

*Critical Thinking in the  
Strong Sense*

## ◆◆ Chapter 9

# *Critical Thinking: Fundamental to Education for a Free Society*

### *Abstract*

*In this paper, written for Educational Leadership (1984), Paul argues that educational reform will not produce meaningful change unless educators explicitly grasp five inter-related truths: that students, as all people, tend to reason egocentrically; that multi-dimensional problems, traditionally ignored, ought to be central in schooling; that indoctrination into prevailing views has inappropriately been the major academic response to real world problems; that children from the earliest years need to be encouraged to think for themselves through dialogue, discussion, and constructive debate; and, finally, that "teaching strategies need to be revamped across the board" to stress the development of dialogical and dialectical thought. Paul summarizes his thesis at the close: "An open society requires open minds. Collectively reinforced egocentric and sociocentric thought, conjoined with massive technical knowledge and power, are not the foundations for a genuine democracy."*

### ◆ *The Emerging Critical Thinking Movement*

**T**he "critical thinking movement" is now, after a long and halting start, building up a head of steam. Predictably, numerous quick-fix, miracle cures have sprung up, and turning to them is tempting, especially given the increasing variety of imperatives and mandates under which schools operate. I argue in this paper for a different understanding of how to proceed. I advocate both a short-term and a long-term strategy, based on an analysis of where we now stand and what we should strive for ultimately.

I argue that our strategy should reflect a realistic appraisal of the following factors: 1) the basic cognitive and affective tendencies of the human mind in its normal, uncritical state, 2) the categorically different problem types and the reasoning appropriate to them, 3) the social and personal conditions under which cognitive and affective processes develop, 4) the present critical thinking skills of teachers and students, and 5) the fundamental intellectual, affective, and social obstacles to the further development of such skills.

I emphasize the need to recognize and highlight a fundamental difference between two distinct conceptions of critical thinking: a "weak" sense, understood as a set of discrete micro-logical skills extrinsic to the character of the

person, skills that can be tacked onto other learning; and a "strong" sense, understood as a set of integrated macro-logical skills and abilities intrinsic ultimately to the character of the person and to insight into one's own cognitive and affective processes. If we chose the latter we concern ourselves not only with the development of *technical reason* — skills which do not transform one's grasp of one's basic cognitive and affective processes — but also with the development of *emancipatory reason* — skills and abilities which generate not only fundamental insight into, but also some command of one's own cognitive and affective processes. In the strong sense, we emphasize comprehensive critical thinking skills and abilities essential to the free, rational, and autonomous mind. In the weak sense, we are content to develop what typically comes down to "vocational" thinking skills which by themselves have little influence on a person's intellectual, emotional or moral autonomy. If we aspire to strong sense critical thinking skills and abilities for our long-term goals, and we take stock of where we now stand, careful consideration of the available evidence will, sooner or later, persuade us of something like the following points:

1) that we have deep seated tendencies to use reason to maximize getting, and justify getting, what we, often unconsciously, want, and that this means we use cognitive and affective processes to maintain self-serving or pleasant illusions, to rule out or unfairly undermine ideas in opposition to our own, to link our identity with ideas that are "ours" (and so experience disagreement as ego-threatening), and otherwise to distort or misinterpret our experience to serve our own advantage;

2) that we must distinguish two kinds of problems: problems in technical domains wherein one self-consistent, close-textured system of ideas and procedures determines the settlement of issues, and, in contrast, problems in the logically messy "real world" of everyday life, wherein opposing points of view and contradictory lines of reasoning are relevant and realities of power and self-delusion make rational settlement of issues much harder;

3) that until now, the schools, to the extent they have addressed problem-solving, have focused on technical problems and technical reason and procedures, and have either illicitly reduced real world problems to them or have tacitly inculcated into students the pre-fabricated "self-evident answers" of the dominant social majority or some favored minority;

4) that our capacity to control our cognitive and affective processes often depends on the character of our early lives both at home and school and that very special preparation is necessary for children to develop into adults comfortable with and skilled in weighing, reconciling, and assessing contradictory arguments and points of view through dialogue, discussion, and debate; and,

5) that teaching strategies need to be revamped across the board — especially in social studies and basic academic competencies — to stress the development of dialectical knowledge and skills, and thus self-formed, self-reasoned conviction.

◆ *Short Term Strategy: Develop Micro-Logical, Analytic Critical Thinking Skills*

The best short term strategy is to facilitate the understanding and teaching of micro-logical analytic critical thinking skills within established subject areas. This requires teaching the use of the elementary critical, analytic vocabulary of the English language, a working knowledge of such mundane terms as *premise, reason, conclusion, inference, assumption, relevant, irrelevant, consistent, contradictory, credible, doubtful, evidence, fact, interpretation, question-at-issue, problem, etc.* Teachers should be encouraged to take at least one university level course in critical thinking wherein they practice the basic micro-logical skills associated with these terms, and so learn to isolate and distinguish issues, premises, assumptions, conclusions, inferences, and master the rudiments of argument assessment.

The nationally normed tests, such as the Watson-Glaser and the Cornell Critical Thinking Tests should be available and teachers should learn how to formulate test questions modeled on them.

A full range of critical thinking books and materials, both university level and K-12, should be made available to teachers and regular brain-storming sessions established. Teachers need to begin to think critically about thinking skills, to get a handle on what makes sense to them and what they can immediately begin to do. An important caveat should be entered here, however. Unlike the domain of technical skills, teachers, and people generally, are naturally disinclined to recognize the degree to which they do not think critically. People tend to retreat to simplistic approaches that do not lay an appropriate foundation for higher level (strong sense) critical thought or to dismiss the need for any new learning at all. ("All good teachers naturally teach critical thinking.") Most people, including the most uncritical, take offense at the suggestion that they lack skill in this area. This ego-identification with critical thinking (*others* need it) is a continual obstacle to reform. To the extent that people lack critical thinking skills, they conceptualize those who have them as "prejudiced", "closedminded", "overly academic", "negative", or "nit-picky".

