

A Guide for Educators
to

Critical Thinking Competency Standards

Standards, Principles, Performance
Indicators, and Outcomes
With a Critical Thinking
Master Rubric

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The Foundation for Critical Thinking

Letter to the Reader

Much lip service is given to the notion that students are learning to think critically. A cursory examination of critical thinking competency standards (enumerated and elaborated in this guide) should persuade any reasonable person familiar with schooling today that they are not. On the other hand, a reasonable person might also conclude that no teacher in any single subject could teach all of these standards. We agree.

The critical thinking competency standards articulated in this guide serve as a resource for teachers, curriculum designers, administrators and accrediting bodies. The use of these competencies across the curriculum will ensure that critical thinking is fostered in the teaching of any subject to all students at every grade level. We can expect large groups of students to achieve these competencies only when most teachers within a particular institution are fostering critical thinking standards in their subject(s) at their grade level. We cannot expect students to learn critical thinking at any substantive level through one or a few semesters of instruction.

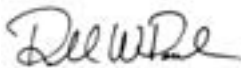
Viewed as a process covering twelve to sixteen years and beyond, and contributed to by all instruction, both at the K-12 as well as the college and university level, all of the competencies we articulate, and more, can be achieved by students. We recommend therefore that those responsible for instruction identify which competencies will be fostered at what grade level in what subjects for what students. The most important competencies must be reinforced within most instruction. Some competencies might well be taught in a more restricted way.

We believe any well-educated student or citizen needs the abilities and dispositions fostered through these competencies. We also believe that any reasonable person who closely studies these competencies will agree.

To transform classrooms into communities of thinkers, we need to take a long-term view. We need to reflect widely and broadly. We need to be systematic, committed, and visionary. The task is challenging indeed. But it is a challenge we ignore at the risk of the well-being of our students and that of our society.



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play in education, if we are ever to foster the skills of mind necessary for functioning effectively in an increasingly complex world.

After a brief discussion of critical thinking and its relationship to education, we outline and detail the competencies, relate them to seminal critical thinking concepts, and then provide rubrics for scoring. In the appendix we provide a brief overview of the theory underlying the competencies.

It is important to note that, only when teachers understand the foundations of critical thinking can they effectively teach for it. This fact should become clearer as you work through the competencies.

Throughout the guide (including the appendix), we recommend readings, readings that lay the groundwork for understanding and fostering the competencies. Before attempting to foster any particular competency, or set of competencies, we recommend that teachers spend time internalizing the related critical thinking concepts we reference for each competency.

The simple truth is that teachers are able to foster critical thinking only to the extent that they themselves think critically. This may be the single most significant barrier to student achievement of critical thinking competencies. For teachers to aid students in becoming deep thinkers, they must themselves think deeply. For teachers to aid students in developing intellectual humility, they must themselves have developed intellectual humility. For teachers to foster a reasonable, rational multi-logical worldview, they must themselves have developed such a worldview. In short, teaching for critical thinking presupposes a clear conception of critical thinking in the mind of the teacher.

Unfortunately, we cannot assume that teachers have a clear concept of critical thinking. Indeed, research indicates that the opposite is true. Available evidence suggests that critical thinking is rarely fostered in a systematic way in academic programs at any level. The institutions most effectively able to use critical thinking competencies are those guided by leaders who themselves understand critical thinking, and who support an effective long-term staff development program in critical thinking.¹

¹ For two related articles on long-term staff development designed to foster a substantive concept of critical thinking, see the following links: <http://www.criticalthinking.org/professionalDev/model-for-colleges.shtml> <http://www.criticalthinking.org/resources/articles/the-state-ct-today.shtml> Though these articles focus specifically on staff development in higher education, the same basic approach would apply to K-12 schooling

Understanding the Intimate Relationship Between Critical Thinking, Learning, and Education

Let us begin by focusing some attention on the intimate relationships between critical thinking, learning and education. Only when teachers understand these relationships will they see the importance of placing critical thinking at the heart of instruction.

The Concept of Critical Thinking²

The concept of critical thinking can be expressed in a variety of definitions, depending on one's purpose (though, as with every concept, its essence is always the same). The definition most useful in assessing critical thinking abilities is as follows:

Critical thinking is the process of analyzing and assessing thinking with a view to improving it. Critical thinking presupposes knowledge of the most basic structures in thinking (the elements of thought) and the most basic intellectual standards for thinking (universal intellectual standards). The key to the creative side of critical thinking (the actual improving of thought) is in restructuring thinking as a result of analyzing and effectively assessing it.

