



# The Critical Thinking Community

[Login](#) | [Register](#)

Foundation for Critical Thinking

 Search  
[Home Page](#) | [Bookstore](#) | [Site Map](#) | [Contact Us](#)

[ABOUT US](#)
[BOOKSTORE](#)
[LIBRARY / ARTICLES](#)
[PROFESSIONAL DEVELOPMENT](#)
[RESEARCH](#)
[CONFERENCE / EVENTS](#)
[TRANSLATIONS](#)
[ASSESSMENT & TESTING](#)
[ONLINE LEARNING](#)
[NEWS & CRITIQUE](#)

Translate this page from English to...

[العربية](#)
[中文 \(简体\)](#) [\(繁體\)](#)
[Deutsch](#) | [Nederlands](#)
[Español](#) | [Português](#)
[Italiano](#) | [Français](#)
[Ελληνικά](#)
[日本語](#) [한국어](#)
[Русский](#)

 Translations from Google  
 \*Machine translated pages  
 not guaranteed for accuracy.

[Click here for our professionally translated resources.](#)

PROFESSIONAL DEVELOPMENT »

## The State of Critical Thinking Today As the Organizer in Developing Blueprints for Institutional Change

*“Too many facts, too little conceptualizing, too much memorizing, and too little thinking.”*

... Paul Hurd

### Introduction

The question at issue in this paper is: What is the current state of critical thinking in higher education?

Sadly, studies of higher education demonstrate three disturbing, but hardly novel, facts:

1. Most college faculty at all levels lack a substantive concept of critical thinking.
2. Most college faculty don't realize that they lack a substantive concept of critical thinking, believe that they sufficiently understand it, and assume they are already teaching students it.
3. Lecture, rote memorization, and (largely ineffective) short-term study habits are still the norm in college instruction and learning today.

These three facts, taken together, represent serious obstacles to essential, long-term institutional change, for only when administrative and faculty leaders grasp the nature, implications, and power of a robust concept of critical thinking — as well as gain insight into the negative implications of its absence — are they able to orchestrate effective professional development. When faculty have a vague notion of critical thinking, or reduce it to a single-discipline model (as in teaching critical thinking through a “logic” or a “study skills” paradigm), it impedes their ability to identify ineffective, or develop more effective, teaching practices. It prevents them from making the essential connections (both within subjects and across them), connections that give order and substance to teaching and learning.

This paper highlights the depth of the problem and its solution — a comprehensive, substantive concept of critical thinking fostered across the curriculum. As long as we rest content with a fuzzy concept of critical thinking or an overly narrow one, we will not be able to effectively teach for it. Consequently, students will continue to leave our colleges without the intellectual skills necessary for reasoning through complex issues.

## Part One: An Initial Look at the Difference Between a Substantive and Non-Substantive Concept of Critical Thinking

### Faculty Lack a Substantive Concept of Critical Thinking

Studies demonstrate that most college faculty lack a substantive concept of critical thinking. Consequently they do not (and cannot) use it as a central organizer in the design of instruction. It does not inform their conception of the student's role as learner. It does not affect how they conceptualize their own role as instructors. They do not link it to the essential thinking that defines the content they teach. They, therefore, usually teach content separate from the thinking students need to engage in if they are to take ownership of

that content. They teach history but not historical thinking. They teach biology, but not biological thinking. They teach math, but not mathematical thinking. They expect students to do analysis, but have no clear idea of how to teach students the elements of that analysis. They want students to use intellectual standards in their thinking, but have no clear conception of what intellectual standards they want their students to use or how to articulate them. They are unable to describe the intellectual traits (dispositions) presupposed for intellectual discipline. They have no clear idea of the relation between critical thinking and creativity, problem-solving, decision-making, or communication. They do not understand the role that thinking plays in understanding content. They are often unaware that didactic teaching is ineffective. They don't see why students fail to make the basic concepts of the discipline their own. They lack classroom teaching strategies that would enable students to master content and become skilled learners.

Most faculty have these problems, yet with little awareness that they do. The majority of college faculty consider their teaching strategies just fine, no matter what the data reveal. Whatever problems exist in their instruction they see as the fault of students or beyond their control.