We must therefore emphasize from the start that the ability to think critically is a matter of degree. No one is without any critical skills whatsoever and no one has them so fully that there are *no* areas in which uncritical thinking is dominant. Openmindedness may be the proper, but it is not the "natural", disposition of the human mind. More on this presently.

Additional short term goals should include the following:

- 1) Getting master teachers trained in critical thinking;
- 2) Encouraging teachers and curriculum specialists to attend the growing numbers of critical thinking conferences;
- 3) Developing a school-wide attitude in which reasoning within unorthodox and conflicting points of view and respectful, reasoned disagreement is

considered essential and healthy (a very difficult goal to achieve of course);

- 4) Looking for what Bloom has called "latent" curricula and "unspoken" values that may undermine the critical spirit (again, very difficult); and,
- 5) Establishing a working relationship with at least one university critical thinking instructor.

The ideal, as I see it, is to take those first steps that initiate the teaching of relatively "self-contained" critical thinking skills — testing for inferences that do or do not follow, recognizing assumptions and clear-cut contradictions, giving initial formulations of reasons to support conclusions, considering evidence rather than relying on authority, and so forth — and that develop an environment conducive to strong sense critical thinking. In the process, wherever possible, students should have opportunities to advance ideas of their own and give reasons to support them, as well as opportunities to hear the objections of other students. If this is done carefully in an atmosphere of co-operation and while learning critical analytic terms, the students will begin to use critical distinctions to defend their ideas. When this vocabulary integration begins, a very healthy process has been set in motion which, properly nurtured, can lead to primitive emancipatory thinking skills.

#### ◆ *Long Term Strategy: Develop Macro-Logical, Integrative Thinking Skills*

An effective long range strategy should have two parts: 1) an on-going explication of the obstacles to the development of strong-sense critical thought, and 2) an increasing recognition of the distinctive nature and importance of dialectical issues and how they can be brought into the curriculum. It is not enough to recognize that all human thought is embedded in human activity and all human activity embedded in human thought. We also need to recognize that much of our thinking is subconscious, automated, and irrational. The capacity to explicate the roots of the thinking "hidden" from us and to purge it when irrational are crucial. Long-term strategy must have an explicative/purgative as well as a constructive/developmental dimension. Because of the limitations of space, however, we can do no more here than set out each side of this global orientation in rough outline.

#### OBSTACLE ONE: THE DENIAL OF THE NEED

Without ignoring the many ways in which they intersect, consider the degree to which we live in two very different worlds: a world of technical and technological order and clarity, and a world of personal and social disorder and confusion. We are increasingly adept at solving problems in the one domain and increasingly endangered by our inability to solve problems in the other.

Various explanations have been given for this unhappy state of affairs. One of the most popular identifies the root causes to be two-fold: 1) a lack of will-

ingness on the part of those who are right, and know they are, to "stand tall" and refuse to be pushed around by those who are wrong (and are being irrational, stubborn, or malevolent), and 2) the difficulty of getting the "others", our opposition, to see the rationality and fairmindedness of our views and the irrationality and closedmindedness (or malevolence) of their own. President Reagan, to take a recent striking example, put it succinctly when he claimed that one country, the USSR, is the "focus of all evil in the world", an "evil empire" which understands nothing but force and power and steel-eyed determination. That a one-dimensional explanation of this sort can still, not only catch the public's fancy, but seem intelligible to many national leaders, not to mention some "intellectuals", testifies, in my view, to the primitive state of much of our thinking about non-technical, non-technological human problems.

President Reagan's nationalistic expostulations remind me of a tendency to ethnocentrism deep in our own, and perhaps in all cultures. Consider this passage from a 19<sup>th</sup> century speech:

Fellow Americans, we are God's chosen people. Yonder at Bunker Hill and Yorktown His providence was above us. At New Orleans and on ensanguined seas His hand sustained us. Abraham Lincoln was His minister, and His was the altar of Freedom the boys in blue set on a hundred battle-fields. His power directed Dewey in the East and delivered the Spanish fleet into our hands on the eve of Liberty's natal day, as He delivered the elder armada into the hands of our English sires two centuries ago. His great purposes are revealed in the progress of the flag, which surpasses the intentions of congresses and cabinets, and leads us like a holier pillar of cloud by day and pillar of fire by night into situations unforeseen by finite wisdom, and duties unexpected by the unprophetic heart of selfishness. The American people cannot use a dishonest medium of exchange; it is ours to set the world its example of right and honor. We cannot fly from our world duties; it is ours to execute the purpose of a fate that has driven us to be greater than our small intention. We cannot retreat from any soil where Providence has unfurled our banner; it is ours to save that soil for liberty and civilization. For liberty and civilization and God's promise fulfilled, the flag must henceforth be a symbol and the sign of all mankind --- the flag!

Such passages bring to mind the views articulated by the children interviewed by Piaget in his study for UNESCO on the causes of war.

*Michael M. (9 years, 6 months old):* Have you heard of such people as foreigners? *Yes, the French, the Americans, the Russians, the English ....* Quite right. Are there differences between all these people? *Oh yes, they don't speak the same language.* And what else? *I don't know.* What do you think of the French, for instance? Do you like them or not? Try and tell me as much as possible. *The French are very serious, they don't worry about anything, an' it's dirty there.* And what do you think of the Russians? *They're bad, they're always wanting to make war.* And what's your opinion of the English? *I don't know ... they're nice ....* Now look, how did you come to know all you've told me? *I don't know ... I've heard it ... that's what people say.*

