

◆◆ Chapter 29

Critical Thinking and Learning Centers

Abstract

In this paper, originally presented as a keynote address at the annual meeting of the Western Reading and Learning Association, Richard Paul explains the relationship of critical thinking to learning. He distinguishes between student survival skills (those tactics and strategies which enable students to "beat the system", as it were) and student critical thinking skills (which enable students to master content and learn deeply). This distinction becomes the basis for a further distinction between a "minimalist" and a "maximalist" approach to structuring a learning center. In a minimalist approach, students learn the study skills that students use to get good grades, particularly short term recall strategies. In a maximalist approach, students learn to critically process and master content through critical reading, writing, and listening skills.

◆ *What Is Critical Thinking*

It is always frustrating, and a challenge, to talk about notions as complex and rich as critical thinking. To illuminate, at the same time, particular practical concerns, in this case those of directors of learning centers, adds a further dimension of difficulty. So let me say now that I will not canvass every dimension of critical thinking. I will telescope my remarks on many fronts, for there is much more to critical thinking and evaluation than I can possibly span in one talk.

A definition of critical thinking is in order, of course, but before I give you one, let me caution against overemphasizing any particular definition, including the one I shall give. Definitions of complex realities are at best aids to the beginnings of understanding. They necessarily emphasize some features of the defined reality more than others. They are possible traps by which we sometimes convince ourselves that our depth of understanding is greater than it is. You can perhaps see my point best by remembering how misleading a three or four sentence definition of *you* would be, how little the intricate workings of your mind and character and experience could be captured in a short sequence of words. Your mother, your father, your sisters, your brothers, and your peers might all give different characterizations that would illuminate different parts, elements, or aspects of you. But no one person could give a

definition which could capture you totally, as Browning once said, "root and all, and all in all". I hope you remember this essential qualification when you think later about what critical thinking is. In the last analysis, your knowledge of it, your insight into it, will grow over time as you interest yourself more and more, if you do, in helping students become critical thinkers.

In the future, when schools commit themselves more than they yet have to helping students think for themselves actively and independently, the nature and richness of critical thinking will become more commonly understood. Today the term does no more for most people than conjure up vague notions, or worse, misleading stereotypes. Hence, some people think of critical thinking as negative thinking, as fault-finding, even nit-picking or judgmentalism. Some people think of it merely as a summary term that stands for a heterogeneous list of atomistic intellectual skills. Others think of it as one of many forms of thinking, to be used on occasion. These latter sometimes contrast critical thinking with creative thinking, sometimes with problem-solving or decision-making.

From my vantage point, however, critical thinking is best understood as a global way of disciplining and taking control of one's own thinking so as to accomplish more effectively the purposes of thinking through disciplined self-command. Of course, there are multiple possible purposes for thinking, and multiple possible domains or fields into which thinking may venture. Therefore, how we discipline our thinking, how we self-direct our thinking, varies according to purpose and domain. To become a proficient critical thinker is not simply to become well trained in a variety of loosely connected disciplines, but more precisely to develop an over-arching commitment to think beyond specialized techniques and technical concepts to take command of one's cognitions overall, to grasp global or universal obstacles to independence of thought, and to develop generalizable insights and skills across multiple domains of human thought and action.

With these thoughts in mind, I offer the following definition:

Critical thinking is disciplined, rational, self-directed thinking that skillfully pursues the purpose for thinking within some domain of knowledge or human concern.

Now let me take this definition apart and indicate my understanding of its various elements. First, critical thinking is *disciplined* and *self-directed*. Everyone thinks. It is of the very nature of the mind to think. Whether we like it or not, will it or not, our minds are continually engaged in acts of cognition: conceptualizing, interpreting, and evaluating aspects of our lives, our values, and our experiences. Indeed, experiences and meaning are constructed by the mind, continuously and automatically. Nonetheless, despite the pervasiveness of thinking in human life, much of it is undisciplined and therefore not under the direction of ourselves — the thinker.

