Reflections on the Nature of Critical Thinking, Its History, Politics, and Barriers, and on Its Status across the College/University Curriculum Part II

Richard Paul
The Foundation for Critical Thinking

Abstract

This is Part II of a reflection by Richard Paul on critical thinking, its theory and pedagogy, and on political and personal barriers to critical thinking education and practice. Part I of Paul's reflection appeared in *INQUIRY*, Vol. 26 No. 3 (Fall 2011), pp. 5-24. In Part II Paul focuses on the concept of critical thinking, pointing out its unifying features as well as the many ways it can be contextualized in human thought and life. He lays out his basic critical thinking theory and offers critical thinking polarities for use in assessing critical thinking approaches. He provides an overview of the work of the Foundation for Critical Thinking in advancing fairminded critical thought in education and in society.

Key words: critical thinking, pedagogy, professional development, Socrates, Richard Paul, elements of reasoning, intellectual standards, intellectual traits, intellectual character, ethical thinking, strong-sense critical thinking, weak-sense critical thinking, Linda Elder, Gerald Nosich, logic of a discipline

I. Background Logic

A backdrop of this paper is the arguable observation that insofar as the critical thinking movement is viewed against the conditions of a worldwide historical struggle of "force versus reason," force has been dominant in the struggle. The paper traces the opening of the struggle with Socrates who defied the government of ancient Athens with his social, conceptual, and personal critique. It emphasizes the inevitability of politics in human affairs. The struggle itself, from Socrates to this day has, I argue, been one-sided, with force as the consistent (though not perhaps inevitable) victor.

In Part I of this paper I described a small-scale example, one that has taken place in the last 35 years at colleges and universities largely in the USA, regarding the teaching of critical thinking. I characterized one limited dimension of that struggle as having been played out by philosophy departments seeking and claiming priority rights to critical thinking, and by informal logicians as having tacitly attempted to reduce theory of critical thinking to theory of reasoning and argumentation. In a yet smaller and personal context, I described some of the ways in which my views on critical thinking have been informally and tacitly marginalized, mainly by informal logicians. I pointed out the professional inconsistency between the high praise accorded my early views (1982-1990), on the one hand, and the stony silence accorded the extensive development of those views (1990 to the present), on the other. I called for research in all the above areas.

Despite this marginalization, I believe that the manifold ways that I and my colleagues have fruitfully applied our approach can be independently verified in diverse academic fields. The foundations of this framework are also implicit in domains of knowledge not yet officially recognized as fields of knowledge by academia. Thus, if readers of this paper understand the fundamentals of critical thinking as we have expressed them, they should be able to apply them, and thus test them, in content across the disciplines.

To demonstrate this point, I have written, along with my colleague, Linda Elder, a series of "contextualizations" of critical thinking applied across the disciplines in a collection of (23 to date) monographs titled "Thinkers' Guides to Critical Thinking" and published by the Foundation for Critical Thinking. It is significant to note that none of these highly detailed examples of critical thinking theory-into-practice have been professionally reviewed by any informal logicians during the last 20 years. This failure is a result of, as far as I can see, two facts: 1) the tacit attempt to marginalize my work, and 2) the fact that informal logicians have bogged down on theory of reasoning and argumentation (in abstracto) and have consequently produced little or no work on the problem of how to integrate critical thinking into and across the disciplines. In this regard the informal logic movement is, I have argued, isolated in its own self-created philosophical world. Its theoretical isolation stands in stark contrast to the theory-into-disciplinary-practice that has been the hallmark of our work at the Center and Foundation for Critical Thinking throughout the last three decades.

It is my view that the foundations for critical thinking that I will now lay out briefly in this Part II of my reflections represent the most developed integration to date of theory of critical thinking with critical thinking pedagogy. It also provides an account of how comprehensive critical thinking principles may be applied in practical ways in everyday professional and personal life. Part II highlights

concepts and principles essential to the application of critical thinking in multiple domains. In these reflections I focus on the important pay-offs of critical thinking, the issues we face in advocating it, and the strategies we must adopt if we want to be successful in achieving it as a personal, social, and cultural paradigm. The proof of any approach to critical thinking is given in how clearly, accurately, precisely, relevantly, deeply, broadly, logically, significantly, and fairly it lends itself to practical use in the full range of human situations which call for critical analysis, critical assessment, or critical judgment. For a fullest extension of our theory-in-application see the Foundation for Critical Thinking website (www. criticalthinking.org). To suggest the perceived relevance of these monograph/guides to the academic community, the reader might note the fact that well over 2 million are now in circulation. With these facts in mind, I shall now summarize the theory of critical-thinking-into-practice that underlies all research (and hence all publications) at the Foundation for Critical Thinking.

II. Theory of Critical Thinking

The concept of critical thinking is simple at its roots, but complex and variegated in its manifestations. At its roots it refers to a need that all thinkers have, namely, to learn how to monitor and minimize the inherent weaknesses that otherwise systematically lower the quality of our thought. As we develop critical thinking abilities and traits, we become increasingly motivated to analyze and assess our thinking and the thinking of others, in an *equitable* manner. This is the essence of fairminded critical thought. It begins in an emergent insight that the human mind — and therefore each of our minds — is naturally prejudiced in favor of itself. Thus, despite the "natural" and "confident" belief that we (and all our friends) are persons of integrity, it is fully possible, and indeed highly likely, for us to use our native intelligence, unethically, and inequitably. In other words, humans are not naturally accomplished thinkers. Our thinking is often poor, that is variously unclear, inaccurate, imprecise, irrelevant, superficial, narrow-minded, illogical, or unfair. Happily, we can do something about this problem. We can study good and poor thinking. We can strive to recognize our "poor" thinking. We can work to develop our "good" thinking. *Critical thinking is the art of working to systematically improve the quality of our thinking, to raise the problem to the level of conscious realization and use that realization as an urgent motivation to improve our thinking in every domain of thought and life.*

A. Regarding Definitions of Critical Thinking.

There is no single pure categorical way to express in one definitive definition the ideal of critical thinking. Nevertheless, one can find a number of helpful ways to articulate that ideal. Here is one from Webster's *Dictionary of Synonyms:*

> "Critical, when applied to persons who judge and to their judgments, not only may, but in very precise use does, imply an effort to see a think clearly and truly so that not only the good in it may be distinguished from the bad and the perfect from the imperfect, but also that it as a whole may be fairly judged or valued."

Of course, this core definition, though a fair statement of the ideal of critical thinking, does not capture an important subset of critical thinkers, those that I have called "weak sense or sophistic critical thinkers." These are thinkers who develop skills of argumentation and persuasion to a high level, not with the view to seeing things as they are, fairly and truly, but rather with the view to gaining an advantage over others, of advancing their own interests or the interests of the social, political, religious, or national groups of which they are members. Institutions that are centers of force and power routinely recruit persons of high intelligence and intellectual skill to maintain their advantage in the struggle for power in the world. "Intellectual skills for hire" is the mundane reality that dominates the everyday use of reason. Intellectually skilled managers of "the herd" — the large mass of uncritical thinkers — are numerous, while fairminded thinkers are rare, at every level and in every context. This is more apparent when one examines the history of thinking, noting especially how common it is for skilled thought to be egocentrically or sociocentrically motivated. Many accounts of critical thinking ignore and therefore confuse the ideal form of critical thinking, fairminded skilled thinking, with its most common uses for hire, which involve skilled, but one-sided, sophistic thinking. Consider, for example, those lawyers, advertisers, bankers, financiers, and corporate CEOs at the service of "big money" in society. Truth and public disclosure — that limits or prevents the acquisition of greater wealth and power on the part of those already wealthy and powerful — is not a goal of "funded" thought.

B. Critical Thinking: An Analogy

In any case, the concept of critical thinking, rightly understood, is both one and many. It is a construct of unification and diversification. It is both simple and complex. Much of the confusion that surrounds it results from theoreticians either oversimplifying it, on the one hand, or making it too complex, on the other. The ideal use of critical thinking studied by many critical thinking theoreticians is analogous to studying the phenomenon of life as studied by biologists.

Biologists recognize that all forms of life share features with virtually all other life forms. This universal principle is a unifying idea of life. On the other hand, there are millions of divergent forms and manifestations of life in the world. Biologists recognize the importance of both the unity and the diversity within biology. They recognize

that all forms of life have a structure, grow, reproduce and exist in an environment of diverse other forms of plants and animals. They recognize that there are relationships that exist between millions of forms of living things. They study, in other words, the conditions necessary for life in its unity and complexity. They study its hazards and pathologies. They study what contributes to quality of life.

Theoreticians in the field of critical thinking studies, (if we can yet call it a field) study thinking in a growing multitude of directions. Critical thinking theoreticians study the variables that give us insight into what unifies and what diversifies the quality of thought. Hence, in the direction of "unity" (of critical and uncritical thought), theoreticians study the nature, the structure, and the qualities of thought, as well as the life and habits of the mind, as they really are and as they ideally should be, both those that "enhance" and those that "undermine" fairminded critical thought.

In studying the structures of thought, increasing numbers of critical thinking theoreticians study the purposes of thought, the questions/problems/issues that drive it, the information that needs to be gathered relevant to it, the ways in which information may be structured and interpreted, the concepts (theories, categories that shape it), the assumptions that underlie it, the implications that follow from it, the points of view (frames of reference) that give it, or deny it, "vision" and breadth. They study the qualities that make for its excellence such as: clarity, accuracy, precision, relevance, depth, breath, logic, significance, and fairness. They study the qualities that make for its perfection in the dispositions of thinkers such as: intellectual humility, intellectual perseverance, intellectual empathy, logicalness, and fairmindedness. They also recognize the self delusions that obscure the sub-structure of much human thought. In sum, critical thinking theorists, when they are doing their job with intellectual integrity recognize the actual logic (the logos) of thinking as it may be applied in diverse fields of thought. They study, for example, the role of thought in superstition, in ignorance, arrogance, fear, insecurity, anger, jealousy, and pettiness (with significant focus, again, on the problems caused by egocentric and sociocentric thought).

C. The Multiplicity of Forms of Thought.

Thinking occurs in many divergent forms — biological, historical, chemical, mathematical, sociological, ethical, ideological, cultural, anthropological, literary, political, rhetorical, journalistic, monological, multilogical, musical, psychological, ecological, intra-disciplinary, interdisciplinary ,legal, botanical, business, and engineering-related, as well those deriving from philosophical orientations (like pragmatism, positivism, existentialism, phenomenology, critical theory, feminism, Marxism, psycho-analysis, liberalism, conservatism, etc.) Critical thinking categories must be contextualized to take into account the logic of the goals, the questions, information-gathering, concepts and theories, assumptions, and perspective of the form and content in which the critical thinking functions. Each discipline develops some specialized critical thinking tools the thinker must learn to use to think effectively within that discipline's logic.