*Maurice D. (8 years, 3 months old):* If you didn't have any nationality and you were given a free choice of nationality, which would you choose? *Swiss nationality. Why? Because I was born in Switzerland.* Now look, do you think the French and the Swiss are equally nice, or the one nicer or less nice than the other? *The Swiss are nicer. Why? The French are always nasty.* Who is more intelligent, the Swiss or the French, or do you think they're just the same? *The Swiss are more intelligent. Why? Because they learn French quickly.* If I asked a French boy to choose any nationality he liked, what country do you think he'd choose? *He'd choose France. Why? Because he was born in France.* And what would he say about who's the nicer? Would he think the Swiss and the French equally nice or one better than the other? *He'd say the French are nicer. Why? Because he was born in France.* And who would he think more intelligent? *The French. Why? He'd say that the French want to learn quicker than the Swiss.* Now you and the French boy don't really give the same answer. Who do you think answered best? *I did. Why? Because Switzerland is always better.*

*Marina T. (7 years, 9 months old):* If you were born without any nationality and you were given a free choice, what nationality would you choose? *Italian. Why? Because it's my country. I like it better than Argentina where my father works, because Argentina isn't my country.* Are Italians just the same, or more, or less intelligent than the Argentinians? What do you think? *The Italians are more intelligent. Why? I can see the people I live with, they're Italians.* If I were to give a child from Argentina a free choice of nationality, what do you think he would choose? *He'd want to stay an Argentinian. Why? Because that's his country.* And if I were to ask him who is more intelligent, the Argentinians, or the Italians, what do you think he would answer? *He'd say Argentinians. Why? Because there wasn't any war.* Now who was really right in the choice he made and what he said, the Argentinian child, you, or both? *I was right. Why? Because I chose Italy.*

For both the President of the United States and these children the world is nationalistically simple: the forces of good (embodied in ourselves) stand opposed by the forces of evil (those who oppose us). The need for emancipatory reason is a need of "the other", the stranger, the foreigner, the opposition.

From this perspective, the schools' job is to pass on our thought to children, exposing them to all of the reasons why our's is right and superior and unquestionable and, at the same time, developing technical abilities and technological power to defend (enforce) our views. The school's task, in short, is to inculcate cultural patriotism and facilitate vocational training.

The distinguished conservative U.S. anthropologist, William Graham Sumner, sharply challenged this view, though he had no illusions about the difficulty of transforming the schools into vehicles for human and social emancipation (1906):

#### SCHOOLS MAKE PERSONS ALL ON ONE PATTERN: ORTHODOXY

School education, unless it is regulated by the best knowledge and good sense, will produce men and women who are all of one pattern, as if turned in a lathe .... The examination papers show the pet ideas of the examiners .... An orthodoxy is produced in regard to all the great doctrines of life. It

consists of the most worn and commonplace opinions which are current in the masses. It may be found in newspapers and popular literature. It is intensely provincial and philistine .... The popular opinions always contain broad fallacies, half-truths, and glib generalizations of fifty years before .... The boards of trustees are almost always made up of "practical men", and if their faiths, ideas, and prejudices are to make the norm of education, the schools will turn out boys and girls compressed to that pattern .... (There is a desire) that children shall be taught just that one thing which is "right" in the view and interest of those in control, and nothing else.

Sumner saw the essential link between education and critical thinking:

Criticism is the examination and test of propositions of any kind which are offered for acceptance, in order to find out whether they correspond to reality or not. The critical faculty is a product of education and training. It is a mental habit and power. It is a prime condition of human welfare that men and women should be trained in it. It is our only guarantee against delusion, deception, superstition, and misapprehension of ourselves and our earthly circumstances. It is a faculty which will protect us against all harmful suggestion .... Our education is good just so far as it produces a well-developed critical faculty ....

He even has a conception of what a society would be like were critical thinking — in what I call the strong sense — a fundamental social value:

The critical habit of thought, if usual in a society, will pervade all its mores, because it is a way of taking up the problems of life. Men educated in it cannot be stampeded by stump orators and are never deceived by dithyrambic oratory. They are slow to believe. They can hold things as possible or probable in all degrees, without certainty and without pain. They can wait for evidence and weigh evidence, uninfluenced by the emphasis and confidence with which assertions are made on one side or the other. They can resist appeals to their dearest prejudices and all kinds of cajolery. Education in the critical faculty is the only education of which it can be truly said that it makes good citizens.

Sumner's concept of a "developed critical faculty" clearly goes much beyond that envisioned by those who link it to a shopping list of atomic skills. He understands it as a pervasive organizing core of mental habits, and a shaping force in the character of a person. It is fairmindedness brought into the heart of everyday life, into all of its dimensions. As a social commitment, it transforms the very nature of how life is lived and human transactions mediated. Sumner does not tell us however how to nurture or develop this faculty and this commitment. He does not explain how it relates to strategies successful in technical domains. Finally, he does not tell us how to initiate this development, though he clearly believes it can begin very early.

#### OBSTACLE TWO: THE FAILURE OF COGNITIVE PSYCHOLOGY AND PROBLEM-SOLVING THEORISTS TO CALL ATTENTION TO THE LOGIC OF DIALECTICAL ISSUES

A major weakness in cognitive psychology and problem solving theory today is the failure to highlight the striking difference between the logic of



technical problems and that of dialectical problems. Until one recognizes this difference one tends to reduce all problems to technical ones and so render all knowledge and all problems procedural, if not algorithmic. Both the power and the limitations of technical disciplines lie in their susceptibility to operationalism and routine procedure. Technical domains progress by severely narrowing what qualifies as appropriate subject matter and as appropriate treatment of it. All concepts are specifically designed to serve restricted disciplinary purposes. Additionally, scope is typically further limited to the quantifiable. For these reasons many of the concepts and attendant skills of application are relatively subject specific.

Consider the wide variety of disciplines that can be brought to bear on the study of humans: physics, chemistry, neurology, physiology, biology, medicine, psychology, economics, sociology, anthropology, history, and philosophy. To put this point another way, humans are physical, chemical, neurological, biological, psychological, economic, sociological, historical, and philosophical beings, all at once. Each person is one, not many. To the extent that a human problem is rendered technical, it is reduced to a relatively narrow system of exclusionary ideas; technical precision and manageability is achieved by excluding a variety of other technical and non-technical features. Specialized disciplines develop by generating ever more specialized sub-disciplines, abstracting further and further from the "wholeness" of things.

