up for tests and discarded afterwards. One can learn in keeping with the rational capacities of the human mind or in keeping with its irrational propensities. One can learn so as to cultivate the capacity of the human mind to discipline and direct its thought through commitment to intellectual standards, or one can learn through mere association. Education for critical thought produces higher order learning by helping students actively think their way to reasonable conclusions; discuss their thinking with other students and the instructor; entertain a variety of points of view; analyze concepts, theories, and explanations in their own terms; actively

question the meaning and implications of what they learn; compare what they learn to what they have experienced; take what they read and write seriously; solve non-routine problems; examine assumptions; and gather and assess evidence. Students are engaged in higher order learning when they are encouraged to *think their way through* subjects and disciplines, when they are learning history by thinking historically, mathematics by thinking mathematically, etc.

See *dialogical instruction, critical society, knowledge, principle, domains of thought, lower order learning.*

human mind: that which thinks, perceives, feels, wills; the seat of conscious as well as unconscious thought.

The mind is an organized set of capacities by which sentient creatures think, feel and want. These capacities continually interact. Thus, the human mind entails a cognitive dimension (that of thought), as well as an affective dimension (that of feelings and desires).

In recent years, many studies have been conducted to understand the relationships between the cognitive and affective dimensions of the human mind. Yet much is known about the human mind that cannot yet be connected to precise neurological processes in the brain. For example, one natural mechanism of the human mind is its tendencies toward selfishness. This fact can be documented in hundreds of thousands of ways through simple observation. In short, we know much about the mind and comparatively little about the brain.

See *emotions, desires, think.*

human nature: the common qualities,

instincts, inherent tendencies, and capacities of human beings.

People have both a primary and secondary nature. Our primary nature is spontaneous, egocentric, and subject to irrational belief formation. It is the basis for our instinctual thought. People need no training to believe what they want to believe: what serves their immediate interests, what preserves their sense of personal comfort and righteousness, what minimizes their sense of inconsistency, and what presupposes their own correctness. People need no special training to believe what those around them believe: what their parents and friends believe, what is taught to them by religious and school authorities, what is repeated often by the media, and what is commonly believed in their nation and culture. People need no training to think that those who disagree with them are wrong and probably prejudiced. People need no training to assume that their own most fundamental beliefs are self-evidently true or easily justified by evidence. People naturally and spontaneously identify with their own beliefs. They often experience disagreement as personal attack. The resulting defensiveness interferes with their capacity to empathize with, or enter into, other points of view.

On the other hand, people need extensive and systematic practice to develop their secondary nature, their implicit capacity to function as rational persons. They need extensive and systematic practice to recognize the tendencies they have to form irrational beliefs. They need extensive practice to develop a dislike of inconsistencies in their thought, a love of clarity, a passion to seek reasons and evidence and to be fair to points of view other than their own.

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A People need extensive practice to recognize that they live inferentially, that they do not have a direct pipeline to reality, and that it is perfectly possible to have an overwhelming inner sense of the correctness of one's views and still be wrong.

See *egocentricity, sociocentricity, rational, rational self, intellectual virtues.*

- I -

idea (concept, category): anything existing in the mind as an object of knowledge or thought; a generalized concept of a class of objects, based on knowledge of particular instances; a group of things;

Related terms: *conception*, often equivalent to concept, specifically refers to something conceived in the mind or imagined; *thought* refers to any idea, whether or not expressed, that occurs to the mind in reasoning or contemplation; *notion* implies vagueness or incomplete intention; *impression* implies vagueness of an idea provoked by some external stimulus.

Critical thinkers strive to develop awareness of the ideas they use in their thinking, where those ideas came from, and the strengths and weaknesses in them. They recognize that all disciplines are driven by key ideas or concepts. They recognize that all thinking presupposes concepts in use. They seek to identify irrational ideas. They seek to use words (expressive of ideas) in keeping with educated usage.

See *concept, clarify, logic, logic of language.*

identification: a person's (often unconscious) association with or

assumption of the qualities, characteristics, or views of another person or group; developing an emotional attachment such that the thing associated with is seen as a part of the person.

Identification is a common defense mechanism in which one's self image is connected with the self-image of others. This sociocentric phenomenon, innate in human thought, leads people to unconsciously take on the views of those around them without critically analyzing and assessing those views. By assuming the views of one's group, one's own self image and sense of self-worth are elevated. Examples: a football fan experiencing an inner sense of triumph when his team wins, a parent experiencing a triumph in the success of his children, a citizen feeling elevated by the triumph of his nation's armed forces.

See *defense mechanisms, sociocentrism.*

implication/imply: implications are claims or truths that follow from other claims or truths. They represent logical relationships between ideas or things. *Imply* means to indicate indirectly or by allusion; hint; suggest; intimate; entail; *verbal implications* are ideas, assumptions, viewpoints, beliefs, etc. implied by the words used in speech or communication, given the logic of the language.

By the "implications of reasoning," we mean that which follows from some dimension of thought. It means that to which our thinking is leading us. If you say to someone that you "love" him or her, you *imply* that you are concerned with the person's welfare. If you make a promise, you *imply* that you intend to keep it. If you call a country a democracy, you *imply* that the

political power is in the hands of the people at large (instead of a powerful minority). If you call yourself a feminist, you imply that you are in favor of political, social, and economic equality of women and men. We often test people's credibility by seeing if they behave in accordance with what their words imply. "Say what you mean and mean what you say" is a sound principle of critical thinking (and of personal integrity).

One of the most important skills of critical thinking is the ability to distinguish between what a statement or situation actually implies and what people may carelessly infer from that statement or situation. Critical thinkers try to monitor their inferences so as to infer no more or less than that which is actually implied in any given context. When speaking, critical thinkers try to use words that imply only what they can legitimately justify. They recognize that there are established word usages that generate established implications.

Skilled reasoners clearly and precisely articulate the implications and possible consequences of their reasoning, search for potentially negative as well as potentially positive consequences, and anticipate the likelihood of unexpected negative and positive implications.

Unskilled reasoners trace out few or none of the implications and consequences of holding a position or making a decision, are unclear and imprecise in the possible consequences they articulate, trace out only the consequences they had in mind at the beginning of reasoning through an issue, either positive or negative, but usually not both, and are surprised when their decisions have unexpected consequences.

See *consequence, logic of language, elements of reasoning.*

implicit critical thinking: skilled thinking that functions without awareness on the part of the thinker as to how he or she does what he or she is doing when thinking critically; critical thinking that is not directly expressed.

Everyone at times thinks at a high level of skill. And many people have a strong interest in developing their minds. But, often, the attempt to reason "well" or "better" is left at the implicit level. When we move from implicit critical thinking to explicit critical thinking, we focus on taking direct command of our thinking and raising it to a high level of quality. We use the tools of critical thinking to bring our thinking to the conscious level, so as to better analyze, assess and improve it.

See *explicit critical thinking, critical thinking forms.*

indoctrination: instilling within one a (usually) partisan or sectarian opinion, point of view, or principle. The term 'partisan' entails exhibiting blind, prejudiced and unreasoned allegiance. The term sectarian entails (1) adhering to particular religious faith or limited in character or scope; or (2) a narrow or bigoted person; brainwashing.

Indoctrination is a perennial problem in schooling, since students are typically taught to accept ideas without thinking them through and critically analyzing them. For most children, this begins early in life. In elementary school in the U.S., for example, students are often expected to sing the "National Anthem," a song they are rarely, if ever, encouraged to examine in terms of its implications. Similarly, media bias leads to indoctrination when people are given one side of a story as if were "the whole," when they are given the

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A side of a story that makes the culture look good, or the part that feeds established social and political biases and prejudices.

B

C Indoctrination is a form of propaganda antithetical to critical thinking and an impediment to the development of critical societies.

D

E

F

See *socialization, training, education, critical societies.*

G **inert information:** by inert information, we mean taking into the mind information that, though memorized, is not understood, and, hence, cannot be used.

H

I

Much of what is “learned” in school is inert information. For example, many people have taken in, during their schooling, considerable information about democracy that leads them to believe they understand the concept. Often, a good part of the information they have internalized consists of empty verbal rituals in their mind. For example, many students learn in school that “democracy is government of the people, by the people, for the people.” This catchy phrase often sticks in their minds. It leads them to think they understand what it means, though most of them do not translate it into any practical criteria for assessing the extent to which democracy does or does not exist in any given country. Most people, to be explicit, could not intelligibly answer any of the following questions:

- What is the difference between a government *of* the people and a government *for* the people?
- What is the difference between a government *for* the people and a government *by* the people?
- What is the difference between a government *by* the people and a

government *of* the people?

- What exactly is meant by “the people”?

Students often do not sufficiently think about what they are learning. Consequently, they cannot transform it into something meaningful in their minds. Much human information is, in the mind of the humans who “possess” it, merely empty words (inert or dead in the mind). Critical thinkers try to clear the mind of inert information by recognizing it as such and transforming it, through analysis, into something meaningful.

See *activated ignorance, activated knowledge.*

infer/inference: an inference is a step of the mind, an act of the intellect, by which one concludes that something is so in light of something else being so, or seeming to be so; it suggests the arriving at a decision or opinion by reasoning from known facts or evidence.

People continually make inferences; for every time we make sense of things, inferences are involved in that process. For example, if you come at me with a knife in your hand, I would probably infer that you mean to do me harm. Inferences may be logical or illogical, justifiable or unjustifiable. And even when they are illogical, or unjustifiable, they are generally viewed by the mind as “the right way to think.” This is true because most people have difficulty separating inferences from the raw data of their experience. They don’t recognize that they are continually making inferences. And they don’t know that inferences are based not only on information, but on assumptions as well (that often lie at the unconscious level of thought).

Critical thinkers take notice of their inferences, recognizing that whenever they make an inference, it may or may not be justified. They separate information from inferences.

Skilled reasoners are clear about the inferences they make, clearly articulate their inferences, usually make inferences that follow from the evidence or reasons presented, often make inferences that are deep rather than superficial, often make inferences or come to conclusions that are reasonable, make inferences or come to conclusions that are consistent with one another, and understand the assumptions that lead to inferences.

Unskilled reasoners are often unclear about the inferences they make, do not clearly articulate their inferences, often make inferences that do not follow from the evidence or reasons presented, often make inferences that are superficial, often make inferences or come to conclusions that are unreasonable, often make inferences or come to conclusions that are contradictory, and do not seek to figure out the assumptions that lead to inferences.

See *conclude, implication/imply, assume, assumption, elements of reasoning.*

information: statements, statistics, data, facts, diagrams gathered in any way, as by reading, observation, or hearsay.

By “using information in our reasoning,” we mean using some set of facts, data, or experiences to support our conclusions. Information itself does not imply validity or accuracy. Information used in reasoning may be accurate or inaccurate, relevant or irrelevant. It may be presented equitably, or in a manner that distorts its

proper weight or value. Information is always interpreted in the light of one’s assumptions.

Often when someone is reasoning, it makes sense to ask, “Upon what facts or information are you basing your reasoning?” The informational basis for reasoning is always important and often crucial. For example, in deciding whether to support capital punishment, we need factual information. Information one might use in supporting the view that capital punishment is unjustified might include:

“Since the death penalty was reinstated by the Supreme Court in 1976, for every seven prisoners who were executed, one prisoner awaiting execution was found to be innocent and released.”

“At least 381 homicide convictions have been overturned since 1963 because prosecutors concealed evidence of innocence or presented evidence they knew to be false.”

“A study by the U.S. General Accounting Office found racial prejudice in death sentencing. . . . Killers of whites were proportionally more likely to be executed than were killers of blacks.”

“Since 1984, 34 mentally retarded people have been executed.”²

Skilled reasoners assert a claim only when they have sufficient evidence to back it up, can articulate and evaluate the information behind their claims, actively search for information *against* (not just *for*) their own position, focus on relevant information and disregard what is irrelevant to the question at issue,

² *New York Times*, (Nov. 22, 1999). Moratorium Now.

A draw conclusions only to the extent that
B they are supported by the data and sound
C reasoning, and state their evidence clearly
 and fairly.

D Unskilled reasoners assert claims without
E considering all relevant information, do not
F articulate the information they are using in
G their reasoning and so do not subject it to
H rational scrutiny, gather information only
I when it supports their own point of view, do
 not carefully distinguish between relevant
 information and irrelevant information,
 make inferences that go beyond what the
 data support, and distort the data or state it
 inaccurately.

J See *empirical, fact, infer/inferences,*
K *assume, assumptions, elements of*
L *reasoning.*

M **insight:** the ability to see clearly and
N deeply understand the inner nature or
O underlying truth of things; penetrating
 mental discernment.

P A primary purpose of critical thinking
Q is to achieve knowledge and understanding
R through deep insight. Thinking one's way
S into and through a subject leads to insights
 as one synthesizes what one is learning,
 relating each subject to other subjects and all
 subjects to personal experience.

T Developing insight should be a major
U goal in curricula and texts.

V See *education, dialogical instruction,*
W *higher order learning, lower order learning,*
didactic instruction.

