

◆◆ Chapter 2

Critical Thinking: Basic Questions and Answers

Abstract

In this interview for Think magazine (April '92), Richard Paul provides a quick overview of critical thinking and the issues surrounding it: defining it, common mistakes in assessing it, its relation to communication skills, self-esteem, collaborative learning, motivation, curiosity, job skills for the future, national standards, and assessment strategies.

Question: Critical thinking is essential to effective learning and productive living. Would you share your definition of critical thinking?

Paul: First, since critical thinking can be defined in a number of different ways consistent with each other, we should not put a lot of weight on any one definition. Definitions are at best scaffolding for the mind. With this qualification in mind, here is a bit of scaffolding: critical thinking is thinking about your thinking while you're thinking in order to make your thinking better. Two things are crucial: 1) critical thinking is not just thinking, but thinking which entails self-improvement and 2) this improvement comes from skill in using standards by which one appropriately assesses thinking. To put it briefly, it is self-improvement (in thinking) through standards (that assess thinking).

To think well is to impose discipline and restraint on our thinking — by means of intellectual standards — in order to raise our thinking to a level of “perfection” or quality that is not natural or likely in undisciplined, spontaneous thought. The dimension of critical thinking least understood is that of intellectual standards. Most teachers were not taught how to assess thinking through standards; indeed, often the thinking of teachers themselves is very “undisciplined” and reflects a lack of internalized intellectual standards.

Question: Could you give me an example?

Paul: Certainly, one of the most important distinctions that teachers need to routinely make, and which takes disciplined thinking to make, is that between reasoning and subjective reaction. If we are trying to foster quality thinking, we don't want students simply to assert things; we want them

to try to reason things out on the basis of evidence and good reasons. Often, teachers are unclear about this basic difference. Many teachers are apt to take student writing or speech which is fluent and witty or glib and amusing as good thinking. They are often unclear about the constituents of good reasoning. Hence, even though a student may just be asserting things, not reasoning things out at all, if she is doing so with vivacity and flamboyance, teachers are apt to take this to be equivalent to good reasoning. This was made clear in a recent California state-wide writing assessment in which teachers and testers applauded a student essay, which they said illustrated “exceptional achievement” in reasoned evaluation, an essay that contained no reasoning at all, that was nothing more than one subjective reaction after another.

The assessing teachers and testers did not notice that the student failed to respond to the directions, did not support his judgment with reasons and evidence, did not consider possible criteria on which to base his judgment, did not analyze the subject in the light of the criteria, and did not select evidence that clearly supported his judgment. Instead the student 1) described an emotional exchange, 2) asserted — without evidence — some questionable claims, and 3) expressed a variety of subjective preferences. The assessing teachers were apparently not clear enough about the nature of evaluative reasoning or the basic notions of criteria, evidence, reasons, and well-supported judgment to notice the discrepancy. The result was, by the way, that a flagrantly mis-graded student essay was showcased nationally (in ASCD’s *Developing Minds*), systematically misleading the 150,000 or so teachers who read the publication.

Question: Could this possibly be a rare mistake, not representative of teacher knowledge?

Paul: I don’t think so. Let me suggest a way in which you could begin to test my contention. If you are familiar with any thinking skills programs, ask someone knowledgeable about it the “Where’s the beef?” question, namely, “What intellectual standards does the program articulate and teach?” I think you will first find that the person is puzzled about what you mean. And then when you explain what you mean, I think you will find that the person is not able to articulate any such standards. Thinking skills programs without intellectual standards are tailor-made for mis-instruction. For example, one of the major programs asks teachers to encourage students to make inferences and use analogies, but is silent about how to teach students to *assess* the inferences they make and the strengths and weaknesses of the analogies they use. This misses the point. The idea is not to help students to make *more* inferences but to make *sound* ones, not to help students to come up with *more* analogies but with more *useful* and *insightful* ones.

Question: What is the solution to this problem? How, as a practical matter, can we solve it?