Thus, we interpret the world in ways that we do not consciously realize. We make assumptions of which we are unaware. We judge without knowing how we are judging, without conscious reflection on our criteria for judgment. We

make inferences without any sense of the movement of the mind from premise to conclusion, without any sense of the need to validate evidence or justify our line of reasoning. We choose and use concepts to shape our experiences and organize them within our point of view. We often don't realize we have created the very points of view that dominate our thinking. We sometimes assume that what we have created through our thinking — our interpretations, beliefs, points of view — are not simply various ways of getting at reality, but are reality itself. We uncritically assume we are in touch with things as they are in themselves, with no sense of our involvement in mental selectiveness or distortion. We think, in other words, largely in an undisciplined and unself-directed fashion. In a word, we typically think uncritically.

We do this because we never learned how to do otherwise. We do this because those who raised and shaped us did not realize that conscious and deliberate *thinking about thinking* is essential to the fullest development of thinking. We do this because most people around us think uncritically. Most of our teachers were given subject content to learn, but little insight into how content must be organized and shaped to be genuinely, deeply, or rationally learned. Our teachers learned content just as we did from them, without deeply understanding, without grasping it in relation to other things learned inside and outside of school, without testing what they were learning within the crucible of their own experiences, without discipline or self-directedness of thought.

Of course, the best students and learners stumble upon some standards for thinking simply by being exposed to organized content. Because academic content itself has been thought-out and organized by disciplined minds, the best students pick up something of that discipline merely because they try to take that content into their minds and keep it there for testing purposes. Furthermore, some students are exposed to other people (parents, teachers, peers) who do have some command of critical thought, and so pick up some intellectual skills from the give-and-take of discussion and debate with them.

But most students go through school largely on the outside looking in, largely alienated from intellectual discipline and skills of self-directed thinking; they do not know how to make learning exciting, powerful, and educational. Most students never know the power of bringing their thinking under their control. They are like people trying to learn to dance by looking at hundreds of still pictures of people dancing, with no more than a faint sense of music in the background, with little vision of how picture and music come together, and with little grasp of how to move their own bodies to the beat of the music. Somehow knowledge is discovered. Somehow it gets put into categories and subject fields. Somehow it gets into books and teachers' heads. And then somehow it is there before them waiting to be "learned". It's all discontinuous still pictures. There is no beat or rhythm to it. There is no power or beauty in it. There is no theme or harmony within it.

Classrooms are, on the whole, fairly dull and boring places to most students precisely because most students do not know how to make them otherwise. Yet all teachers should be skilled in helping students discover the

nature and power of learning, for that is precisely what all classrooms and schools ought to be — centers of skilled and significant learning. Indeed, it is paradoxical that we should need learning centers at institutionally established centers of learning. We do need them precisely because students have not learned how to make their own minds, and teachers have not learned how to make their classrooms, *true* centers of learning.

It all comes down to the virtual impossibility for the mind to become disciplined and self-directed, unless it is systematically stimulated to turn inward upon itself and so become consciously aware of its own operations, its own powers and disabilities. In its natural state, the mind unconsciously absorbs beliefs and sets up pathways of thought through mere association and what Freud called pleasure-principle thinking. We believe what we want to believe, what people around us believe, what we are rewarded for believing, what *seems* or appears to be true. Raised in the U.S., we believe what U.S. citizens believe. Raised in Iran, we would believe what Iranians believe. Raised in the Soviet Union, we would believe what Soviets believe. We do not individually reason our way to our basic beliefs. They are, in essence, given to us, insinuated, repeated, and approved of so often by those with influence over us that we find them in possession of our minds. Rather than running our minds, our minds typically run us. This uncritical process of belief-absorption is the natural state of affairs in societies as we know them. Rational belief formation is not automatic or natural — the propensity to question what those around you believe, to do your own thinking, to form your own beliefs, to withhold assent to beliefs until you have adequate reason or evidence to support them.

So we should not be surprised that most students lack discipline and self-direction in their thinking, that they are not in command of the shaping forces in their own minds, and that they do not know how to achieve self-command. At the same time, it is possible to describe what students need to learn to become more rational, to transform their thinking from passive, undisciplined, other-directedness to disciplined self-command. They need three things: 1) explicit standards or criteria for assessing their thought, 2) insight into the elements of thought, and 3) practice orchestrating those elements to improve their thinking, to take charge of it.