As teachers foster critical thinking skills, it is important that they do so with the ultimate purpose of fostering traits of mind. Intellectual traits or dispositions distinguish a skilled but sophisticated thinker from a skilled fair-minded thinker. Fairminded critical thinkers are intellectually humble and intellectually empathic. They have confidence in reason and intellectual integrity. They display intellectual courage and intellectual autonomy.

It is possible to develop some critical thinking skills within one or more content areas without developing critical thinking skills in general. The best teaching approach fosters both, so that students learn to reason well across a wide range of subjects and domains.

The “What” and the “How” of Education

The “what” of education is the content we want students to acquire, everything we want students to learn. The “how” of education is the process, everything we do to help students acquire the content in a deep and meaningful way.

Most teachers assume that if they expose students to the “what,” students will automatically use the proper “how.” This common, yet false, assumption is, and has been for many years, a plague on education. By focusing on “content coverage,” rather than on learning how to learn, schooling has failed to teach students how to take command of their learning, how to bring ideas into the mind using the mind, how to interrelate ideas within and

² For an overview of the concept of critical thinking, see the Miniature Guide to Critical Thinking Concepts and Tools, by Richard Paul and Linda Elder, 2004. Dillon Beach: Foundation for Critical Thinking, www.criticalthinking.org.

among disciplines. Most teachers devise instructional methods based on the following assumptions:

1. Lecture content can be absorbed with minimal intellectual engagement on the part of students.
2. Students can learn important content without much intellectual work.
3. Memorization is the key to learning, so that students need to store up lots of information (that they can use later when they need it).

Critical Thinking is the “How” for Obtaining Every Educational “What”

As we have already mentioned, a significant barrier to the development of student thinking is the fact that few teachers understand the concept or importance of intellect engagement in learning. Having been taught by instructors who primarily lectured, many teachers teach as if ideas and thoughts could be poured into the mind without the mind having to do intellectual work to acquire them.

To enable students to become effective learners, teachers must learn what intellectual work looks like, how the mind functions when it is intellectually engaged, what it means to take ideas seriously, to take ownership of ideas.³

To do this, teachers must understand the essential role of thinking in the acquisition of knowledge. Pestalozzi puts it this way:

Thinking leads man to knowledge. He may see and hear and read and learn whatever he pleases, and as much as he pleases; he will never know anything of it, except that which he has thought over, that which by thinking he has made the property of his own mind.

John Henry Newman,⁴ more than 150 years ago, described this process as follows:

[The process] consists, not merely in the passive reception into the mind of a number of ideas hitherto unknown to it, but in the mind's energetic and simultaneous action upon and towards and among those new ideas, which are rushing in upon it. It is the action of a formative power, reducing to order and meaning the matter of our acquirements; it is a making the objects of our knowledge subjectively our own, or, to use a familiar word, it is a digestion of what we receive, into the substance of our previous state of thought; and without this no enlargement is said to follow. There is no enlargement, unless there be a comparison of ideas one with another, as they come before the mind, and a systematizing of them. We feel our minds to be growing and expanding then, when we not only learn, but refer what we learn to what we know already. It is not the mere addition to our knowledge that is the illumination; but the locomotion, the movement onwards, of that mental centre, to which both what we know, and what we are learning, the accumulating mass of our acquirements, gravitates.

³ For instructional strategies designed to foster critical thinking see *The Miniature Guide on How to Improve Student Learning: 30 Practical Ideas*, by Richard Paul and Linda Elder, 2004. Dillon Beach: Foundation for Critical Thinking, www.criticalthinking.org. See also *The Miniature Guide on Active and Cooperative Learning*, by Wesley Hiler and Richard Paul, 2002, Dillon Beach: Foundation for Critical Thinking, www.criticalthinking.org.

⁴ Newman, J. (1852) *The Idea of a University*

Critical thinking is the set of intellectual skills, abilities and dispositions characterized by Newman in this passage. It leads to content mastery and deep learning. It develops appreciation for reason and evidence. It encourages students to discover and process information, and to do so with discipline. It teaches students to think their way to conclusions, defend positions on complex issues, consider a wide variety of viewpoints, analyze concepts, theories, and explanations, clarify issues and conclusions, solve problems, transfer ideas to new contexts, examine assumptions, assess alleged facts, explore implications and consequences, and increasingly come to terms with the contradictions and inconsistencies in their own thought and experience. This is the thinking, and alone the thinking, that masters content.