Paul: Well, not with more gimmicks or quick-fixes. Not with more fluff for teachers. Only with quality long-term staff development that helps the teachers, over an extended period of time, over years not months, to work on their own thinking and come to terms with what intellectual standards are, why they are essential, and how to teach for them. The city of Greensboro, North Carolina has just such a long-term, quality, critical thinking program. [See Chapter 28, “The Greensboro Plan: A Sample Staff Development Plan”.] So that’s one model your readers might look at. In addition, there is a new national organization, the National Council for Excellence in Critical Thinking Instruction, that is focused precisely on the articulation of standards for thinking, not just in general, but for every academic subject area. It is now setting up research-based committees and regional offices to disseminate its recommendations. I am hopeful that eventually, through efforts such as these, we can move from the superficial to the substantial in fostering quality student thinking. The present level of instruction for thinking is very low indeed.

Question: But there are many areas of concern in instruction, not just one, not just critical thinking, but communication skills, problem solving, creative thinking, collaborative learning, self-esteem, and so forth. How are districts to deal with the full array of needs? How are they to do all of these rather than simply one, no matter how important that one may be?

Paul: This is the key. Everything essential to education supports everything else essential to education. It is only when good things in education are viewed superficially and wrongly that they seem disconnected, a bunch of separate goals, a conglomeration of separate problems, like so many bees in a bag. In fact, any well-conceived program in critical thinking requires the integration of all of the skills and abilities you mentioned above. Hence, critical thinking is not a set of skills separable from excellence in communication, problem solving, creative thinking, or collaborative learning, nor is it indifferent to one’s sense of self-worth.

Question: Could you explain briefly why this is so?

Paul: Consider critical thinking first. We think critically when we have at least one problem to solve. One is not doing good critical thinking, therefore, if one is not solving any problems. If there is no problem there is no point in thinking critically. The “opposite” is also true. Uncritical problem solving is unintelligible. There is no way to effectively solve problems unless one thinks critically about the nature of the problems and of how to go about solving them. Thinking our way through a problem to a solution, then, is critical thinking, not something else. Furthermore, critical thinking, because it involves our working out afresh our own thinking on a subject, and because our own thinking is always a unique product of our self-

structured experience, ideas, and reasoning, is intrinsically a new “creation”, a new “making”, a new set of cognitive and affective structures of some kind. All thinking, in short, is a creation of the mind’s work, and when it is disciplined so as to be well-integrated into our experience, it is a new creation precisely because of the inevitable novelty of that integration. And when it helps us to solve problems that we could not solve before, it is surely properly called “creative”.

The “making” and the “testing of that making” are intimately interconnected. In critical thinking we make and shape ideas and experiences so that they may be used to structure and solve problems, frame decisions, and, as the case may be, effectively communicate with others. The making, shaping, testing, structuring, solving, and communicating are not different activities of a fragmented mind but the same seamless whole viewed from different perspectives.

Question: How do communication skills fit in?

Paul: Some communication is surface communication, trivial communication — surface and trivial communication don’t really require education. All of us can engage in small talk, can share gossip. And we don’t require any intricate skills to do that fairly well. Where communication becomes part of our educational goal is in reading, writing, speaking and listening. These are the four modalities of communication which are essential to education and each of them is a mode of reasoning. Each of them involves problems. Each of them is shot through with critical thinking needs. Take the apparently simple matter of reading a book worth reading. The author has developed her thinking in the book, has taken some ideas and in some way represented those ideas in extended form. Our job as a reader is to translate the meaning of the author into meanings that we can understand. This is a complicated process requiring critical thinking every step along the way. What is the purpose for the book? What is the author trying to accomplish? What issues or problems are raised? What data, what experiences, what evidence are given? What concepts are used to organize this data, these experiences? How is the author thinking about the world? Is her thinking justified as far as we can see from our perspective? And how does she justify it from her perspective? How can we enter her perspective to appreciate what she has to say? All of these are the kinds of questions that a critical reader raises. And a critical reader in this sense is simply someone trying to come to terms with the text.

