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REMAPPING CRITICAL THINKING THEORY:
A CRITIQUE OF RICHARD PAUL'S MODEL OF CRITICAL THINKING

A Synthesis Presented

by

Lyonel Primé

Submitted to the Office of Graduate Studies, University of Massachusetts
Boston, in partial fulfillment of the requirements for the degree of

MASTER OF ARTS

May 1998

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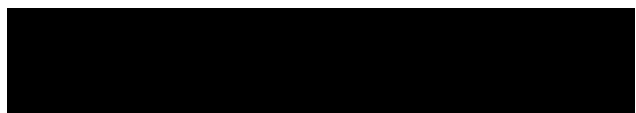
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Approved as to style and content by:



Delores Gallo, Associate Professor
Chairperson of the Committee



Arthur Millman, Associate Professor
Member



Delores Gallo, Program Director
Critical and Creative Thinking Program

ABSTRACT

REMAPPING CRITICAL THINKING THEORY:

A CRITIQUE OF RICHARD PAUL'S MODEL OF CRITICAL THINKING

May 1998

Lyonel Primé, B.A., University of Massachusetts Boston
M.A. University of Massachusetts Boston
Directed by Professor Delores Gallo

This project is a critical examination of Richard Paul's theoretical conceptualization of critical thinking. In his relentless criticism of the didactic approach characterizing current academic instruction, Paul develops a model of critical thinking that he refers to as critical thinking in the strong sense. The model posits dialogue as the methodological strategy that helps overcome egocentric and socio-centric thinking and thereby facilitates the achievement of ethically rational development. By egocentric and sociocentric thinking, Paul means the thinking that is bound, respectively, by one's point of view and social context. The model in question is intended not only to displace didactic instruction but also to transcend the overemphasis on logic that characterizes current critical thinking theorizing.

While Paul's work points to a promising theoretical horizon, it betrays the very educational ideal that it sets out to pursue. Not only is it the exemplification of the didactic approach that it is intended to displace, but it is also carried out in a conceptual framework that reinforces the modernist view of effective thinking as the rigorous application of rational standards in the determination of the truthfulness of issues. By giving preeminence to logic and rational standards in the thinking process,

Paul's view legitimizes a style of inquiry that is conducive to definitive closure. It is fundamentally reductionist: it tends to privilege exclusion over integration, object over relationship.

This paper presents an alternative view of critical thinking the theoretical underpinning of which includes a conception of knowledge as immanent. Its primary concern is the achievement of understanding or the production of meaning through persistent explorations of relational structures as opposed to discrete objects. It therefore dismisses any quest for a secure foundation of knowing as illusory.

This work is presenting as its starting point the conventional model of educational practice. It provides a brief description of the didactic approach against which Paul levels his criticism. Then, it moves to offer Paul's actual criticism, his view of critical thinking and a critique of his model. Finally, the paper presents a reconfiguration of the theoretical landscape of critical thinking. It formulates and justifies a non-objectivist conception of critical thinking.

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CHAPTER 1

INTRODUCTION

The last two decades have witnessed an explosion of concerns about the critical state of the American educational system. The yawning chasm between academic outcomes and institutional expectation has been a very troubling phenomenon. In the view of many responsible educators and critics, the situation has reached an intolerable threshold. Students' performance levels not only have been falling far below specified standards, they are also declining at an alarming rate. The challenge that teachers are facing involves a waning interest in intellectual issues among a relatively large segment of the student population, and the latter's inability to retrieve insights contained in instructional materials and to articulate an argumentative position cogently. Attempts have been made to curb the crisis, but no significant results have been recorded so far. The trend continues its course, notwithstanding the plethora of reform strategies implemented by school authorities.

The threat of this undesirable state of affairs has led to the emergence of the so-called critical thinking movement of which Richard Paul is viewed as one of the leading representatives. Regardless of the varying tendencies characterizing the movement, the conviction shared by all the advocates is that the main source of the educational crisis is to be sought in the structure of the conventional pedagogical model, not in some isolated manifestations thereof. On their view, the traditional

teaching that inhibits the very developmental process that it is supposedly designed to promote. They argue that by dealing with knowledge as a set of fixed entities pre-determined by competent authorities, the model reduces learning and teaching to a unidirectional, stultifying process of transmission and reception. The correct response to the problem, as they perceive it, is the restructuring of the educational process which involves a radical departure from the didactic practice of teaching and the creation of the pedagogical space that would truly help the learner actualize her full potential. The infusion of creative and critical thinking in school curricula is proposed as a potent educational strategy by means of which the displacement of the didactic approach can be effected and the alleged pedagogical space created.