Thought and content are inseparable, not antagonists but partners. There is no such thing as thinking about nothing. When we think about nothing we are not thinking. Thinking requires content, substance, something to think through. On the other hand, content is parasitic upon thinking. It is discovered and created by thought, analyzed and synthesized by thought, organized and transformed by thought, accepted or rejected by thought.

To teach content separate from thinking is to ensure that students never learn to think within the discipline (that defines and creates the content). It is to substitute the mere illusion of knowledge for genuine knowledge. It is to deny students the opportunity to become self-directed, motivated, lifelong learners.

Critical Thinking and Learning

The key insight into the connection of learning to critical thinking is this:

The only capacity we can use to learn is human thinking. If we think well while learning, we learn well. If we think poorly while learning, we learn poorly.

To learn a body of content, say, an academic discipline, is equivalent to learning to think within the discipline. Hence to learn biology, one has to learn to think biologically. To learn sociology, one has to learn to think sociologically.

If we want to develop rubrics for learning in general, they should be expressed in terms of the thinking one must do to succeed in the learning. Students need to think critically to learn at every level. Sometimes the critical thinking required is elementary and foundational. For example, in studying a subject there are foundational concepts that define the core of the discipline. To begin to take ownership one needs to give voice to those basic concepts—e.g. to state what the concept means in one's own words; to elaborate what the concept means, again in one's own words; and then to give examples of the concept from real-life situations.

Without critical thinking guiding the process of learning, rote memorization becomes the primary recourse, with students forgetting at about the same rate they are learning and rarely, if ever, internalizing powerful ideas. For example, most students never take genuine ownership of the concept of democracy. They memorize phrases like, "a democracy is government of the people, by the people, for the people." But they don't come to understand

what such a definition means. And when they don't know what a definition means, they cannot elaborate or exemplify its meaning.

Moreover, most students are unable to distinguish between democracy and other forms of government incompatible with democracy, like, say, plutocracy. They don't truly understand the concept of democracy because they have never worked the idea into their thinking, comparing it with other forms of government, considering the conditions within a society that would have to exist for a democracy to work, assessing practices in their own country to determine for themselves whether a true democracy exists, and, if not, how conditions would have to change for a democracy to be realized.

Through critical thinking, then, we are able to acquire knowledge, understanding, insights, and skills in any given body of content. To learn content we must think analytically and evaluatively within that content. Thus critical thinking provides tools for both internalizing content (taking ownership of content) and assessing the quality of that internalization. It enables us to construct the system (that underlies the content) in our minds, to internalize it, and to use it reasoning through actual problems and issues.

Critical Thinking and the Educated Person

Developing critical thinkers is central to the mission of all educational institutions. By ensuring that students learn to think critically and fairly, we ensure that students not only master essential subject matter, but become effective citizens, capable of reasoning ethically and acting in the public good. To successfully teach critical thinking, it must be woven into curriculum content, structure, and sequence at all grade levels.

Education, properly so called, alters and reworks the mind of the student. Educated persons function differently from uneducated persons. They are able to enter and intellectually empathize with alternate ways of looking at things. They change their minds when evidence or reasoning require it. They are able to internalize important concepts within a discipline and interrelate those concepts with other important concepts both within and among disciplines. They are able to reason well enough to think their way through complex problems. If students are to become educated persons, teachers must place thinking at the heart of the curriculum; they must require students to actively work ideas into their thinking using their thinking.

Critical Thinking and Information Literacy

Information literacy is of growing concern to educators. It involves a constellation of skills linked both to education and to critical thinking. Without competence in information literacy, students cannot be educated persons—because they will not know what information to accept and what to reject. It is critical thinking that provides the tools for assessing information.

Put in perspective, information literacy is an aspect or dimension of critical thinking. It is dependent on critical thinking, but does not exhaust it. The reason is simple. Information is but one of eight basic structures of thought which function in relation to one other. To understand any body of content, any human communication, any book, film,

or media message, a person must understand not simply the raw “information” it contains, but also its purpose, the questions it raises, the concepts that structure the information, the assumptions underlying it, the conclusions drawn from it, the implications that follow from those conclusions, and the point of view that informs it.