This becomes clearer when we consider those disciplines — history, psychology, sociology, anthropology, economics, and philosophy — whose study of humankind does not appear to admit, beyond a range of foundational premises, to discipline-wide unanimity. In each of these fields a variety of alternative systems or viewpoints compete. Generate a question within them and you typically generate a field of conflicting lines of reasoning and answers. Raise questions about their application to everyday life problems and debate intensifies. The issues are properly understood as dialectical, as calling for dialogical reasoning, for thinking critically and reciprocally within opposing points of view. This ability to move up and back between contradictory lines of reasoning, using each to critically cross-examine the other, is not characteristic of the technical mind.

Technical knowledge is typically developed by restriction to one frame of reference, one standpoint. Knowledge arrived at dialectically, in contrast, is like the verdict of a jury, with supporting reasoning. There is no fail-safe, technical path to it. At least two points of view must be entertained. It is not, as problem-solving theorists tend to characterize problems, a movement from an initial state through a series of transformations (or operations) to a final (answering) state.

Most of our everyday interest in people is unquestionably in the area of dialectical issues. By and large we don't know them, value them, or relate to them in terms of their technically determinable sub-features. We struggle to know them as multi-dimensional totalities, in short, as real people. We struggle to grasp the world in this same macro-integrative way. Unfortunately, we

fail to see the dialectical nature of this task, the need to entertain more than one interpretation of human acts and of the human world. Indeed we rarely see that our perceptions of people and the world are inferences, based on typically unconscious assumptions, concepts, and beliefs. More on this later.

Despite this need for non-technical, dialectical, integrative thinking, most of the work in cognitive psychology and problem-solving theory assumes that all problem solving can be understood on the model of solving technical problems. Since each technical domain generates a dominant logical system and thus criteria and procedures for cognitive moves within it, theorists tend to reduce problem-solving to a technical or "scientific" model. This was true of problem-solving theory from the start.

For example, Dewey thought that one could approach all problems through the following ordered scientific steps: 1) identify the problem, 2) establish facts, 3) formulate hypotheses, 4) test hypotheses, and 5) evaluate results. Polya formulated a similar general procedure: 1) Understand the problem. What is the unknown? What data are given? What are the conditions? 2) Devise a plan. Find the connection between the data and the unknown. You may be obliged to consider auxiliary problems if an immediate connection cannot be found. 3) Carry out the plan. Check each step. Can you see clearly that the step is correct? Can you prove that it is correct? 4) Look back. Check the result. Check the argument. Can you derive the result differently? Can you see it at a glance? We find this procedural emphasis even in a relatively recent work on problem-solving. John R. Hayes' characterization, in *The Complete Problem Solver* (1981) is typical:

*What is a Problem?* If you are on one side of a river and you want to get to the other side but you don't know how, you have a problem. If you are assembling a mail-order purchase and the instructions leave you completely baffled about how to "put tab A in slot B" you have a problem. If you are writing a letter and you can't find the polite way to say, "No, we don't want you to come and stay a month," you have a problem. Whenever there is a gap between where you are now and where you want to be, and you don't know how to find a way to cross that gap, you have a problem.

Solving a problem means finding an appropriate way to cross a gap. The process of finding a solution has two major parts: (1) representing the gap — that is, understanding the nature of the problem, and (2) searching for a means to cross it.

Though these writers have set out and described each step as checklists, the steps still require independent thought and judgment, which cannot be set out and mindlessly followed. Furthermore, the steps are not mutually exclusive. In real life there is no *one* order in which to take each step. I may begin with a vague sense of the problem which I do not thoroughly clarify until the end — *after* gathering facts, considering solutions, and so on. Defining the problem does not necessarily come first.

Most "textbook" and the "real-life" problems problem-solving theorists address are one-system problems (definable and soluble entirely within one

discipline or perspective) or self-contained (soluble atomistically rather than as mutually interdependent problems). They implicitly place critical thought squarely in the center of an atomistic, information-processing model of knowledge: the finding, organizing, manipulating, and inferential transforming of technical information.

Just last month, in a *Phi Delta Kappan* article "Improving Thinking Skills — Defining the Problem", Barry Beyer identified insufficient proceduralization as a major problem in instruction in thinking skills. He expressed as self-evident the need for teachers to provide "... step-by-step instructions on how to use specific thinking skills," indeed to spell out "... exactly how to execute a skill". (Every thought that goes through your head?) He demanded that "the crucial part of teaching a skill" is "discussing its operation procedures". (For every conceivable context?) He fails to recognize that the largest and most important form of human thinking, dialectical thinking, cannot, by its very nature, be reduced to an "operational procedure". When we think dialectically we are guided by *principles* not *procedures*, and the application of the principles is often subject to discussion or debate.

The most vexing and significant "real life" problems are logically messy. They span multiple categories and academic disciplines. They are rarely "in" any one of them. The general attitude of mind, for example, that enables one with apparent peace and tranquility to confuse egocentric dogmatism with genuine conviction, to accept vague avowals as true beliefs, to take sentimental credulity for moral insight, to harmonize technical truths with pleasant delusions and superstitions, to wander in and out of a panoply of self-serving reifications, to use confusion to one's advantage, to perform social roles that one does not know one is performing — is not a problem whose solution lies in a discipline, or in a procedure, or in "finding the connection between the data and the unknown", or in "considering an auxiliary problem" or in using special "operators" or in performing a cost-benefit analysis, or in learning mnemonic techniques, or memory codes or study systems or protocol analysis. It is a problem implicit in an uncritical mode of living and so in the very structure of an uncritical mind. Furthermore, if "it works" (enables you to get what you want, perhaps even enables you to become President) is it for you a problem at all? We do not always recognize our problems as problems. Once in the ebb and flow of mundane life, its messy criss-crossing of categories, values, and points of view, its inevitable blending of the intellectual, the affective, and the moral, its embodying of irrationality in social practices and beliefs, there is little room for the neat and "abstract" procedures of technical reason.