### **Studies Reveal That Critical Thinking Is Rare in the College Classroom**

Research demonstrates that, contrary to popular faculty belief, critical thinking is not fostered in the typical college classroom. In a meta-analysis of the literature on teaching effectiveness in higher education, Lion Gardiner, in conjunction with ERIC Clearinghouse on Higher Education (1995) documented the following disturbing patterns: "Faculty aspire to develop students' thinking skills, but research consistently shows that in practice we tend to aim at facts and concepts in the disciplines, at the lowest cognitive levels, rather than development of intellect or values."

Numerous studies of college classrooms reveal that, rather than actively involving our students in learning, we lecture, even though lectures are not nearly as effective as other means for developing cognitive skills. In addition, students may be attending to lectures only about one-half of their time in class, and retention from lectures is low.

Studies suggest our methods often fail to dislodge students' misconceptions and ensure learning of complex, abstract concepts. Capacity for problem solving is limited by our use of inappropriately simple practice exercises.

Classroom tests often set the standard for students' learning. As with instruction, however, we tend to emphasize recall of memorized factual information rather than intellectual challenge. Taken together with our preference for lecturing, our tests may be reinforcing our students' commonly fact-oriented memory learning, of limited value to either them or society.

Faculty agree almost universally that the development of students' higher-order intellectual or cognitive abilities is the most important educational task of colleges and universities. These abilities underpin our students' perceptions of the world and the consequent decisions they make. Specifically, critical thinking – the capacity to evaluate skillfully and fairly the quality of evidence and detect error, hypocrisy, manipulation, dissembling, and bias – is central to both personal success and national needs.

A 1972 study of 40,000 faculty members by the American Council on Education found that 97 percent of the respondents indicated the most important goal of undergraduate education is to foster students' ability to think critically.

Process-oriented instructional orientations "have long been more successful than conventional instruction in fostering effective movement from concrete to formal reasoning. Such programs emphasize students' active involvement in learning and cooperative work with other students and de-emphasize lectures . . ."

Gardiner's summary of the research coincides with the results of a large study (Paul, et. al. 1997) of 38 public colleges and universities and 28 private ones focused on the question: To what extent are faculty teaching for critical thinking?

The study included randomly selected faculty from colleges and universities across California, and encompassed prestigious universities such as Stanford, Cal Tech, USC, UCLA, UC Berkeley, and the California State University System. Faculty answered both closed and open-ended questions in a 40-50 minute interview.

By direct statement or by implication, most faculty claimed that they permeated their instruction with an emphasis on critical thinking and that the students internalized the concepts in their courses as a result. Yet only the rare interviewee mentioned the importance of students thinking clearly, accurately, precisely, relevantly, or logically, etc... Very few mentioned any of the basic skills of thought such as the ability to clarify questions; gather relevant data; reason to logical or valid conclusions; identify key assumptions; trace significant implications, or enter without distortion into alternative points of view. Intellectual traits of mind,

such as intellectual humility, intellectual perseverance, intellectual responsibility, etc . . . were rarely mentioned by the interviewees. Consider the following key results from the study:

1. Though the overwhelming majority of faculty claimed critical thinking to be a primary objective of their instruction (89%), only a small minority could give a clear explanation of what critical thinking is (19%). Furthermore, according to their answers, only 9% of the respondents were clearly teaching for critical thinking on a typical day in class.
2. Though the overwhelming majority (78%) claimed that their students lacked appropriate intellectual standards (to use in assessing their thinking), and 73% considered that students learning to assess their own work was of primary importance, only a very small minority (8%) could enumerate any intellectual criteria or standards they required of students or could give an intelligible explanation of those criteria and standards.
3. While 50% of those interviewed said that they explicitly distinguish critical thinking skills from traits, only 8% were able to provide a clear conception of the critical thinking skills they thought were most important for their students to develop. Furthermore, the overwhelming majority (75%) provided either minimal or vague allusion (33%) or no allusion at all (42%) to intellectual traits of mind.
4. Although the majority (67%) said that their concept of critical thinking is largely explicit in their thinking, only 19% could elaborate on their concept of thinking.
5. Although the vast majority (89%) stated that critical thinking was of primary importance to their instruction, 77% of the respondents had little, limited or no conception of how to reconcile content coverage with the fostering of critical thinking.
6. Although the overwhelming majority (81%) felt that their department's graduates develop a good or high level of critical thinking ability while in their program, only 20% said that their departments had a shared approach to critical thinking, and only 9% were able to clearly articulate how they would assess the extent to which a faculty member was or was not fostering critical thinking. The remaining respondents had a limited conception or no conception at all of how to do this.