Furthermore, it is not enough to possess information, one must be able to assess it for its clarity, accuracy, precision, relevance, depth, breadth, logic and significance.

Our minds are shaped not only by the information we seek, but by the information that “seeks” us. It is shaped, as well, by the information we reject. For example, to minimize internalizing bias and propaganda, students need accurate information as to how the mass media function in selecting, shaping, and giving a “spin” to information for mass consumption. The fundamental purpose of the mass media is not to educate the masses, but to make a profit. The media maximize their profit by telling people essentially what they want to hear, and by playing to the desires, prejudices, and allegiances of their audience. Mass media outlets maintain sensitivity to their audience, their advertisers, the government, as well as to the ratings of their competitors. They feed the mass passion for the novel, the sensational, and the scandalous. These phenomena are not a matter of conspiracy, but of economic interest.

Critical consumers of information from mass media sources know that within every given society or culture, the dominant viewpoints are given a privileged and commanding place. Consequently, critical consumers seek information from dissenting media sources and dissenting points of view. They do not assume that the dominant points of view are true, nor the dissenting false, nor the reverse. They are able to distinguish the plausible from the implausible, the credible from the incredible, the probable from the improbable. They do this by using intellectual standards not dependent on any given cultural or ideological standpoint.

Therefore, if we want students to develop information literacy, they cannot do so without developing skills of critical thought.

The Growing Importance of Critical Thinking

Critical thinking is becoming increasingly important due to four trends: accelerating change, intensifying complexity, escalating interdependence, and increasing danger. In a world charged with fear and insecurity, masses of people are unthinkingly following leaders who tentitiously divide the world into good versus evil, who use force and violence to enforce their views.

We are daily faced with a glut of information. And much of that information has been cunningly packaged to serve vested interest groups, not the individual citizen nor the public good. Students need to take charge of their own minds, to recognize their own deepest values, to take action that contributes to their own and the good of others. To do this, they must learn how to learn and to become, in the process, lifelong learners.

Critical and Creative Thinking⁵

In understanding critical thinking, it is important to recognize the interrelationship of critical and creative thought. These two modes of thinking, though often misunderstood, are inseparable in everyday reasoning. Creativity masters a process of making or producing, criticality a process of assessing or judging. The mind when thinking well must simultaneously both produce and assess, both generate, and judge, the products it constructs. Sound thinking requires both imagination and intellectual discipline.

Intellectual discipline and rigor are not only quite at home with originality and productivity, but these so-called poles of thinking (i.e. critical and creative thought) are in fact inseparable aspects of excellence in thought. Whether we are dealing with the most mundane acts of the mind or those of the most imaginative artist or thinker, the creative and the critical are interwoven. It is the nature of the mind to create thoughts, though the quality of that creation varies enormously from person to person, as well as from thought to thought. Achievement of quality requires standards of quality—and hence, a full measure of criticality.

The logic of learning an academic discipline—from the point of view of critical and creative thought—is illuminating. Each academic discipline is a domain of thinking in which humans deploy specialized concepts (and thus make inferences that follow from, or are suggested by, those concepts). To learn the key concepts in a discipline, we must construct them in our minds by a series of mental acts. We must construct them as an ordered system of relationships. We must construct both foundations and the concepts derivative of those foundations. Each moment of that creation requires discernment and judgment. There is no way to implant, transfer, or inject the system in the mind of another person in pre-fabricated form. It cannot be put on a mental compact disk and downloaded into the mind without an intellectual struggle. Critical judgment is essential to all acts of construction; and all acts of construction are open to critical assessment. We create and assess; we assess what we create; we assess as we create. In other words, at one and the same time, we think critically and creatively.

Critical Thinking and the Mastery of Content

Academic “content” is best understood as a system of interconnected ideas defining a subject field. This system is used by professionals in a field to ask questions, gather data or information, make inferences about the data, trace implications, and transform the way we see and think about the dimension of the world that the subject represents. For example, the following ideas are part of a system that defines chemistry: matter, physical properties, chemical properties, atoms, compounds, molecules, the periodic table, law of conservation of mass, atomic and molecular weight, mass number, atomic number, isotopes, ions, etc. . . . Each idea is explained in terms of other ideas.

⁵ For a detailed explanation of the relationship between critical and creative thinking, see *The Thinker's Guide to Critical and Creative Thinking*, by Richard Paul and Linda Elder, 2004. Dillon Beach: Foundation for Critical Thinking, www.criticalthinking.org.