X **intellect/intellectual/intelligent:** the
Y term 'intellectual' often means requiring
Z the intellect, or having or showing a high
 degree of intelligence. The term 'intellect'
 implies the ability to reason or understand
 or to perceive relationships, differences,

etc. It refers to that part of the mind which
 knows or understands. It may also imply
 the power of thought, great mental ability,
 or a high degree of intelligence. The terms
 'intelligent' or 'intelligence' imply having or
 showing an alert mind, bright, perceptive,
 informed, clever, wise. They generally
 imply the ability to learn or understand
 from experience, the ability to acquire and
 retain knowledge, the ability to respond
 quickly and successfully to new situations.
 They characteristically imply or presuppose
 use of the faculty of reason in solving
 problems, directing conduct successfully,
 and making sound judgments.

Since skilled reasoning is at the heart
 of intelligent decision-making and the
 ability to make sound judgments, the
 development of the intellect presupposes
 critical thinking. It is through the concepts
 and principles of critical thinking, applied
 in context, that we develop our abilities
 to reason well. It might be argued that
 the cultivation of the intellect and the
 development of critical thinking skills,
 abilities and traits are in essence one and
 the same thing. John Henry Newman, a
 distinguished 19th century scholar, richly
 detailed and exemplified the relationship
 between the cultivation of the intellect and
 the principles of critical thinking. Consider
 one short passage from his book:

*...the intellect, which has been
 disciplined to the perfection of its
 powers, which knows, and thinks
 while it knows, which has learned
 to leaven the dense mass of facts
 and events with the elastic force of
 reason, such an intellect cannot be
 partial, cannot be exclusive, cannot
 be impetuous, cannot be at a loss...
 because it discerns the end in every
 beginning, the origin in every end, the
 law in every interruption, the limit*

in each delay; because it ever knows where it stands, and how its path lies from one point to another (p. 100).

Certainly, some people are born with higher degrees of natural “intelligence.” Still, raw intelligence needs development (through critical thought). And often the raw power of the intellect is used for ill, rather than for good. This results in *weak-sense critical thinking* (i.e. skilled, but unethical thinking). Through the tools of critical thinking, we can actively cultivate the intellect; we can develop our intellectual capacities; and we can foster strong sense critical thinking (skilled and ethical thinking).

See *strong-sense critical thinkers, weak-sense critical thinkers.*

intellectual arrogance: the natural egocentric human tendency to believe that we know more than we do, that our thinking is rarely wrong, that we don’t need to improve our thinking, that we are in receipt of THE TRUTH.

One of the most powerful barriers to the development of human thought is the egocentric tendency to think that whatever we believe is true.

Critical thinkers are keenly aware of this problem in human thought, and are on the look-out for it in their own thinking. They work to develop the intellectual virtue of intellectual humility; they are committed to diminishing the power and likelihood of intellectual arrogance in their thinking. But they recognize that they will always be, at times, subject to this tendency.

See *intellectual humility, intellectual traits.*

intellectual autonomy: having independent, rational control of one’s beliefs, values, assumptions and inferences.

The ideal of critical thinking is to learn to think for oneself, to gain command over one’s thought processes. Intellectual autonomy does not entail willfulness, stubbornness, or rebellion. It entails a commitment to analyzing and evaluating beliefs on the basis of reason and evidence, to question when it is rational to question, to believe when it is rational to believe, and to agree when it is rational to agree. The opposite of intellectual autonomy is intellectual conformity.

See *intellectual virtues.*

intellectual civility: a commitment to take others seriously as thinkers, to treat them as intellectual equals, to grant respect and full attention to their views—a commitment to persuade rather than browbeat.

Intellectual civility is distinguished from intellectual rudeness: verbally attacking others, dismissing them, stereotyping their views. Intellectual civility is not a matter of mere courtesy but, instead, arises from a sense that everyone has a right to have their views heard and to be treated politely in the process. The opposite of intellectual civility is intellectual rudeness.

See *intellectual virtues.*

intellectual constructs: everything cognitive created by a thinking mind.

Every manifestation of critical thinking, indeed of thinking itself, is focused on an object or intellectual construct. Some theoreticians attempt to limit critical thinking to one or a few possible objects. For example, when critical thinking is based on formal logic, the focus of analysis

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A and/or assessment is limited to arguments of a formal character. Other theoreticians might include problems and decisions, in addition to arguments as possible objects.

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D Some equate critical thinking with the Scientific Method. In the most robust form of critical thinking, there are an unlimited number of possible intellectual constructs that may be analyzed and assessed, including: assumptions, concepts, theories, principles, purposes, questions, reports, speeches, plays, art, engineering plans, historical accounts, anthropological orientations, scientific theories, technical objects (created by human plans), ideologies, books, essays, poems, music, sports, cooking....

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L **intellectual courage:** the willingness to face and fairly assess ideas, beliefs, or viewpoints to which we have strong negative reactions; the willingness to critically analyze beliefs we hold dear.

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O Intellectual courage arises from the recognition that ideas considered dangerous or absurd are sometimes rationally justified (in whole or in part), and that conclusions or beliefs espoused by those around us, or inculcated in us, are sometimes false or misleading. To determine for ourselves which is which, we must not passively and uncritically “accept” what we have “learned.” Intellectual courage comes into play here, because when we look at things objectively, we will inevitably come to see some truth in some ideas considered dangerous and absurd, and some distortion or falsity in some ideas strongly held in our social group. It takes courage to be true to our own thinking in such circumstances. Examining cherished beliefs is difficult, and the penalties for non-conformity are often severe, even in putative democracies.

The opposite of intellectual courage is intellectual cowardice.

See *intellectual virtues*.

intellectual curiosity: a strong desire to deeply understand, to figure things out, to propose and assess useful and plausible hypotheses and explanations; to learn, to find out; inquisitive.

Humans are innately curious. This is exemplified by the fact that very young children are often a veritable fountain of questions. However this native tendency is typically discouraged in present day societies and schooling.

People do not learn well, do not gain knowledge, unless they are motivated to do so. Schooling at all levels should encourage intellectual curiosity and should encourage students to question and think for themselves, to figure things out using their thinking. Otherwise, the intellect becomes ‘deadened,’ innate curiosity is diminished, students lose the motivation to learn.

The opposite of intellectual curiosity is intellectual apathy.

See *intellectual virtues*.

intellectual discipline: the trait of thinking in accordance with intellectual standards, intellectual rigor, carefulness, thoroughness, conscious control.

Undisciplined thinkers do not recognize when they come to unwarranted conclusions, when they confuse ideas, fail to consider pertinent evidence, and so on. Intellectual discipline is at the heart of becoming a critical person. It takes discipline of mind to stay focused on the intellectual task at hand, to locate

and carefully assess needed evidence, to systematically analyze and address questions and problems, to hold one's thinking to intellectual standards such as clarity, precision, completeness, and consistency. Intellectual discipline is achieved slowly, progressively, and only through receptivity and commitment.

See *intellectual virtues, intellectual standards*.

intellectual empathy: understanding the need to imaginatively put oneself in the place of others to genuinely understand them.

To develop intellectual empathy, we must recognize the natural human tendency to identify truth with our immediate perceptions or longstanding beliefs. Intellectual empathy correlates with the ability to accurately reconstruct the viewpoints and reasoning of others and to reason from premises, assumptions, and ideas other than our own. This trait also requires that we remember occasions when we were wrong, despite an intense conviction that we were right, and consider that we might be similarly deceived in a case at hand. The opposite of intellectual empathy is intellectual closedmindedness.

See *intellectual virtues*.

intellectual engagement: directing one's full attention to learning or understanding something.

To learn deeply and insightfully requires engaging the intellect in the process of learning. Too often, intellectual engagement is missing from the teaching and learning process. When this happens, students are alienated from learning; content is learned

superficially or temporarily. To engage the intellect is to understand how to learn deeply, to see the value in learning, to have confidence in one's ability to figure things out for oneself. In its fullest sense, it entails the ability to connect powerful ideas within subjects and disciplines with living more rationally and reasonably.

intellectual humility: awareness of the limits of one's knowledge, including sensitivity to circumstances in which one's native egocentrism is likely to function self-deceptively; sensitivity to bias and prejudice in, and limitations of, one's viewpoint.

Intellectual humility is based on the recognition that people should not claim more than they actually know. It does not imply spinelessness or submissiveness. It implies the lack of intellectual pretentiousness, boastfulness, or conceit, combined with insight into the strengths or weaknesses of the logical foundations of one's beliefs. The opposite of intellectual humility is intellectual arrogance.

See *intellectual virtues*.

intellectual integrity: recognition of the need to be true to one's own thinking, to be consistent in the intellectual standards one applies, to hold oneself to the same rigorous standards of evidence and proof to which one holds one's antagonists, to practice what one advocates for others, and to honestly admit discrepancies and inconsistencies in one's own thought and action.

This trait develops best in a supportive atmosphere in which people feel secure and free enough to honestly acknowledge their inconsistencies, and can develop and share realistic ways of ameliorating

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A them. It requires honest acknowledgment of the difficulties of achieving greater consistency. The opposite of intellectual integrity is intellectual hypocrisy.

See *intellectual virtues*.

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intellectual perseverance: willingness and consciousness of the need to pursue intellectual insights and truths despite difficulties, obstacles, and frustrations; firm adherence to rational principles despite irrational opposition of others; a sense of the need to struggle with confusion and unsettled questions over an extended period of time in order to achieve deeper understanding or insight.

This trait is undermined when teachers and others continually provide students with “answers,” rather than encouraging them to formulate questions on their own and pursue answers to those questions using their best reasoning. It is undermined when teachers substitute formulas, algorithms, and short cuts for careful, independent thought. It is undermined when memorization is substituted for deep learning. The opposite of intellectual perseverance is intellectual indolence or laziness.

See *intellectual virtues*.

intellectual responsibility: a sense of obligation to fulfill one’s duties in intellectual matters and to develop one’s mind to the extent of one’s capacities.

Intellectually responsible people recognize that all humans are obligated to achieve a high level of soundness in their reasoning and are deeply committed to gathering adequate evidence for their beliefs. Intellectually responsible people are committed to developing their minds

throughout their lives, to come increasingly closer to the rational ideal.

See *intellectual virtues*.

intellectual sense of justice: willingness and consciousness of the need to entertain all viewpoints sympathetically and to assess them without reference to one’s own feelings or vested interests, or the feelings or vested interests of one’s friends, community, or nation.

Intellectual sense of justice is closely connected with intellectual integrity and fairmindedness.

See *intellectual virtues*, *intellectual integrity*, *fairmindedness*.

intellectual standards: the standards or criteria necessary for reasoning at a high level of skill and for making sound judgments. Intellectual standards are necessary for forming knowledge (as against unsound beliefs), for understanding, and for thinking rationally and logically.

Intellectual standards are fundamental to critical thinking. Some essential intellectual standards are *clarity*, *accuracy*, *relevance*, *precision*, *breadth*, *depth*, *logicalness*, *significance*, *consistency*, *fairness*, *completeness*, and *reasonability*. Intellectual standards are presupposed in every domain of human thought, in every discipline and subject.

To develop one’s mind and discipline one’s thinking using these standards requires regular practice and long-term cultivation. Of course, achieving these standards is a relative matter and varies to some degree among domains of thought. Being precise while doing mathematics is not the same as being precise while writing a poem, describing an experience, or

explaining a historical event.

We may roughly classify intellectual standards into two categories: “micro intellectual standards” and “macro intellectual standards.” Micro intellectual standards are those intellectual standards that pinpoint specific aspects of intellectual assessment. For example: Is the thinking *clear*? Is the information *relevant*? Are the purposes *consistent*? Though essential to skilled reasoning, meeting one or more micro standards does not necessarily fulfill the intellectual task at hand. This is true because thinking can be clear but not relevant; it can be relevant but not precise; it can be accurate but not sufficient, and so forth. When the reasoning we need to engage in is monological, (that is, focused on a question with an established settlement procedure), micro intellectual standards may suffice. But to reason well through multilogical issues, (that is, problems or issues that require that we reason within conflicting points of view), we need not only micro, but ‘macro intellectual standards’ as well. Macro intellectual standards are broader in scope; they integrate our use of micro standards; they expand our intellectual understandings. For example, when reasoning through a complex issue, we need our thinking to be *reasonable* or *sound* (satisfying, in other words, broad intellectual standards). For thinking to be *reasonable* or *sound*, it needs, at minimum, to be *clear*, *accurate*, and *relevant*. Moreover, when more than one viewpoint is *relevant* to an issue, we need to be able to compare, contrast, and integrate insights from relevant viewpoints before taking a position on the issue ourselves. Thus the use of macro intellectual standards (such as *reasonability*

and *soundness*) help guide the reasoning toward depth, comprehensiveness and integration of thought.

See *evaluation, standards, accurate, clarify, consistency, fair, logical, precision, reasonable, relevant*.

intellectual traits/dispositions/virtues: the traits of mind and character necessary for right action and thinking; the dispositions of mind and character essential for fairminded rationality; the virtues that distinguish the narrowminded, self-serving critical thinker from the openminded, truth-seeking critical thinker.

Intellectual traits include, but are not limited to: *intellectual sense of justice, intellectual perseverance, intellectual integrity, intellectual humility, intellectual empathy, intellectual courage, intellectual curiosity, intellectual discipline, (intellectual) confidence in reason, and intellectual autonomy*.