So if one is an uncritical reader, writer, speaker, or listener, one is not a good reader, writer, speaker, or listener at all. To do any of these well is to think critically while doing so and, at one and the same time, to solve specific problems of communication, hence to effectively communicate. Communication, in short, is always a transaction between at least two logics. In reading, as I have said, there is the logic of the thinking of the author

and the logic of the thinking of the reader. The critical reader reconstructs (and so translates) the logic of the writer into the logic of the reader's thinking and experience. This entails disciplined intellectual work. The end result is a new creation; the writer's thinking for the first time now exists within the reader's mind. No mean feat!

Question: And self esteem? How does it fit in?

Paul: Healthy self-esteem emerges from a justified sense of self-worth, just as self-worth emerges from competence, ability, and genuine success. If one simply feels good about oneself for no good reason, then one is either arrogant (which is surely not desirable), or, alternatively, has a dangerous sense of misplaced confidence. Teenagers, for example, sometimes think so well of themselves that they operate under the illusion that they can safely drive while drunk or safely take drugs. They often feel much too highly of their own competence and powers and are much too unaware of their limitations. To accurately sort out genuine self-worth from a false sense of self-esteem requires, yes you guessed it, critical thinking.

Question: And finally, what about collaborative learning? How does it fit in?

Paul: Collaborative learning is desirable only if grounded in disciplined critical thinking. Without critical thinking, collaborative learning is likely to become collaborative mis-learning. It is collective bad thinking in which the bad thinking being shared becomes validated. Remember, gossip is a form of collaborative learning; peer group indoctrination is a form of collaborative learning; mass hysteria is a form of speed collaborative learning (mass learning of a most undesirable kind). We learn prejudices collaboratively, social hates and fears collaboratively, stereotypes and narrowness of mind, collaboratively. If we don't put disciplined critical thinking into the heart and soul of the collaboration, we get the mode of collaboration which is antithetical to education, knowledge, and insight.

So there are a lot of important educational goals deeply tied into critical thinking just as critical thinking is deeply tied into them. Basically the problem in the schools is that we separate things, treat them in isolation and mistreat them as a result. We end up with a superficial representation, then, of each of the individual things that is essential to education, rather than seeing how each important good thing helps inform all the others.

Question: One important aim of schooling should be to create a climate that evokes children's sense of wonder and inspires their imagination to soar. What can teachers do to "kindle" this spark and keep it alive in education?

Paul: First of all, we kill the child's curiosity, her desire to question deeply, by superficial didactic instruction. Young children continually ask why. Why this and why that? And why this other thing? But we soon shut that curiosity down with glib answers, answers to fend off rather than respond to the logic of the question. In every field of knowledge, every answer generates

more questions, so that the more we know the more we recognize we don't know. It is only people who have little knowledge who take their knowledge to be complete and entire. If we thought deeply about almost any of the answers which we glibly give to children, we would recognize that we don't really have a satisfactory answer to most of their questions. Many of our answers are no more than a repetition of what we as children heard from adults. We pass on the misconceptions of our parents and those of their parents. We say what we heard, not what we know. We rarely join the quest with our children. We rarely admit our ignorance, even to ourselves. Why does rain fall from the sky? Why is snow cold? What is electricity and how does it go through the wire? Why are people bad? Why does evil exist? Why is there war? Why did my dog have to die? Why do flowers bloom? Do we really have good answers to these questions?

Question: How does curiosity fit in with critical thinking?