## A Substantive Conception of Critical Thinking

If we understand critical thinking substantively, we not only explain the idea explicitly to our students, but we use it to give order and meaning to virtually everything we do as teachers and learners. We use it to organize the design of instruction. It informs how we conceptualize our students as learners. It determines how we conceptualize our role as instructors. It enables us to understand and explain the thinking that defines the content we teach.

When we understand critical thinking at a deep level, we realize that we must teach content through thinking, not content, and then thinking. We model the thinking that students need to formulate if they are to take ownership of the content. We teach history as historical thinking. We teach biology as biological thinking. We teach math as mathematical thinking. We expect students to analyze the thinking that is the content, and then to assess the thinking using intellectual standards. We foster the intellectual traits (dispositions) essential to critical thinking. We teach students to use critical thinking concepts as tools in entering into any system of thought, into any subject or discipline. We teach students to construct in their own minds the concepts that define the discipline. We acquire an array of classroom strategies that enable students to master content using their thinking and to become skilled learners.

The concept of critical thinking, rightly understood, ties together much of what we need to understand as teachers and learners. Properly understood, it leads to a framework for institutional change. For a deeper understanding of critical thinking see [The Thinker's Guide Series](#), the book, [Critical Thinking: Tools for Taking Charge of Your Learning and Your Life](#), and the Foundation For Critical Thinking Library.

To exemplify my point, The Thinker's Guide Series consists in a diverse set of contextualizations of one and the same substantive concept of critical thinking. If we truly understand critical thinking, for example, we should be able to explain its implications:

- for analyzing and assessing reasoning
- for identifying strengths and weaknesses in thinking
- for identifying obstacles to rational thought
- for dealing with egocentrism and sociocentrism
- for developing strategies that enable one to apply critical thinking to everyday life
- for understanding the stages of one's development as a thinker
- for understanding the foundations of ethical reasoning

- for detecting bias and propaganda in the national and international news
- for conceptualizing the human mind as an instrument of intellectual work
- for active and cooperative learning
- for the art of asking essential questions
- for scientific thinking
- for close reading and substantive writing
- for grasping the logic of a discipline.

Each contextualization in this list is developed in one or more of the guides in the series. Together they suggest the robustness of a substantive concept of critical thinking.

### What is Critical Thinking (Stripped to its Essentials)?

The idea of critical thinking, stripped to its essentials, can be expressed in a number of ways. Here's one:

Critical thinking is the art of thinking about thinking with a view to improving it. Critical thinkers seek to improve thinking, in three interrelated phases. They analyze thinking. They assess thinking. And they up-grade thinking (as a result). Creative thinking is the work of the third phase, that of replacing weak thinking with strong thinking, or strong thinking with stronger thinking. Creative thinking is a natural by-product of critical thinking, precisely because analyzing and assessing thinking enables one to raise it to a higher level. New and better thinking is the by-product of healthy critical thought.

A person is a critical thinker to the extent that he or she regularly improves thinking by studying and "critiquing" it. Critical thinkers carefully study the way humans ground, develop, and apply thought — to see how thinking can be improved.

The basic idea is simple: "Study thinking for strengths and weaknesses. Then make improvements by building on its strengths and targeting its weaknesses."

#### ***A critical thinker does not say:***

"My thinking is just fine. If everyone thought like me, this would be a pretty good world."

#### ***A critical thinker says:***

"My thinking, as that of everyone else, can always be improved. Self-deception and folly exist at every level of human life. It is foolish ever to take thinking for granted. To think well, we must regularly analyze, assess, and reconstruct thinking — ever mindful as to how we can improve it."

## Part Two: A Substantive Concept of Critical Thinking Reveals Common Denominators in all Academic Work

### Substantive Critical Thinking Can be Cultivated in Every Academic Setting

By focusing on the rational capacities of students' minds, by designing instruction so students explicitly grasp the sense, the logicalness, of what they learn, we can make all learning easier for them. Substantive learning multiplies comprehension and insight; lower order rote memorization multiplies misunderstanding and confusion. Though very little present instruction deliberately aims at lower order learning, most results in it. "Good" students have developed techniques for short term rote memorization; "poor" students have none. But few know what it is to think analytically through the content of a subject; few use critical thinking as a tool for acquiring knowledge. (see Nosich)