The hallmark of the strong-sense critical thinker is the embodiment of and deep commitment to these intellectual virtues. Yet, the extent to which anyone lives in accordance with them on a daily basis is a matter of degree, no actual person achieving that of the hypothetical ideal thinker.

Intellectual traits are interdependent. Each is fully developed only in conjunction with the development of the others. They develop only through years of commitment and practice. They cannot be imposed from without; they must be cultivated by encouragement and example.

See the *intellectual traits listed above*.

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A **interpret/interpretation:** to give one's
B own conception of; to give meaning to; to
C place in the context of one's own experience,
D perspective, point of view, or philosophy.

Interpretations are characteristically distinguished from the facts, the evidence, the situation. I may, for example, interpret someone's silence as an expression of hostility toward me. Such an interpretation may or may not be "correct." Critical thinkers recognize their interpretations, distinguish them from information or evidence, consider alternative interpretations, and reconsider their interpretations in the light of new evidence.

All learning entails personal interpretation, since whatever we learn we must integrate into our own thinking and action. What we learn must be given a meaning by us, must be meaningful to us, and hence involves interpretive acts on our part.

See *infer/inference*.

I **intuition:** the perception that something
J is true without the benefit of conscious
K reasoning; immediate apprehension or
L understanding; a keen and quick insight.

We sometimes seem to know or learn things without recognizing how we came to that knowledge. When this occurs, we experience an inner sense that what we believe is true. Sometimes we are correct (and have genuinely experienced an intuition). However, sometimes we are incorrect (having fallen victim to one of our prejudices). Critical thinkers realize how easily intuitions are confused with prejudices. Critical thinkers may follow their inner sense that something is so, but only with a healthy sense of intellectual humility.

There is a second sense of "intuition"

important to critical thinking, the meaning of which is suggested in the following sentence: "To develop critical thinking abilities, it is important to develop critical thinking intuitions." This sense of the word is connected to the fact that we can learn concepts at various levels of depth. If we learn nothing more than an abstract definition for a word without learning how to apply it effectively in a wide variety of situations, we end up with little or no intuitive basis for applying it. We lack insight into how, when, and why it applies. In such a case, we have acquired inert information and nothing else. We want to internalize critical thinking concepts (and indeed all powerful concepts) so as to be able to readily and easily apply them to cases in a large array of circumstances. We want critical thinking to become "intuitive" to us, ready and available for immediate application in everyday thought and experience.

See *prejudice, inert information*.

R **irrational/irrationality:** lacking the
S power to reason; contrary to reason or logic;
T senseless, unreasonable, absurd.

Humans are both rational and irrational. We have innate egocentric and sociocentric tendencies that often lead us to do things that are illogical (though they seem to us at the time to be perfectly logical). We don't *automatically* sense what is reasonable in any given situation. Rather, the extent to which we think and act rationally depends upon how well our rational capacities have been developed. It depends upon the extent to which we have learned to go beyond our natural prejudices and biases, beyond our narrow, self-serving viewpoint, to see what makes most sense to do and believe

in a given situation. Critical thinkers are alert to their irrational tendencies. They strive to become rational, fairminded persons.

See *egocentricity, sociocentricity, reason, rationality, logic.*

irrational emotions: feelings based on unreasonable beliefs.

Emotions are a natural part of human life. Irrational emotions reflect irrational beliefs or irrational responses to situations. They occur when our natural egocentricity leads us to behave in unproductive or unreasonable ways or when we are unsuccessful in getting our way (irrationally). Critical thinkers consistently work to diminish the power of irrational emotions in their life.

See *rational emotions, emotions, emotional intelligence, human mind.*

irrational learning: learning that results in unreasonable beliefs.

Rational learning presupposes rational assent. Yet, much that we learn in everyday life is quite distinctively irrational. It is quite possible, in other words, to believe for irrational reasons; because those around us believe, because we are rewarded for believing, because we are afraid to disbelieve, because our vested interest is served by belief, because we are more comfortable with belief, or because we have an egocentric need to maintain belief. In all of these cases, our beliefs are without rational grounding, without good reason and evidence, without the foundation a rational person demands. We become rational, on the other hand, to the extent that our beliefs and actions are grounded in good reasons and evidence; to the extent that we recognize and critique

our own irrationality; to the extent that we are not moved by unsound reasons and a multiplicity of irrational motives, fears, and desires; to the extent that we have cultivated a passion for clarity, accuracy, and fairmindedness. These global skills, passions, and dispositions, integrated into behavior and thought, characterize the rational, the educated, the critical person.

See *lower order learning, knowledge, didactic instruction, education, higher order learning.*

- J -

judgment: the act of judging or deciding; forming an opinion, estimate, notion, or conclusion, as from circumstances presented to the mind; forming an opinion after consideration or deliberation; understanding and good sense; the ability to make reasonable decisions or come to sound conclusions based on the relevant evidence.

Whenever we form a belief or opinion, make a decision or act, we do so on the basis of implicit or explicit judgments. All thought presupposes making judgments concerning what is so and what is not so, what is true and what is not. People are said to have good judgment when they typically make decisions on the basis of the relevant evidence and think through the complexities in issues reasonably and fairly. To cultivate people's ability to think critically is to foster their development of sound judgment, to help them develop the habit of making decisions on the basis of reason, evidence, logic, and good sense.

See *reasoned judgment, conclude, infer.*

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A **justify/justification:** to show to be just, right, or in accord with reason and evidence; to defend or uphold as warranted or well-grounded.

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Education should foster reasonability in students. This requires that both teachers and students develop the disposition to ask for and give reasonable justifications for beliefs, opinions, actions, and policies. Asking for a justification should not, then, be viewed as an insult or attack, but rather as a normal act of a rational person and a normal part of teaching and learning.

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It is important to note that rationalizations are often disguised as justifications. On the surface they often seem reasonable, but, when examined, are found to be false reasons for one's actions.

See *rationalization, reasonable*.

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knowledge: having a clear and justifiable grasp of; the body of facts, principles, etc., acquired through human experience and thought.

Knowledge is based on thought, study, or experience. We cannot have deep knowledge without thinking it through. We often wrongly talk of knowledge as though it could be divorced from thinking, as though it could be gathered up by one person and given to another in the form of a collection of sentences to remember. Knowledge is produced by thought, analyzed by thought, comprehended by thought, organized, evaluated, maintained, and transformed by thought. Deep knowledge exists, properly speaking, only in minds that have comprehended and justified it through

thought. Knowledge is not to be confused with belief. Humans easily and frequently believe things that are false or believe things to be true without knowing them to be so. A book contains knowledge only in a derivative sense, because only minds can thoughtfully read it and through that process gain knowledge.

Thus, “thoughtless knowledge” is a contradiction. “Blind knowledge” is a contradiction. “Unjustifiable knowledge” is a contradiction. Knowledge implies justifiable belief or skilled action. Hence, when students blindly memorize and are tested for recall, they are not being tested for knowledge. Rather, they are storing up inert information. The confusion between knowledge and recall is a deep-seated impediment to the cultivation of critical thinking. We want to foster, not inert information in the minds of students, but activated knowledge. Moreover, we want students to clearly distinguish between information, which may or may not be accurate, and knowledge, which by its very nature is always true.

See *education, activated knowledge, inert information*.

- L -

logic: correct reasoning or the study of correct reasoning and its foundations; the system of principles, concepts, and assumptions that underlie any discipline, activity, or practice (as in the logic of physics); the set of rational considerations that bear upon the truth or justification of any belief or set of beliefs (as in the logic of religious beliefs); the set of rational considerations that bear upon the settlement of any question or set of

questions (as in the logic of questions); the relationships between elements and between an element and the whole in a set of objects, individuals, principles, or events (as in the logic of an internal combustion engine); the relationships between propositions (connections implied by the terms ‘supports,’ ‘assumes,’ ‘implies,’ ‘contradicts,’ ‘counts against,’ ‘is relevant to’ ...).

The word “logic” covers a range of related concerns all ultimately focused on attempting to understand interrelationships, or systems of meanings. When we say we are attempting to understand “the logic of” something, we mean we are attempting to understand the whole in accordance with the parts and the parts in relationship with one another. All human thought and behavior has a “logical” dimension, in that it seeks to understand things in relationship with other things, to understand ideas in relationship with other ideas. In other words, humans naturally attempt to understand things in cohesive systems rather than in isolated parts—with some sense of what seems relevant and irrelevant, of what supports and what counts against a belief, of what we should and should not assume, of what we should and should not claim, of what we do and do not know, of what is and is not implied, of what does and does not contradict, of what we should or should not do.

However, despite this natural tendency to see things in “logical” systems, any part of reality may have a particular logic in a human mind, seemingly coherent and reasonable, while in fact being incoherent and illogical (i.e. not “matching” reality). This is true in part because the “logic” we use is often implicit, unexpressed, unconscious and therefore usually

unanalyzed and unassessed.

All reasoning processes and domains of thought have a logic that can be explicitly understood. *Concepts have a logic* in that we can investigate the extent to which they do or do not apply in a given situation, what is relevant or irrelevant to them, what they do or do not imply, etc. *Questions have a logic* in that we can investigate the conditions under which they can or should be settled. *Academic subjects have a logic* in that they have purposes and a set of logical structures that bear upon those purposes: assumptions, concepts, questions, information, theories, implications, consequences, etc.

The term ‘logic’ is also commonly used as an intellectual standard. As such, it may have a relatively narrow meaning, as in *consistency*, or a broader meaning, as in *reasonability*. The narrower use refers to that which follows directly from, or is directly linked with, something else (e.g. “the main idea in each of these paragraphs is logically connected or consistent with one another.” “This is a logical inference, or this inference follows from that information in this context.”) The broader use of ‘logic’ as an intellectual standard refers to that which is reasonable, rational or sound, often in dealing with complex issues. (e.g. “Is this a logical argument?” “Is that a logical way to behave?”)

The concept of logic is a seminal notion in critical thinking. It is important to become comfortable with its multiple uses.

See *logic of a discipline*, *logic of language*, *logic of questions*, *logical elements of reasoning*.

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A **logic of a discipline:** the idea that every subject or discipline forms a system of meanings, all of which are integrated and interact in a cohesive, dynamic logic. The most fundamental logic of every discipline can be found in the elements of reasoning embedded in it—its purposes and objectives, issues and questions, information and evidence, concepts and theories, assumptions and point(s) of view, inferences and interpretations, implications and consequences.

H Though all students study academic disciplines, most never learn the logic of the disciplines they study. This severely limits their ability to grasp the discipline as a whole, to think independently within it, to compare and contrast it with other disciplines, and to apply it outside the context of academic assignments. To learn the logic of a discipline, students need to identify seminal terms as they study the subject. They need to translate technical terms into analogies and ordinary words they understand. They need to distinguish technical from ordinary uses of terms. They need to look for the basic assumptions of the disciplines they study.

L Unfortunately, this way of approaching learning is rare. Instead of understanding disciplines as a system of ideas, each idea of which illuminates every other idea within it, students think of knowledge in a fragmented way, like so many BB's in a bag. To think within the logic of a discipline, students need routine practice in determining whether one thought supports or follows from another, whether one thought elaborates another, exemplifies, presupposes, or contradicts another. They need to learn to use thought to understand thought, which is another way of saying that they need to learn how to use thought to gain knowledge. Instruction for

critical thinking cultivates students' abilities to make explicit the logic of what they study. This emphasis gives depth and breadth to study and learning. It lies at the heart of the differences between lower order and higher order learning.

See *knowledge, logic, elements of reasoning.*

logic of language: refers to the established uses of terms, and their inter-relationships, as found in educated communication.

For a language to exist and be effectively used by persons from a variety of cultures, words must have definite uses and defined concepts that transcend particular cultures. The English language, for example, is learned by many peoples of the world unfamiliar with English or North American cultures. Critical thinkers use natural languages with precision and accuracy, in keeping with educated usage.

Unfortunately, many people do not understand the significant relationship between precision in language usage and precision in thought. Many people have only vague understandings of educated uses of many terms in their own language. If questioned about the meanings of words, their answers are often ambiguous or incoherent.

Students often speak and write in vague sentences because they have few or no rational criteria for choosing words. They simply write whatever words pop into their heads. They need help in learning that every language has a highly refined logic one must learn in order to express oneself precisely. They

need to recognize that even words similar in meaning typically have different implications. Consider, for example, the words *explain*, *expound*, *explicate*, *elucidate*, *interpret*, and *construe*.

Explain implies the process of making clear and intelligible something not understood or known.

Expound implies a systematic and thorough explanation, often by an expert.

Explicate implies a scholarly analysis developed in detail.

Elucidate implies a shedding of light upon by clear and specific illustration or explanation.

Interpret implies the bringing out of meanings not immediately apparent.

Construe implies a particular interpretation of something whose meaning is ambiguous.

See *clarify*, *concept*, *natural languages*.

logic of questions: the range of rational considerations that bear upon the settlement of a given question or group of questions.

Thinking is driven by questions. The question at issue in any given situation dictates the intellectual tasks one must engage in to answer it. Critical thinkers are adept at analyzing questions to determine what, precisely, a given question is asking and how to go about rationally settling it. When dealing with a complex issue, they formulate the questions at the heart of the issue clearly and precisely. They recognize that different kinds of questions often call for different modes of thinking, different kinds of considerations, and different procedures and techniques. Uncritical thinkers often confuse

distinct questions and use considerations irrelevant to an issue while ignoring relevant ones. They often confuse questions of fact or procedure with questions requiring reasoned judgment or questions of preference.