We need dialogic, point-counter-point, argument for and argument against, scrutiny of individual event against the background of this or that global "totalizing" of it into one's life. We need emancipatory reason, the ability to reason "across", "between", and "beyond" the neatly marshalled data and narrowed, clear-cut concepts of any given technical domain. Because it cannot presuppose or restrict itself to any one "system" or "technical language" or "procedure", it must be dialectical. That is, it must move back and

forth between opposing points of view. It must consider how this or that situation might be handled if looked at it this way, or how if looked at that way, what follows from this construal and what from that, what objection can be raised to this and what objection to that. It is the logic that is mocked in the typically closedminded exchanges of mundane human arguments about the personal and social affairs of life. It is the logic that is concept-generating as well as concept-using (since our point of view is shaped as we use it, in a way parallel to "case" law).

Precisely because it is not procedural, not susceptible to a decision-procedure or a set of technical maneuvers, there is the temptation to retreat, as I have noted, either to apodictic self-righteousness (let us pass on to our children our heritage, our wisdom — so they like us can recognize the folly of those who oppose us) or to vacuous or self-contradictory relativism (we cannot teach dialectical thinking skills for they are in the realm of opinion or faith). Both choices ignore the proper role of dialectical reason, which, used as a means of penetrating and assessing the logic of our mundane lives, alone enables us to become intellectually, emotionally, and morally autonomous.

#### OBSTACLE THREE: CHILDHOOD EGO-IDENTIFICATION WITH ADULT BELIEFS: A FOUNDATION FOR CLOSEDMINDEDNESS

If we do not control the fundamental logical structures — the assumptions, values, and beliefs — that shape our own thought, our own feeling responses, and our own moral judgments, then in a significant sense we are not free. Close scrutiny of how most children come to imbibe those structures and of the evidence that shows that most adults do not recognize them, mandates the admission that we have not yet learned how to make fundamental intellectual, emotional, and moral emancipation the likely result of parenting or schooling. The ultimate court of appeal of a free and open mind is, and must be, the principles of comprehensive reason and evidence — not external authority, ego-identification, or technical expertise — the willingness to listen to and empathize with all contending perspectives on an issue without presupposing any connection between the truth and any pre-selected line of reasoning.

The foundation for this capacity, if it is to flourish, must be laid in the early years of a child's life. It depends on which of the child's behavior is rewarded and which penalized. It depends on how the child's identity comes to be shaped. It depends on the extent that children come to be persuaded, wittingly or unwittingly, that their goodness depends on believing what those who are in authority over them believe. When love and affection are contingent on specific beliefs, then those beliefs become an integral part of the child's identity. They become egocentric extensions of children. Children are thus denied an opportunity to separate their own being from belief structures that adults impose. They literally become dependent on them — intellectually and emotionally — and cannot later, without trauma, subject them to serious critical scrutiny. They are "condemned" to closedmindedness.

Our present process of raising children and of teaching them has, in my judgment, precisely this unhappy effect. Children come to adulthood today as intellectual, emotional, and moral cripples. They are not whole or free persons, in the sense delineated in this paper, and they fail to see that they are not. Like all whose belief-states are ego-identifications they conceive those who disagree with them, however rationally, as *biased*. They may have learned how to effect an adult veneer, how to put on socially accepted masks; at root, however, infantile, egocentric identifications and commitments rule them. They do not know how to conduct a serious discussion of their own most fundamental beliefs. Indeed most do not know what those beliefs are. They cannot empathize with the reasoning of those who seriously disagree with them. If adept at conceptual moves at all, their adeptness is in dodges, such as caricaturing the reasoning of those who seriously disagree with them. They know, like politicians, how to retreat into vagueness to protect their challenged beliefs. They have learned how to avoid "understanding". They refuse to be rationally persuaded *out of* an irrational belief. They have no patience for close and exacting distinctions. They become, at best, anxious, at worst, hostile and belligerent, when their own basic assumptions or beliefs or reasonings are, even quietly and respectfully, called into question.

This fundamental failure to achieve command of one's own faculties, to grasp the root of one's own thought and emotion, has been demonstrated in many graphic studies. I shall illustrate it with one of the most stunning, the experiments of Stanley Milgram on unquestioning obedience to malevolent authority. The results he obtained go to the heart of the question of intellectual, emotional, and moral autonomy.

Most people think of themselves as free agents. They believe that their beliefs have been self-selected as a result of reasonable judgements based on experience and reflective thought. They believe that their behavior is informed by a freely chosen moral perspective and that generally they act in accordance with that perspective. Hence, they believe that though there are evil people in the world, at least people who do evil things, they do not include themselves among them. They believe that they, for example, would never, like so many Germans, have participated in the Nazi extermination of Jews. If a serious conflict arose between the demands of an authority and their own conscience, they are confident that they would follow their conscience. Let us hear the experiment summarized in Milgram's own words:

A person comes to a psychological laboratory and is told to carry out a series of acts that come increasingly into conflict with conscience. The main question is how far the participant will comply with the experimenter's instructions before refusing to carry out the actions required of him .... Two people come to a psychology laboratory to take part in a study of memory and learning. One of them is designated as a "teacher" and the other a "learner". The experimenter explains that the study is concerned with the effects of punishment on learning. The learner is conducted into a room, seated in a chair, his arms strapped to prevent excessive movement, and an electrode

attached to his wrist. He is told that he is to learn a list of word pairs; whenever he makes an error, he will receive electric shocks of increasing intensity.