D. The Roots of Diversity in Critical Thinking Frameworks

There are many frameworks for analyzing the diverse forms and manifestations of thinking. To map that divergence, it is often useful to locate any given form along what we may call "polarities" of thought. Consider the following seven parameters. We can question frameworks in (at least) the following ways. For any given framework:

1. Is the emphasis on criticality **"global"** or **"one-dimensional"**? It is global if the emphasis on criticality is *comprehensive* rather than limited to a particular discipline. It is one-dimensional if the emphasis is on a particular domain or framework of thought. Such technical approaches presuppose the learning of a large specialized language. Every discipline generates a network of technical concepts and principles focused mainly on thinking within the boundaries of the subject. Nevertheless every discipline is subject, to some degree, to comprehensive critical thinking concepts and principles.
2. Is the form of criticality **"Socratic?"** or **"sophistic?"** A framework for critical thinking is Socratic to the degree that the thinker is committed to thinking fairmindedly and is therefore ready to enter opposing points of view in an intellectually empathic manner. It is sophistic if the thinker is principally concerned with defeating other forms of thought — "winning the debate" — irrespective of whether the means used are fallacious or not. Sophistic thinking operates mainly in the realm of mental trickery and skilled manipulation. It is critical thinking only in a "weak" sense.
3. Is the emphasis on criticality **explicit** or **implicit**? It is explicit if the thinker is consciously trying to improve his thinking by strategies designed for that purpose. It is implicit if the thinker is unaware of his criticality and how he is attempting to develop it.
4. To what extent is the thinker **free, in this form of criticality**, to pursue any line of reasoning or system of beliefs? On the other hand, to what extent is the thinker systematically constrained or **censored**?
5. Is the thinker attempting to improve his thinking **systematically** or only **episodically**? It is systematic if regularly practiced. It is episodic if only occasionally practiced. (for example, consider textbooks whose emphasis on criticality is restricted to random "boxes" titled "Critical Thinking Issue.")
6. Is the framework **integrated** or **atomistic (fragmented)**? An approach to critical thinking is

integrated if the various categories are discussed in relation to each other. It is unintegrated if the categories are merely listed in sets and not related explicitly to each other. (This polarity was inadvertently not included in the listing of polarities in Part I of this two-part paper.)

7. Is the framework based in **natural language terminology** or given using technical **specialized languages**? It is based in natural languages if "ordinary" words and concepts are used to introduce it, and theories developed in it are also derived from ordinary words. It is based in specialized language if technical words comprise the significant concepts in it, and it is accessible only to those who speak and think within the technical language that define and explain it.

E. Thinking Within a Discipline

To think within a discipline is to think within the system of meanings that constitute the discipline. What we call knowledge are systems of interconnected ideas, ideas that create a logic: the logic of biology, the logic of chemistry, the logic of mathematics, the logic of sociology, the logic of anthropology, the logic of legal studies, the logic of medicine, and so forth. Yet most students think of what they are learning as disconnected sentences from a textbook or lecture. By the time they reach the college level they have successfully *mislearned* what it means to learn. They have successfully constructed misconceptions of knowledge. They don't see the need for thinking their way through the content, or for finding connections within and across disciplines. They see subjects and disciplines as complexes of atomic facts, bits and pieces of meaning to store in their minds for a test and then to forget to make room for more bits and pieces for another test and another test and another test. It is our job to disabuse our students of their caricatures of knowledge and learning. It is our job to teach them how to think: clearly, accurately, precisely, relevantly, deeply, broadly, logically, significantly, fairly. Enter critical thinking.

Critical thinking is maximally robust to the extent that its categories and out-reach are global, Socratic, explicit, systematic, integrated, uncensored, and based in natural language. This seven-fold combination makes for robustness in that it enables thinkers to export their critical-mindedness to every domain of thought, and to do this explicitly and (presumably) without indulging in self-deception. Of course, we should keep in mind that virtually every frame of reference or mode of thinking can be embraced critically or uncritically. Any intellectual framework can be misapplied or abused.

All of the above examples suggest the fact that, broadly viewed, there are almost unlimited forms of criticality, actual or potential, in human scholarly or intellectual discourse. Some are intra-disciplinary; some are interdisciplinary, and some are trans-disciplinary.

F. More Background Logic

The human intellect is the seat of human meaning-making. All meaning arises out of the creation and use, in someone's mind, of intellectual constructs. Intellectual constructs include much more than the analysis and assessment of arguments. All of the following are intellectual constructs of potential importance in critical thought: essays, theories, knowledge claims, assumptions, math problems, cases, world views, concepts, information, inferences, novels, poems, plays, schools of thought, critical analyses, critical evaluations, editorials, news articles, news stories, budgets, financial plans, axiomatic systems, accounting documents, architectural designs, engineering designs, number systems, classificatory systems, intellectual distinctions, histories, experiments, critiques of art of whatever sort, background logic, understandings, interpretations, and so forth.

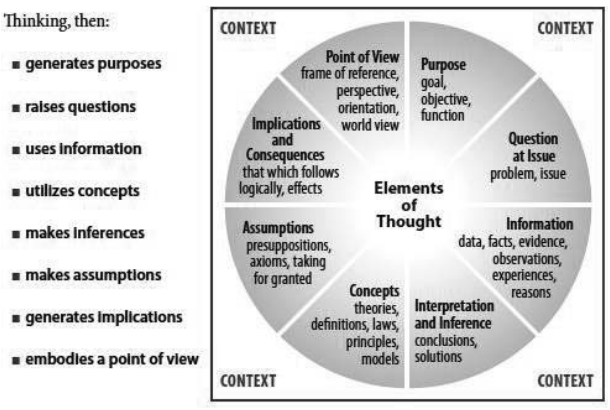
All intellectual constructs, in turn, are, to a reasonable person, subject to critique. There are three forms of intellectual construction essential to critical thinking: (1) *elements* of thought (structures integral to thinking), (2) *standards* of thought (qualities that perfect thinking), and (3) *intellectual traits* of mind (motivators that drive thinking). A robust conception of critical thinking must account for the role of all three in human thought.

Each of these sets of essential understandings in critical thinking will now be briefly described, along with some implications for teaching.

G. The Analysis of Thinking: All Thinking Is Defined by the Eight Elements That Make It Up

Eight basic elements are present in all thinking: Whenever we think, we think (1) for a purpose (2) within a point of view (3) based on assumptions (4) leading to implications and consequences. We use (5) concepts, ideas and theories (6) to interpret (7) data, facts, and experiences in order (8) to answer questions, solve problems, and resolve issues. And we do all of this in a context, a situation, a place with regard to potential alternatives.

Here is a graphic representation of the elements. This diagram, with its incorporation of context as a pervasive function/consideration, is to be credited to Gerald Nosich (Nosich, 2012).



The elements of reasoning, or structures of thought — the idea that all reasoning contains parts, and that these parts enable one to analyze thinking, any thinking whatsoever, in order to best understand it.

All reasoning, of whatever quality, contains these elements. Further, these elements are found together in the mind as a system of inter-connected ideas. They influence and are influenced by one another. Where you have one, you have the other seven.

In developing this understanding of the elements of reasoning, I could see the need to go beyond the traditionally narrow philosophical view of reasoning — a view focused primarily on only a few of the parts of reasoning — namely premises (assumptions and information) and conclusions (inferences and/or implications). The theory of the elements of reasoning emphasizes the fact that all reasoning can be analyzed into eight specific parts — in determining the full logic of the reasoning.

Because all human reasoning contains these eight parts, all products of thought (conversations, articles, books, speeches, editorials, video programs, etc.) can be analyzed according to the eight elements.

Each of these structures has implications for the others. If we change our purpose or agenda, we change our questions and problems. If we change our questions and problems, we are forced to seek new information and data. If we collect new information and data, we are forced to consider alternative inferences or conclusions. And so forth.

When we understand the elements of reasoning, we realize that all subjects, all disciplines, have a fundamental logic defined by the structures of thought embedded in them. Therefore, to lay bare a subject's most fundamental logic, we can usefully begin with these questions from our *The Thinker's Guide to Analytic Thinking* (Elder & Paul, 2010:

- What is the main purpose or goal of studying this subject? What are people in this field trying to accomplish?
- What kinds of questions do they ask? What kinds of problems do they try to solve?
- What sorts of information or data do they gather?
- What types of inferences or judgments do they typically make?
- How do they go about gathering information in ways that are distinctive to this field?
- What are the most basic ideas, concepts or theories in this field?
- What do professionals in this field take for granted or assume?
- How should studying this field affect my view of the world?
- What viewpoint is fostered in this field?
- What implications follow from studying the concepts and principles of discipline?
- How are the products of this field related to things we care about?

These questions can be contextualized for any given class day, chapter in the textbook and dimension of study. For example, on any given day instructor, or students, might ask one or more of the following questions:

- What is our main purpose or goal today? What are we trying to accomplish?
- What kinds of questions are we asking? What kinds of problems are we trying to solve? How does this problem relate to everyday life?
- What sort of information or data do we need? How can we get that information?
- What is the most basic idea, concept or theory we need to understand to solve the problem we are most immediately posing?
- From what point of view should we look at this problem?
- What can we safely assume as we reason through this problem?
- Should we call into question any of the inferences that have been made?
- What are the implications of what we are studying?

The elements of reasoning are embedded in all thought, whether the thought is of high or low quality, whatever subject or discipline one is reasoning within. Thus the elements are essential intellectual tools for taking thinking apart.

H. The Evaluation of Thinking: All Thinking Should Be Assessed Using Intellectual Standards

In the intellectual world, thinking is judged according to intellectual standards, because all intellectuals implicitly use these standards in their thinking. Whether they are explicitly aware of it or not, they surely want their thinking to be *clear* rather than vague, to be *relevant* rather than irrelevant, to be *accurate* rather than inaccurate, to be *deep* rather than superficial, to be *broad* rather than narrow, to be *logical* rather than illogical, to be *significant* rather than insignificant. In other words, once reasoning has been analyzed into its parts, it can (and should) be assessed according to universal intellectual standards such as clarity, accuracy, relevance, precision, depth, breadth, significance, and logicalness — to name a few.

My initial thought with regard to the intellectual standards was in bringing them together as a conceptual set, articulating them as a system of interrelated concepts, and stressing the importance of *explicitly* focusing on them in assessing the elements of reasoning. Thus I first asked this question: "What does reasoning entail?" (answer: the parts of thinking or *elements of reasoning*). And then, "how does

one assess reasoning once it has been analyzed? (answer: *universal intellectual standards*).

Consider the following essential intellectual standards and questions one can ask in attempting to assess thinking (Elder & Paul, 2008, pp. 7-12):

- **Clarity — Understandable, the meaning can be grasped.** Could you elaborate further? Could you give me an example? Could you illustrate what you mean?
- **Accuracy — Free from errors or distortions, true.** How could we check on that? How could we find out if that is true. How could we verify or test that?
- **Precision — Exact to the necessary level of detail.** Could you be more specific? Could you give me more details? Could you be more exact?
- **Relevance — Relating to the matter at hand.** How does that relate to the problem? How does that bear on the question? How does that help us with the issue?
- **Depth — Containing complexities and multiple interrelationships.** What factors make this a difficult problem? What are some of the complexities of this question? What are some of the difficulties we need to deal with?
- **Breadth — Encompassing multiple viewpoints.** Do we need to look at this from another perspective? Do we need to consider another point of view? Do we need to look at this in other ways?
- **Logic — The parts make sense together, no contradictions.** Does all this make sense together? Does your first paragraph fit in with your last? Does what you say follow from the evidence?
- **Significance — Focusing on the important, not trivial.** Is this the most important problem to consider? Is this the central idea to focus on? Which of these facts are most important?
- **Fairness — Justifiable, not self-serving or one-sided.** Do I have any vested interest in this issue? Am I sympathetically representing the viewpoints of others?