Let us look first at the standards for, or perfections of, thinking, implicit in what may properly be called universal ideals of thought:

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| 1) clarity | 6) breadth |
| 2) accuracy | 7) fairness |
| 3) relevance | 8) logicalness |
| 4) consistency | 9) significance |
| 5) depth | 10) adequacy |

We don't often think of perfections of thought, even though we consciously recognize perfection or its lack in most other human activities. We recognize perfection in dance, in playing musical instruments, in sports, in the manual arts, in the fitness of the body. We recognize in a skilled dancer command of

physical movements. We recognize that skilled dancers can do with their bodies what others cannot. We also recognize that to develop that command one has to self-monitor one's body movements and practice extensively. We line dance studios with mirrors so students can watch their own dancing in process, and notice their relative perfection or lack of perfection of line and form.

We don't generally recognize the parallel facts for the mind. We don't know, as it were, how to bring mirrors for the mind into classes. We don't know how to help students monitor their own thinking. We don't know how to demonstrate mental moves so that students can usefully practice them. We are quite unclear about the kind of time and energy necessary for disciplined thinking to be fostered, practiced, and refined.

We need to bring the perfections of thought into central focus in education. Classrooms should become places where teachers and students routinely talk about clarity of thought, precision of thought, exactness, specificity, logicalness, reflectiveness, fairness, depth, consistency of thought — these universal standards for thought. Teachers and students need to recognize that in any context we may be more or less clear or unclear, more or less precise or imprecise, exact or inexact, relevant or irrelevant, logical or illogical in our thinking. As we recognize the possibility of achieving or failing to achieve these ideals or perfections, we grasp the basis for the critique and improvement of thinking. I can fault your thinking if, and to the degree that, I can show that it is unclear, vague, inexact, irrelevant, illogical, inconsistent, superficial, narrow, or inadequate to the purpose at hand.

Needless to say, most students do not scan their thinking, speech, writing, or reading to see whether it is clear, precise, accurate, relevant, consistent, logical, or fair. They do not, in other words, have these standards intelligibly available to them. They do not aspire to these ideals. And unfortunately most teachers and professors are not clear enough in their own thinking about thinking to help students grasp these standards. Most assume they are learned more or less automatically simply by exposing students to, and questioning them on, content in their field.

Before I continue, I should draw attention to two importantly different forms of critical thinking: what I call "weak sense" and "strong sense" critical thinking. This distinction is based on two fundamentally different ends that can underlie the critical thinking of any individual: selfish interests or fairmindedness. In all critical thinking we discipline our thinking, gain command over it, direct it toward serving our purposes. But purposes may be narrow and selfish or broad and fairminded. And there is a significant difference in the educational strategies one must use to achieve these qualitatively different ends.

As things now stand in the world at large, it is *selfish* critical thinking that is most valued and practiced, skilled thinking that serves some special interest, whether commercial, political, religious, or personal. So if one works for the Democratic or Republican parties, one is expected to develop skilled defenses of party policy and practice. In neither case is a party member to publicly acknowledge significant insights on the other side. Similarly, if you are a

“patriotic American”, in the vulgar sense of the term, you are to defend official governmental practices, not concede insight or justification in the thinking of countries that might oppose them. Finally, if you work for one company you are not expected to admit equal quality in the products of competing companies.

In each case, weak sense critical thinking is fostered, thinking that is at once skilled, narrowminded, and one-sided, thinking that lends itself to propaganda, public relations, advertisements, rationalizations, and other forms of selfish, manipulative thought. Skill in it is highly prized and paid for. A world of special interests struggling for power and advantage needs an army of skilled thinkers to defend and advance those interests.

Strong sense critical thinking is harder to develop, for it requires that one apply the same standards, the same rules of assessment, to one’s own thinking as one applies to one’s enemies or opposition. It requires that one think *broadly* as well as *skillfully*. To this end, students need to learn to think sympathetically and accurately within a wide variety of divergent points of view, especially within points of view to which they are most unsympathetic. To accurately represent, to appreciate, the insights of one’s opponents is a necessary challenge to face in developing one’s fairmindedness. Only by extensive practice in empathic reconstruction of opposing points of view does it become possible. There is virtually no emphasis on it in schooling today. This is the single most significant flaw in schooling today.