The real focus of the experiment is the teacher. After watching the learner being strapped into place, he is taken into the main experimental room and seated before an impressive shock generator. Its main feature is a horizontal line of thirty switches, ranging from 15 volts to 450 volts, in 15-volt increments. There are also verbal designations which range from Slight Shock to Danger — Severe Shock. The teacher is told that he is to administer the learning test to the man in the other room. When the learner responds correctly, the teacher moves to the next item; when the other man gives an incorrect answer, the teacher is to give him an electric shock. He is to start at the lowest shock level (15 volts) and to increase the level each time that man makes an error, going through 30 volts, 45 volts, and so on.

The "teacher" is a genuinely naive subject who has come to the laboratory to participate in an experiment. The learner, or victim, is an actor who actually receives no shock at all. The point of the experiment is to see how far a person will proceed in a concrete and measurable situation in which he is ordered to inflict increasing pain on a protesting victim. At what point will the subject refuse to obey the experimenter?

Conflict arises when the man receiving the shock begins to indicate that he is experiencing discomfort. At 75 volts, the "learner" grunts. At 120 volts he complains verbally; at 150 he demands to be released from the experiment. His protests continue as the shocks escalate, growing increasingly vehement and emotional. At 285 volts his response can only be described as an agonized scream . . . .

Many subjects will obey the experimenter no matter how vehement the pleading of the person being shocked, no matter how painful the shocks seem to be, and no matter how much the victim pleads to be let out. This was seen time and again in our studies and has been observed in several universities where the experiment was repeated. It is the extreme willingness of adults to go to almost any lengths on the command of an authority that constitutes the chief finding of the study and the fact most urgently demanding explanation.

A commonly offered explanation is that those who shocked the victim at the most severe level were monsters, the sadistic fringe of society. But if one considers that almost two-thirds of the participants fall into the category of "obedient" subjects, and that they represented ordinary people drawn from working, managerial, and professional classes, the argument becomes very shaky.

Not only does this experiment reveal how little most people understand the roots of their own behavior, it also reveals how much human behavior today is typically determined by external authority. Whatever schooling Milgram's participants had, and some had a great deal, that schooling had little effect on their intellectual, emotional, or moral autonomy. Furthermore, it appears that Milgram's participants were heavily influenced by their desire to maintain the approach of the experimenter giving them orders. Having been children who came to do and think what they were told to do and think, Milgram's adult participants maintain their rapport with the experimenter rather than refuse orders which apparently endangered the life of an innocent victim:

---

The subjects were so concerned about the show they were putting on for the experimenter that influences from other parts of the social field did not receive much weight. This powerful orientation to the experimenter would account for the relative insensitivity of the subject to the victim ....

This need not be so. The extent to which children ego-identify with this or that belief of authorities around them can be minimized. Children can be raised to value the authority of their own reasoning. They can be encouraged to value making up their own minds thoughtfully and reflectively. They can learn comprehensive principles of rational thought. They can learn to consider it "natural" that people differ in their beliefs and points of view. And they can learn to grasp this not as a quaint peculiarity of people but as a tool for learning. They can learn how to learn from others, even from their "objections", their contrary perceptions, their different ways of thinking.

They can and should learn all this, but they will do so only if parents and teachers recognize the problem created by belief inculcation and its consequent ego-identifications, and learn to nurture and respect the dialogical process.

But how can this be done? How can these obstacles be overcome? How can we teach dialectical reasoning and pave the way for human emancipation?

#### ◆ *Teaching Basic Academic Competencies as Incipient Higher Order Thinking Skills*

Unless one achieves an understanding of the relationship of language to logic one will not develop the ability to analyze, criticize and advocate ideas. We must recognize differences between the structure and purposes of technical languages, the nature and use of concepts within them, and those of natural languages such as English, German, or Swahili. The differences parallel the differences between technical and dialectical issues, and the divergent modes of reasoning they require. Teachers should realize when, on the one hand, they are teaching a technical language, and so presupposing one standpoint and a specialized, technically defined hierarchy of problems and when, on the other, they are in a domain where multiple standpoints apply, and so where concepts are used in a non-technical way, and where opposing lines of thought need to be considered.

Whenever we think, we conceptualize and make inferences from our conceptualization, based on assumptions. In technical domains like math, physics, and chemistry, however, the concepts and assumptions are *given*. They are not generally to be challenged by an alternative point of view. The logic, on the one hand, and the technical language, on the other, are opposite sides of the same coin. But the affairs of everyday life, including the inner life of the mind, are fundamentally conducted within the logic of a natural language, and the key concepts are inevitably used non-technically and (when properly handled) dialectically.

How we read, write, speak, listen, and reason varies, or should vary, in accordance with these fundamental distinctions. Do I read, write, speak, listen, and reason so as to throw myself totally into one well-defined point of view and make its rules, regulations, and operations the controlling variables in my thinking? Or do I read, write, speak, listen, and reason so as to entertain comparisons and contrasts between ideas from competing perspectives? Do I reason monologically or dialogically?

Few students have any experience in this second and crucially important mode of reading, writing, speaking, listening, and reasoning, even though many of their everyday experiences presuppose such abilities. They often talk and listen to people who look at events and situations in a variety of ways. Their parents and peers often see situations differently. They are often frustrated by their inability to come to terms with these conflicts and dilemmas.

If we understand speaking and writing as constructing a point of view, developing ideas in some logical relation to each other, and listening and reading, as entering into someone else's point of view, into *their* organization of ideas, then we can see how the basic academic competencies ought to be understood as incipient higher order thinking.

Furthermore, we will recognize that when we are listening to or reading ideas which conflict with our ego-identified belief states, we have a different problem to combat than when the difficulty is not a matter of resistance but of technical complexity. Learning how to listen to and read (without distortion) lines of reasoning whose possible truth we egocentrically wish to rule out, is an essential experience, indeed the mother's milk of educational development. As in all areas of intellectual and emotional competency, these reading and listening capacities must be built up progressively and over a long time. They are acquired by degrees. They can always be further developed.