Questions can be superficial or deep, broad or narrow. Too often, for example, we are focused on superficial questions, at the expense of the important ones. “Can I afford this outfit?” Versus, “Is this outfit made from ecologically sustainable material?” “And in any case, do I need it, or just want it?”

See *question at issue*, *questions of fact*, *questions of preferences*, *questions of judgment*.

logical: reasoning in accordance with the principles of logic; reasonable; to be expected; based on earlier or otherwise known statements, events, or conditions; consistent.

This concept is an essential intellectual standard, and can be used in a relatively narrow sense (as in consistent), or in a broader sense (as in reasonable).

The critical thinker routinely attempts to meet this standard, by asking questions like: Is this conclusion logical? Is there a more reasonable or logical interpretation? Is this a logical inference given the data we have available to us? Is our position sound?

See *logic*, *logic of language*, *reasonable*.

lower order learning: learning by rote memorization, association, and drill.

Paradigmatically, lower order learning is learning by sheer association or rote. It is of little or no use to the thinker because it is not deeply understood.

Lower order learning is unfortunately pervasive in schooling today. Hence students come to think of history class, for

A example, as a place where you hear names, dates, places, events, and outcomes; where you try to remember them and state them on tests. Math comes to be thought of as numbers, symbols, and formulas — mysterious things you mechanically manipulate in formulas you don't understand to get the right answer. Literature is often thought of as uninteresting stories to read (often written a long time ago) and “learning” what the teacher says is important about them.

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When taught through these methods, students finish schooling with little more than a jumble of undigested fragments, scraps left over after they have forgotten most of what they stored in short-term memory for tests. Rarely do students grasp the *logic* of what they learn. Rarely do they relate what they learn to their own experience or critique ideas and perspectives by means of other ideas and perspectives. Rarely do they ask “Why is this so? How does this relate to what I already know? How does this relate to what I am learning in other classes?” Rarely do they learn to question with discipline and skill what they are told to believe.

In sum, few students learn to think of subjects and disciplines as interconnected logic systems to be replicated in their own minds and connected with what they already know.

See *didactic instruction, education, monological and multilogical problems, higher order thinking.*

- M -

media bias: the news presented in accordance with the biases and prejudices of the culture it serves.

Every society and culture has a unique world view. This view colors what those

in the culture see and how they see it. News reporters or pundits reflect the world view of the culture for which they write (or otherwise “pitch” their “news”). Their primary goal is to sell their products (newspapers, TV news programs, etc). They can sell only “popular” views, those that people within the culture want to hear.

Moreover, worldwide news sources are increasingly sophisticated in media logic (the art of “persuading” and manipulating large masses of people). This enables them to create an aura of objectivity and “truthfulness” in the news stories they construct. This “slanted” information is not a “plot” or “conspiracy.” Journalists and news editors are themselves members of a culture (German, French, Mexican, Chinese, North American, etc.). Those in the mainstream typically share a view of the world with their target audience. They typically share a nationalized sense of history and allegiance, often religious, and a general belief system. They present the news accordingly.

Critical thinkers see through media bias and propaganda. To get a more balanced account, they read news sources out of the main stream – from the left, from the right, from other cultures, etc.

See *national bias.*

metacognition: refers to awareness and understanding of one's thinking and cognitive processes; thinking about thinking.

Metacognition, a term used primarily in psychology and in psychological approaches to critical thinking, often refers to understanding *certain types of problems* in one's own thinking processes so as to effectively deal with them, problems such as:

- knowing the conditions under which one

tends to get distracted, so as to remain focused.

- knowing when one has difficulties remembering things, thereby creating memorization schemes and strategies.
- developing “self-questioning” strategies (e.g. “What do I already know about this topic? How have I solved problems like this before?”).

Proponents of metacognition also encourage the use of strategies for improving one’s thinking with approaches like:

- thinking aloud while performing a task.
- making graphic representations (e.g. concept maps, flow charts, semantic webs) of one’s thoughts and knowledge.

Though these and other similar strategies may prove effective for thinking well under certain conditions, they form only a small part of what it means to think critically. For example, the term metacognition is often ethics neutral, whereas robust global approaches to critical thinking illuminate the importance of reasoning within multiple viewpoints when dealing with broad issues.

See *critical thinking*.

monological problems: one-dimensional problems that can be solved by reasoning exclusively within one point of view or frame of reference.

Many problems we face in human life are monological in nature. Consider the following problems: (1) Ten full crates of walnuts weigh 410 pounds, whereas an empty crate weighs 10 pounds. How much do the walnuts alone weigh? (2) What is our monthly income and our average monthly expenditures?

These types of problems may be settled within one frame of reference with a definite set of intellectual moves. When the right

set of moves is performed, the problem is settled. The “correct answer” is found.

Though skill in reasoning through monological problems is important, many significant human problems are *multilogical* rather than monological. Yet schooling today overemphasizes monological problems. Worse, present instructional practices frequently treat multilogical problems as though they were monological. Learning to reason through multilogical problems with skill and discipline is essential to reasoning well in everyday personal and professional problems and issues.

See *monological thinking, multilogical problems, multilogical thinking*.

monological thinking: one-dimensional thought conducted exclusively within one point of view or frame of reference.

This form of thinking entails such things as calculating a 25% discount on a \$67.49 pair of shoes; determining the obligations I am agreeing to when signing a particular contract; finding out what year Kennedy was elected President. A person may think monologically whether the question is or is not genuinely monological. (For example, if one considers the question “Who caused the Civil War?” only from a Northerner’s perspective, one is thinking monologically about a multilogical question.) *Strong-sense critical thinkers* avoid monological thinking when reasoning through multilogical questions. Moreover, higher order learning often requires multilogical thought even when the problem is monological (for example, learning a concept in chemistry), as students must explore and assess their original beliefs to develop insight into new ideas.

See *multilogical problems, monological problems, multilogical thinking*.

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A **multilogical problems:** multi-dimensional problems that should be analyzed and approached from more than one point of view or frame of reference.

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A person who is comfortable thinking through multilogical problems is comfortable thinking within multiple perspectives, engaging in dialogical and dialectical thinking, practicing intellectual empathy, and thinking across disciplines and domains. Many problems we face in human life are multilogical in nature. The viewpoints relevant to thinking well through these problems often conflict. For example, ecological problems often have a variety of dimensions to them—historical, social, economic, biological, chemical, moral, political.

See *questions of judgment, multilogical thinking, logic of questions, intellectual empathy, dialogical instruction, monological problems, monological thinking.*

multilogical thinking: thought that sympathetically enters, considers, and reasons within multiple points of view.

Most significant human issues require multilogical thinking. They are non-atomic issues inextricably joined to other issues, often with some conceptual messiness to them, often with important values lurking in the background. When these issues have an empirical dimension, they tend to be controversial. In dealing with multilogical problems, people often disagree about how some of the facts relevant to it should be interpreted and how their significance should be determined. When these problems have a conceptual dimension, the key ideas usually can be conceptualized somewhat differently. The

ability to reason multilogically is essential to critical thinking.

See *multilogical problems, questions of judgment, monological problems, monological thinking, dialectical thinking, dialogical instruction.*

- N -

naïve thinkers: people having or showing a lack of experience, judgment, or information; lacking understanding and reasoning abilities; showing or characterized by a lack of sophistication and critical judgment.

Naïve thinkers are contrasted with critical thinkers (either fairminded or sophistic critical thinkers). Lacking in critical reasoning abilities, they are easily manipulated. Naïve thinkers generally do not see the importance of developing their reasoning abilities. They often depend on others to think for them. They are easily influenced by media bias and propaganda. They generally conform to the “rules” of society, rarely questioning those rules (and when they do, they are usually going along with someone else who is questioning them). They too easily follow authority figures. They often acquiesce to things that are not in their best interests.

If we take a close look at history, we may well find that the masses in all human cultures tend to be largely naïve thinkers.

See *strong-sense critical thinkers, weak-sense critical thinkers, intellectual autonomy, intellectual courage, submissive egocentricity.*

national bias: prejudice in favor of one's country, its beliefs, traditions, practices, image, and world view; unfair acts or policies stemming from national prejudice; preference for one's nation in such a way as to inhibit impartial judgment.

It is natural, if not inevitable, for people to be favorably disposed toward the beliefs, traditions, practices, and world view of the country in which they were raised. This favorable inclination commonly becomes a form of prejudice—a more or less rigid, sociocentric orientation that significantly distorts one's view of one's own nation and the world at large. It manifests itself in a tendency to mindlessly side with one's own government, to uncritically accept governmental accounts of the nature of disputes with other nations, to uncritically exaggerate the virtues of one's own nation while failing to credit the virtues of so called "enemy" nations.

As far as we can tell, national bias is reflected in the press and media coverage of every nation in the world. Events are included or excluded according to what seems significant within the dominant world view of the nation, and are shaped into stories to validate that view. Though constructed to fit into a certain view of the world, these news stories are presented as neutral, objective accounts. Because people tend to assume the virtues of their own nation, these stories are usually uncritically accepted by the masses.

Unfortunately, national bias is also promulgated in schooling, even in so-called democratic societies (ironic though this may be). To become responsible, critically thinking citizens and fairminded people, students need practice in identifying

national bias in the news and in their texts. They need to broaden their perspective beyond that of uncritical nationalism and patriotic jingoism.

See *media bias, ethnocentricity, sociocentricity, bias, prejudice, world view, critical society, dialogical instruction, education.*

natural languages: languages spoken and used to conduct affairs in everyday life (in contrast to specialized languages used fundamentally for narrow purposes); languages whose development emerges over hundreds or thousands of years (not specialized or technical) and which are highly flexible and adaptable; contrasts with technical or special languages. Repositories for definitions of words in natural languages are found in dictionaries.

As soon as they can speak, children begin communicating within the languages spoken by those around them. The words we use to communicate throughout our lives are, by and large, those found in these common, everyday languages: English, French, Arabic, Japanese, etc.

Conversely, special technical languages are created for special purposes – languages such as mathematics and formal logic. Indeed, all academic subjects and disciplines generate at least some technical terms. Consider the following special terms used in cognitive psychology: *autobiographical memory, flashbulb memory, semantic memory, spaced repetition, dual-coding theories, eyewitness memory*, etc. Some technical terms used in engineering include: *computer-aided design, printed circuit*

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A board, prototypes, scale models, stress tests, destructive tests, nanotechnology, Mechatronics, etc.

C Critical thinking, seen from a global perspective, is not a special language constructed for narrow purposes. Rather, drawing from natural languages, critical thinking concepts, terms and principles are best conceptualized as an outgrowth of natural languages, and as integrally part of natural languages.

H Of course, it is important to recognize that many, if not most, specialized languages create any number of intellectual constructs which function in ways to foster (intradisciplinary) critical thinking. Some examples include: in science the *experimental method* and the *controlled experiment*; the study of *failed products* in engineering, termed ‘forensic engineering;’ in anthropology, *cross-cultural comparisons* and *experiential immersion* (in research), often known as *participant-observation*.

See *concepts, logic of language.*

- O -

S **one-dimensional critical thinking:** skilled thinking within one domain, dimension, specialty, subject or discipline.

U One-dimensional critical thinking entails reasoning well within one facet of human life. Though this form of critical thinking is useful, as it may enable the thinker to focus more deeply and well within one domain of human thought, it may result in a failure to see how one’s specialty fits into, or conflicts with, other forms of thinking. For example, one

might reason technically but not ethically. In other words, thinking which is highly successful within a specific technical domain may entirely miss or ignore other important perspectives. One-dimensional critical thinking contrasts with global critical thinking.

See *monological thinking, global critical thinking, critical thinking forms.*

opinion: a belief or judgment, typically one open to dispute; the formal expression of a professional judgment.

There are two distinctly different uses of this term: 1) a matter of personal preference (for which one is not required to give one’s reasoning), 2) reasoned judgment (for which one is required, not only to give one’s reasoning, but also be open to alternative ways of looking at the issue). In other words, sheer unreasoned subjective opinion or preference should be distinguished from reasoned judgment, which leads to beliefs formed on the basis of careful reasoning.

See *questions of preference, questions of judgment, evaluation, judgment, justify, reasoned judgment.*

- P -

personal contradiction: when people say one thing and do another, or use a double standard, judging themselves and those with whom they identify by an easier standard than that used for others; a form of hypocrisy typically “justified” through self-deception.

Everyone engages in personal contradictions in one form or another at times. As with most egocentricity, personal contradictions generally

function at the unconscious level. People too often ignore the difficulty of becoming intellectually and ethically consistent themselves, instead tending to focus on the personal contradictions of others. Personal contradictions are more likely to be discovered, analyzed, and reduced when people are encouraged to openly discuss their own contradictions and where people work together to diminish the frequency and power of this egocentric tendency. As it now stands, in most human societies people are penalized, rather than rewarded, for admitting their personal contradictions. For example, admitting contradictions in one's thinking in the workplace is generally viewed as a weakness, rather than a strength.