Having considered the perfections of critical thought, as well as its possible dual functions, I shall briefly review the elements of thought, the various basic structures that a disciplined thinker orchestrates and uses when achieving self-command and self-directedness in thought. They are:

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| 1) beliefs | 7) ideas/concepts |
| 2) inferences | 8) purposes/goal |
| 3) reasons | 9) issues |
| 4) evidence | 10) implications |
| 5) experiences | 11) consequences |
| 6) assumptions | 12) points of view |

None of these terms, as you can see, are specialized, technical terms. They are all available in what might be called the critical, analytic vocabulary of the English language. Integrated into one’s thinking about thinking, they enable a thinker to focus attention now on one, now on another, aspect or dimension of thought. They are essential terms of reference to translate the general perfections of thought into workable standards for the analysis and assessment of thought.

I can’t get very far in understanding your thinking if I don’t understand your basic *beliefs*. But, to understand whether to accept your beliefs, I have to understand what supports them, what *reasons*, what *evidence*, what *experiences* you would cite to support them. Thinking about these reasons, evidence, and experiences I should look for *assumptions* you may have made as you thought out your reasons, gathered your evidence, and interpreted your

experience. You may have taken something for granted which should have been questioned. You may have assumed when you should have verified or tested. Furthermore, I cannot understand your thought unless I know your *purposes* or *goals*. What are you trying to accomplish and under what conditions and constraints? How are you conceiving the *issues(s)* or *problem(s)*? Are there other ways to conceive them? What *ideas* or *concepts* are you using? What are the relationships between them? How do you apply them? Are you applying them appropriately?

Then, where is your thinking taking us, what are its *implications* and *consequences*? If we accept this or that of what you claim, what else are we committed to accepting? What are some of the practical consequences that follow from this acceptance?

Finally, within what *point of view* or *frame of reference* are you thinking? Are you looking at the problem from the perspective of a particular discipline (biology, psychology, anthropology), or with a special focus (moral, economic, political)? Are you thinking within the perspective of some ideology or overarching system of beliefs (as a Christian, Muslim, Capitalist, Marxist)? Your point of view serves as a screen and selective organizer of thought and information. I should notice how your point of view is structuring your thought. Finally, I should notice how mine is doing the same.

My ability to refocus my analysis on different dimensions of thinking, my ability to analyze the elements in some process of thought, puts me in the best position to understand its strengths and weaknesses. Of course, the spirit in which I do all of the above is crucial, whether I proceed empathically and fairly-mindedly, or narrowly and selfishly. If I analyze your thinking only to destroy or defeat it, I will doubtless distort it, exaggerating its weaknesses while underestimating its strengths. Much of our personal experience of people critically analyzing others' thought is, as I have said, of this narrow-minded sort. Most of us have had more than our fair share of egocentric argument, emotional charge and counter-charge, skilled stereotyping and intellectual sleight-of-hand. One of the difficulties we face, therefore, is giving students a different paradigm for intellectual give-and-take, helping them to grasp the nature and importance of fairly-minded critical thought.

◆ *Deciding Between a Maximalist and a Minimalist Approach*

Having roughly laid out my conception of critical thinking, I will now turn my attention to your circumstances and problems. Of what relevance is critical thinking to those who run learning centers? This question cannot be answered except in the light of some further ones. Under what conditions or circumstances do you operate? What level of support do you have? What are you expected to accomplish, and under the circumstances, what is it reasonable to try to accomplish? What are your personal goals for your learning

center? What would you like it to be and how much time and energy are you willing to expend to make it that? Does the faculty support you strongly or weakly? Has your school, college, or university made a real commitment to critical thinking? Different centers exist under different circumstances, and it is therefore unreasonable for all to be structured the same way, or to have the same goals and obligations.

From this point on, I shall draw a distinction between a *minimalist* and a *maximalist* approach to education, to critical thinking, and to conceiving of and structuring a learning center. If your college's commitment to critical thinking is minimal, if you are minimally funded, if your students are minimally motivated, if you have the minimum amount of time to spend with each student, then you have little choice but to work from a minimalist conception of your center and education. Working from such a minimalist conception, there will be a minimal role for critical thinking to play. Perhaps I can make this clearer by putting a couple of these conceptions into formal definitions:

1. A *minimalist conception of education*: education is passing courses, and passing courses is memorizing enough of what the teachers and professors want to satisfy them on tests and assignments.
2. A *minimalist conception of critical thinking*: strategies for studying to survive classes, regardless of whether or not one becomes educated in the process.
3. A *minimalist learning center*: a center which helps disadvantaged or slower students to learn minimalist study skills to survive their classes.