We often talk of knowledge as though it could be divorced from thinking, as though it could be gathered up by one person and given to another in the form of a collection of sentences to remember. When we talk in this way we forget that knowledge, by its very nature, depends on thought. Knowledge is produced by thought, analyzed by thought, comprehended by thought, organized, evaluated, maintained, and transformed by thought. Knowledge exists, properly speaking, only in minds that have comprehended it and constructed it through thought. And when we say thought we mean critical thought. Knowledge must be distinguished from the memorization of true statements. Students can easily blindly memorize what they do not understand. A book contains knowledge only in a derivative sense, only because minds can thoughtfully read it and, through this analytic process, gain knowledge. We forget this when we design instruction as

though recall were equivalent to knowledge.

Every discipline — mathematics, physics, chemistry, biology, geography, sociology, anthropology, history, philosophy, and so on — is a mode of thinking. Every discipline can be understood only through thinking. We know mathematics, not when we can recite mathematical formulas, but when we can think mathematically. We know science, not when we can recall sentences from our science textbooks, but when we can think scientifically. We understand sociology only when we can think sociologically, history only when we can think historically, and philosophy only when we can think philosophically. When we teach so that students are not thinking their way through subjects and disciplines, students leave our courses with no more knowledge than they had when they entered them. When we sacrifice thought to gain coverage, we sacrifice knowledge at the same time.

In the typical history class, for example, students are often asked to remember facts about the past. They therefore come to think of history class as a place where you hear names and dates and places; where you try to memorize and state them on tests. They think that when they can successfully do this, they then “know history.”

Alternatively, consider history taught as a mode of thought. Viewed from the paradigm of a critical education, blindly memorized content ceases to be the focal point. Learning to think historically becomes the order of the day. Students learn historical content by thinking historically about historical questions and problems. They learn through their own thinking and classroom discussion that history is not a simple recounting of past events, but also an interpretation of events selected by and written from someone’s point of view. In recognizing that each historian writes from a point of view, students begin to identify and assess points of view leading to various historical interpretations. They recognize, for example, what it is to interpret the American Revolution from a British as well as a colonial perspective. They role-play different historical perspectives and master content through in-depth historical thought. They relate the present to the past. They discuss how their own stored-up interpretations of their own lives’ events shaped their responses to the present and their plans for the future. They come to understand the daily news as a form of historical thought shaped by the profit-making motivations of news collecting agencies. They learn that historical accounts may be distorted, biased, narrow, misleading.

### **Every Area or Domain of Thought Must Be Thought-Through to Be Learned**

The mind that thinks critically is a mind prepared to take ownership of new ideas and modes of thinking. Critical thinking is a system-opening system. It works its way into a system of thought by thinking-through:

- the purpose or goal of the system
- the kinds of questions it answers (or problems it solves)
- the manner in which it collects data and information
- the kinds of inferences it enables
- the key concepts it generates
- the underlying assumptions it rests upon
- the implications embedded in it
- the point of view or way of seeing things it makes possible.

It assesses the system for clarity, accuracy, precision, relevance, depth, breadth, logic, significance, and (where applicable) fairness. There is no system no subject it cannot open.

**INSERT FIGURE 2: THE STANDARDS**

### **There is a Necessary Connection Between Critical Thinking and Learning**

The skills in up-grading thinking are the same skills as those required in up-grading learning. The art of thinking well illuminates the art of learning well. The art of learning well illuminates the art of thinking well. Both require intellectually skilled metacognition. For example, to be a skilled thinker in the learning process requires that we regularly note the elements of our thinking/learning:

- What is my purpose?
- What question am I trying to answer?
- What data or information do I need?
- What conclusions or inferences can I make (based on this information)?
- If I come to these conclusions, what will the implications and consequences be?
- What is the key concept (theory, principle, axiom) I am working with?
- What assumptions am I making?
- What is my point of view?

## There is a Necessary Connection Between Critical Thinking and Skilled Reading and Writing

The reflective mind improves its thinking by reflectively thinking about it. Likewise, it improves its reading by reflectively thinking about how it is reading. It improves its writing by analyzing and assessing each draft it creates. It moves back and forth between thinking and thinking about thinking. It moves forward a bit, then loops back upon itself to check its own operations. It checks its inferences. It makes good its ground. It rises above itself and exercises oversight on itself.