These are not the *only* intellectual standards a person might use. There are hundreds or more in ordinary languages. These are among those that are most fundamental. Additional standards might be needed for high quality reasoning within a particular discipline. But these universal standards will always nevertheless apply where relevant to a particular issue or context. Intellectual standard words are found throughout natural languages and are regularly used by disciplined thinkers in every culture. For an extended glossary of intellectual standard words, see Elder and Paul, 2008.

In this respect, the elements of thought are more basic, because the eight elements we have identified are *universal* — present in all reasoning of all subjects in all cultures for all time. On the one hand, one cannot reason with no information about no question from no point of view with no assumptions. On the other hand, there is a wide variety of intellectual standards from which to choose — such as credibility, predictability, feasibility, and completeness — in addition to those already named.

Reasonable people, then, judge thinking by intellectual standards, no matter the subject, discipline, or domain in which they are thinking. When students internalize these standards and explicitly use them in their thinking, their thinking becomes more clear, accurate, precise, relevant. Their thinking becomes deeper, broader and more just.

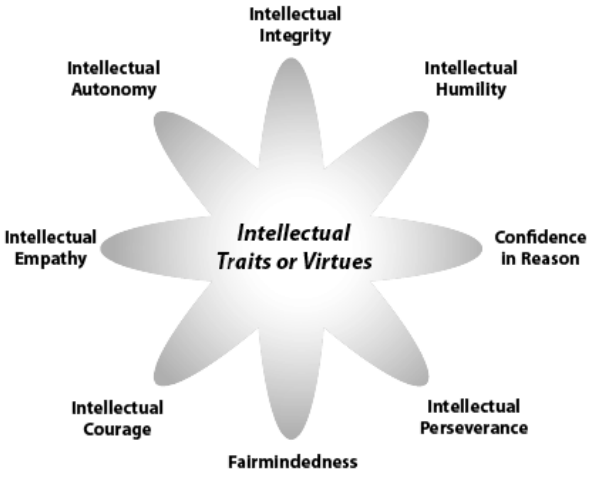
I. The Intellectual Virtues: The Key to Fairminded Critical Thinking

As I have said, it is possible to develop as a thinker, and yet not to develop as a *fairminded* thinker. In other words, it is possible to learn to use one's skills of mind in a narrow, self-serving way. Many highly skilled thinkers do just that. Think of politicians, for example, who manipulate people through smooth (fallacious) talk, who promise what they have no intention of delivering, who say whatever they need to say to maintain their positions of power and prestige. In a sense, these people are skilled thinkers because their thinking enables them to *get what they want*. But the best thinkers do not pursue selfish goals. They do not seek to manipulate others. They strive to be fairminded, even when it means they have to give something up in the process. They recognize that the mind is not naturally fairminded, but selfish. And they recognize that to be fairminded, they must also develop specific traits of mind, traits such as intellectual humility, intellectual integrity, intellectual courage, intellectual autonomy, intellectual empathy, intellectual perseverance and confidence in reason.

The idea of intellectual virtues or traits, when I first began to conceptualize them, were not completely new — these traits can be seen, at least implicitly, in the works of a number of important thinkers throughout history, including, for example, Socrates, John Locke, William Graham Sumner, John Henry Newman, and Bertrand Russell. What I attempted to do is bring together the intellectual virtues into a system of meanings, clearly delineating them as *intellectual* in nature, defining and elaborating each other, including the most important dispositions implicit in the mind of the cultivated thinker, and stressing the importance of these virtues in the development of critical persons, critical traditions, critical communities, and critical societies.

Early on I recognized that intellectual skills or abilities, as fostered through understanding and internalization of the elements of reasoning and intellectual standards, could be used for good or for ill — in other words, that critical thinking skills could be used either ethically or unethically. I therefore recognized the need to understand and cultivate in one's thinking the intellectual virtues of

intellectual empathy, intellectual integrity, intellectual perseverance, intellectual courage, intellectual autonomy, faith in reason, fairmindedness and intellectual sense of justice.



In short, critical thinking can be used to serve two incompatible ends: selfishness or fairmindedness. As we learn the basic intellectual skills that critical thinking entails, we can begin to use those skills either in a selfish or in a fairminded way.

To think critically, in what we are calling the strong sense, requires that we develop fairmindedness at the same time that we learn basic critical thinking skills, and thus begin to "practice" being fairminded in our thinking. If we do, we recognize that using our skills to gain advantage over others is a natural tendency in the human mind that we must specifically and pointedly resist. We do not naturally treat all thinking by the same high standards. We expect good reasoning from those who support us as well as those who oppose us. Only if we have "practiced fairmindedness" do we subject our own reasoning to the same criteria we apply to reasoning to which we are unsympathetic. *Only to the extent to which we practice questioning our own purposes, evidence, conclusions, implications, and point of view with the same vigor as we question those of others do we develop into fairminded persons, and thus critical thinkers in the strong sense.*

It is important then for all students to internalize the intellectual virtues, and to work toward fostering these dispositions in their own minds, so that they can learn to function more fairmindedly in their lives. Moreover, those who embrace professional disciplines have an obligation to foster fairmindedness to the extent that there are ethical implications of the work they do and of the decisions they make. In other words, when the rights and needs of people or sentient creatures are connected with decisions and behavior within a field, those who teach that discipline have an obligation, as instructors, to foster ethical reasoning abilities in the minds of our students.

In sum, a conception of critical thinking that ignores the importance of intellectual traits is impoverished, for traits of mind are an important part of what drives or motivates thinkers to think in the way that they do. The intellect needs not only abstract objects and interests, but also intellectual energy to overcome intellectual frustration and fatigue, conditions that naturally arise when our intellectual work does not produce the outcomes we are striving for at the speed that we want. To function at higher levels, the intellect must strive towards the development of intellectual character through intellectual humility, intellectual courage, intellectual empathy, intellectual integrity, intellectual perseverance, intellectual discipline, confidence in reason, and fairmindedness.

In contrast, it is crucial to note that none of these higher traits come naturally through intelligence, creativity, fluency, or finesse in argumentation. An intelligent mind can be prejudiced, uninformed, and self-deceived. So too may minds that are creative and clever. It is likely that all disciplines at every point in its development foster something of a herd mentality. That tendency should be anticipated and faced directly and forcefully.

J. Critical Thinking Abilities and Dimensions

When we understand common cognitive processes in connection with the elements of reasoning and intellectual standards, we see that a critical thinking ability entails a process of thought, an object of thought, and an intellectual standard (to which the thinking must adhere). Examples of critical thinking abilities include (note the intellectual standards in italics):

- Gathering *relevant* information
- Making *logical* inferences
- Generating *justifiable* assumptions
- Following out implications *logically*
- Checking information for *accuracy*

Consult the Critical Thinking Handbook series, which one can find on the Foundation for Critical Thinking website. See, for example, the *Critical Thinking Handbook: High School* at this link: www.criticalthinking.org/store/products/critical-thinking-handbook-high-school/153. In this handbook I delineated the following 35 dimensions of critical thinking:

Affective Dimensions

- thinking independently
- developing insight into egocentricity or sociocentricity
- exercising fairmindedness
- exploring thoughts underlying feelings and feelings underlying thought
- developing intellectual humility and suspending judgment
- developing intellectual courage
- developing intellectual good faith or integrity

- developing intellectual perseverance
- developing confidence in reason

Cognitive Dimensions — Macro-Abilities

- refining generalizations and avoiding oversimplifications
- comparing analogous situations: transferring insights to new contexts
- developing one's perspective: creating or exploring beliefs, arguments, or theories
- clarifying issues, conclusions, or beliefs
- clarifying and analyzing the meanings of words or phrases
- developing criteria for evaluation: clarifying values and standards
- evaluating the credibility of sources of information
- questioning deeply: raising and pursuing root or significant questions
- analyzing or evaluating arguments, interpretations, beliefs, or theories
- generating or assessing solutions
- analyzing or evaluating actions or policies
- reading critically: clarifying or critiquing texts
- listening critically: the art of silent dialogue
- making interdisciplinary connections
- practicing Socratic discussion: clarifying and questioning beliefs, theories, or perspectives
- reasoning dialogically: comparing perspectives, interpretations, or theories
- reasoning dialectically: evaluating perspectives, interpretations, or theories

Cognitive Dimensions — Micro-Skills

- comparing and contrasting ideals with actual practice
- thinking precisely about thinking: using critical vocabulary
- noting significant similarities and differences
- examining or evaluating assumptions
- distinguishing relevant from irrelevant facts
- making plausible inferences, predictions, or interpretations
- giving reasons and evaluating evidence and alleged facts
- recognizing contradictions
- exploring implications and consequences

Since my early work, the theory of critical thinking, sometimes now referred to as Paulian Critical Thinking, has been further developed by myself, as well as other critical thinking scholars, particularly Gerald Nosich (beginning in 1985) and Linda Elder (beginning in 1993). Later work (1990-present), developed by these two scholars and myself, has largely focused on:

1. elaborating a theory of the human mind that illuminates the important role of affect (emotions and motivation) in the mind, and the integral relationship between the affective and cognitive dimensions (Elder and Paul);
2. elaborating and exemplifying the pervasive role of egocentric and sociocentric tendencies in human thinking, and suggesting that egocentric and sociocentric thinking are the most significant barriers to the development of critical capacities (Elder and Paul);
3. elaborating the interrelationships between and among the intellectual virtues and exemplifying their importance in thinking and learning (Paul and Elder);
4. developing a stage theory of critical thinking development (Elder);
5. elaborating and exemplifying the idea that every subject, discipline and domain of human thought is a mode of thinking and therefore must be understood according to the elements of reasoning embedded in it (Paul, Nosich and Elder);
6. contextualizing the elements of reasoning and intellectual standards in subjects and disciplines (Nosich, Paul and Elder);
7. understanding critical thinking as essential to close reading (Paul and Elder);
8. understanding critical thinking as essential to substantive writing — using writing as a powerful tool in learning (Paul and Elder);
9. understanding critical thinking as essential to learning (Paul, Elder and Nosich);
10. elaborating the theory of intellectual standards (Elder and Paul).

K. Egocentric and Sociocentric Thought Are Formidable Barriers to the Cultivation of Critical Thought

As I came to recognize early in my work, any substantive conception of critical thinking must take into account the barriers to it that naturally exist in the human mind — principally egocentric and sociocentric tendencies. Many of the problems already discussed in this paper connect with or are caused by these barriers. It is helpful to begin with this understanding — that humans largely see the world from two overlapping and interactive sets of tendencies:

1. our native *egocentrism*: "to view everything in the world in relationship to **oneself**, to be self-centered" *(Webster's New World Dictionary)*; to view the world in self-validating, selfish terms;
2. our native *sociocentrism*: to view everything within the world in relationship to **one's group**, to be group-centered; to attach ourselves to others and together create beliefs, rules, taboos to which those in the group must adhere and against which the behavior of those outside the group are judged; to view the world in group-validating terms, a "herd" mentality.

For readers who are adverse to my use of the terms egocentric and sociocentric thought, consider the many ways that thinking can be "defective." Much of our thinking, left to itself, is biased, distorted, partial, uninformed, prejudiced, unclear, inaccurate, imprecise, irrelevant, superficial, illogical, unfair, ignorant, self-deluded, conformist, petty, dishonest, irrational, narrow-minded, undisciplined, muddled, inconsistent, unprincipled, rigid, unrealistic, untrue, bigoted, dogmatic, provincial, partisan, parochial, deceptive, sophistic, groundless, and specious. And if this is not enough, there are many forms of thinking that derive from and serve envy, jealousy, selfishness, hate, and greed.