2. **Master Rubrics:** Overall, the student has evidenced understanding and internalization of the critical thinking competency (as detailed in the performance indicator) with the following frequency:
- Virtually never (0 points)
 - Rarely (1–2 points)
 - Sometimes, but with limited understanding (3–5 points)
 - Often, (but inconsistently and sometimes superficially)
 - Typically and characteristically, and with depth of understanding (9–10 points)

The overall score is an average score of all outcomes (either of the complete list of outcomes, or only those outcomes fostered in the teaching process). In determining the master score, then, one of two procedures can be used:

1. Calculating the average score of only those outcomes included in the instructional process.
2. Calculating the average score of all outcomes listed for each competency, regardless of whether an outcome has been fostered in the learning process. In this case, a score of “0” is given for the excluded outcomes, and then the average of all outcomes in the competency is calculated. This score would be the most accurate of the two possibilities.

Standard One: Purposes, Goals, and Objectives⁶

Students who think critically recognize that all thinking has a purpose, objective, goal or function.

Critical Thinking Principle

If you are clear about your purpose, about what you are trying to accomplish or achieve, you are far more likely to achieve it than when you are not. Moreover, the pursuit of any specific purpose is justified only when the purpose is fair to all relevant persons, animals, and/or groups.

Performance indicators and dispositions

Students who think critically seek to understand not only what they are learning but why. They formulate purposes, goals, and objectives that are clear, reasonable, and fair. They also identify purposes that are unclear, inconsistent, unrealistic, and unfair.

Outcomes include

1. Students explain in their own words (clearly and precisely) the purpose and significance of what is happening in class—of classroom activities, tests, and assignments.

⁶ For a deeper understanding of the elements of reasoning and the intellectual standards, which are the focus of the first nine standards, see: *Critical Thinking: Tools for Taking Charge of Your Learning and Your Life* by Richard Paul and Linda Elder, 2001, Upper Saddle River, New Jersey: Prentice Hall, chapters 4-5. Also see *A Miniature Guide to the Foundations of Analytic Thinking* by Linda Elder and Richard Paul, 2003, Dillon Beach, CA: Foundation for Critical Thinking, www.criticalthinking.org

2. Students explain in their own words (clearly and precisely) the purpose of the subject or discipline being studied.
3. Students explain in their own words (clearly and precisely) the purpose of reasoning through a problem or issue (within a discipline or subject, or across disciplines).
4. Students explain in their own words (clearly and precisely) the purpose of reasoning through problems in their own life.
5. Students notice when they or other students are straying from the purpose at hand, and redirect the thinking back toward the purpose.
6. When asked to select a goal or purpose (for example, to choose a problem to solve), students demonstrate the ability to adopt realistic ends.
7. Students choose reasonable secondary (instrumental) goals that make sense in working toward the accomplishment of a more ultimate goal.
8. Students regularly adjust their thinking to fit their ultimate purposes.
9. Students choose purposes and goals that are fair-minded, considering the relevant needs and rights of others (and assess the purposes of others for fairness).

Standard Two: Questions, Problems, and Issues

Students who think critically recognize that all thinking is an attempt to figure something out, to settle some question, or solve some problem.

Critical Thinking Principle

To settle a question, you must know what it is asking and how to go about answering it. In other words, for every question one might ask, there are conditions that must be met before the question can be settled.

Performance indicators and dispositions

Students who think critically seek a clear understanding of the main question they are trying to answer, problem they are trying to solve, or issue they are trying to resolve. They formulate questions clearly and precisely. They recognize when they are dealing with a complex question and they think deeply within its complexities before attempting to answer such a question. They recognize when a question requires them to consider multiple relevant viewpoints and they consider those viewpoints in good faith before attempting to answer the question. Students who think critically also routinely analyze and assess the use of questions in others' thinking (using the same guidelines).

Outcomes include

1. Students express in their own words (clearly and precisely) the question at issue (in a lesson, chapter, assignment, etc.).
2. Students re-express a question in a variety of ways (with clarity and precision).
3. Students divide complex questions into sub-questions (accurately delineating the complexities in the issue).

Critical Thinking Principle

Thinking can only be as sound as the assumptions (beliefs) upon which it is based.