Richard Paul whose work constitutes the object of the critical study undertaken here is a staunch advocate of educational change through critical thinking instruction. He develops a critical thinking model which calls for the active participation of the learner in the production of knowledge. Dialogue is posited as the methodological context within which participants become aware of the limitations of their views and develop critical thinking competencies. Dialogue, as Paul sees it, turns learning into a collective process of inquiry and enables participants not only to recognize the multidimensional character of issues but also to examine them from a multilogical perspective. In Paul's critical thinking theorizing, the task of critical thinking instruction involves more than the achievement of intellectual ability; it includes the development of intellectual character as well. Put differently, the goal of critical thinking instruction is to produce rational thinkers who are ethically committed. The

integration of this ethical dimension in the conceptualization of critical thinking contributes to the articulation of a model to which Paul refers as strong-sense critical thinking. The strong-sense critical thinking model is laid forth by Paul as a departure from the conventional logicist orientation and as the conceptual framework that is conducive to the cultivation and achievement of genuine critical fair-mindedness.

The present study purports to produce a critique of Paul' theoretical conceptualization of critical thinking. It shows that despite its penetrating insights, Paul's theoretical model vitiates its own possibility's by instantiating the very didactic approach that it sets out to displace. It also points out that, to a significant extent, Paul's immersion into his lectorial mode of articulation turns his model into a concatenation of unsubstantiated theoretical claims. Knowing is posited as a constructive process, but no delineation of the underlying epistemological principles is provided. Creative thinking is treated as a marginal concern and therefore enjoys no real analytical space in the theoretical configuration. Furthermore, there is very little, if any, specification of the model of rationality with which Paul operates. Paul's argument integrates an interpretation of rationality which seems to vacillate between transcendental and hermeneutic conceptions. These are the issues that the study wishes to address in the ensuing pages.

An essential part of the critical study's purpose is to attempt to lay the groundwork for a more promising theoretical perspective. It seeks to do so by engaging in a mode of theorizing that liberates thinking from the tyrannical stronghold of objectivist epistemology including the rational quest for certainty, foundation,

and essence that it entails. The jettisoning of objectivist thinking and the espousal of a hermeneutic conception of inquiry contribute to make critical thinking a genuinely constructive, open-ended, integrative or multi-perspectival process of cognition. It is important to clarify at the outset that while we recognize the displacement of objectivism as a necessary step toward the development of effective thinking, we do not wish, however, to construe thinking exclusively in epistemological terms. There is a whole political dimension including its feminist ramification that is at issue in the articulation of an emancipatory perspective. Indeed, the very shift in thinking recommended in this project is, in itself, a political issue. There is a tremendous amount of institutional power invested in the politics of knowledge that we are interrogating. So by excluding the political aspect, we are not, by any means, trying to sidestep its significance. We simply put it into abeyance for two important reasons: analyses of the political dimension involved in critical thinking are already being carried out to adequate depth by such critical pedagogy theorists as Henry A. Giroux, Regina Ketch, Stanley Aronowitz to cite but these few. The attention that is being given to the epistemological component is less substantial in our judgment. The other reason is that we want to keep the project to a manageable scope in order to deal successfully with the time constraint within which its realization is expected.

The project derives its ideational matrix from a variety of philosophical sources. The theory of discourse which helps shape the foundational concepts of the thesis is heavily influenced by the works of such post-modernist thinkers as Michel Foucault, Ernesto Laclau and Jacques Derrida. It embraces the whole of Laclau's view

of discourse and rejects Foucault's distinction between discursive and non-discursive practices. The perspective presented in this paper eschews the idea of there being non-discursive institutional practices. In addition, much of Derrida's deconstructive enterprise is in consonance with the project's anti-metaphysical stance. However, we part company with the author at some point where his seemingly cognitively responsible theoretical analysis turns into an exercise in intellectual nihilism.

Furthermore, the post-modern epistèmè is central to our purpose. Although many post-modernist philosophers including Richard Rorty define the post modern world view as an anti-epistemological project, we concur with Linda Martin Alcoff (1996) that "Post-modernism is still engaged in the work of conceptualizing knowledge and reality in some way recognizably continuous with the philosophical work that has gone before" (p. 4). The belief in the demise of epistemology is unwarranted. Post-modernist thinking has brought about a paradigm shift, a shift from the old or classical epistemological problematic, but it still retains an account of knowing which is of course non-foundationalist. It is an account that tends to be hermeneutical. Finally the general system theory provides the holistic approach which helps to justify the cognitive import of the shift of thinking from the objectivist to the constructivist perspective.