All these problems are problems in thought. As phenomena they must be "constructed" by thought to exist. By the same token, they must be "deconstructed" by thought to remove them from their controlling influence. Consider. If the human species were to be removed suddenly from the face of the earth, these problems would no longer exist. Biased, distorted, partial, uninformed, prejudiced thought would cease to exist. Unclear, inaccurate, imprecise, irrelevant, and superficial thought would cease to exist. Illogical, unfair, egocentric, ethnocentric, and ignorant thought would plague us no longer. Self-deluded, conformist, petty, dishonest, and irrational thought would be no more. Narrow -minded, undisciplined, muddled, inconsistent, and unprincipled thought would be gone. Rigid, unrealistic, untrue, bigoted, and dogmatic would never again lay us low. Provincial, partisan, parochial, deceptive, and sophistic thought would be gone forever. Thought derivative of envy, jealousy, selfishness, hate, and greed would have no basis for further existence. But of course, however wonderful these gains would be for the planet, its animals and eco-systems, we, and all our posterity, would also be gone. Let us hope that we can grow intellectually as a species in such a way as to transform ourselves as thinkers and, by implication, thought-driven actors.

In other words, human thinking is an on-going problem for human thinking. All humans bear some responsibility for the problematic forms of thought, precisely because all of us continue to tacitly construct these pathological intellectual and emotional constructs. Pathological thought patterns, such as I have been listing, can be roughly grouped into either egocentric or sociocentric thought. And these dysfunctional patterns of thought get in the way of critical thought and the cultivation of critical societies. Through intellectual arrogance, self-deception, hypocrisy and the like, they play a large role in the failure of academic departments, schools and colleges to take critical thinking seriously. Thus any substantive conception of critical thinking must take into account the problems of egocentrism and sociocentrism, as barriers to critical thinking.

L. Critical Thinking and the Educated Person

No one lacking the skills and traits of the critical mind should be considered a fully educated person. Educated persons, in a strong sense of the word 'educated,' are able to enter viewpoints alien to them and think within those viewpoints clearly and accurately in good faith. They *change their position* when faced with reasoning better than their own. They are able to give serious consideration to alternate possible conclusions when reasoning through a complex issue. They are able to think logically, to think with breadth and depth, when the question at issue requires them to do so. Educated persons, again in a strong sense of the word "educated," are able to formulate their purposes clearly and accurately, to check multiple purposes for consistency, to determine how their purposes relate with the question at issue. They are able to persevere through the difficulties in issues. They apply the same standards to their own thinking and behavior that they expect of others. They have the courage to examine their beliefs and to stand alone, using disciplined reasoning, when they are opposed by others. Implicit in all of these skills, abilities and dispositions are the elements of reasoning, intellectual standards and intellectual virtues.

Critical thinking in a strong sense of the word "educated," is not now a cultural or educational value, as is evidenced by its rarity in our schools, colleges, and universities at all levels and in all subjects. Only when institutions begin to take critical thinking seriously and thus foster it systematically within and across departments and divisions, in keeping with basic intellectual standards and traits, will we begin to educate the mind in the strong sense of the word.

III. Bringing Critical Thinking Across the Curriculum

A. Contrasts Between Didactic Instruction and Critical Thinking

For more than 30 years I have worked, along with my colleagues at the Center and Foundation for Critical Thinking, to foster critical thinking across the curriculum. In my anthology (Paul, 1990), I focused on the problem of didactic instruction as a prevailing deep-seated barrier to critical thinking across the curriculum. This of course is an old problem that goes back perhaps hundreds, if not thousands, of years. But most important, it is a problem still prevalent today, despite agreement among educators and administrators that we need to go beyond it. Here is a table that delineates important differences between didactic instruction and critical thinking, this table being only slightly modified from the original published almost three decades ago. It provides a comprehensive and integrated theoretical framework for understanding or fostering critical thinking across the curriculum.

Theory of Knowledge, Learning, and Literacy	
Didactic Theory	**Critical Thinking**
1. The fundamental needs of students	
That the fundamental need of students is to be taught more or less ***what*** to think, not ***how*** to think (that is, that students will learn how to think if they can only get into their heads what to think).	That the fundamental need of students is to be taught ***how,*** not ***what*** to think; that it is important to focus on significant content, but this should be accomplished by raising live issues that stimulate students to gather, analyze, and assess that content.
2. The nature of knowledge	
That knowledge is independent of the thinking that generates, organizes, and applies it.	That all knowledge of "content" is generated, organized, applied, analyzed, synthesized, and assessed by thinking; that gaining knowledge is unintelligible without engagement in such thinking. (It is ***not*** assumed that one can think without some content to think about, nor that all content is equally significant and useful.)
3. Model of the educated person	
That educated, literate people are fundamentally repositories of content analogous to an encyclopedia or a data bank, directly comparing situations in the world with facts that they carry about fully formed as a result of an absorptive process. That an educated, literate person is fundamentally a true believer, that is, a possessor of truth, and therefore claims much knowledge.	That an educated, literate person is fundamentally a repository of strategies, principles, concepts, and insights embedded in processes of thought rather than in atomic acts. Experiences analyzed and organized by critical thought, rather than facts picked up one-by-one, characterize the educated person. Much of what is known is constructed by the thinker as ***needed*** from context to context, not ***prefabricated*** in sets of true statements about the world. That an educated, literate person is fundamentally a seeker and questioner rather than a true believer, and is therefore cautious in claiming knowledge.

Theory of Knowledge, Learning, and Literacy	
Didactic Theory	**Critical Thinking**
4. The nature of learning	
That knowledge, truth, and understanding can be transmitted from one person to another by verbal statements in the form of lectures or didactic teaching.	That knowledge and truth can rarely, and insight never, be transmitted from one person to another by the transmitter's verbal statements alone; that one cannot directly give another what one has learned—one can only facilitate the conditions under which people learn for themselves by figuring out or thinking things through.
5. The nature of listening	
That students do not need to be taught skills of listening to learn to pay attention and this is fundamentally a matter of self-discipline achieved through willpower. Students should therefore be able to listen on command by the teacher.	That students need to be taught how to listen critically—an active and skilled process that can be learned by degrees with various levels of proficiency. Learning what others mean by what they say requires questioning, trying on, testing, and hence, engaging in public or private dialogue with them, and this involves critical thinking.
6. The relationship of the basic skills to thinking skills	
That the basic skills of reading and writing can be taught without emphasis on higher order critical thinking.	That the basic skills of reading and writing are inferential skills that require critical thinking; that students who do not learn to read and write critically are ineffective readers and writers; and that critical reading and writing involves dialogical processes in which probing critical questions are raised and answered. (For example, What is the fundamental issue? What reasons, what evidence, is relevant to this issue? Is this source or authority credible? Are these reasons adequate? Is this evidence accurate and sufficient? Does this contradict that? Does this conclusion follow? Is another point of view relevant to consider?)

Theory of Knowledge, Learning, and Literacy	
Didactic Theory	**Critical Thinking**
7. The status of questioning	
That students who have no questions typically are learning well, while students with a lot of questions are experiencing difficulty in learning; that doubt and questioning weaken belief.	That students who have no questions typically are not learning, while having pointed and specific questions, on the other hand, is a significant sign of learning. Doubt and questioning, by deepening understanding, strengthen belief by putting it on more solid ground.
8. The desirable classroom environment	
That quiet classes with little student talk are typically reflective of students learning while classes with a lot of student talk are typically disadvantaged in learning.	That quiet classes with little student talk are typically classes with little learning while classes with much student talk focused on live issues is a sign of learning (provided students learn dialogical and dialectical skills).
9. The view of knowledge (atomistic vs. holistic)	
That knowledge and truth can typically be learned best by being broken down into elements, and the elements into sub-elements, each taught sequentially and atomically. Knowledge is additive.	That knowledge and truth is heavily systemic and holistic and can be learned only by many ongoing acts of synthesis, many cycles from wholes to parts, tentative graspings of a whole guiding us in understanding its parts, periodic focusing on the parts (in relation to each other) shedding light upon the whole, and that the wholes that we learn have important relations to other wholes as well as their own parts and hence need to be frequently canvassed in learning any given whole. (This assumption has the implication that we cannot achieve in-depth learning in any given domain of knowledge unless the process of grasping that domain involves active consideration of its relation to other domains of knowledge.) That each learner creates knowledge.

Theory of Knowledge, Learning, and Literacy	
Didactic Theory	**Critical Thinking**
10. The place of values	
That people can gain significant knowledge without seeking or valuing it, and hence that education can take place without significant transformation of values for the learner.	That people gain only the knowledge they seek and value. All other learning is superficial and transitory. All genuine education transforms the basic values of the person educated, resulting in persons becoming life-long learners and rational persons.
11. The importance of being aware of one's own learning process	
That understanding the mind and how it functions, its epistemological health and pathology are not important or necessary parts of learning. To learn the basic subject matter of the schools, one need not focus on such matters, except perhaps with certain disadvantaged learners.	That understanding the mind and how it functions, its health and pathology, are important and necessary parts of learning. To learn subject matter in-depth, we must gain some insight into how we as thinkers and learners process that subject matter.
12. The place of misconceptions	
That ignorance is a vacuum or simple lack, and that student prejudices, biases, misconceptions, and ignorance are automatically replaced by their being given knowledge.	That prejudices, biases, and misconceptions are built up through actively constructed inferences embedded in experience and must be broken down through a similar process; hence, that students must reason their way dialogically and dialectically out of their prejudices, biases, and misconceptions.
13. The level of understanding desired	
That students need not understand the rational ground or deeper logic of what they learn to absorb knowledge. Extensive but superficial learning can later be deepened.	That rational assent is an essential facet of all genuine learning and that an in-depth understanding of basic concept and principles is an essential foundation for rational concepts and facts. That in-depth understanding of root concepts and principles should be used as organizers for learning within and across subject matter domains.

Theory of Knowledge, Learning, and Literacy	
Didactic Theory	**Critical Thinking**
14. Depth versus breadth	
That it is more important to cover a great deal of knowledge or information superficially than a small amount in depth. That only after the facts are understood, can students discuss their meaning; that higher order thinking can and should only be practiced by students who have mastered the material. That thought-provoking discussions are for the gifted and advanced only.	That it is more important to cover a small amount of knowledge or information in depth (deeply probing its foundation) than to cover a great deal of knowledge superficially. That all students can and must probe the significance of and justification for what they learn.
15. Role definition for teacher and student	
That the roles of teacher and learner are distinct and should not be blurred.	That we learn best by teaching or explaining to others what we know.
16. The correction of ignorance	
That the teacher should correct the learners' ignorance by telling them what they do not know.	That students need to learn to distinguish for themselves what they know from what they do not know. Students should recognize that they do not genuinely know or comprehend what they have merely memorized. Self-directed recognition of ignorance is necessary to learning.
17. The responsibility for learning	
That the teacher has the fundamental responsibility for student learning. Teachers and texts provide information, questions, and drill.	That progressively the student should be given increasing responsibility for his or her own learning. Students need to come to see that only they can learn for themselves and that they will not do so unless they actively and willingly engage themselves in the process.