See *egocentricity*, *intellectual integrity*, *critical societies*.

perspective: the faculty of seeing all the relevant data in logical relationship with one another, and with a broad view; seeing information, data, experiences in meaningful relationship with one another; a way of regarding situations or topics; a mental view or prospect; subjective evaluation.

Note that there are at least two distinct uses of the term 'perspective.' One focuses on seeing things in clear relationship with one another, in an integrated way, leading to a broad view (as in, "She is a person we can always count on to have a broad perspective," or "Keep things in perspective"). A second use refers to the *particular* mental view or logic from which one is approaching situations, ideas, etc.

All thought comes from some perspective, from some set of interrelated beliefs that form a logic in the mind of the thinker. This is the angle through which experiences are formed and new situations are

viewed. We often give names to the direction from which we are thinking about something. For example, we might look at something *politically* or *scientifically*, *poetically* or *philosophically*. We might look at something *conservatively* or *liberally*, *religiously* or *secularly*. We might look at something from a *cultural* or a *financial* perspective, or both. Once we understand how people are approaching a question or topic (their comprehensive perspective) we can usually better understand the logic of their thinking as an organized whole. We can also better understand their point of view.

See *point of view*, *world view*.

point of view: the precise place from which you view something; a mental position from which things are viewed; what you are looking at and how you are seeing it.

Human thought is relational and selective. It is impossible to understand any person, event, or phenomenon from every vantage point simultaneously. Our purposes often control how we see things. Critical thinking requires that we take this into account when analyzing and assessing thinking. This is not to say that human thought is incapable of truth and objectivity, but only that human truth, objectivity, and insight are limited and partial, not total and absolute. By reasoning within a point of view, then, we mean that our thinking inevitably has some specific focus or orientation. Our thinking is focused on something *from* some angle.

Our point of view is embedded in our perspective, but the term 'perspective' is often used in a broader sense. We may look at a presidential candidate from a "liberal" perspective. But the point of view from which we see the candidate tends to be

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A more specific, as in seeing this candidate as violating the principles of the liberal party (thus “looking at” this candidate and “seeing” him or her in the following way...).

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D Skilled reasoners keep in mind that people have different points of view, especially on controversial issues, consistently articulate other points of view and reason from within those points of view to adequately understand them, seek other viewpoints (especially when the issue is one they believe in passionately), confine their monological reasoning to problems that are clearly monological, recognize when they are most likely to be prejudiced, and approach problems and issues with a richness of vision and an appropriately broad point of view.

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L Unskilled reasoners do not credit alternative reasonable viewpoints, cannot see issues from points of view that are significantly different from their own; cannot reason with empathy from alien points of view, can sometimes give other points of view when the issue is not emotionally charged but cannot do so for issues about which they feel strongly, confuse multilogical with monological issues; insist that there is only one frame of reference within which a given multilogical question must be decided, are unaware of their own prejudices, and reason from within inappropriately narrow or superficial points of view.

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O See *perspective, world view, elements of reasoning*.

P
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R **precision:** the quality of being specific, definite, detailed; exact measurement.

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Z Precision is an essential intellectual standard, and generally has two distinct meanings: exact to the necessary level of detail, or accuracy of measurement.

In everyday reasoning, thinking may be precise, that is *detailed*, and yet not be accurate, as in *true*. For example, you might say that the average person needs 356,453.9876 calories every day, being highly exact in the number of calories needed. But, though exact (*precise* in the first sense), this answer would not be true (*precise* in the second sense). Accuracy tends to play a role in precision where mathematical measurement is the focus.

Precision, as in exactness, is important when details are necessary for reasoning through a problem or issue. The problem, issue or question would determine the level of precision needed.

See *accurate, intellectual standards, logic of language*.

prejudice: a judgment, belief, opinion, or point of view—favorable or unfavorable—formed before the relevant facts are known; resistant to evidence and reason, or in disregard of facts that contradict it.

Everyone is at times prejudiced, as we all sometimes judge situations before we have enough information to reasonably do so. This occurs for two reasons: either we are being sloppy in our thinking, or we are thinking in accordance with our selfish or vested interest. In the second case, vested interest enables us to justify poor thinking as if it were good or sound. As such, it enables people to avoid facing the fact that they are engaging in “prejudgment,” because it is in their interest to do so.

Prejudice is common in every social group, wherein “the group” conceptualizes “outsiders” as inferior to themselves (consider “mob think” about homosexuals, atheists, minorities, females, males, etc.).

Uncritical and selfishly critical thought are often based on prejudgments. Uncritical

thinkers prejudice situations and people because they accept ideas they have not themselves examined. They then see these ideas as “the truth.” (Consider, for example, a person who naïvely assumes that her government always acts in accordance with fundamental ethical principles). In short, humans are often *motivated* to see the world from a biased perspective, as this enables them to get what they want without having to consider the rights and needs of relevant others.

Because the question of prejudice and how it operates is not commonly a subject of classroom discussion, students rarely see the prevalence of prejudice in human thought. They rarely come to see how commonplace it is to judge things in advance of the facts. Much instruction inadvertently fosters this tendency to prejudge. For example, students are often taught to accept the views of “authority” figures – teachers, administrators, the government, textbook authors – before they have the relevant facts. This leads them to prejudge the views of “authorities” to be “correct.”

See *egocentricity, sociocentricity, insight, knowledge.*

premise: a proposition upon which an argument is based or from which a conclusion is drawn; a starting point of reasoning; assumption.

All reasoning begins with some premises, some set of assumed propositions. Yet these premises are often unexpressed. To check the premises from which one is reasoning, one might say, for example, “You seem to be reasoning from the premise that everyone is selfish in everything they do. Do you really think this is true?”

See *assumption.*

principle: a fundamental truth, law, doctrine, value, or commitment upon which others are based; a basic generalization, accepted as true, that can be used as a basis for reasoning or conduct; guiding sense of the requirements and obligations of right conduct.

Critical thinking is based on principles —guides for human reasoning and action. The three sets of essential understandings in critical thinking (elements of reasoning, intellectual standards, intellectual traits) are useful only to the extent that they are internalized as principles for thought and action.

Moreover, critical thinkers base most of their decisions and conduct on principles, rather than on rules or procedures. In other words, critical thinking tends to be *principled*, not *procedural*, thinking. Rules or procedures, which are more specific than principles, are based on principles. But they are often superficial and arbitrary; and they are more algorithmic so they needn’t be understood to be followed. Principles must be understood to be applied or followed reasonably; they must be practiced and applied to be internalized. Fairminded critical thinkers are especially concerned with articulating, internalizing and following ethical principles as guides for human conduct.

See *concept, theory, judgment.*

problem: a question, matter, situation, or person that is perplexing or difficult to figure out, handle, or resolve; a question proposed for solution or discussion.

Problems can be divided into many types. Each has a particular logic which

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A needs illuminating in order to be resolved.
B Problems are best solved when one first
C articulates *clearly and precisely* the question
D or questions at the heart of the problem.
E Once these questions have been determined,
F the intellectual task at hand is revealed; the
G relevant viewpoints are illuminated.

See *problem-solving, logic of questions, question, monological problems, multilogical problems.*

H **problem-solving:** the process of
I reaching solutions.

J Whenever a problem cannot be solved
K formulaically or robotically, critical think-
L ing is required—first, to determine the
M nature and dimensions of the problem, and
N then, in the light of the first, to determine
O the considerations, points of view, concepts,
P theories, data, and reasoning relevant to its
Q solution. Extensive practice in independent
R problem-solving is essential to develop-
S ing critical thought. Problem-solving is
T rarely best approached procedurally or as
U a series of rigidly followed steps. Yet this
V is precisely how some “problem solving”
W schemas are approached. For example,
X such schemas typically begin, “State the
Y problem.” But “stating the problem” often
Z entails complex analysis including: con-
 sidering multiple viewpoints, examining
 one’s assumptions, and articulating the
 problem in more than one way to reach
 clear understanding of the question at
 issue. Complexities such as these cannot be
 effectively dealt with formulaically.

See *problem, question.*

projection: when a person attributes
 to another person what he or she feels
 or thinks, usually in order to avoid

**unacceptable thoughts and feelings such
 as guilt.**

Projection is one defense mechanism used by the human ego to avoid some part of reality which is unpleasant (like taking responsibility for one’s actions). A wife who doesn’t love her husband may accuse him of not loving her (when he really does) in order to unconsciously deal with her dishonesty in the relationship.

It is important to avoid projecting onto others motives or behaviors of which we ourselves are guilty. An essential dimension of critical thinking is identifying and overcoming ways in which we engage in any form of self-deception.

See *defense mechanisms.*

proof: evidence or reasoning so strong
 or certain as to demonstrate the truth
 or acceptability of a conclusion beyond a
 reasonable doubt.

Proof, as such, varies from context to context and depends on how strong the evidence needs to be to demonstrate what it purports to prove. It also depends on the significance of the conclusion or the seriousness of implications following from the conclusions.

See *evidence.*

purpose: object, aim, goal, end in view;
 something one is hoping to accomplish.

All reasoning has a purpose. In other words, when humans think about the world, we do not do so randomly but, rather, in line with our goals, desires, needs, and values. Our thinking is an integral part of a patterned way of acting in the world; and we act, even in simple matters, with some set of ends in view.

To understand someone's thinking—including our own—we must understand the functions it serves, what it is about, the direction it is moving, the ends that make sense of it.

Raising human goals and desires to the level of conscious realization is an important part of critical thinking. Accordingly, critical thinkers take the time to state their purpose clearly, distinguish it from related purposes, and periodically remind themselves of their purpose to determine whether they are straying from it. Further, they adopt realistic purposes and goals, choose significant purposes and goals, choose goals and purposes that are consistent with one other, adjust their thinking regularly to their purpose, choose purposes that are fairminded (considering the desires and rights of others equally with their own desires and rights).

Conversely, uncritical thinkers are often unclear about their central purpose. They oscillate between different, sometimes contradictory, purposes. Moreover, they lose track of their fundamental object or goal, adopt unrealistic purposes, set unrealistic goals, adopt trivial purposes and goals as if they were significant, inadvertently negate their own purposes, fail to monitor their thinking for inconsistent goals, fail to adjust their thinking to their purpose, and choose purposes that are self-serving at the expense of others' needs and desires.

See elements of reasoning.

- Q -

question: a problem or matter open to discussion or inquiry; something that is asked, as in seeking to learn or gain knowledge.

Humans are inherently purposeful. And integral to our purposes are questions that (hopefully) guide our thinking to the fulfillment of those purposes. The question at issue determines the intellectual task at hand. It determines the direction of our thinking. For example, the question determines the information needed to answer it. The question illuminates the viewpoints relevant to answering it. The question points to complexities in the issues being addressed (that need to be reasoned through).

Accordingly, critical thinkers are clear about the question they are trying to settle, can re-express a question in a variety of ways, can break a question into sub-questions, routinely distinguish questions of different types, distinguish significant from trivial questions, distinguish relevant questions from irrelevant ones, are sensitive to the assumptions built into the questions they ask, and distinguish questions they can answer from questions they can't.

Uncritical thinkers, on the other hand, are often unclear about the question they are asking, express questions vaguely, find questions difficult to reformulate clearly, are unable to break down the questions they are asking, confuse questions of different types, confuse trivial questions with significant ones, confuse irrelevant questions with relevant ones, often ask loaded questions, and try to answer questions they

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A are not in a position to answer.

B See *logic of questions, questions of fact, questions of judgment, questions of preference, elements of reasoning.*

C **questions of fact or procedure (one-system questions):** questions with an established procedure or method for finding the answer.

D Generally speaking, one-system questions are those questions for which the answer, or procedure for finding the answer, is a matter of rule. Such questions are settled by facts, by definition, or both. They are prominent in mathematics, as well as the physical and biological sciences. It does not make sense to debate these questions.

E Examples:

- F** • What is the boiling point of lead?
- G** • What is the size of this room?
- H** • What is the differential of this equation?
- I** • How does the hard drive on a computer operate?
- J** • What is the sum of 659 and 979?
- K** • How is potato soup prepared, according to established Polish tradition?

L Questions of fact should be understood in contrast with *questions of judgment* and *questions of preference* (see these terms).

M Also see *questions, monological problems.*

N **questions of judgment (multi-system questions):** questions requiring reasoning, but with more than one arguable answer; questions requiring reasoning within more than one viewpoint.

O Questions of judgment are those questions which require the reasoner to

think within multiple, often conflicting, viewpoints. Reasoning through these questions leads to better-or-worse answers (well-supported and reasoned or poorly-supported and/or poorly-reasoned). Questions of judgment are questions that make sense to debate. When we reason through these questions, we are seeking the best answer within a range of possibilities. We evaluate answers to these questions using universal intellectual standards such as clarity, accuracy, relevance, etc. These questions are predominant in the human disciplines (history, philosophy, economics, sociology, art...), but can be found in most disciplines, subjects and domains of human thought.

Examples:

- P** • How can we best address the most basic and significant economic problems of the nation today?
- Q** • What can be done to significantly reduce the number of people who become addicted to illegal drugs?
- R** • How can we balance business interests and environmental preservation?
- S** • Is abortion justifiable?
- T** • How progressive should the tax system be?
- U** • To what extent is psychology a science?

Most of the significant problems facing humans are questions requiring reasoned judgment.