Most students today are much more minimalist than maximalist in their orientation toward education, much more concerned with surviving than with learning deeply. There are different skills appropriate to being a minimalist and maximalist student. A minimalist student needs survival skills, and academic survival skills differ from in-depth learning skills. You can get through college and learn very little in-depth; such deep learning is unnecessary, unfortunately, to get through most courses in college. In fact, a lot of research by cognitive psychologists demonstrates the superficiality of learning, even that of some of our best students. This has led some distinguished educators, like Alan Schoenfeld, to say that most instruction (he refers to mathematics instruction) is deceptive and fraudulent in that it leads us and the students to believe that they understand subjects in more than a superficial way.

Let me give you an example. Alan Schoenfeld gave his senior math majors at the University of California, Berkeley, — a most prestigious university, — a tenth grade geometry problem on a test. Only 20% got it right. First, they didn't recognize it as a tenth grade geometry problem, then they used the wrong math trying to solve it. Schoenfeld believes that most students would get the wrong answers if we put problems on their tests from previous math courses they had taken, problem types they did not expect. This is because most mathematics instruction is structured in a patterned, predictable way: from algorithm to practice to test. Students perform reasonably well because they are programmed to use particular algorithms and formulas. They know basically what to expect on each test.

Other studies have been done in other subject areas. For example, in one study, physics students were asked questions like, "If you were driving down the freeway and threw a piece of paper out the window, what would happen to that piece of paper and why. Explain using physics." Analysis of the responses by graduate students tells us that most of them use Aristotelian physics to answer the question, a physics they'd never studied in school because it was obsolete after Newton. The thinking they used spontaneously was inconsistent with the thinking they presumably learned in class. This leads people in this area of research to distinguish "gut knowledge", beliefs learned outside of school, from school knowledge. The mind is schizophrenic, as it were — inert, academic knowledge over here and activated ignorance over there. We rarely *use* our academic knowledge because deep down, experientially, we don't *believe* it. We believe what we personally experienced, even if what we experienced was biased and distorted. When inert academic knowledge is in a contest with activated ignorance, activated ignorance wins. What cognitive psychologists are telling us is that what we think the students are learning and what they really are learning are radically different.

If this problem concerns you, you are a maximalist at heart, for you are concerned with the problem of transfer, of making academic learning effective in the real world, not just in the contrived world of academic assignments and tests. But if you feel that your first responsibility is to help students do their assignments and pass their tests, irrespective of whether those assignments and tests generate *real* knowledge, you are a minimalist.

Once again, there are often political and/or budgetary reasons for being a minimalist. There are reasons why a person might say, "I am a minimalist, but a good minimalist, and my program does help students survive, and that is all that I can realistically hope to achieve. I don't have the budget, I don't have the staff, I don't have the credibility, I don't have the respect, I don't have the conditions to be a maximalist." That makes sense to me, and so I say be a good minimalist if you are going to be a minimalist; but call a spade a spade, don't say that you are teaching higher order critical thinking skills when you aren't, when you are focused only on low level academic survival skills.

Academic survival skills are a grab bag of strategies tailor-made for specific purposes. I learned many of them when I was going through college, yet most students struggle along oblivious of them. For example, the student survivalist pays considerable attention to the prejudices of the instructors; this is an important survival skill. As an undergraduate, I took a course in Shakespeare and wrote an essay on *Romeo and Juliet*. My thesis was that the play was flawed as a tragedy because it depended too much on chance. I went through it and found all the events that turned on chance happenings — a person arrives a minute too late or too early. I systematically laid out the flaws. I turned my paper in, very happy with it, got my paper back and read words to the effect, "You reason very well for your conclusions, but I disagree: C-". I got an "A" on every subsequent paper; I learned not to disagree with my instructor. I learned a student survival skill.