Theory of Knowledge, Learning, and Literacy	
Didactic Theory	**Critical Thinking**
18. The transfer of learning to everyday situations	
That students will automatically transfer the knowledge that they learn in didactically taught courses to relevant real-life situations.	That most knowledge that students memorize in didactically taught courses is either forgotten or rendered "inert" by their mode of learning it, and that the most significant transfer is achieved by in-depth learning, which focuses on experiences meaningful to the student and aims directly at transfer.
19. Status of personal experiences	
That the personal experiences of the student have no essential role to play in education.	That the personal experiences of the student are essential to all schooling at all levels and in all subjects; that it is a crucial part of the content to be processed (applied, analyzed, synthesized, and assessed) by the student.
20. The assessment of knowledge acquisition	
That a student who can correctly answer questions, provide definitions, and apply formulae while taking tests has proven his or her knowledge or understanding of those details. Since the didactic approach tends to assume, for example, that knowing a word is knowing its definition (and an example), didactic instruction tends to overemphasize definitions. Students practice skills by doing exercises, specifically designed as drill. Successfully finishing the exercise is taken to be equivalent to having learned the skill.	That students can often provide correct answers, repeat definitions, and apply formulae while yet not understanding those questions, definitions, or formulae. That proof of knowledge or understanding is found in the students' ability to explain in their own words, with examples, the meaning and significance of the knowledge, why it is so, and to ***spontaneously*** recall and use it when relevant.
21. The authority validating knowledge	
That learning is essentially a private, monological process in which learners can proceed more or less directly to established truth, under the guidance of an expert in such truth. The authoritative answers that the teacher has are the fundamental standards for assessing students' learning.	That learning is essentially a public, communal, dialogical, and dialectical process in which learners can only proceed indirectly to truth with much "zigging and zagging" along the way, much back-tracking, misconception, self-contradiction, and frustration in the process. In this process, authoritative answers are replaced by authoritative standards for engagement in the communal, dialogical process of enquiry.

B. Taking Critical Thinking Seriously in Teaching Across the Disciplines

A significant problem we face in bringing critical thinking across the curriculum is that few scholars within the various disciplines are taking critical thinking seriously. They may reason well within their disciplines implicitly. But making critical thinking accessible to all students requires explicit contextualization within the disciplines. Thus in our work at the Foundation for Critical Thinking, we have developed many books and instructional materials which contextualize critical thinking across the disciplines and which offer tools for engaging students in deep learning. Here are some of our areas of emphasis followed by some diagrams that are useful in understanding how critical thinking theory can be contextualized:

1. **Socratic Questioning**

   Socratic questioning is disciplined questioning that can be used to pursue thought in many directions and for many purposes, including: to explore complex ideas, to get to the truth of things, to open up issues and problems, to uncover assumptions, to analyze concepts, to distinguish what we know from what we don't know, and to follow out logical implications of thought. The key to distinguishing Socratic questioning from questioning *per se* is that Socratic questioning is *systematic*, *disciplined*, and *deep*, and usually focuses on foundational concepts, principles, theories, issues, or problems. It should play a significant role in generating effective pedagogy for fostering critical thinking across the curriculum, since it stimulates persons engaged in it to question and respond systematically and deeply.

2. **Teaching Students to Think Within a Field or Discipline**

   One of the main goals of instruction is to help the student internalize the most basic concepts and principles in the subject and to learn to think through questions in everyday life using those concepts and principles. Accordingly, critical thinking in biology is biological thinking. Critical thinking in anatomy is anatomical thinking. Critical thinking in literature is disciplined literary thinking. A discipline is far more than a conglomeration of random information. It is a distinctive way (or set of ways) of looking at the world. It is a distinctive way of questioning . It is systematic and has a logic of its own.

3. **Manifesting the Intellectual Traits in Our Teaching**

   Strong sense critical thinking is not just a set of intellectual skills. It is a function of character. It is not a matter of personality, or of temperament, or of ideological stance . It is a way of orienting oneself in the world. It is a way of thinking in and out of alternative ways of approaching problems. Strong sense critical thinking differs significantly from that which is typical in human life. People may have critical thinking skills and abilities, and yet still be unable to enter viewpoints with which they disagree. They may have critical thinking abilities, and yet still be unable to analyze the beliefs that guide their behavior. They may have critical thinking abilities, and yet be unable to distinguish between what they know and what they don't know, to persevere through difficult problems and issues, to think fairmindedly, to stand alone against the crowd. The persons who have intellectual traits have higher order abilities that intersect with their ethical make up. Each dimension strengthens the other two.

4. **Understanding the Relationship Between Critical Thinking and Emancipating the Mind**

   Most people are trapped in their beliefs. They use ideas in their thinking that they are unaware of and have never examined for quality. They have developed a world-view which influences much of their behavior, but of which they have little or no understanding. They are using assumptions accumulated throughout their lives which lead to their inferences and conclusions, but which they themselves have little or no awareness of. They are trapped in egocentric narrow-mindedness and sociocentric vested interest. In short, the mind can be trapped in unexamined beliefs, concepts, assumptions, and world-views, or it can be freed through intellectual self-discipline and cultivation.

5. **The Role of Administration in Creating Critical Thinking Communities**

   Critical thinking, deeply understood, provides a rich set of concepts that enable us to think our way through any subject or discipline, through any problem or issue. With a substantive concept of critical thinking clearly in mind, we begin to see the pressing need for a staff development program that fosters critical thinking within and across the curriculum. As we come to understand a substantive concept of critical thinking, we are able to follow-out its implications in designing a professional development program. By means of it, we begin to see important implications for every part of the institution — redesigning policies, providing administrative support for critical thinking, rethinking the mission, coordinating and providing faculty workshops in critical thinking, redefining faculty as learners as well as teachers, assessing students, faculty, and the institution as a whole in terms of critical thinking abilities and traits.

6. **Using Peer Review on a Typical Day to Foster Substantive Critical Thinking**

   To acquire substantive knowledge, students need: 1) engagement in the active construction of knowledge and 2) constructive feedback for that construction. Students can learn how to improve their own thinking and that of others by learning

simple techniques for giving constructive feedback. Thus instructors should learn how to help students give constructive feedback that helps others as they expand their knowledge and insight by getting useful feedback from those others. Through this process, students can learn how to help other students think more clearly, accurately, precisely, relevantly, deeply, broadly, logically, and fairly (as they learn how to do so themselves).

7. **Teaching Students to Distinguish Strong and Weak Sense Critical Thinking**

Strong-sense critical thinkers are fundamentally concerned with reasoning fairmindedly, considering, as far as it is possible, all the important available evidence, and respecting all relevant viewpoints. Their thought and behavior is characterized primarily by intellectual humility, intellectual autonomy, intellectual empathy and intellectual integrity. They strive to 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.

On the other hand, weak sense, or unethical, critical thinkers do not hold themselves or those with whom they ego-identify to the same intellectual standards to which they hold opponents. They do not reason within points of view or frames of reference with which they disagree; they tend to think monologically (within one narrow perspective). They do not genuinely accept, though they may verbally espouse, the values of fairminded critical thinking. They use intellectual skills selectively and self-deceptively to foster and serve their selfish interests at the expense of truth. 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. They routinely justify their irrational thinking through highly sophisticated rationalizations. They are often highly skilled at manipulation.

This instruction should focus on distinguishing characteristics of strong and weak sense critical thinkers, with the aim of fostering these essential understandings in student thought.

8. **Using the Tools of Critical Thinking to Teach Students How to Study and Learn**

To study well and learn any subject is to learn how to think with discipline within that subject. It is to learn to think within its logic, to:

- raise vital questions and problems within it, formulating them clearly and precisely;
- gather and assess information, using ideas to interpret that information insightfully;
- come to well-reasoned conclusions and solutions, testing them against relevant criteria and standards;
- adopt the point of view of the discipline, recognizing and assessing, as need be, its assumptions, implications, and practical consequences;
- communicate effectively with others using the language of the discipline and that of educated public discourse;
- relate what one is learning in the subject to other subjects and to what is significant in human life.

To become a skilled learner is to become a self-directed, self-disciplined, self-monitored, and self-corrective thinker who has given assent to rigorous standards of thought and mindful command of their use. Skilled learning of a discipline requires that one respect the power of it, as well as its, and one's own, historical and human limitations. Thus instruction should offer strategies for helping students begin to take learning seriously.

9. **Why Transfer of Learning Is a Common Consequence of Teaching for Critical Thinking**

Transfer of learning is sometimes seen as an elusive process. But when we have command of the concepts and principles of critical thinking, we see them as natural vehicles for transfer of knowledge and ideas. For instance, when we understand that all reasoning entails assumptions, we can begin to look for assumptions within any field or discipline; we can compare the assumptions within disciplines to one another. When we understand that all reasoning engages concepts, we can begin to identify key concepts and connect and compare concepts within and among disciplines. When we understand that all high quality reasoning entails the consistent use of intellectual standards, we can explicitly identify the intellectual standards relevant to thinking well within any field or discipline; we can identify the intellectual standards relevant to good reasoning within all disciplines.

10. **Sociocentric Thinking as a Barrier to Cultivating the Intellect**

Many of the most deep-seated habits that humans acquire come from the process of being socialized. Almost everything we think or do, we have been taught to think or do by the individuals and social groups that have shaped us. Those who want to free themselves from indoctrination, to become intellectually emancipated, must understand this problem as a significant barrier to their development and begin to detect its influence on their daily thinking.

Living a human life entails membership in a variety of human groups. This typically includes groups such as nation, culture, gender, profession, religion, family, and peer group. We find ourselves participating in groups before we are aware of ourselves as living beings within social groups. We find ourselves in groups in virtually every setting in which we function as persons. What is more, every group to which we belong has some social definition of itself and some usually unspoken "rules" that guide the behavior of all members. Each group to which we belong imposes some level of conformity on us as a condition of acceptance. This includes a set of beliefs, behaviors, and taboos.

For most people, blind conformity to group restrictions is automatic and unreflective. Most effortlessly conform without recognizing their conformity. They internalize group norms and beliefs, take on the group identity, and act as they are expected to act — without the least sense that what they are doing might reasonably be questioned. Most people function in social groups as unreflective participants in a range of beliefs, attitudes, and behaviors analogous, in the structures to which they conform, to those of urban street gangs.

This conformity of thought, emotion, and action is not restricted to the masses, or the lowly, or the poor. It is characteristic of people in general, independent of their role in society, independent of status and prestige, independent of years of schooling. It is in all likelihood as true of college professors and their presidents as students and custodians, as true of senators and chief executives as it is of construction and assembly-line workers. Conformity of thought and behavior is the rule in humans, independence the rare exception.

11. **Critical Thinking in Relation to Various Specific Disciplines**

(a) ***Learning the Physical and Life Sciences***

To study well and learn any science is to learn how to think scientifically within that subject. It is to learn to:

- raise vital scientific questions and problems within it, formulating them clearly and precisely;
- gather and assess scientific data and information, using scientific theories and principles to interpret those data insightfully;
- come to well-reasoned scientific conclusions and solutions, testing them against relevant scientific criteria and standards;
- adopt the point of view of the science, recognizing and assessing, as need be, its assumptions, implications, and practical consequences;
- communicate effectively with others using the language of the discipline and that of educated public discourse; and
- relate what one is learning in the science to other sciences and to what is significant in human life.

To become a skilled scientist is to become a self-directed, self-disciplined, self-monitored, and self-corrective thinker, who has given assent to rigorous standards of thought and mindful command of their use. Yet most scientific instruction falls far short of fostering disciplined thinking. It is vital for instructors in the physical and life sciences to develop methods for fostering skilled reasoning well within these disciplines.