People often confuse questions of judgment with questions of preference, for which merely subjective opinion is called for, or questions of fact, for which a correct answer is sought.

See *multilogical problems, reasoned judgment.*

questions of preference (no-system questions): questions with as many answers as there are different human preferences (in which subjective taste rules).

When dealing with questions of preference, one is simply seeking personal subjective opinion. When answering these questions, one is not required to “support” one’s reasoning. In answering the question, “What is your favorite flavor of ice cream?” for example, one is not required to give one’s reason for liking chocolate better than butterscotch.

Examples:

- Which would you prefer, a vacation in the mountains or one at the seashore?
- How do you like to wear your hair?
- Do you like to go to the opera?
- What is your favorite baseball team?
- What color scheme do you prefer in your house?

Questions of preference should be understood in contrast with *questions of fact* and *questions of judgment* (see these terms). It is important not to confuse these very different types of questions.

- R -

rational/rationality: being guided by the intellect (rather than emotions), or having to do with reason; being consistent with or based on logic; that which conforms to principles of good reasoning, is sensible, shows good judgment, is consistent, logical, relevant and sound.

In everyday discourse, there are at least three different common uses of the term ‘rational’ or ‘rationality.’ One refers to a person’s general ability to think well.

A second refers to a person’s ability to use his intellect to achieve his purposes (irrespective of whether or not these purposes are ethically justified). A third refers to one’s commitment to think and act only in ways that are intellectually and ethically justified. Behind these three uses lie these distinctions: skilled thinker, sophisticated thinker, Socratic thinker. In the first use, we mark the skills only of the thinker. In the second we mark the skills used “selfishly” (as the Sophists of old). In the third we mark the skills used fairly-mindedly (as Socrates did).

Critical thinkers, in the strong sense, are concerned with developing their capacities to reason with skill while also respecting the rights and needs of others. They are fairly-minded in the use of their intellectual skills.

See *reason, logic, intellectual virtues, strong-sense critical thinkers, weak-sense critical thinkers, irrational*.

rational emotions (or rational passions): the affective dimension of skilled reason and critical thought.

Emotions are an integral part of human life. Whenever we reason, there is always some emotion linked with our thoughts. Rational emotions are those connected with reasonable thought and action.

R. S. Peters (1973) explained the significance of “rational passions” as follows:

There is, for instance, the hatred of contradictions and inconsistencies, together with the love of clarity and hatred of confusion without which words could not be held to relatively constant meanings and testable rules and generalizations

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A stated. A reasonable man cannot, without some special explanation, slap his sides with delight or express indifference if he is told that what he says is confused, incoherent, and perhaps riddled with contradictions.

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D Reason is the antithesis of arbitrariness. In its operation it is supported by the appropriate passions which are mainly negative in character—the hatred of irrelevance, special pleading, and arbitrary fiat.

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H The more developed emotion of indignation is aroused when some excess of arbitrariness is perpetuated in a situation where people’s interests and claims are at stake. The positive side of this is the passion for fairness and impartial consideration of claims. . . .

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O A man who is prepared to reason must feel strongly that he must follow the arguments and decide things in terms of where they lead. Insofar as thoughts about persons enter his head, they should be tinged with the respect which is due to another who, like himself, may have a point of view which is worth considering, who may have a glimmering of the truth which has so far eluded himself. A person who proceeds in this way, who is influenced by such passions, is what we call a reasonable man.

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R See *human mind, emotions, irrational emotions.*

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W **rational self:** human character and nature to the extent that we seek to base our beliefs and actions on good reasoning and evidence; the capacity of humans to think and behave in a reasonable manner (in contrast to thinking and behaving egocentrically).

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Z Each of us has both a “rational”

and “irrational” self, a reasonable side and an unreasonable side. While the irrational or egocentric side functions naturally, without cultivation, critical thinking is essential to the development of one’s “rational self.” Put another way, our rational capacities do not develop themselves. They aren’t automatic in the mind, but must be developed by us. Present societies do not tend to cultivate rational persons, but rather (perhaps inadvertently) tend to encourage egocentric and sociocentric thought.

See *rational, critical society, egocentricity, sociocentricity.*

rational society: See *critical society.*

rationalize: to ascribe one’s acts, opinions, etc. to causes that seem (on the surface) reasonable and valid but that are not the true causes (while the real reasons are either unconscious, or seemingly less creditable or agreeable); to make rational or conformable to reason; to employ reason; think in a rational or rationalistic manner.

Note that there are two distinctly different uses of the term “to rationalize.” One is synonymous with thinking rationally or reasonably. The other is a defense mechanism commonly used by the human mind to keep something hidden, either from oneself or others. In this second use, to rationalize is to give reasons that “sound good,” but are not one’s actual reasons. Rationalization, in this second sense, is often used in situations where one is pursuing one’s vested interests while trying to maintain the appearance of high ethical purpose. Politicians, for instance, after receiving large donations from special interest groups and

then supporting those groups with votes or committee action, routinely rationalize their behavior, implying that they are acting from high motives when most likely the reverse is true. Those who held slaves often asserted that slavery was justified because slaves were like children and had to be treated as such.

Rationalization, again in this second sense, is a defense mechanism that enables people to get what they want without having to face the fact that they are operating from selfish motives. Rationalizations enable people to keep their actual motives beneath the level of consciousness. They then can sleep peacefully at night while behaving unethically by day.

Critical thinkers recognize the pernicious role that rationalization plays, or can play, in human thought and action. They realize that all of us rationalize our behavior at times, and that we must therefore work to diminish its frequency and power in our own thought and lives.

See defense mechanisms.

reason: a basis or cause for some belief, action, fact, event, etc.; a statement presented in justification or explanation of a belief or action; the mental powers concerned with forming conclusions, judgments, or inferences; sound judgment; good sense; the power of intelligent and unbiased thought.

There are three somewhat interconnected meanings of “reason” in these definitions. The first is concerned with giving a justification for something (to give one’s “reasons”). The second refers to that part of the mind that makes inferences or draws conclusions (whatever the quality of those inferences or conclusions might be). The third is concerned with the quality of one’s

conclusions, inferences or judgments.

Critical thinkers seek to use reasons which are sound. They have confidence in their ability to reason and figure things out for themselves. They have confidence in the belief that following sound judgment is the best foundation for living a rational and reasonable life.

See confidence in reason.

reasoned judgment: any belief or conclusion reached on the basis of careful thought and reflection, distinguished from subjective opinion on the one hand and from sheer fact on the other.

The distinction between matters of fact and matters of opinion is common. Few people recognize that a third category is of great importance, namely matters that call for reasoned judgment. We exercise reasoned judgment when we demonstrate our ability to reason well between and among conflicting viewpoints, and in the process reach a conclusion which makes best sense of complex evidence and/or challenging concepts.

Critical thinkers recognize when they are dealing with issues requiring reasoned judgment and are thorough in dealing with them.

See reason, questions of reasoned judgment.

reasonable: adhering to reason or sound judgment; logical; governed by rational thought.

An important macro-intellectual standard is that of *being reasonable*. A reasonable person is one who considers evidence without prejudice and routinely reaches sound, defensible, logical

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A conclusions.

B The question of whether one is meeting
C the intellectual standard of “being
D reasonable” is given in context. That
E which is required for reasonability in one
F context may greatly differ from that which
G is considered reasonable in another. A
H reasonable conception of evolution is very
I different from a reasonable approach to
J tennis practice.

K To meet the standard of “being reason-
L able,” it is necessary to meet other intellec-
M tual standards as well, since reasonability
N is a “macro-intellectual standard” rather
O than a “micro-intellectual standard.” For
P example, a reasonable interpretation of
Q raw data in a study will entail the use of
R *justifiable* assumptions and concepts; it
S will require a *clear* question at issue; it
T will require a *logical* drawing of conclusions;
U and so forth.

V Moreover we may speak of a reason-
W able act in a narrow sense, or a reasonable
X person in a broader sense. An unreason-
Y able person may, on occasion, behave
Z reasonably. A reasonable *person* may, on
occasion, behave unreasonably. At the
highest level, a reasonable person embod-
ies the intellectual virtues on a daily basis.

See *intellectual standards, intellectual virtues.*

reasoning: the mental processes of those who reason; the process of forming conclusions, judgments, or inferences from facts, observations, hypotheses; the evidence or arguments used in this process.

By reasoning, we mean making sense of something by giving it some meaning in your mind. Almost all thinking is part of our sense-making activities. We hear

scratching at the door and think, “It’s the dog.” We see dark clouds in the sky and think, “It looks like rain.”

Some of this activity operates at a subconscious level (for example, all of the sights and sounds about me have meaning for me without my explicitly noticing they do). Most of our reasoning is quite unspectacular. Our reasoning tends to become explicit to us only when it is challenged by someone and we have to defend it. (“Why do you say that Jack is obnoxious? I thought he was quite pleasant”).

We take command of our reasoning when we understand that all reasoning entails component parts that can and should be regularly examined for quality. In other words, whenever we reason, we reason for a *purpose* within a *point of view* based on *assumptions* leading to *implications* and consequences. We use *concepts*, ideas, and theories to interpret data, facts, and experiences (*information*) to answer *questions*, solve problems, and resolve issues. The elements of reasoning (purpose, question, information, concepts, inferences, assumptions, implications, point of view) are implicit in our thinking whenever we reason. Critical thinkers are aware of this, and routinely work to bring these parts of thinking to the conscious level to assess them for quality.

See *elements of reasoning.*

reciprocity: empathically entering into the point of view or line of reasoning of others; learning to think as others do and by that means sympathetically assessing that thinking.

Reciprocity requires creative imagina-

tion as well as intellectual skill and a commitment to fairmindedness.

See *intellectual empathy*.

relevant: bearing upon or directly related to the matter at hand or question at issue; applicability to social issues.

Relevance, in its most widely-used form, is an essential intellectual standard focused on the extent to which something bears upon something else. People often have problems sticking to an issue and distinguishing information that bears upon a problem from information that does not. Sensitivity to relevance, in this broad sense, is best developed with deliberate practice—practice distinguishing relevant from irrelevant data, evaluating or judging relevance, arguing for and against the relevance of facts.

A second use of the term refers to whether, and to what extent, something is applicable to social issues or life situations. Students will often, in studying a subject, question the relevance of the topic to their lives. Though they have every right to do so, they often *claim* that a topic is irrelevant to them simply because they are not motivated to learn it. As students develop intellectual skills and fairmindedness, they progressively come to see more and more topics, issues, concepts and subjects as relevant to living rationally and fully; and they do this in virtue of their own independent thought.

See *intellectual standards*.

repression: when thoughts, feelings or memories unacceptable to the individual are prevented from reaching consciousness.

Repression is a defense mechanism which often occurs when memories are

considered too painful to remember. It can also be a form of “forgetting” because the person doesn’t want to remember something unpleasant (such as a dental appointment). Repression may serve a useful purpose — for example, when suppressing painful memories that may be best handled by simply not rehashing them. However, some repression may be dysfunctional - for example, when suppressing the fact that one has behaved in unethical ways (such as irresponsibly hurting someone).

Critical thinkers work to increase awareness of instances of repression in their thinking and emotions. They seek to understand why they are engaging in repression. They actively work to diminish the extent to which they repress ideas which cause them to behave in dysfunctional ways. It should be noted, however, that deeply repressed ideas are highly resistant to rational critique.

See *defense mechanisms*.

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scapegoating: when a person attempts to avoid criticism of himself by blaming another person, group or thing for his own mistakes or faults.

One common form of egocentric thought is to avoid facing one’s own weaknesses and faults. Scapegoating is a frequently used defense mechanism which enables us to hide from problems in our thought and behavior by blaming others. Critical thinkers try to squarely face and deal with their own mistakes or faults, rather than blaming others for them.

See *defense mechanisms*.

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A **self-deception:** the natural human
B (egocentric) tendency to deceive oneself
C about one's true motivations, character, or
 identity.

D This phenomenon is so common to
E humans that the human species might
F well be defined "the self-deceiving
G animal." All of the defense mechanisms
H are facilitated by this egocentric tendency.
I Through self-deception, humans are able
J to ignore unpleasant realities and problems
K in their thinking and behavior. Self-
L deception reinforces self-righteousness
 and intellectual arrogance. It enables us
 to pursue selfish interests while disguising
 our motives as altruistic or reasonable.
 Through self-deception, humans "justify"
 flagrantly unethical acts, policies, and
 practices.

M All humans engage in self-deception—
N but not to the same degree. Overcoming
O self-deception through critical thinking is
 a fundamental goal of strong-sense critical
 thinkers.

P See *egocentricity, defense mechanisms,*
Q *personal contradiction, social*
R *contradiction, rational self, intellectual*
S *virtues.*

T **selfish interest:** what is perceived to be
U useful to oneself without regard for the
V rights and needs of others.

W To be selfish is to seek what one desires
X without due consideration for others.
Y Being interested in one's own welfare
Z is one thing; trampling on the rights of
 others in the pursuit of one's own desires
 is another. As fundamentally egocentric
 creatures, humans naturally pursue
 their selfish interests. We frequently use
 rationalization and other forms of self-

deception to disguise our true motives
 and the true character of what we are
 doing. To develop as fairminded critical
 thinkers is to work actively to diminish the
 power of one's native selfishness without
 sacrificing any legitimate concerns for
 one's welfare and long-term good.