Assignments designed to facilitate basic academic competencies may set the stage for intellectual or emotional development, indeed contribute to that development, or they may simply issue in the superficial learning of these skills. They may be learned, in other words, as lower order, or as incipient higher order thinking skills.

#### ◆ *Teaching Social Studies*

Few recognized that the area we call "social studies" or "social science" is, when rightly conceived, a combination of technical and dialectical issues. The major justification for including them as a universal requirement however is *not* for the technical training they might provide, but for the assumed knowledge, insight, and skills that can be gleaned from their study and applied in everyday personal and social life.

However, clearly one tacit function of instruction in this area is at base "indoctrinative". By this I mean that we teach much of the subject area in a way that assumes, states, or implies (as self-evidently true) claims of a self-serving,



sometimes ethnocentric, nature. Of course, the formulations of "goals" are often vague enough so that it is unclear whether a "fact" or an "ideal" is being expressed (for example, "with liberty and justice for all"). Because instruction confuses the technical, the dialectical, and the ethnocentric, and students have no tools for distinguishing them, or little sense of how to proceed to rational judgments if they did, the result is largely non-educational.

Of course, we could understand our "heritage", in another sense, as a commitment to developing the maximum degree of personal and social freedom, as a commitment to intellectual, emotional, and moral autonomy. If that is our fundamental commitment, then, we must approach education dialectically, especially in historical and social studies.

All history is history from a point of view. Alternative perspectives and interpretations of our historical past compete for our assent. Students should be exposed to some of the differing perspectives and reason dialectically between them.

The American Revolution, for example, need not be studied simply from our point of view. The same events could be seen from a British point of view, or from the point of view of a colonial loyalist, or from the point of view of a Native American, whose homeland was being systematically taken by a "foreign" race. Our attitude toward "revolution" as a justifiable political act could be compared between 1776 and now. Students should consider whether the U.S. government's present disapproval of Third World revolutions contradicts its approval of its own.

Or further, students could study the history of the Cold War itself dialectically. More and more of the national budget goes for policies premised on one unexamined interpretation of the origin and nature of the Cold War. But how often, if ever, do students reason dialectically on this issue? This means, of course, that students learn that the issue is dialectical, that interpretations differ among distinguished historians and that they developed opposing lines of reasoning to justify them, that we can empathize with the Soviet perspective, argue their case, formulate their critique of our behavior and their defense of their own, and bring the Soviet case into dialogical contest with the strongest case of the U.S. side.

Or again, students might consider some opposing analyses of the nature of our society, clarifying some of the differences between conceptualizing events from a "Right" or a "Left" perspective. Some contemporary U.S. trends could be considered from both the the Right and the Left. Instead of seeing these perspectives as empty terms charged with positive or negative stereotypes, students could begin to translate them into analytic tools of dialogical reasoning, and therefore develop an increasingly macro-logical integrative perspective.

Of course, dialectical skills must be developed gradually. One useful teaching tool is the daily newspaper. The news, like history, is perspectival (dialectical). The news is always news from a point of view. Students now have virtually no critical reading or listening or viewing skills for the news media. This process can begin very early. Sesame Street-like skits could be devel-

oped which show young children how we take events and “re-present” them and how that “re-presentation” can serve different purposes or ends, can be constructed to convey different implications and impressions.

We are worlds away from taking this task seriously. The sooner we begin the better.

### ◆ *Teaching Science*

As elsewhere we must clearly understand the extent to which we want technical competencies and the extent to which we want global (dialectical) competencies. If we merely want to produce as many scientists and engineers as we can, then we should proceed with the strategy that best serves that end. If we doubt that most students will become scientists, engineers, or even technicians, but must live in a technological world in which science and its uses are crucial to the quality of human life, then we will use a somewhat different strategy.

Both approaches need some common foundation, but even here the emphasis may differ. Students do not inevitably understand scientific concepts better, that is, achieve global perspective with respect to them, simply because they can solve increasingly complex textbook problems. Furthermore, going in the other direction, students can gain a great deal of understanding of science, from a global perspective, without being able to solve highly complex textbook problems.

As Ronald Giere, in *Understanding Scientific Reasoning*, points out:

Learning physics — that is, to produce solutions to problems in physics is indeed very difficult. But if it is presented correctly, it is possible for anyone to gain some understanding of what physics, especially classical Newtonian physics, is all about. Moreover, discovering that this is so can be a very liberating experience. If you can understand Newtonian physics you can probably understand most any scientific theory presented in a reasonable manner. So learning a little about physics may give you confidence that you can understand scientific theories and even evaluate arguments for or against theoretical hypotheses. An important component in developing the skill to reason intelligently about scientific issues is simply gaining the confidence that you can do it, even if you are not an expert.

With a fuller global grasp of the uses of scientific concepts, the student is better able to think critically about the application of scientific concepts in everyday life, including such mundane issues as these:

- 1) media reports of scientific discoveries,
- 2) advertisements that make scientific claims,
- 3) decisions about food, nutrition, and health,
- 4) assessment of doctors and of the credibility of their diagnoses, etc.

Finally, only with this global grasp can students begin to aspire to Einstein's call for critical thinking about scientific concepts themselves:

The eyes of the scientist are directed upon those phenomena which are accessible to observation, upon their apperception and conceptual formulation. In the attempt to achieve a conceptual formulation of the confusingly immense body of observational data, the scientist makes use of a whole arsenal of concepts which he imbibed practically with his mother's milk; and seldom if ever is he aware of the eternally problematic character of his concepts. He uses this conceptual material, or speaking more exactly, these conceptual tools of thought, as something obviously, immutably given; something having an objective value of truth which is hardly ever, and in any case not seriously, to be doubted. How could he do otherwise? How would the ascent of a mountain be possible, if the use of hands, legs, and tools had to be sanctioned step-by-step on the basis of the science of mechanics? And yet in the interest of science it is necessary over and over again to engage in the critique of these fundamental concepts, in order that we may not unconsciously be ruled by them. This becomes evident especially in those situations involving development of ideas in which the consistent use of the traditional fundamental concepts leads us to paradoxes difficult to resolve.