(b) ***Teaching Critical Thinking in the Social Disciplines***

The social disciplines include academic courses that foster understanding of the individuals, groups and institutions that make up human society. They study how humans live together in groups in such a way that their dealings with one another affect their common welfare. In our work we have fostered critical thinking within the social disciplines — within history, anthropology, geography, economics, political science, psychology and sociology.

(c) ***Teaching Critical Thinking in the Arts and Humanities***

Painting, sculpture, architecture, dance, music, drama, and literature as art forms are all attempts to create something that goes beyond simple skill or demonstrable knowledge. They represent modes of seeking to express what is "beautiful," "deep," "insightful," and/or "profound" in nature or in human life. They attempt to transcend or transform the "ordinary," "obvious," or mundane. In our work, we focus on fostering critical thinking within the arts and humanities, including those mentioned above, as well as philosophy and religious studies.

(d) ***Fostering Engineering Reasoning***

Engineering increasingly attends to systems of systems, where the product of the engineer's intellect exhibits complex interactions with other systems, markets, technologies, the environment, and society. Additionally, the workplace demands that the individual engineer continually develop, mastering new learning and deal with increasing complexities. The thinking skills of our students and young engineers provide the foundation for that growth, while in school and in the workplace. When we explicitly target their thinking skills,

we provide them leverage for learning both in class and on the job.

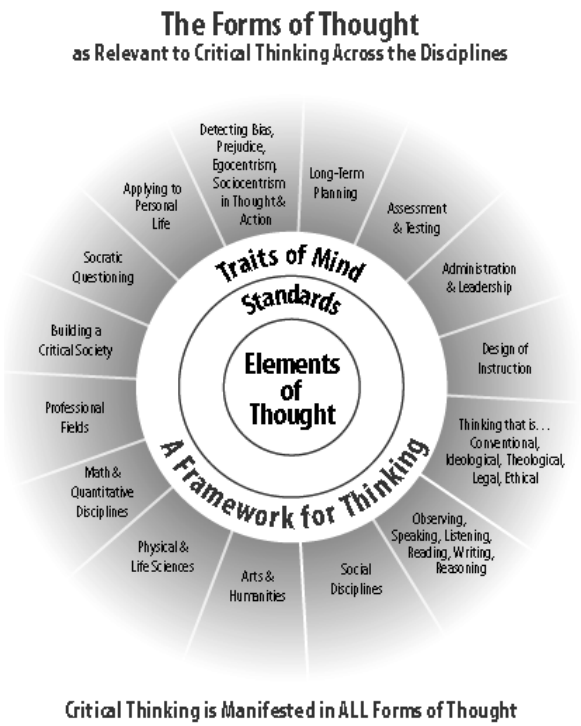
In our work, we focus on contextualizing the concepts of critical thinking as they apply to any engineering discipline, for both the engineering educator and industry leader. These questions will lie at the heart of our work with engineering instructors: How can we help engineering students recognize and articulate the important questions at the heart of all high quality engineering reasoning? How can we diffuse critical thinking skills through our instructional practices?

IV. Overview of Instructional Strategies

A. What Follows Is a Series of Nine Graphics Designed to Foster Global Insights into Critical Thinking and Its Application Across the Disciplines.

It is important for those designing instruction to provide learners with graphic images that facilitate their picturing in their mind's eye the over-arching concepts and principles that underlie and synthesize the constituent "parts" being learned. This point will be clearer if exemplified. For that reason I have selected 10 images that play such a role in my thinking. I recommend that the reader study the various images provided and determine the extent to which the reader is able to "translate" each image into an accompanying explanatory text. In doing so, it is important that the reader recognize that the images themselves are presented for their heuristic value alone. They have no "metaphysical" or "absolutistic" status. They are useful if they work for the learner using them. The same field of concepts and principles can be represented in different graphics. I have found the graphics below useful to me in picturing the various intellectual constructs they identifying and "image." When a graphic is effective, the learner studying them can explain core concepts and principles in a more "intuitive" way. Of course "intuitions" can become "prejudices" and mislead the reader. If you find that any of the graphics represented below seem misleading, set the graphic aside and create a replacement of your own. Graphics should simplify and not become an intellectual burden.

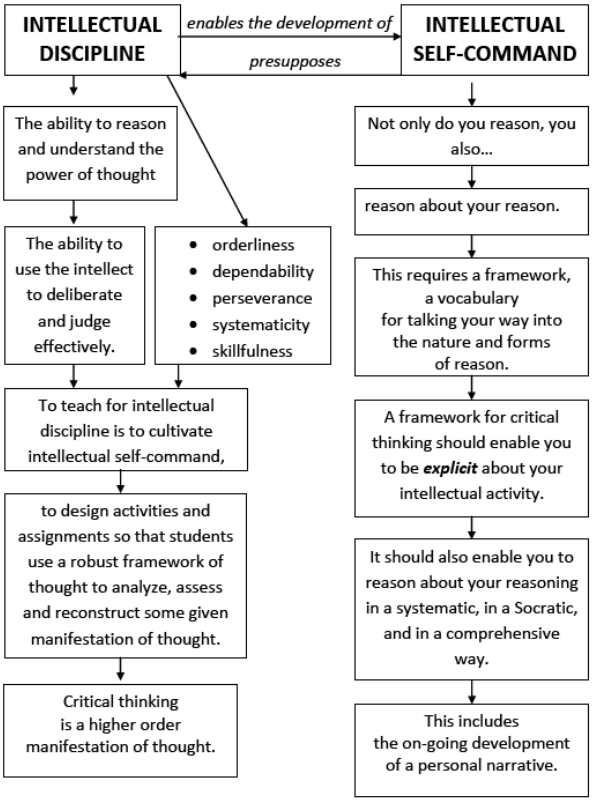
For example, the graphic below implies that there are many divergent forms of thought, perhaps an unlimited number. It also implies that there are core intellectual structures (elements, standards, and traits) that are organized by an over-arching framework for thinking. However, the graphic also implies that the various forms of thought do not over-lap. That is to me misleading, since there are a variety of overlaps between any given form of thought and some alternative forms. Thus historical thought overlaps with every other form of thought because, clearly, every form of thought has a history.



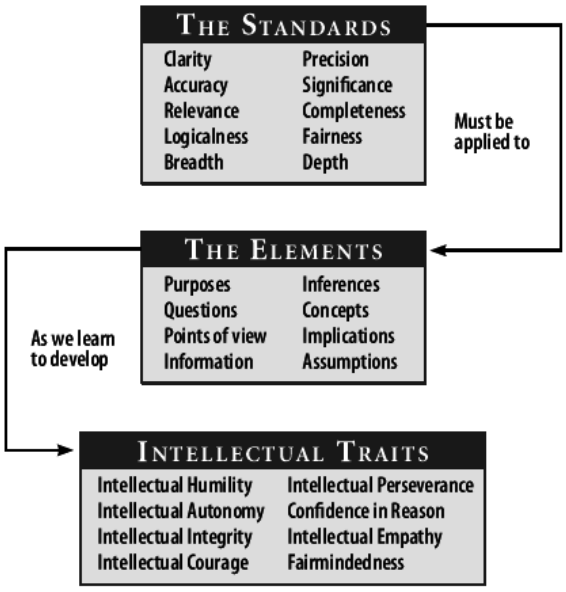
This diagram suggests the importance of the relationship of intellectual discipline to intellectual self-command as well as the reverse. What is more, a number of core concepts are woven here into relationships with each other while others are not explicitly here but rather are suggested by implication.

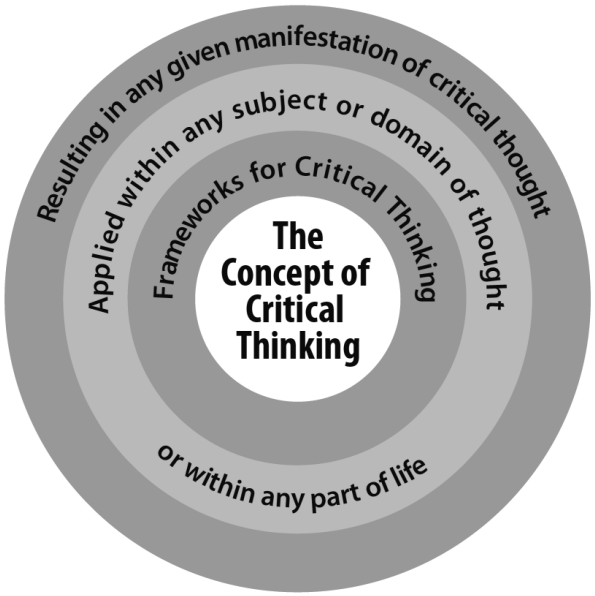
Contrast your sense of the conceptual points made as a result of their display in the graphic with an un-integrated list of individual concepts: intellectual discipline, self-command, ability to reason, understanding the power of thought, ability to use the intellect, ability to deliberate, ability to judge, to reason about your reason, orderliness of thought, dependability of thought, perseverance in thought, systematicity of thought, skillfulness in thought, teaching for intellectual discipline, and cultivating intellectual self-command.

As relevant to critical thinking across the disciplines

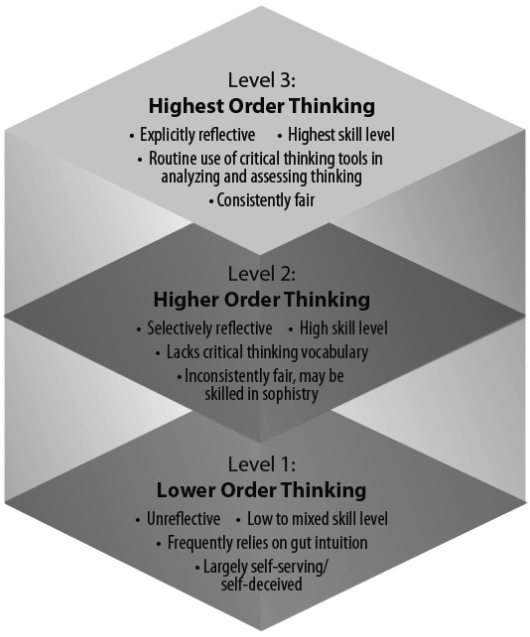


Critical thinkers routinely apply the intellectual standards to the elements of reasoning in order to develop intellectual traits.