See *egocentricity, self-deception,*
rationalization, vested interest,
fairmindedness.

social contradiction: an inconsistency
 between what a society "preaches," or
 professes to believe, and what it practices.

Every society has some degree of incon-
 sistency between its image of itself and
 its actual character. When a group, for
 example, professes to be spreading peace
 throughout the world, while at the same
 time systematically engaging in unjust
 wars, it is demonstrating a social contra-
 diction. Social contradiction is typically
 connected with sociocentric thought and
 correlated with human self-deception on
 the part of the group.

See *sociocentricity, national bias.*

socialization: a continuing process of
 learning to conform to the values, norms,
 traditions, manners, customs, taboos, and
 ideologies of one's society; assuming social
 skills appropriate to one's "social position."

For the most part, humans live together
 in groups. Accordingly, they must learn to
 live together reasonably in those groups, to
 get along, to respect the rights and needs
 of others with whom they interrelate and
 interact. But the process of socialization
 often goes beyond a defensible conception
 of *living together reasonably*. It often leads
 to oppression and the violation of individ-
 ual rights. Because humans create complex

ideas and ideologies through which they see the world, these ideas are a necessary part of the “socialization process.” At a very young age children within every culture begin to think within these ideas, seeing them, not as one possible way to think, but as the *right way to think* (e.g. no elbows on the table, napkin in your lap, no nudity allowed).

Part of the ideology of any culture, then, is the laying down of rules, the creation of customs, the forbidding of certain behaviors. Accordingly, people living within every culture are expected to uncritically accept the largely arbitrary rules, customs, and taboos of their culture. Every day, very young children in the U.S., for example, are expected to stand up and “pledge allegiance to the flag of the United States of America.” In doing so, they have no real sense of what they are pledging, of what it would mean to take their pledge seriously, of what it would mean to critically analyze it, of how to skillfully argue for and/or against it. This is just one example of many forms of indoctrination that often come hand in hand with socialization.

One important part of the socialization process has to do with *social stratification*. People in modern societies are layered according to a political/economic “pecking order,” to put it somewhat crudely. Those at the top have most of the power and advantages. Those in the middle have a low to modest amount of power, and significant advantages. Those at the bottom have very few advantages and very little power. Part of the socialization process of every culture is to pass on the “correct behavior” for one’s “social status,” according to the system of social stratification within the culture.

It is essential to critically analyze the social rules, customs, taboos, and power structure of one’s culture so as not to be

intellectually imprisoned by them.

See *sociocentrism, indoctrination*.

sociocentricity: the belief in the inherent superiority of one’s own group or culture; a tendency to judge alien people, groups or cultures from the perspective of one’s own group.

As social animals, humans cluster together. Indeed, the very survival of the human species depends upon a lengthy rearing process so that all humans survive, in the first instance, because they are cared for within a group. Accordingly, children learn from an early age to think within the logic of the group. This is required for their “acceptance” in the group. As part of this socialization process, they (largely uncritically) absorb group ideologies.

Sociocentricity is based on the assumption that one’s own social group is inherently and self-evidently superior to all others. When a group or society sees itself as superior, and so considers its views as correct or as the only reasonable or justifiable views and when a group perceives all of its actions as justified, it has a tendency to think closed-mindedly. Dissent and doubt are considered disloyal and are rejected. Few people recognize the sociocentric nature of much of their thought.

Sociocentric thought is connected with the term ‘ethnocentricity,’ though ethnocentricity is often used more narrowly to refer to sociocentric thought within an ethnic group.

See *socialization, egocentricity, national bias, cultural association*.

Socratic critical thinkers: critical thinkers who use the skills of critical thinking to develop and foster fairminded reasoning and thought; critical thinkers

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A who avoid the use of deception and manipulation in dealing with others.

B We use the term ‘Socratic critical thinker’ in two ways: 1) a person skilled at asking pertinent questions who routinely uses questioning as an essential tool for learning and communication, 2) a person concerned with using the skills of reasoning to live an examined, ethical life.

C The ‘Socratic critical thinker’ contrasts with the ‘sophistic critical thinker,’ the first using the tools of critical thinking in a fairminded way, the second using the tools of critical thinking selfishly (or otherwise to manipulate).

D See *strong-sense critical thinkers, Socratic questioning, sophistic critical thinker, weak-sense critical thinkers.*

E **Socratic questioning:** based on the methods of Socrates, a mode of questioning that deeply probes the meaning, justification, or logical strength of a claim, position, or line of reasoning.

F Socrates was an early Greek philosopher and teacher (c. 470–399 BCE) who believed that the best way to teach and learn was through disciplined, rigorous questioning. In other words, he thought that people learned best, not by being told what to believe or do, but by being guided through questioning to what made most sense to believe or do. He often used questioning to help people see either that what they said they believed they did not, in fact, believe (because their “beliefs” were inconsistent with their behavior), or that what they said they believed was conceptually unsound or illogical.

G When questioning others, Socrates often functioned as both teacher and student,

modeling the kind of disciplined inquiry he thought people needed to engage in if they were to live a rational life. Consider:

Socrates philosophized by joining in a discussion with another person who thought he knew what justice, courage, or the like was. Under Socrates’ questioning, it became clear that neither [of the two] knew, and they cooperated in a new effort, Socrates making interrogatory suggestions that were accepted or rejected by his friend. They failed to solve the problem, but, now conscious of their lack of knowledge, agreed to continue the search whenever possible. These discussions, or “dialectics,” whereby Socrates engaged in his question-and-answer investigations, were... the very marrow of the Socratic legacy (Encyclopedia of Philosophy, 1972, p. 483).

Socrates attempted to foster in his students the ability to formulate a *disciplined line of questioning*, to think within new perspectives and viewpoints, to uncover biases and distortions. Most of all, he wanted his students to develop a passion for examining ideas and ferreting out the truth. He exhibited and cultivated *confidence in reason*, conceptualizing the pursuit of knowledge as the primary function of human thought. He believed that any idea that could not stand the test of sound reasoning and judgment must be abandoned.

After many years of practice, questioning was deeply intrinsic to Socrates’ character. Although he attempted to develop a system of questioning, that system was not altogether made explicit.

A robust theory of critical thinking, on the other hand, provides us with *definitive*

and specific tools for disciplined questioning. There is nothing mysterious about the most basic ideas in critical thinking that can and should be applied to formulating and asking questions, and that should be fostered in the thinking of all students. Critical thinking, then, might well be viewed as *the key* to Socratic questioning because it makes the intellectual moves used in Socratic dialogue explicit and accessible to anyone interested in learning it and willing to practice it.

See *critical thinking, dialogical instruction, knowledge.*

sophistic critical thinkers: skilled thinkers who use the tools of critical thinking to manipulate others, usually to serve their selfish or group interests.

The term ‘sophistic’ commonly refers to those who use subtle, tricky, superficially plausible, but often fallacious methods of reasoning to win an argument or convince someone that something is true (when it may be only partially true or not true at all). For example, they may use deliberately invalid arguments in a persuasive way (displaying ingenuity in reasoning). The term “sophist” is traceable to the Greek words ‘sophos’ or ‘sophia,’ originally used to mean “wise” or “wisdom.” Use of the term evolved over time, especially in the second half of the 5th century BCE, most notably at Athens, where ‘sophist’ came to denote a class of itinerant intellectuals who taught courses in “excellence” or “virtue,” generally focusing on how to persuade or convince others to accept a position as true. Sophists claimed that they could find the answers to all questions. Over time, the term ‘sophist’ came to be used in reference to argumentation sometimes designed to make

“the weaker argument appear the stronger,” (for a deeper understanding, read the works of Plato and Aristotle on sophistry).

See *weak-sense critical thinkers, strong-sense critical thinkers, Socratic critical thinkers.*

specify/specific: to state, describe or define explicitly or in detail; precise; definite.

Much human thinking, speech, and writing tends to be vague, abstract, and ambiguous rather than specific, concrete, and clear. Learning how to state one’s views specifically is essential to learning how to think clearly, precisely, and accurately.

See *intellectual standards, clarify, precision.*

stages of critical thinking development: a theory of development focusing on the stages of progression in critical thinking skills, abilities and dispositions; presupposes internal motivation on the part of the thinker to develop as a fairminded critical thinker; originally conceptualized by Linda Elder, then expanded by Linda Elder and Richard Paul.

People generally develop within any complex skill area through stages, beginning at a low level of skill and slowly progressing toward higher and higher levels of accomplishment. The stages of critical thinking are as follows:

Stage One: **The Unreflective Thinker** (the thinker is unaware of problems in her thinking)

Stage Two: **The Challenged Thinker** (the thinker is faced with significant problems in her thinking)

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A Stage Three: **The Beginning Thinker** (the thinker tries to improve, but without regular practice)

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C Stage Four: **The Practicing Thinker** (the thinker regularly practices and begins to advance accordingly)

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E Stage Five: **The Advanced Thinker** (the thinker becomes committed to lifelong practice and has cultivated intellectual virtues to a high degree)

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H Stage Six: **The Accomplished Thinker** (intellectual virtues have become second nature to the thinker and she routinely displays them within all the important domains of her life) [formerly “Master Thinker”]

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This theory is based on the following assumptions: (1) that there are predictable stages through which every person who develops as a fairminded critical thinker passes, (2) that passage from one stage to the next depends on a necessary level of commitment on the part of an individual to develop as a critical thinker, is not automatic, and is unlikely to take place “subconsciously,” (3) that one develops greater commitment to critical thinking as one moves through the stages (4) that regression is possible in development (and actually quite common).

People are critical thinkers, in the fullest sense of the term, only if they display critical thinking abilities and dispositions in all, or most, of the dimensions of their lives (e.g. as a parent, citizen, consumer, lover, friend, learner, and professional). Though we recognize that there are many forms and manifestations of critical thinking, we are focused in these stages only on those people who develop as

critical thinkers in the strong sense. We exclude from our concept of the critical thinker (in terms of the stages) those who think critically in only one dimension of their lives. We do so because the quality of one’s life is dependent upon high quality reasoning in all domains of one’s life, not simply in one dimension.

The primary reasons why people fail to develop as critical thinkers are: 1) they fail to recognize that thinking, left to itself, is likely to contain flaws (so they never attempt to intervene in their thinking in a systematic way), 2) they fall victim to native egocentric thought (and its self-deceptive tendencies), 3) they remain dominated by native sociocentric thought.

See *intellectual virtues, strong-sense critical thinkers, egocentricity, sociocentricity*.

stereotyping: when a person lumps people together based on some common characteristic, forming a rigid, biased perception of the group and the individuals in the group.

One primary form of stereotyping comes from cultural bias wherein people assume that practices and beliefs in their culture are superior to those in other cultures simply by virtue of being part of their culture. They take this group to be the measure of all groups and people.

See *defense mechanisms, sociocentricity*.

strong-sense critical thinkers: fairminded critical thinkers; skilled thinkers characterized predominantly by the following traits: (1) the ability and tendency to question deeply one’s own views; (2) the ability and tendency to reconstruct sympathetically and

imaginatively the strongest versions of viewpoints and perspectives opposed to one's own; and (3) the ability and tendency to reason dialectically (multilogically) in such a way as to determine when one's own point of view is at its weakest and when an opposing point of view is at its strongest; (4) the ability and propensity to change one's thinking when the evidence would require it, without regard to one's own selfish or vested interests.

Strong-sense critical thinkers are fundamentally concerned with reasoning at the highest level of skill, considering all the important available evidence, and respecting all relevant viewpoints. Their thought and behavior is characterized primarily by intellectual virtues or habits of mind. They avoid being blinded by their own viewpoints. They recognize the framework of assumptions and ideas upon which their own viewpoints are based. They realize the necessity of putting their assumptions and ideas to the test of the strongest objections that can be leveled against them. Most importantly, *they can be moved by reason*; in other words, they are willing to abandon their own ideas when other ideas prove more reasonable or valid.

Teaching for strong-sense critical thinkers entails routinely encouraging students to explicate, understand, and critique their deepest prejudices, biases, and misconceptions, thereby discovering and contesting their egocentric and sociocentric tendencies (for only when we do so can we hope to develop as fairminded persons).

Regularly thinking dialogically about important and personal issues is necessary

for developing strong-sense critical thinkers. If critical thinking is taught simply as atomic skills separate from the empathic practice of entering into points of view that students are fearful of or hostile toward, they will simply find additional means of rationalizing prejudices and preconceptions, or convincing people that their point of view is the correct one. They will be transformed from vulgar or naïve thinkers to sophisticated (but not strong-sense) critical thinkers.

See *fairmindedness, intellectual virtues, weak-sense critical thinkers*.

subconscious thought: thoughts or beliefs operating in the mind beneath the level of conscious awareness, but which the thinker would have no problem acknowledging.

Most of what we believe is not conscious to us at any given moment. Our beliefs come into conscious perception in context, when they seem to be relevant to thinking through an issue, problem, etc. Subconscious thoughts may be recalled simply by directing attention to them. They are contrasted with unconscious thoughts, which the thinker is, for some reason, motivated to avoid.