Performance indicators and dispositions

Students who think critically seek a clear understanding of the assumptions they are making (and the assumptions that underlie the thinking of others). They are able to distinguish between assumptions that are justifiable in context and those that are not. They realize that assumptions generally function at the unconscious or subconscious level of thought and therefore have usually not been critically examined by the thinker. They understand that assumptions often contain prejudices, stereotypes, biases and distortions. They routinely assess their assumptions, as well as those of others, to determine whether those assumptions are based in sound reasoning and evidence.

Outcomes include

1. Students accurately identify their own assumptions, as well as those of others.
2. Students make assumptions that are reasonable and justifiable, given the situation and evidence.
3. Students make assumptions that are consistent with one another.
4. Students are aware of the natural tendency in humans to use stereotypes, prejudices, biases and distortions in their reasoning; they regularly identify their own stereotypes, prejudices, biases and distortions; they demonstrate skill in accurately identifying the stereotypes, prejudices, biases and distortions in the thinking of others.
5. Students accurately state the assumptions underlying the inferences they, or others make, and then to accurately assess those assumptions for justifiability.
6. Students demonstrate understanding of the fact that assumptions function primarily at the unconscious or subconscious level of thought
7. Students demonstrate recognition that the mind naturally (egocentrically) seeks to hide unjustifiable assumptions in the mind in order to maintain its belief system or pursue selfish ends.
8. Students seek out, in their thinking, unjustifiable assumptions generated and maintained through native egocentric tendencies (hidden at the unconscious level of thought).
9. Students accurately identify assumptions within subjects, disciplines and texts.
10. Students identify the assumptions embedded in the concepts they use and the theories they study.

Standard Six: Concepts, Theories, Principles, Definitions, Laws, & Axioms

Students who think critically recognize that all thinking is expressed through, and shaped by, concepts and ideas.

Critical Thinking Principle

Thinking can only be as clear, relevant, realistic and deep as the concepts that shape it.

Performance indicators and dispositions

Students who think critically seek a clear understanding of the concepts and ideas that shape their reasoning and the reasoning of others. They understand the powerful role of concepts in human thought, that it is through concepts that people define and shape their experiences. They understand that humans often use distorted concepts, concepts that negate fundamental agreed-upon definitions and understandings. They recognize that people often distort concepts in order to maintain a particular viewpoint, position, or to control or manipulate the thinking of others. They regularly and routinely assess the concepts they use, making sure they are using concepts justifiably. Similarly, they regularly and routinely assess the concepts used by others.

Outcomes include

1. Students are able to state, elaborate and exemplify what a concept is.
2. Students demonstrate understanding of the following distinctions: theories, principles, definitions, laws, & axioms (they can accurately state, elaborate, and exemplify each one).
3. Students identify the key concepts and ideas they and others use.
4. Students are able to accurately explain the implications of the key words and phrases they use.
5. Students distinguish nonstandard uses of words from standard ones.
6. Students are aware of irrelevant concepts and ideas and use concepts and ideas in ways relevant to their functions.
7. Students think deeply about the concepts they use.
8. Students analyze concepts and to draw distinctions between related but different concepts
9. Students use language with care and precision, while holding others to the same standards.
10. Students demonstrate awareness of the mind's naturally tendency to distort concepts in order to maintain a particular viewpoint or set of beliefs; they show a propensity to identify when concepts are being misused.

Standard Seven: Implications and Consequences

Students who think critically recognize that all thinking leads somewhere, that it has implications and, when acted upon, has consequences.

Critical Thinking Principle

To reason well through an issue, you must think through the implications that follow from your reasoning. You must think through the consequences likely to follow from decisions you make. Implications of your thinking and behavior exist whether you see them or not.

Performance indicators and dispositions

Students who think critically seek a clear understanding of the implications of their thinking and of the consequences of their behavior. They think through the likely implications of their behavior before they act. They are especially aware of significant implications. Because they think through the implications of their behavior before acting, their behavior tends to lead to positive or desirable consequences. Students who think critically also think through the implications of others' thinking and behavior where relevant. They are not only able to follow out the implications of thinking and behavior, but also to follow out the implications of implications. In other words, they think in the following way: "If we decide to do this, the following implications are likely. . . , and if this or that consequence occurs, the implications (of that consequence) are as follows. . ."