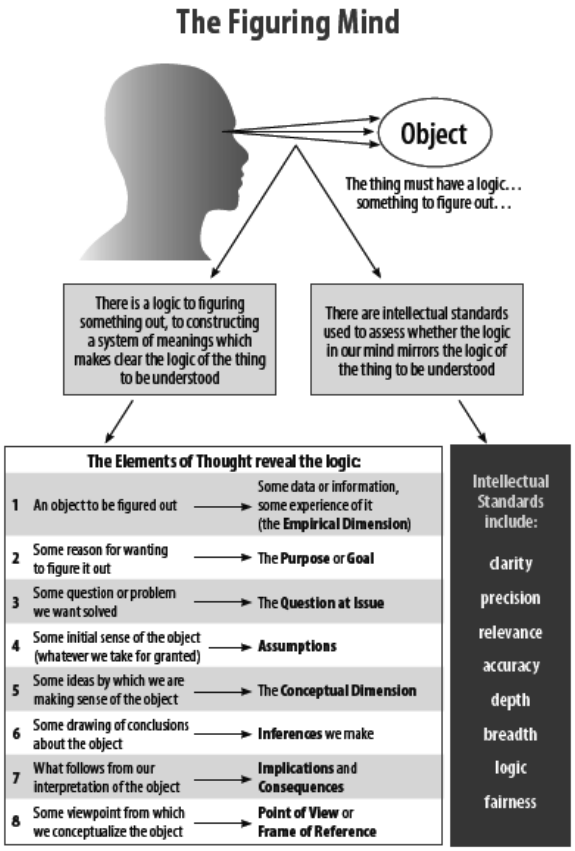


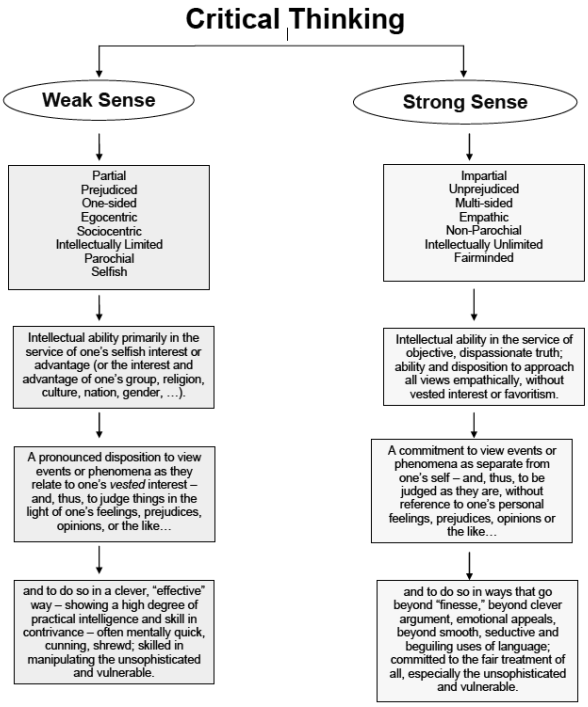


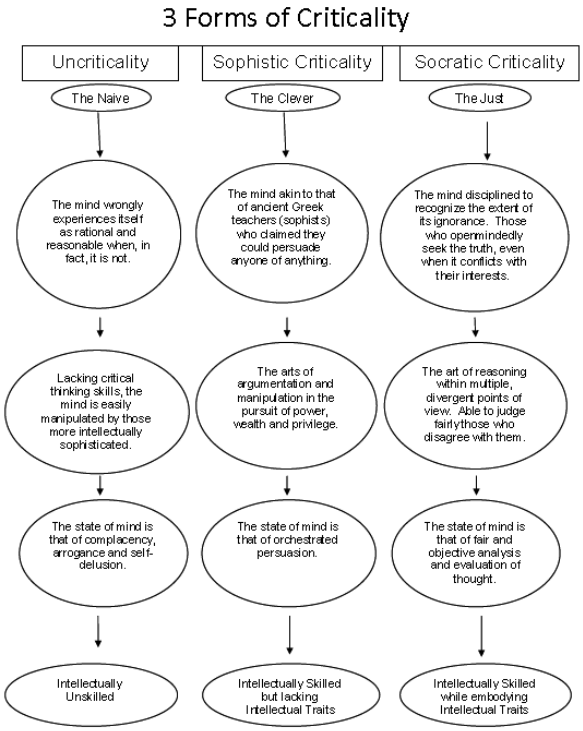
Three Levels of Thought

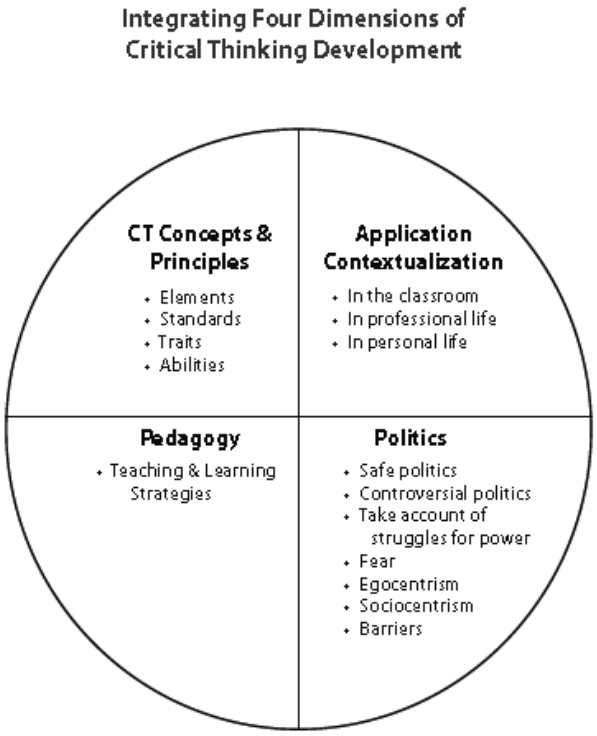


Lower order thinking is often distinguished from higher order thinking. But higher order thinking can be inconsistent in quality. It can be fair or unfair. To think at the highest level of quality, we need not only intellectual skills, but intellectual traits as well.









B. Fostering Critical Thinking Across the Curriculum Must Be Given Priority in Schools, Colleges and Universities

During the past three decades, those of us at the Center and Foundation for Critical Thinking have articulated central concepts of critical thinking (in as simplified a form as we believe possible) within an "integrated theoretical framework" (Paul 1990, p. viii). We have articulated "that sort of critical thinking that confronts deep and genuine

conflicts of values and perspectives." (Paul 1990, p. viii) We have distinguished the difference between thinking critically in a weak sense (selfish critical thought) and thinking critically in a strong sense (fairminded critical thought). We have articulated the issues that emerge when we focused critical thinking skills on the subject of teaching critical thinking in every subject and at every grade level. We have developed a series of handbooks that model the design of instruction K-3, 4-6, 6-9, and 9-12 before and after critical thinking infusion for the language arts, social studies, and science. All of our work has been based on these premises:

- that the fundamental need of students is to be taught *how* not *what* to think;
- that all knowledge of "content" is generated, analyzed, organized, applied, and synthesized by thinking;
- that gaining knowledge is unintelligible without such thinking;
- that an educated, literate person is fundamentally a seeker and questioner rather;
- than a true believer;
- that classroom activities are question-, issue-, or problem- rather than memory- centered;
- that knowledge and truth can rarely be transmitted by verbal statements alone;
- that students need to be taught how to listen critically — an active and skilled process;
- that critical reading and writing cannot be effectively taught without critical dialogue;
- that those who teach must actively model the intellectual behavior they want;
- that teachers must routinely require students to explain what they have learned;
- that students who have no questions typically are not learning;
- that students must read, write, talk their way to knowledge;
- that knowledge and truth heavily systematic and holistic, not atomistic and piecemeal;
- that people gain only the knowledge they seek and value;
- that without motivation learning is superficial and transitory;
- that all genuine education transforms the values of the learner;
- that students must reason their way dialogically and dialectically out of ignorance and prejudice;
- that students learn best if they have to teach others what they are learning;
- that self-directed recognition of ignorance is necessary to learning;
- that when possible teachers should allow students to express their own ideas;
- that the personal experience of the students is essential to all learning.

In our work with teachers and administrators we have tried to help them see that it is important to be clear about the goal of critical thinking on three levels:

1. at the ideal level (what is our vision of what would constitute success?);
2. at the realistic level (what stands in the way of achieving that vision?); and
3. at the pragmatic or practical level (what strategies have we devised for moving from where we are to a closer approximation of our goal?)

Many people are not clear as to what they are trying to achieve in integrating critical thinking across the disciplines. Most people are not clear as to what stands in the way of achieving this goal. And an even larger number are confused as to what strategies, if pursued, would enable them to maximize their success. Finally, there is an even larger number of people who are resistant, irrespective of which analysis one favors, to doing the intellectual work — the sheer intellectual drudgery — essential to success.

If critical thinking is to play a leading role in the reform of education, the problem of bringing critical thinking across the disciplines must become transparent and intuitive to faculty and students. If critical thinking is to become transparent and intuitive to faculty and students across the disciplines, teaching and learning must be rethought within an integrated theoretical framework. The result of such "rethinking" must show what it would look like for faculty and students to work together towards the cultivation of intellectual skills, abilities and traits. It must show them what it would be like to apply critical thinking concepts and principles in practical ways to everyday teaching and learning. Faculty must be able to picture the reality. And they must believe in the reality they are picturing. Then they must work together towards that reality.

This may be put another way. If students are to gain insight into the way in which the basic concepts of critical thinking apply in the disciplines they study, then they will need to be taught by faculty who themselves grasp that application. This presupposes faculty going through a process of learning during which they come to grasp that insight increasingly for themselves. But such a transformation of teacher learning, such transfer across the disciplines, requires deep-seated motivation and intellectual perseverance. How can we win the hearts and minds of academics so they become committed to living an examined life and hence to teaching in the disciplines so that students develop intellectual skills which enable them to reason critically across the disciplines? These are the questions we faced 50 years ago when Glaser conducted the first study on critical thinking and these are the questions we face, still, today.

At the Center and Foundation for Critical Thinking we have developed many resources focused on implementing critical thinking across the disciplines. Our major initiatives will be discussed in the next section. Many of these resources are freely available on our website.

V. Outreach

A. Creating the Foundation for Critical Thinking

I taught critical thinking and philosophy courses for more than 10 years before I realized that I simply couldn't reach my students at a very deep level due to their deficiencies as thinkers. In other words, I came to recognize that the educational systems from which my students were coming, their elementary, middle and high schools, were simply not preparing them for college work. I also came to see that college and universities were not fostering critical thinking well enough for students to develop the intellectual skills and dispositions of an educated person. Consequently, I realized I needed to go beyond my own classrooms to reach out to educators at all levels with critical thinking. Thus I established first the Center for Critical Thinking, in 1980, and then the Foundation for Critical Thinking in 1991. From the beginning, our work has emphasized the need for two things: 1) a substantive conception of critical thinking based in ordinary language, accessible to all, and 2) an approach that fostered and encouraged critical thinking in a strong sense across all disciplines, subjects, domains of human thought and life. Our work can be broadly categorized into these areas:

- theoretical development, scholarship, and research;
- outreach through conferences, academies, and workshops;
- outreach through onsite training for schools, colleges, and universities;
- development of testing and assessment tools in critical thinking;
- development, publication, and dissemination of books, instructional materials; videos, and thinker's guides on critical thinking;
- outreach through a dynamic website which offers many free resources for educators at all levels, including a large free library;
- outreach through translations of our work.

B. Theoretical Development, Scholarship, and Research

Theoretical development in critical thinking has been a primary focus of our work at the Foundation for Critical Thinking. But all of this theory has been pursued in an attempt (ultimately) to answer the question: What is critical thinking viewed globally and how can it be contextualized to help people live more rationally, productively, fairmindedly? The theory in our approach has already been briefly explained and is further detailed in our many publications. We also conduct and support ongoing research in critical thinking (see our website for examples). We believe that a rich conception of critical thinking is one which is alive and in constant development, hence the need for continual development of the theory of critical thinking. Further, we believe that any field of study can potentially contribute to such a conception. Therefore we invite scholars to contribute to this conception. We invite scholarly critique. All of our work should stand the test of scholarly assessment. It should grow and develop as a result thereof.