I was in another course, a sociology course, and on all of my exams I put "according to the lectures," and then wrote what I was going to say. The instructor was a wonderful fellow, very bright and insightful in many respects, but he seemed to me to overestimate the scientificness of sociology. Sociology was everything, all human behavior could be explained by it. It seemed to me then, and it seems to me now, that though sociology sheds important light on human behavior, it is far from explaining it totally. In any case, my professor took me aside one day and asked me why I kept writing "according to the lectures" before I wrote out my answers to the test questions. In this case, he was quite understanding. He was willing to accept some level of dissent as long as I gave the "correct" answers on the tests. I got my "A" though I had taken a bit of a chance by revealing to the professor that I did not fully believe what was taught in class.

One can learn a variety of basic study skills that help one survive in courses, skills which do not involve anything but the lowest level of critical thinking. To give you another example, I routinely put my notes on a tape recorder, emphasizing the fundamental points made in the lectures. Then I played them back while washing the dishes or otherwise passing the time in my apartment. By maximizing my exposure to what the professor said, I did better. This, again, is not in-depth learning. This is not critical thinking, in the fullest sense of the words; it is academic survival. Techniques like these made me a better, but not a less prejudiced, student. If what I was taught was prejudiced or distorted, then what I internalized was prejudiced or distorted. It didn't teach me to go into depth in what I was learning, it didn't lead to my taking seriously what I was learning, nor relate it to my experience, but it certainly made it a lot easier to get an "A" and so was functional. This is what I have in mind by the distinction between academic survival skills and in-depth learning skills. I think students have the right to learn academic survival skills. But if this is all that school is about, then we are in a sorry mess because education, rightly conceived, is a much higher conception than that embodied in surviving a scholastic rat race. After all, at the end of a rat race everyone is still a rat. And we would like education to do more than teach people to survive mazes that others devise for them.

◆ *Critical Thinking as In-Depth Learning Skills*

As we begin to take command of our own thinking, as we learn to recognize and to focus upon the basic structures present in our thinking, we begin to study and learn in a new way. We become aware of how the majority of ideas and beliefs we have imbibed we have not formed through an independent, rational process. We become attuned to the need to critique our own ideas as well as those of others. In learning anything, we seek to find, to analyze, to relate basic ideas to our own experience. For example, in a history course, we seek to come to terms with the very concept of history. We break

this idea down to its simplest terms, for example, into that of a process whereby people select an infinitesimal number of facts or events from the past, and organize them by a perspective or point of view into a narrative for others to accept as “true”. We key in on each essential feature. First, that it is highly selective. Out of the countless actual events, only some few hundreds will be cited in books. Secondly, that this selectivity presupposes value judgments as to which facts are most important. Thirdly, that value judgments presuppose a point of view which generates standards of value.

Recognizing this much about the basic logic of history, we are in a position to recognize that there will be many possible histories of any given era, just as there are many possible points of view from which we could approach each. Seeing this, we are in a position to appreciate the nature of historical thinking and so can see where we need to focus our attention, both in understanding and assessing historical writing. Armed with critical insights, we then look for what was *left out*. We look specifically for the interpretations in the text that reveal the point of view and the value judgments of the historian. We read other historians, especially those who approach the same period from alternative points of view.

Finally, we begin to notice the presence of historical thinking in everyday life. We recognize in our memories of things past something analogous to the construction of history: the selectivity, the point of view, the value judgments. We recognize the analogy between history and everyday activities such as gossip. We recognize the analogy between history and “the news”. The daily news becomes for us the history of yesterday: highly selective, structured within a point of view, embodying value judgments. Our mode of reading the news is transformed as is our mode of listening to gossip — by our transformed reading and understanding of history.

We critically analyze the basic concept of history and that analysis has a profound influence on how we relate to history and to its everyday analogues. Critical analysis in this sense takes us far beyond academic survival skills.

We gain similar insights into the nature of reading, writing, speaking, and listening. To speak or to write, if we think critically, is not simply to follow a stream of conscious associations. It is not simply to say or write everything that pops into our heads. It is a selective process that organizes thought within a disciplined point of view in order to accomplish a particular purpose with a particular audience. As we better understand our purpose, what exactly we want to accomplish, we see more clearly what we need to include and exclude. We also recognize that we must organize, shape, and order what we have to say. We recognize that our listeners or readers will not have precisely the same experiences, the same ideas, the same points of view that we do. We will therefore need to find ways to elaborate our ideas to maximize connections between what we want to say and what our audience has experienced. We seek out, therefore, common experiences; we look for everyday examples. We do this to build bridges for our readers or listeners to make contact with our thoughts, to enter our point of view, to think our thoughts.