Paul: To flourish, curiosity must evolve into disciplined inquiry and reflection. Left to itself it will soar like a kite without a tail, that is, right into the ground! Intellectual curiosity is an important trait of mind, but it requires a family of other traits to fulfill it. It requires intellectual humility, intellectual courage, intellectual integrity, intellectual perseverance, and faith in reason. After all, intellectual curiosity is not a thing in itself — valuable in itself and for itself. It is valuable because it can lead to knowledge, understanding, and insight, because it can help broaden, deepen, sharpen our minds, making us better, more humane, more richly endowed persons. To reach these ends, the mind must be more than curious, it must be willing to work, willing to suffer through confusion and frustration, willing to face limitations and overcome obstacles, open to the views of others, and willing to entertain ideas that many people find threatening. That is, there is no point in our trying to model and encourage curiosity, if we are not willing to foster an environment in which the minds of our students can learn the value and pain of hard intellectual work. We do our students a disservice if we imply that all we need is unbridled curiosity, that with it alone knowledge comes to us with blissful ease in an atmosphere of fun, fun, fun. What good is curiosity if we don't know what to do next, how to satisfy it? We can create the environment necessary to the discipline, power, joy, and work of critical thinking only by modeling it before and with our students. They must see our minds at work. Our minds must stimulate theirs' with questions and yet further question, questions that probe information and experience, questions that call for reasons and evidence, questions that lead students to examine interpretations and conclusions, pursuing their basis in fact and experience, questions that help students to discover their assumptions, questions that stimulate students to follow out the implications of their thought, to test their ideas, to take their ideas apart, to challenge their

ideas, to take their ideas seriously. It is in the totality of this intellectually rigorous atmosphere that natural curiosity thrives.

Question: It is important for our students to be productive members of the workforce. How can schools better prepare students to meet these challenges?

Paul: The fundamental characteristic of the world students now enter is ever-accelerating change, a world in which information is multiplying even as it is swiftly becoming obsolete and out of date, a world in which ideas are continually restructured, retested, and rethought, where one cannot survive with simply one way of thinking, where one must continually adapt one's thinking to the thinking of others, where one must respect the need for accuracy and precision and meticulousness, a world in which job skills must continually be upgraded and perfected — even transformed. We have never had to face such a world before. Education has never before had to prepare students for such dynamic flux, unpredictability, and complexity, for such ferment, tumult, and disarray. We as educators are now on the firing line. Are we willing to fundamentally rethink our methods of teaching? Are we ready for the 21st Century? Are we willing to learn new concepts and ideas? Are we willing to learn a new sense of discipline as we teach it to our students? Are we willing to bring new rigor to our own thinking in order to help our students bring that same rigor to theirs? Are we willing, in short, to become critical thinkers so that we might be an example of what our students must internalize and become?

These are profound challenges to the profession. They call upon us to do what no previous generation of teachers was ever called upon to do. Those of us willing to pay the price will yet have to teach side by side with teachers unwilling to pay the price. This will make our job even more difficult, but not less exciting, not less important, not less rewarding. Critical thinking is the heart of well-conceived educational reform and restructuring because it is at the heart of the changes of the 21st Century. Let us hope that enough of us will have the fortitude and vision to grasp this reality and transform our lives and our schools accordingly.

Question: National standards will result in national accountability. What is your vision for the future?

Paul: Most of the national assessment we have done thus far is based on lower-order learning and thinking. It has focused on what might be called surface knowledge. It has rewarded the kind of thinking that lends itself to multiple choice machine-graded assessment. We now recognize that the assessment of the future must focus on higher – not lower – order thinking, that it must assess more reasoning than recall, that it must assess authentic performances, students engaged in bona fide intellectual work.

Our problem is in designing and implementing such assessment. In November of this last year, Gerald Nosich and I developed and presented, at the request of the U.S. Department of Education, a model for the

national assessment of higher order thinking. [Included as Chapter 6.] At a follow-up meeting of critical thinking, problem-solving, communication, and testing scholars and practitioners, it was almost unanimously agreed that it is possible to assess higher-order thinking on a national scale. It was clear from the commitments of the Departments of Education, Labor, and Commerce that such an assessment is in the cards. [See figure 1, "Today's and Tomorrow's Schools".]