Outcomes include

1. Students distinguish, clearly and precisely, the difference between (and overlap between) an implication and a consequence.
2. Students identify the most significant implications and consequences of their reasoning and behavior.
3. Students distinguish clearly defined implications and consequences from vaguely expressed ones.
4. Students consider negative as well as positive implications (of their own thinking or behavior, of others thinking or behavior).
5. Students distinguish probable from improbable (and therefore unlikely) implications and consequences.
6. Students identify the implications of language usage in context (and recognize the relationship between language used and the concepts formed in a situation).
7. Students think through implications when reasoning through issues and problems within subjects and disciplines.

Standard Eight: Points of View and Frames of Reference

Students who think critically recognize that all thinking occurs within some point of view.

Critical Thinking Principle

To reason justifiably through an issue, you must identify points of view relevant to the issue and enter them empathically.

Performance indicators and dispositions

Students who think critically seek a clear understanding of the points of view relevant to an issue they are considering. When dealing with an issue where more than one viewpoint is relevant to the issue, they enter differing viewpoints in good faith (with a mind that can be changed when faced with better reasoning than the reasoning one begins with). Students who think critically appreciate the fact that some issues are not only complex, but broad in scope, and that these issues are often difficult, if not impossible, to settle definitely. Critical thinkers have a world view that is broad in perspective, that seeks the most flexible and open-minded way of looking at a situation, and that avoids sociocentric narrow-mindedness, nationalism, and cultural bias.

Critical thinkers are keenly aware of the fact that they did not choose the point of view they have developed. They recognize that there are many potential sources for any particular point of view: time, culture, religion, gender, discipline, profession, peer group, economic interest, emotional state, social role, or age group—to name a few. For example, we can look at the world from

- a point in time (16th, 17th, 18th, 19th Century)
- a culture (Western, Eastern, South American, Japanese, Turkish, French)
- a religion (Buddhist, Christian, Muslim, Jewish)
- a gender (male, female, homosexual, heterosexual)
- a profession (lawyer, teacher, ...)
- a discipline (biological, chemical, geological, astronomical, historical, sociological, philosophical, anthropological, literary, artistic, musical, dance, poetic, medical, nursing, sport)
- a peer group
- an economic interest
- an emotional state
- an age group

Students who think critically are aware of the fact that anyone's viewpoint, at any given time, reflects some combination of these dimensions.

Outcomes include

1. Students accurately define the meaning of “point of view.” They can accurately state, elaborate and exemplify its meaning.
2. Students demonstrate awareness of the fact that reasonable people can vary significantly in their points of view, especially on controversial issues.
3. Students enter empathically into points of view with which they disagree, and accurately represent those viewpoints. They seek common ground whenever possible.
4. Students are aware that there is some truth in points of view other than their own, and that the worth of a viewpoint has nothing to do with its popularity.

The Thinker's Guide Library

The Thinker's Guide series provides convenient, inexpensive, portable references that students and faculty can use to improve the quality of studying, learning, and teaching. Their modest cost enables instructors to require them of all students (in addition to a textbook). Their compactness enables students to keep them at hand whenever they are working in or out of class. Their succinctness serves as a continual reminder of the most basic principles of critical thinking.

For Students & Faculty



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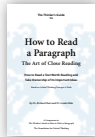
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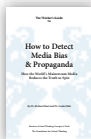
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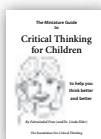
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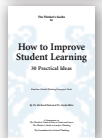
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About the Authors

Dr. Linda Elder is an educational psychologist who has taught both psychology and critical thinking at the college level. She is the President of the Foundation for Critical Thinking and the Executive Director of the Center for Critical Thinking. Dr. Elder has a special interest in the relation of thought and emotion, the cognitive and the affective, and has developed an original theory of the states of critical thinking development. She has authored and co-authored a series of articles on critical thinking including a column on critical thinking for the *Journal of Developmental Education*. She has co-authored four books on critical thinking. She is a dynamic presenter.



Dr. Richard Paul is a major leader in the international critical thinking movement. He is Director of Research at the Center for Critical Thinking, and the Chair of the National Council for Excellence in Critical Thinking, author of over 200 articles and seven books on critical thinking. Dr. Paul has given hundreds of workshops on critical thinking and made a series of eight critical thinking video programs for PBS. His views on critical thinking have been canvassed in *New York Times*, *Education Week*, *The Chronicle of Higher Education*, *American Teacher*, *Educational Leadership*, *Newsweek*, *U.S. News and World Report*, and *Reader's Digest*.



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