One of the most important abilities that a thinker can have is the ability to monitor and assess his or her own thinking while processing the thinking of others. In reading, the reflective mind monitors how it is reading while it is reading. The foundation for this ability is knowledge of how the mind functions when reading well. For example, if I know that what I am reading is difficult for me to understand, I intentionally slow down. I put the meaning of each passage that I read into my own words. Knowing that one can understand ideas best when they are exemplified, then, when writing, I give my readers examples of what I am saying. As a reader, I look for examples to better understand what a text is saying. Learning how to read closely and write substantively are complex critical thinking abilities. When I can read closely, I can take ownership of important ideas in a text. When I can write substantively, I am able to say something worth saying about something worth saying something about. Many students today cannot.

## Part Three: We can Get Beyond Non-Substantive Concepts of Critical Thinking

### Fragmentation and Short-Term Memorization Are Predictable Outcomes of a Non-substantive Concept of Critical Thinking



Students in colleges today are achieving little connection and depth, either within or across subjects. Atomized lists dominate textbooks, atomized teaching dominates instruction, and atomized recall dominates learning. What is learned are superficial fragments, typically soon forgotten. What is missing is the coherence, connection, and depth of understanding that accompanies systematic critical thinking.

Without the concepts and tools of substantive critical thinking, students often learn something very different from what is "taught." Let us consider how this problem manifests itself in math instruction. Alan Schoenfeld, the distinguished math educator, says that math instruction is on the whole "deceptive and fraudulent." He uses strong words to underscore a wide gulf between what math teachers think their students are learning and what they are actually learning. (Schoenfeld, 1982) He elaborates as follows:

All too often we focus on a narrow collection of well-defined tasks and train students to execute those tasks in a routine, if not algorithmic fashion. Then we test the students on tasks that are very close to the ones they have been taught. If they succeed on those problems, we and they congratulate each other on the fact that they have learned some powerful mathematical techniques. In fact, they may be able to use such techniques mechanically while lacking some rudimentary thinking skills. To allow them, and ourselves, to believe that they "understand" the mathematics is deceptive and fraudulent. (p. 29)

Schoenfeld cites a number of studies to justify this characterization of math instruction and its lower order consequences. He also gives a number of striking examples, at the tertiary as well as at the primary and secondary levels:

At the University of Rochester 85 percent of the freshman class takes calculus, and many go on. Roughly half of our students see calculus as their last mathematics course. Most of these students will never apply calculus in any meaningful way (if at all) in their studies, or in their lives. They complete their studies with the impression that they know some very sophisticated and high-powered mathematics. They can find the maxima of complicated functions, determine exponential decay, compute the volumes of surfaces of revolution, and so on. But the fact is these students know barely anything at all. The only reason they can perform with any degree of competency on their final exams is that the problems on the exams are nearly carbon copies of problems they have seen before; the



students are not being asked to think, but merely to apply well-rehearsed schemata for specific kinds of tasks.

Tim Keifer and Schoenfeld (Schoenfeld, 1982) studied students' abilities to deal with pre-calculus versions of elementary word problems such as the following:

As 8-foot fence is located 3 feet from a building. Express the length  $L$  of the ladder which may be leaned against the building and just touch the top of the fence as a function of the distance  $X$  between the foot of the ladder and the base of the building.

Keifer and Schoenfeld were not surprised to discover that only 19 of 120 attempts at such problems (four each for 30 students) yielded correct answers, or that only 65 attempts produced answers of any kind (p. 28).



Schoenfeld documents similar problems at the level of elementary math instruction. He reports on an experiment in which elementary students were asked questions like, "There are 26 sheep and 10 goats on a ship. How old is the captain?" Seventy-six of the 97 students "solved" the problem by adding, subtracting, multiplying, or dividing 26 and 10. And that is not all, the more math they had, the greater was the tendency.

Schoenfeld cites many similar cases, including a study demonstrating that "word problems," which are supposed to require thought, tend to be approached by students mindlessly with key word algorithms. That is, when students are faced with problems like "John had eight apples. He gave three to Mary. How many does John have left?," they typically look for words like 'left' to tell them what operation to perform. As Schoenfeld puts it, "... the situation was so extreme that many students chose to subtract in a problem that began 'Mr. Left'." This tendency to approach math problems and assignments with robotic lower order responses becomes permanent in most students, killing any chance they had to think mathematically.