C. Conferences, Academies, and Workshops

The First International Conference on Critical Thinking sponsored by the Center for Critical Thinking occurred in 1980, the year the Center came into existence. Since that time we have continued to host this conference every year. In addition, we sponsor and coordinate critical thinking academies, both national and international, as well as regional workshops. More than 60,000 educators and administrators have attended these events, many from countries beyond the U.S. For instance, in the past four years alone educators from the following countries have attended our events: Singapore, China, Canada, England, Australia, Germany, Hong Kong, Israel, Malaysia, Mexico, Nigeria, Philippines, Saudi Arabia, Denmark, Korea, Nepal, South Africa, Thailand, American Samoa, Czech Republic, Kazakhstan, Kuwait, Japan, Venezuela, Taiwan, Turkey, United Kingdom, Netherlands, Jamaica, Kuwait, Oman, the Russian Federation, Spain, Sweden, and the United Arab Emirates.

At any given conference, more than 100 departments are represented, from every major field of study, and from every grade level from elementary school through graduate studies, making our conference the most diverse conference on critical thinking in the world. We have provided national and international scholarships to our conferences and events for hundreds of educators.

D. Onsite Professional Development Programs for Schools, Colleges, and Universities

We develop and conduct onsite professional development programs for educators at all levels, both in the U.S. and abroad. In the past three decades, we have presented professional development workshops to more than 70,000 educators. All of our professional development programs are developed in coordination with participating institutions, as there is no formulaic way to develop substantive professional development in critical thinking.

E. Testing and Assessment Tools in Critical Thinking

The Foundation for Critical Thinking offers assessment instruments that share in the same general goal: to enable educators to gather evidence relevant to determining the extent to which instruction is fostering critically thinking in the process of learning content. To this end, the fellows of the Foundation recommend that academic institutions and units establish an oversight committee for critical thinking and that this oversight committee utilize a combination of assessment instruments to generate incentives for faculty by providing faculty with evidence of the actual state of instruction in critical thinking at the institution.

The following instruments are available through the Foundation for Critical Thinking to generate evidence relevant to critical thinking teaching and learning:

1. Course Evaluation Form: provides evidence of whether, and to what extent, students perceive faculty as fostering critical thinking in instruction (course by course).
2. Critical Thinking: Concepts and Understandings: provides evidence of whether, and to what extent, students understand the fundamental concepts embedded in critical thinking (and hence tests student readiness to think critically). Online test.
3. Critical Thinking Reading and Writing Test: Provides evidence of whether, and to what extent, students can read closely and write substantively (and hence tests student ability to read and write critically). Short Answer.
4. International Critical Thinking Test: provides evidence of whether, and to what extent, students are able to analyze and assess excerpts from textbooks or professional writing. Short Answer.
5. Commission Study Protocol for Interviewing Faculty Regarding Critical Thinking: provides evidence of whether, and to what extent, critical thinking is being taught at a college or university (Can be adapted for high school). Based on the California Commission Study. Short Answer.
6. Foundation for Critical Thinking Protocol for Interviewing Faculty Regarding Critical Thinking: provides evidence of whether, and to what extent, critical thinking is being taught at a college or university (Can be adapted for High School). Short Answer.
7. Foundation for Critical Thinking Protocol for Interviewing Students Regarding Critical Thinking: provides evidence of whether, and to what extent, students are learning to think critical thinking at a college or university (Can be adapted for high school). Short Answer. To view a sample student interview, please register to become a member of the critical thinking community.
8. Criteria for Critical Thinking Assignments. Can be used by faculty in designing classroom assignments or by administrators in assessing the extent to which faculty are fostering critical thinking.
9. Rubrics for Assessing Student Reasoning Abilities. A useful tool in assessing the extent to which students are reasoning well through course content.

F. Publication and Dissemination of Books, Instructional Materials, Videos and Thinker's Guides on Critical Thinking

The Foundation for Critical Thinking develops and publishes instructional materials for faculty and curriculum materials for students that foster critical thinking across the curriculum. We also send complementary copies of our thinker's guides to educators to introduce them to critical thinking. In the past decade, we have sent (free of charge) more than a million thinker's guides to educators in the US and abroad.

We have written and in most cases published the following educational guides and books:

- *Critical Thinking: What Every Person Needs to Survive in a Rapidly Changing World*
- *Critical Thinking: What Every Person Needs to Survive in a Rapidly Changing World*
- *Critical Thinking Handbook: K-3rd Grades*
- *Critical Thinking Handbook: 4th-6th Grades*
- *Critical Thinking Handbook: 7th-9th Grades*
- *Critical Thinking Handbook: High School*
- *Critical Thinking: Tools for Taking Charge of Your Learning and Your Life*
- *Critical Thinking: Learn the Tools the Best Thinkers Use*
- *The Aspiring Thinker's Guide to Critical Thinking*
- *The Thinker's Guide: A Glossary of Critical Thinking Terms and Concepts*
- *The Thinker's Guide to Analytic Thinking*
- *The Thinker's Guide to Intellectual Standards*
- *The Thinker's Guide to Intellectual Standards*
- *The Miniature Guide to the Human Mind*
- *The Miniature Guide to Critical Thinking for Children*
- *The Miniature Guide to the Art of Asking Essential Questions*
- *25 Days to Better Thinking and Better Living*
- *The Teacher's Manual for the Miniature Guide to Critical Thinking for Children*
- *The Thinker's Guide to Clinical Reasoning*
- *The Thinker's Guide to Engineering Reasoning*
- *The Miniature Guide to Critical Thinking Concepts and Tools*
- *A Critical Thinker's Guide to Educational Fads*
- *The Thinker's Guide for Students on How to Study and Learn a Discipline*
- *The Thinker's Guide to How to Write a Paragraph*
- *The Thinker's Guide to How to Read a Paragraph*
- *The Thinkers Guide to Fallacies: The Art of Mental Trickery and Manipulation*
- *The Thinker's Guide for Conscientious Citizens on How to Detect Media Bias and Propaganda*
- *The Thinker's Guide to the Art of Socratic Questioning*
- *The Miniature Guide to Understanding the Foundations of Ethical Reasoning*
- *The International Critical Thinking Reading & Writing Test*
- *Critical Thinking: Tools for Taking Charge of Your Learning and Your Life*
- *A Miniature Guide to For Those Who Teach on How to Improve Student Learning*
- *A Miniature Guide for Students and Faculty to Scientific Thinking*

- *A Guide for Educators to Critical Thinking Competency Standards*
- *Critical Thinking: Learn the Tools the Best Thinkers Use*
- *The Thinker's Guide to the Nature and Functions of Critical and Creative Thinking*
- *Critical Thinking: Tools for Taking Charge of Your Professional and Personal Life*
- *What Every Person Needs to Survive in a Rapidly Changing World*
- *How to Prepare Students for a Rapidly Changing World*

In addition to this list, we have developed many more instructional materials, as well as instructional videos, all which can be found on our website. (For a text book presentation, see Paul & Elder, 2006.)

G. Dynamic Website That Offers Many Free Resources for Educators at All Levels

For more than a decade, the Foundation for Critical Thinking has been building an increasingly dynamic website, offering more and more resources to educators, including the following:

1. 102 articles under eight headings; all accessible freely; all aimed at making clearer the idea of critical thinking, its history, and its possible uses in classrooms of various subjects and grade levels;
2. research studies conducted by the FCT or on the application of our work;
3. free translations of all our work for which we own the rights. Included languages: Spanish, German, Arabic, Chinese, Japanese, Korean, French, Greek, Polish, Thai, and Turkish. Spanish is the leading group with 12 works translated;
4. numerous interviews, editorials, news articles, and other visual and aural media; again, all aimed at explaining and applying critical thinking in various directions and in numerous contexts;
5. Numerous critical thinking videos freely accessible;
6. An online college credit course for teachers that focuses on integrating critical thinking across the curriculum. This credit course is offered through Sonoma State University.

Our website is visited by more than a million people each year from more than 200 countries.

H. Translations of our Work

The works of the Fellows of the Foundation for Critical Thinking, namely myself and my colleagues Linda Elder and Gerald Nosich, have been translated into many languages. Many of these translations are available free of charge on our website. Additional translations are being added to our library each year.

I. What is Still Needed

As a non-profit organization focused on educational reform, we at the Foundation for Critical Thinking recognize the need for change, and therefore the significant resources necessary for achieving that change, in countless directions. Below is a short list of projects that are currently tabled for want of funding:

1. the translation of all of our works into every spoken language; to be made available freely;
2. the elimination of fees for our annual international conference, or the provision of substantial scholarships and bursaries for individuals wanting to attend but unable to do so, due to finances (including airfare, hotel, food, etc.);
3. the expansion of our online repository of instructional videos introducing and contextualizing the fundamentals of critical thinking (based on subject, age or ability level, profession, etc.);
4. the establishment of a new physical space (including library, housing, cafeteria, etc.) for a community of scholars interested in deepening their understanding of critical thinking.

There are unlimited possibilities for outreach in critical thinking and for the contextualization of critical thinking.

VI. Conclusion

The crucial insight for us to achieve — for it is the basis for recognizing the need for critical thought — is this: if we can create in our mind pathological intellectual constructs, we can de-construct them. We can create emancipatory constructs in their place. We can learn and live, we can teach and behave in new ways. We are not hopeless. We are not without strength. If we can think unclearly, we can also think clearly. If we can be inaccurate, we can be accurate in thought; if we can be dishonest, we can be honest. If we can enslave each other, we can free each other. We are not predestined to uncritical thought. We can rise to critical thought in a strong sense. We can think in a Socratic way. We, like Socrates, can claim the right of independent criticism of all institutions and of politicians who do not seem to know what they are doing or are compromising their principles. We can rethink in the spirit of Socrates how we teach, how we learn, how we form and relate to our emotions and desires.

Critical thinking, or the art of living an examined life, will succeed or fail to the degree that it stimulates those who study it to think for themselves deeply and wisely, to the extent, in other words, that they begin to live examined lives. So, to conclude:

- The art of living an examined life is equivalent to the art of developing our minds in such a way that, as thinkers, we contribute to the creation of a more rational and just world — what William Graham

Sumner called "critical societies" — through the manner in which we reflect on our lives, and then, as a result, act freely, rationally, and justly.

- Reflecting on our lives includes reflecting on the social institutions that form the context in which we live.
- Who we are as persons is a product of who we make ourselves, or who we let make us.
- If we do not accept the challenge to live an examined life, then who we are as persons is a product of who we are made into by forces internal and external to us that we have tacitly chosen to ignore.
- Freedom cannot be given to a person, it must be created by that person through the act of living an examined life.
- The art of living an examined life cannot be separated from the art of developing ourselves as fairminded critical thinkers.
- We can understand our lives only to the extent to which we understand how our lives relate to the larger world — political, social, cultural, economic, and historical — in which we live.

References

Elder, L., & Paul, R. (2008). *The thinker's guide to intellectual standards.* Dillon Beach, CA: The Foundation for Critical Thinking Press.

Elder, L., & Paul, R. (2010). *The thinker's guide to analytic thinking.* Dillon Beach, CA: The Foundation for Critical Thinking Press.

Nosich, G. (2012). *Learning to think things through, 4th ed.* Boston: Pearson Education.

Paul, R. (1990). *Critical thinking: What every person needs to survive in a rapidly changing world.* Dillon Beach, CA: The Foundation for Critical Thinking Press.

Paul, R., & Elder, L. (2006). *Critical thinking: Learning the tools the best thinkers use.* Upper Saddle River, NJ: Pearson-Prentice Hall.