See *unconscious thought*.

systematic or integrated critical thinking: a well-integrated and consistently applied approach to critical thought; of characterized by, or constituting a system of critical thinking; critical thinking carried out in a highly organized way; critical thinking characterized by purposeful and/or methodical regularity.

When we take a systematic and

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A integrated approach to critical thinking,
B we seek to apply our knowledge of critical
C thought regularly and consistently in
D our thinking. We are committed to
E thoroughness in the application of critical
F thought. We seek to integrate ideas within
G and across domains of thought.

H Systematic critical thinking is
I contrasted with episodic critical thinking
J in which critical thinking is done only
K periodically or sporadically.

L See *episodic critical thinking, critical*
M *thinking forms.*

- T -

N **teach:** to impart knowledge or skills; any
O process that facilitates learning, from the
P imparting of information, to the giving of
Q help or assistance, to someone motivated
R to learn on their own; teaching may be
S methodical and systematic, or unorganized
T and sporadic.

U The term ‘teaching’ does not necessarily
V imply “high quality teaching” or “teaching
W so that students develop the intellectual
X skills and abilities they need to function
Y successfully in the world.” In fact “teach-
Z ing” often inadvertently implies inculcat-
 ing the views of society into the minds of
 students, and expecting them to accept
 those ideas uncritically.

The most important goal in teaching is
 to cultivate the intellect, so that students
 learn the skills, abilities and traits necessary
 for functioning successfully, and ethically,
 in the complex world in which we now live.

See *higher order learning, knowledge,*
intellect, education, indoctrination,
socialization, training.

theory: a coherent group of general
 propositions used as principles of explana-
 tion for a class of phenomena, espe-
 cially one that has been repeatedly tested
 or is widely accepted and can be used to
 make predictions; a proposed explanation
 whose status is still conjectural, in con-
 trast to well-established propositions that
 are regarded as articulating matters of
 actual fact; an integrated system of rules
 or principles.

Note that there are at least two impor-
 tant distinct uses of the term ‘theory.’ One
 is used to refer to general propositions
 that have been tested and/or are generally
 agreed upon. The other refers to proposi-
 tions that are conjectural or hypothetical.

Humans naturally form theories (often
 without realizing it) that help us make
 sense of the people, events, and problems in
 our lives. We should consider these theo-
 ries to be largely hypothetical. It is essential
 to put theories to the test of experience and
 give due consideration to the theories of
 others. One should also clearly distinguish
 between theories and facts.

See *concepts, principles.*

think: to exercise the mental faculties so as
 to form ideas and arrive at conclusions; to
 have a conscious mind, with at least some
 ability to reason, remember experiences,
 make decisions, etc.; to employ one’s mind
 rationally and objectively in evaluating or
 dealing with a given situation.

There are numerous uses of this term,
 one of the most common of which is
 equated with the concept of “reasoning.”
 The term ‘critical thinking,’ for example,
 implies the ability to reason at a high level
 of skill. Thus ‘critical thinking’ is equated
 with ‘critical reasoning.’ Other forms

of thinking might include associational thinking, metaphysical thinking, negative thinking, meditative thinking.

Related concepts: *reason* implies the mental powers concerned with forming (usually sound) conclusions, judgments, or inferences; *reflect* implies a turning back of one's thoughts on a subject and connotes deep or quiet continued thought; *speculate* implies reasoning on the basis of incomplete or uncertain evidence and, therefore, stresses the conjectural character of the opinions formed; *deliberate* implies careful and thorough consideration of a matter to arrive at a conclusion.

Though everyone thinks, few people think critically in a global, integrated, fair-minded sense. Thinking is spontaneous; critical thinking must be cultivated.

See *elements of reasoning, intellectual standards*.

training: to make proficient with specialized instruction and practice; to coach in or accustom to a mode of behavior or performance; disciplined activity or practice leading to skilled behavior.

Students can be trained to engage skillfully in any manner of behaviors, and some training is quite useful, such as becoming proficient in using the computer. But, training is often confused with education, just as are indoctrination and socialization. Students can be trained to do things that are antithetical to education. For example, students can be "trained" to believe that education means doing what the teacher says and never questioning the view of the teacher. Students can be "trained" to think of textbooks as inherently authoritative. These common

practices violate a reasonable conception of education.

It is essential to be clear about when we are "training" students and why we are doing so, in order to ensure that our reasons are fully justified.

See *education, indoctrination, socialization*.

truth: conformity to knowledge, fact, actuality; a statement proven to be or accepted as true, not false or erroneous; things as they really are, rather than as they (merely) appear to be; reality insofar as it may be focused in thought, word or deed.

Many things in human life can be proved to be true or false. Thus, the ability to seek and find the truth, where truth is relevant, is an essential critical thinking goal.

Because of the natural egocentric orientation of the human mind, most people uncritically assume their views to be correct and true; they assume themselves to possess *the truth*. Critical thinking is essential if we want to avoid this dysfunctional habit of thought.

See *intellectual standards, accurate*.

- U -

uncritical person: one who has few or no critical thinking skills, abilities or traits.

People can be "uncritical" thinkers for two primary reasons: 1) they lack the "raw intelligence" to develop as critical thinkers, or 2) they have the capacity to develop as critical thinkers, but for any number of reasons have not developed these capacities to any considerable degree. Most people,

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A by far, are capable of development, but
B merely never reach their potential as
C thinkers. The uncritical person is likely to
D be naïve, conforming, easily manipulated,
E easily confused, inconsistent, unclear,
F and careless in word choice. They are
G unable to distinguish evidence from
H interpretation. They may also be extremely
I dogmatic, decidedly prejudicial and highly
J intellectually arrogant. As well, they tend
K to be narrow-minded.

L Uncritical thought is a fundamental
M problem in human life, for when we are
N uncritical, we nevertheless think of our-
O selves as critical. The first step in becoming
P a critical thinker consists of recognizing
Q this problem and understanding that we
R are all, at times, uncritical.

S See *naïve thinker, critical person,*
T *critical thinker, critical thinking, critical*
U *societies.*

V **unconscious thought:** thinking
W that occurs without awareness; ideas,
X experiences, assumptions, etc. beneath
Y the level of awareness but that have a
Z pronounced influence on behavior (and
 on conscious thoughts); thoughts lying
 below the level of perception and not easily
 raised into consciousness; thoughts we are
 unaware of, and which we would rather
 avoid explicitly perceiving.

There are at two distinctly different uses
 of this term for our purposes here. The first
 use is equated with the term ‘subconscious
 thought.’ It simply refers to thoughts in our
 minds that we are not explicitly aware of
 at any given moment, but from which we
 have no “need” to hide.

The second use refers to suppressed
 thoughts—thoughts in our minds we are
 unaware of that influence our conscious

thoughts and behavior, and which we
 are for some reason motivated to avoid
 recognizing. These may be painful or
 unpleasant “experiences,” or they may be
 dysfunctional patterns of thought—such
 as rationalization or other forms of self-
 deception.

Much human thinking is unconscious.
 It is quite common for people to be guided
 by ideas, assumptions, perspectives that
 exist in their minds, but of which they
 have little or no awareness. All egocentric
 and sociocentric thoughts have some
 unconscious dimension to them because
 these thoughts can’t stand the light of day.
 In other words, if we were to face the fact
 that these thoughts were operating in our
 thinking, we would be “forced” to deal
 with them. This may require us to give up
 something we hold dear. Any thoughts
 that we cannot openly “own” have an
 unconscious dimension.

To the extent that thoughts are uncon-
 scious in the mind, we have little chance
 of analyzing and assessing them. We have
 little chance of exploring how they are influ-
 encing our thoughts and behavior. Critical
 thinkers are aware of this, and there-
 fore routinely work to bring unconscious
 thoughts to the level of consciousness in
 order to examine them for quality.

See *defense mechanisms, egocentricity,*
self-deception, sociocentricity, subconscious
thought.

- V -

vague: not clearly, precisely, or definitely expressed or stated; not sharp, certain, or precise in thought, feeling, or expression; indistinct; not thinking or expressing oneself clearly.

Vagueness of thought and expression is painfully common in human life and a major obstacle to the development of critical thinking. We cannot begin to test our beliefs until we recognize clearly what they are. We cannot disagree with what someone says until we are clear about what he or she means. Students need much practice in transforming vague thoughts into clear ones.

One phenomenon of egocentric thought is that of hiding one's thoughts from oneself, or keeping thoughts at the unconscious level, or keeping thoughts vague and undefined. Critical thinkers are committed to clarity of thought and consistently work to bring vague or undefined thoughts to the conscious, clearly defined level.

See *ambiguous*, *clarify*, *concept*, *unconscious thought*.

vested interest: promoting personal advantage, usually at the expense of others; group pursuit of collective goals, exerting influence that enables the group to profit, often at the expense of others.

One natural implication of sociocentric thought is the problem of group vested interest. Every group potentially falls prey to this native human tendency—to seek more for its own group at the expense of others. For example, many groups that lobby Congress do so to gain money, power, and advantage for themselves by provisions

in law that specially favor their group. The term *vested interest* classically contrasts with the term *public interest*. A group that lobbies Congress in the public interest is not seeking to gain special advantage for a comparative few but, rather, protection for the majority. Preserving the quality of the air is a *public interest*. Building cheaper cars by using second rate material is a *vested interest* (it makes more money for car manufacturers).

The term 'vested interest' has been largely replaced with the term 'special interest' by those seeking vested interests, for they do not want their real agenda to come to light. By advancing the notion that all groups are simply seeking to protect and expand their "special interest," these groups hope to place their selfish agenda on the same footing with agendas in the public interest.

See *selfish interest*, *sociocentric thought*.

- W -

weak-sense critical thinkers: those who use the skills, abilities, and to some extent, the traits of critical thinking to serve their selfish interests; unfair or unethical critical thinkers.

Weak-sense, or unethical critical thinkers, have the following pronounced tendencies:

- (1) They do not hold themselves or those with whom they ego-identify to the same intellectual standards to which they hold opponents.
- (2) They do not reason empathically within points of view or frames of reference

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- A** with which they disagree;
- B** (3) They tend to think monologically (within one narrow perspective).
- C** (4) They do not genuinely accept, though they may verbally espouse, the values of fairminded critical thinking.
- D**
- E** (5) They use intellectual skills selectively and self-deceptively to foster and serve their selfish interests at the expense of truth.
- F**
- G**
- H** (6) They use critical thinking skills to identify flaws in the reasoning of others and sophisticated arguments to refute others' arguments before giving those arguments due consideration.
- I**
- J**
- K** (7) They routinely justify their irrational thinking through highly sophisticated rationalizations.
- L**
- M** (8) They are highly skilled at manipulation.

Opposite is *strong-sense critical thinkers*. See also *egocentricity*, *irrational*, *rationalization*, *sophistic critical thinkers*.

wishful thinking: when a person unconsciously misinterprets facts in order to maintain a belief.

Wishful thinking leads to false expectations and usually involves seeing things more positively than is reasonable in the situation. The woman who interprets a man's behavior as intending to attract her for romantic reasons, when in fact he is merely being friendly, is an example of wishful thinking. The teacher who believes she is deeply engaging the intellects of her students through lecture, followed by massive memorization for testing, is engaging in wishful thinking.

Critical thinkers avoid engaging in wishful thinking, instead seeking the

truth, however painful that truth might be. See *defense mechanisms*.

world view: a way of looking at and interpreting the world, based largely on our assumptions and conceptual orientation.

Each of us has a belief system, or world view, through which we interpret events, situations, experiences, people, nature, etc. This world view changes to some extent over time, and in some cases, is enriched as we grow and age. And it is the beginning place for thinking in new contexts. In other words, we develop our world view over time, taking in the ideas of those around us, deciding which ideas to accept and which to reject; and we bring our world view with us to every new situation and circumstance.

Thus we have a belief system, or a mental map of ideas, assumptions, etc. through which we experience everything in the world. And most of us are largely trapped within our world view. Consequently we see our way of thinking as *the right way to think*, not as one possible way to think.

Most of us have a world view which is largely sociocentric, based on uncritically accepted views and ideas of the groups that have influenced us. For instance, most of us are trapped in nationalistic, patriotic, jingoistic orientations. We see our country as the best and brightest. We see our values and ideals as superior to all others. This nationalistic perspective is a significant part of our world view. We rarely analyze or assess it. The idea of becoming a *citizen of the world*, being just as concerned with the rights and

needs of people in other countries as those in our own doesn't occur to us, trapped as we are in our sociocentric orientation.

Besides having a global world view, we all have internalized multiple subordinate world views. Some are gender-based; some are economically-based; some are culturally-based, etc. In all likelihood, there are multiple contradictions that exist within and among these subordinate views without our knowledge. Critical thinking challenges us to face our contradictions and work through them until our belief systems have intellectual and ethical integrity.

In most schooling today, little is done to help students grasp how they are viewing the world and how those views determine the character of their experience, their interpretations, their conclusions about events and persons. Consequently most students have no notion that they *have* a world view and that this world view can be molded. In learning critical thinking in a strong sense, we make it a priority to discover our own world view and openmindedly think within the views of others.

See *cultural assumption, point of view, perspective, point of view, sociocentric thought*.

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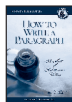
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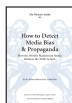
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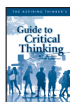
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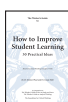
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