The fact is we must have standards and assessment strategies for higher-order thinking for a number of reasons. First, assessment and accountability are here to stay. The public will not accept less. Second, what is not assessed is not, on the whole, taught. Third, what is mis-assessed is mis-taught. Fourth, higher-order thinking, critical thinking abilities, are increasingly crucial to success in every domain of personal and professional life. Fifth, critical thinking research is making the cultivation and assessment of higher-order thinking do-able.

The road will not be easy, but if we take the knowledge, understanding, and insights we have gained about critical thinking over the last twelve years, there is much that we could do in assessment that we haven't yet done — at the level of the individual classroom teacher, at the level of the school system, at the level of the state, and at the national level. Of course we want to do this in such a way as not to commit the "Harvard Fallacy", the mistaken notion that because graduates from Harvard are very successful, that the teaching at Harvard necessarily had something to do with it. It may be that the best prepared and well-connected students coming out of high school are going to end up as the best who graduate from college, no matter what college they attend. We need to focus our assessment,

<i>Today's and Tomorrow's Schools</i>	
Schools of Today	Schools of Tomorrow
<ul style="list-style-type: none"> • Focus on development of basic skills • Testing separate from teaching • Students work as individuals • Hierarchically sequenced — basics before higher order • Supervision by administration • Elite students learn to think 	<ul style="list-style-type: none"> • Focus on development of thinking skills • Assessment integral to teaching • Cooperative problem solving • Skills learned in context of real problems • Learner-centered, teacher-directed • All students learn to think

From "What Work Requires of Schools" *A Scans Report for America 2000*, The Secretary's Commission on Achieving Necessary Skills, U.S. Department of Labor, June 1991

figure 1

in other words, on how much value has been added by an institution. We need to know where students stood at the beginning, to assess the instruction they received on their way from the beginning to the end. We need pre- and post-testing and assessment in order to see which schools, which institutions, which districts are really adding value, and *significant* value, to the quality of thinking and learning of their students.

Finally, we have to realize that we already have instruments available for assessing what might be called the fine-textured micro-skills of critical thinking. We already know how to design prompts that test students' ability to: identify a plausible statement of a writer's purpose; distinguish clearly between purposes, inferences, assumptions, and consequences; discuss reasonably the merits of different versions of a problem or question; decide the most reasonable statement of an author's point of view; recognize bias, narrowness, and contradictions in the point of view of an excerpt; distinguish evidence from conclusions based on that evidence; give evidence to back up their positions in an essay; recognize conclusions that go beyond the evidence; distinguish central from peripheral concepts; identify crucial implications of a passage; evaluate an author's inferences; draw reasonable inferences from positions stated; and so on.

With respect to intellectual standards, we are quite able to design prompts that require students to: recognize clarity in contrast to unclarity; distinguish accurate from inaccurate accounts; decide when a statement is relevant or irrelevant to a given point; identify inconsistent positions as well as consistent ones; discriminate deep, complete, and significant accounts from those that are superficial, fragmentary, and trivial; evaluate responses with respect to their fairness; distinguish well-evidenced accounts from those unsupported by reasons and evidence; tell good reasons from bad.

With respect to large scale essay assessment we know enough now about random sampling to be able to require extended reasoning and writing without having to pay for the individual assessment of millions of essays.

What remains is to put what we know into action: at the school and district level to facilitate long-term teacher development around higher-order thinking, at the state and national level to provide for long-term assessment of district, state, and national performance. The project will take generations and perhaps in some sense will never end. After all, when will we have developed our thinking far enough, when will we have enough intellectual integrity, enough intellectual courage, enough intellectual perseverance, enough intellectual skill and ability, enough fairmindedness, enough reasonability? One thing is painfully clear. We already have more than enough rote memorization and uninspired didactic teaching, more than enough passivity and indifference, cynicism and defeatism, complacency and ineptness. The ball is in our court. Let's take up the challenge together and make, with our students, a new and better world.