◆ *Dialectical Knowledge Is Not Opinion;  
It Is Integrative Synthesis*

You may think that dialectical reasoning (the reasoning required when issues cross categories or disciplinary lines, issues for which different possible points of view can plausibly be developed) limits one to *opinions*. This would be a mistake. To ask a jury to decide whether a given defendant is innocent or guilty does not imply that we seek its "opinion" as such. We are seeking the jury-members' reasoned judgment, and we expect them to use the best comprehensive canons of reasoning and evidence to reach it. We expect them to enter empathically into the arguments of both the prosecution and defense, and we want the strongest possible case to be made for both. Jurors who fulfill these standards and conclude that the accused is guilty or innocent may properly be said to know what the verdict enunciates. They may know it as well as they know this or that technical truth. The knowledge is conditional of course, but so is technical knowledge.

A scientific experiment, for example, issues in scientific knowledge to the extent that *a)* its conditions were carefully and appropriately controlled, *b)* its results were accurately recorded, and *c)* accurately interpreted.

Most of the important knowledge we have results from integrative acts of the mind, and inevitably the more we integrate the more we must scrutinize what is left out, what highlighted, and how the whole is interpreted. The process is always subject to error. There are mistakes possible in all processes that lead to knowledge. Whenever we claim to know anything, our confidence is justified to the degree we have carefully attended to possible mistakes.

Synthesis across or beyond technical categories can be well or poorly justified. When outside the purely technical, part of the dues we must pay to jus-

tify rational confidence is empathy with the strongest case against our conclusion. Unfortunately, we rarely pay them. But when we do, we are not merely "expressing an opinion", but rendering a rational "verdict".

Dialectically achieved synthesis depends on comprehensive rational principles, not specialized procedures and concepts, "principled", not "procedural" thought. Like law, it depends on our capacity to marshal cases and evidence that illustrate principles; unlike the law, it does not require any technical concepts or procedures to do this. It depends on our ability to achieve command of a natural language and of ourselves, and to use both as resources to make rational assessments, to create a perspective that is neither egocentric nor ethnocentric.

#### ◆ *A Final Plea*

When, as the result of a trial, the jury comes to a verdict of guilty or innocent; when, as a result of assessing a political debate, a citizen decides to vote for one of the candidates; when, as a result of reading the case that can be made for alternative political systems, one concludes that one is superior to the others; when, as a result of hearing various sides of a family argument, one becomes persuaded that one way of putting things is more justified and accurate; when, as a result of reading many reports on the need for educational reform, one is prepared to argue for one of them; when, as a result of entertaining various representations of national security and the building of more nuclear weapons, one reasons to a position on the issue; when, after reading and thinking about various approaches to raising children, one opts for one; when, after knowing a person for a number of years and exploring various interpretations of his or her character, one decides that he or she would make a good spouse — *one is reasoning dialectically*. Dialectical thought is the master-principle of all rational experience and human emancipation. It cultivates the mind and orients the person as technical training cannot. It meets our need to bring harmony and order into our lives, to work out an amalgamation of ideas from various dimensions of experience, to achieve, in short, intellectual, emotional, and moral integrity. The proper doing of it is our only defense against closedmindedness.

An open society requires open minds. Collectively reinforced egocentric and sociocentric thought, conjoined with massive technical knowledge and power, are not the foundations for a genuine democracy. The basic insight formulated over a hundred years ago by John Stuart Mill is as true, and as ignored, today as it was when he first wrote it:

In the case of any person whose judgment is really deserving of confidence, how has it become so? Because he has kept his mind open to criticism of his opinions and conduct. Because it has been his practice to listen to all that could be said against him; to profit by as much of it as was just, and expound to himself, and upon occasion to others, the fallacy of what

was fallacious. Because he has felt that the only way in which a human being can make some approach to knowing the whole of a subject, is by hearing what can be said about it by persons of every variety of opinion, and studying all modes in which it can be looked at by every character of mind. No wise man ever acquired his wisdom in any mode but this; nor is it in the nature of human intellect to become wise in any other manner.

If the schools do not rise to meet this social need, what social institution will? If this is not the fundamental task and ultimate justification for public education, what is?

#### ◆ References

- Beveridge, Albert J., U.S. Senator. "The March of the Flag," 1898.
- Beyer, Barry. "Improving Thinking Skills - Defining the Problem." *Phi Delta Kappan*, March 1984.
- Bloom, Benjamin. *All Our Children Learning*. New York: McGraw-Hill, 1981, pp. 22-24.
- Campbell, Sarah, ed. *Piaget Sampler: An Introduction to Jean Piaget Through His Own Words*. New York: John Wiley & Sons, 1976.
- Dewey, John. cf. *How We Think*. Boston: D. C. Heath & Co., 1933.
- Dewey, John. *Logic: The Theory of Inquiry*. New York: Holt, Rinehart, & Winston, 1938, Chapters VI and XXIV.
- Giere, Ronald. *Understanding Scientific Reasoning*. New York: Holt, Rinehart & Winston, 1978.
- Hayes, John R. *The Complete Problem Solver*. Philadelphia: The Franklin Institute Press, 1981.
- Jammer, M. *Concepts of Space: The History of Theories of Space in Physics*. Cambridge: Harvard University Press, 1957. p. xi.
- Milgram, Stanley. *Obedience to Authority*. New York: Harper & Row, 1969.
- Mill, John Stuart. *On Liberty*. Edited by Alburey Castell. Illinois: AHM Publishing Co., 1947. p. 20.
- Polya, Gyorgy. *How to Solve It*. New York: Doubleday Anchor, 1957.
- Sumner, William G. *Folkways and Mores*. Edited by Edward Sagarin. New York: Schocken Books, 1959.