When we read or listen as critical thinkers, we recognize special problems. We recognize the difficulty of entering into and appreciating the thoughts, the experiences, the point of view of others. We recognize the need to engage in a dialogue with the text we are reading or the person to whom we are listening. We recognize at the outset that there are many different points of view from which different people experience and inwardly organize the world. We recognize the need to read and listen actively to enter into the mind of another, especially if that person thinks differently from us. We immediately recognize the difficulty of re-creating in our own mind the thoughts of others based simply on hearing their words. Knowing the elements universally present in all thinking, we know, however, how to begin; we know what to look for, and how to look for it. We know how to question the structure of other people's thought, how to probe for their points of view, how to look into their reasons, their experiences, the evidence that underlies their ideas, beliefs, and conclusions. We know how to clarify and draw out their thought, how to generate examples which may make their thinking more concrete, how to dig for their assumptions and underlying ideas and values. We know how to identify possible problems or objections that might be raised to their thinking, and how to contrast their thinking with other thinking. We know, in short, how to actively engage in the give-and-take of intellectual exchange.

Reading, writing, speaking, and listening are all recognized by us to be forms of *thought*, and we appreciate the arts necessary to coming to terms with thought. Through these arts, we recognize ourselves to be getting an education, to be sharpening, deepening, and refining our own skills and insights while we progressively lessen our prejudices and biases. In the process we acquire a vast deal of information, not inert or scattered about in our minds, but organized within a framework that integrates academic learning with everyday experiences, information we can screen, structure, and restructure from multiple points of view. We can use the information we gather to reason within diverse frames of reference. We can take information apart to consider the same situations from different points of view: psychologically, sociologically, historically, philosophically, and personally. We are not dominated by information, rather we are in command of it.

◆ *Learning Centers and In-Depth Learning*

Learning centers can lead in heightening faculty and student awareness of the need for higher order thinking and in-depth learning. They can play a significant role, not simply in helping students get by in the standard routines of lower order learning, but also in generating campus-wide awareness of the nature of and need for in-depth higher order learning. Unfortunately, most academic departments are too myopic to interest themselves in the question of generalized in-depth learning. Most academic departments see the whole of education merely from the perspective of their own part in it, and they see

their part mainly in narrow academic terms. Few faculty concern themselves with developing students' general critical thinking, with helping students go beyond technical vocabularies, academic jargon, standard formulas, routine procedures, isolated facts, and narrow professionalism. They do not think in these terms. No one has clear or significant academic responsibility for the education of the whole person and for the conditions under which that education takes place. Academicians continually assume that students will put the parts together automatically, and that specialized training in intradisciplinary skills and perspectives provides everything students need for generalized integration. Nothing could be further from the truth.

Specialized training, wherein terminology and technical procedures emphasize distinctiveness within a traditional discipline, impedes rather than encourages generalization and synthesis. We live in fragmented societies, and colleges and universities unambiguously reflect and serve that fragmentation, that atomism of daily life. We need structures in higher education that function college-wide to provide an impetus for synthesis, built upon in-depth learning and generalized critical thinking skills. Very specific skills and insights are needed to accomplish this foundational educational end. Unfortunately, critical thinking is now nothing more than a vague idea in the minds of most faculty, one they cannot translate into concrete teaching and testing practices.

◆ *Evaluating a Learning Center*

I would evaluate a minimalist center differently from a maximalist center; I would not expect the same things. It's not fair to expect a center to accomplish maximalist ends with a minimalist budget. One can only do what one is budgeted to do, unless, of course, one chooses to donate extensive time and energy to what one is not paid for. So one should begin with a clear conception of what a particular center can and cannot do, whether it can merely provide for minimalist survival skills of a few students or provide for maximalist in-depth learning skills for most. Is it possible for the center staff to work directly with faculty, or are faculty largely uninterested in the center and in the generalized critical thinking skills of the students?