Habitual robotic learning is not, of course, peculiar to math. It is the common mode of learning in every subject area. The result is a kind of global self-deception that surrounds teaching and learning, often with the students clearer about what is really being learned than the teachers. Many students, for example, realize that in their history courses they merely learn to mouth names, dates, events, and outcomes whose significance they do not really understand and whose content they forget shortly after the test. Whatever our stated goals, at present, students are not learning to think within the disciplines they "study."

### **Establishing General Education Courses in Critical Thinking Will Not Solve the Problem**

There are a number of reasons why establishing general education courses in critical thinking will not, of itself, solve the problem. The first is that most such courses are based in a particular discipline and, therefore, typically teach only those aspects of critical thinking traditionally highlighted by the discipline. For example, if these courses are taught within Philosophy Departments, the course will typically focus on either formal or informal logic. If the English Department teaches sections, the course will probably focus on persuasive writing and rhetoric. Though good in themselves, none of these focuses comes close to capturing a substantive concept of critical thinking. The result is that instructors in other departments will not see the relevance of the "critical thinking" course to their discipline, and therefore the course will be ignored. It will do little to help students become skilled learners.

### **Establishing General Education Courses In Study Skills Will Not Solve the Problem**

There are a number of reasons why establishing courses in study skills will not, of itself, solve the problem. The first is that most such courses are not based on a substantive concept of critical thinking. Indeed, most lack any unifying theory or organizing concept. They do not teach students how to begin to think within a discipline. They do not typically teach students how to analyze thinking using the elements of thought. They do not typically teach students intellectual standards, nor how to assess their own work. What is missing is the coherence, connection, and depth of understanding that accompanies systematic critical thinking.

## A Substantive Concept of Critical Thinking Leads to Deep Learning & to the Acquisition of Substantive Knowledge

Substantive knowledge is knowledge that leads to questions that lead to further knowledge (that, in turn, leads to further knowledge and further vital questions, and on and on). Acquiring substantive knowledge is equivalent to acquiring effective organizers for the mind that enable us to weave everything we are learning into a tapestry, a system, an integrated whole. Substantive knowledge is found in that set of fundamental and powerful concepts and principles that lie at the heart of understanding everything else in a discipline or subject. For example, if you understand deeply what a biological cell is and the essential characteristics of all living systems, you have the substantive knowledge to ask vital questions about all living things. You begin to think biologically.

Teaching focused on a substantive concept of critical thinking appeals to reason and evidence. It encourages students to discover as well as to process information. It provides occasions in which students think their way to conclusions, defend positions on difficult issues, consider a wide variety of points of view, analyze concepts, theories, and explanations, clarify issues and conclusions, solve problems, transfer ideas to new contexts, examine assumptions, assess alleged facts, explore implications and consequences, and increasingly come to terms with the contradictions and inconsistencies of their own thought and experience. It engages students in the thinking required to deeply master content. ([See Learning to Think Things Through](#)).

### Conclusion: Take the Long View

Critical thinking is not to be devoured in a single sitting nor yet at two or three workshops. It is a powerful concept to be savored and reflected upon. It is an idea to live and grow with. It focuses upon that part of our minds that enables us to think things through, to learn from experience, to acquire and retain knowledge. It is like a mirror to the mind, enabling us to take ownership of the instruments that drive our learning. Not only to think, but to think about how we are thinking, is the key to our development as learners and knowers.

*How do I know this? What is this based upon? What does this imply and presuppose? What explains this, connects to it, leads from it? How am I viewing it? Should I view it differently?*

Short-term reform can do no more than foster surface change. Deep change takes time, patience, perseverance, understanding, and commitment. This is not easy in a world saturated with glossy, superficial, quick-fixes, a world plagued by a short attention span. Nevertheless it is possible to create a long-term professional development program that focuses on the progressive improvement of instruction and learning. (See Elder)

But this can only happen when those designing professional development have a substantive concept of critical thinking. Only then will they be able to guide faculty toward a long-term approach. Only then will they be able to provide convincing examples in each of the disciplines. Only then will they see the connection between thinking and learning, between understanding content and thinking it through, between intellectual discipline and education. Only then will the "learning college" become what it aims, all along, to be.

{This article was written by Richard Paul, Fall 2004, website [www.criticalthinking.org](http://www.criticalthinking.org). }

[Back to top](#)