Of course, all campuses have some faculty members concerned with in-depth critical thinking, who recognize the failure of college instruction to produce liberally educated persons. They will also have a few administrators willing to move in this direction if supported by the faculty. Herein lies the opportunity to move in a maximalist direction. In principle, any director of a learning center could take an interest in galvanizing interested faculty and administrators and hence provide some impetus for a concerted "maximalist" effort on campus. A clear definition of objectives for a learning center should in any case be coordinated with clearly defined goals of the college, and, in my view, every institution of higher education should take the time to clarify and specify goals and objectives. Consider the following hypothetical statement:

All students are expected to take responsibility for their own learning. This means that students are expected to learn the art of independent study and develop sound intellectual and occupational skills and habits. All work turned in should reflect care, thoroughness, and precision, should reveal command of the processes of critical reading, writing, speaking, and listening, and should demonstrate independent critical thought. Students should not approach their classes as so many unconnected fields, each with a mass of information to be blindly memorized, but rather as organized systems for thinking clearly, accurately, and precisely about interconnected domains of human life and experience. In science classes, students should learn to think scientifically, in math classes to think mathematically, in history classes to think historically, and so on, in such a way that if later called upon to respond to an issue in one of these domains, students will know how to begin to interpret and analyze it, to find and organize information appropriate to it, to reason well concerning it, and to devise a clear and reasonable way to answer or solve it. To develop into disciplined and independent critical thinkers and learners, all students should be actively involved in their own learning, looking to find in each of their classes the most basic ideas, principles, and meanings that underlie the field and to use these as a basis for analyzing, synthesizing, and assessing all of the remaining information or content covered. Students should recognize that fundamental concepts and processes must be mastered before one can successfully understand a given domain of knowledge and that it is better to learn what is basic to a field deeply and well than to rush on to half-learn, and so mis-learn, what is less basic. Classes will be designed to emphasize in-depth learning of fundamentals as a foundation for more advanced learning. Fundamental concepts and principles will continually be used as organizers for more advanced understandings.

Some such statement could be made the basis for a campus-wide commitment to critical thinking. It could then be followed up with more specific statements from each department. For example, a history department might begin to formulate its goals, vis-a-vis critical thinking, in something like the following way:

All of the history courses have the goal of helping students learn how to think historically in a critical and insightful manner. This includes learning how to identify historical viewpoints, gather and organize historical information, distinguish basic historical facts from historical interpretations, to recognize historical relationships and patterns, and to see the relevance of historical insight to the understanding of current events and problems

Once there was not only a campus-wide statement but also a network of departmental statements such as that above, individual instructors could follow up with even more specific statements for their particular courses. For example, a professor teaching a course in U.S. history might follow up the departmental statement above with something like the following:

The fundamental aim of the study of U.S. history will be to aid students in thinking critically, insightfully, and knowledgeably about the U.S. historical past, focusing on the basic issues upon which historians organize and base

their research and the development of their divergent viewpoints. Students will learn how to write a historical essay in which they will defend a historical interpretation based on organized, analytic, historical reasoning, reflecting their careful reading of professional historians

These statements could be correlated with a campus-wide effort to make students aware of the universal elements of and standards for thinking, so the learning center staff could help each student see the common goals, skills, and standards at the basis of all of their classes. A core critical thinking class could also be established to provide special emphasis on critical thinking. Additionally, the learning center could begin to disseminate the research results daily accumulating which emphasize the need for a shift in instruction from didactic, memory-oriented modes of instruction to those which more actively engage students in their own learning and challenge them to think their way critically through class material and content.

Well, I have gone on at great length and it is now time for me to close. I should like to end with a word of philosophical advice, and that is this: Take the long view of things and keep yourself continually aware of what Matthew Arnold once called "the extreme slowness of things". Classroom instruction will not be changed significantly in a short time. What happens in colleges and schools is a product of many potent forces, each with deep social and psychological roots. The deeper the reform that is needed — and in my view, as you have seen, deep reform is indeed needed — the longer the time that must be allowed for it.

On the other hand, nothing is accomplished by cynicism or defeatism. Creative critical discontent is our only dependable agent for change. So if you are moved by a maximalist conception of education yet forced to live within a minimalist budget, steel yourself for the long term by integrating intense and enthusiastic commitment into long term patience. Remember, the possibility of change is before us daily. Each new day offers to each of us another chance to begin again. But substantial change is not something that happens and is done; it is something that begins, grows, and evolves by degrees in keeping with the ever present, ever powerful, "extreme slowness of things".