Definition of Terms

The attempt to blend different perspectives into a single theoretical articulation and to situate critical thinking within a broader conceptual framework entails semantic changes in the interpretation of old concepts. This section purports to prevent possible confusions that the assignment of new meanings to old concepts might create in the course of reading this paper. In the context of our critical study, we use Ernesto Laclau's (1994) concept of discourse. It is as follows: "... we will call articulation any practice establishing a relation among elements such that their identity is modified as a result of the articulatory practice. The structured totality resulting from the articulatory practice, we will call discourse." (Laclau & Mouffe, 1994, p. 105). This definition includes much of Foucault's interpretation of discourse but rejects his distinction between discursive and non-discursive practices. From our perspective, all institutional practices are discursive in nature. A discursive structure is a cognitive entity which constitutes and organizes its objects through its articulatory practice. In this respect, our view of discourse is almost equivalent to Wittgenstein's language game. Effective, integrative and complex thinking refer to the cognitive process known as creative and critical thinking. We make occasional uses of the latter terms to maintain the intelligibility of some passages, but fundamentally we interpret them as two interrelated facets of a single process. Effective, integrative and complex thinking are used interchangeably but effective and integrative are used more in contradistinction with analytical or reductionist thinking. The term complex thinking

emphasizes the interconnectedness of relational structures; it is employed as an alternative to "higher order thinking" which connote a hierarchical scheme. It is our contention that the hierarchical structure involved in the traditional construal of reality is a projection of our anthropocentric mode of thinking; there are actually no up and down that our discourse actually represents. Genuine integrative thinking is thinking in relational terms: it involves no hierarchy. Another important term that recurs a few time is logocentrism. Pauline Marie Roseneau (1992) offers a very clear definition of logocentric thinking. "Logocentric is an adjective used to describe systems of thought that claim legitimacy by reference to external universally truthful propositions. Post-modernists are opposed to logocentric thought. They say such systems are really grounded in self-constituted logic. They consider them circular, self-referential and self-satisfying" (p. xii). Finally, the exclusion of the category of truth from the conceptual structure of the thesis is a strategic choice. To maintain consistency or to avoid the objectivist implication it entails, we make use of "viability," a constructivist concept that is closely related to Dewey's "warranted assertability."

CHAPTER 2

THE CONVENTIONAL MODEL OF EDUCATIONAL PRACTICE AND PAUL'S CRITICISMS

Epistemological Assumptions

The conventional model of educational practice is predicated on an epistemological perspective within which knowledge is construed as a transcendent, determinate or objective entity independent of the knower. This conception which harks back to the formative years of the western philosophical tradition, derives its modern articulation from the thought of the French philosopher and mathematician René Descartes. It still remains the dominating assumption in the natural sciences and the guiding principle in much of current academic research, despite the storm of criticisms to which it has been subjected since the monumental work of the German philosopher Immanuel Kant. In Learning and Teaching the Way of Knowing (1985) Elliot W. Eisner observes that "knowledge is considered by most in our culture as something that one discovers, not something that one makes. Knowledge is out there waiting to be found and the most useful tool for finding it is science." (p.32). The implication of this cognitive position, which is known in the philosophical literature as objectivist epistemology, is the ontological commitment according which the world is divided into two mutually exclusive realms: the phenomenal world of human experience and the realm of human cognition. On this view, the world is made up of discrete entities having definite properties or essences. Regardless of how it is

perceived, interpreted or recognized, it still remains what it is, a transdiscursive structure to be apprehended by human cognition. In his delineation of the objectivist principles, George Lakoff (1990) offers the following summary:

Existence and fact are independent of belief, knowledge, perception, modes of understanding and every other aspect of human cognitive capacities. No true fact can depend upon people believing it, on their knowledge of it, or any other aspect of cognition. Existence can not depend in any way on human cognition (p. 64).

Based on this premise, knowledge comes to be equated with the outcome of the process of discovering, categorizing, and conceptualizing the facts contained in the objective world. The conceptual or theoretical construct resulting from this cognitive process is set forth as an objective account of reality, an account that is supposedly independent of the inquirer's point of view or frame of reference. Henry A. Giroux's deconstructive analysis of this perspective points out that

Knowledge, like scientific inquiry, is regarded as value-free. Thus knowledge should be objective and described in neutral fashion. The assumption here is that knowledge can be reduced to those concepts and facts that exist a priori and then can be translated to operational definitions and precise meanings (Giroux, 1993, p. 177).

Accordingly, the viability or explanatory power of the scheme in question depends on how accurately it corresponds to or captures the essence of the phenomenon observed. That, of course, has to do with the rigor with which the so-called neutral standards of rationality have been applied. For the objectivist doctrine, as alluded to earlier, holds that the world is a rational order and therefore all knowledge claims pertaining to that order can only be justified on the basis of rationally neutral standards of procedure.

The implication of the objectivist doctrine being delineated here is that the process of thinking is reduced to reasoning or the mere application of logical algorithms. Intuition, including the various modes of intellection expressed in the arts falls outside the bounds of cognition. The standards of objectivist rationality constitute the inquirer's exclusive tools, and the failure to meet them is bound to result in wild imaginings, not cognition. In other words, beyond the pale of logic, the mind dispenses altogether with cognition and flounders in the realm of pure fantasy. It is important to point out here that the objectivist mode of thinking helps explain the predominance of the analytic approach to events, the rigid striving for determinacy, and the uncompromising quest for certainty that are characteristic of current academic research.

The content of conventional school curricula and the attendant mode of educational evaluation strongly reflect this reified concept of knowledge that characterizes the objectivist perspective. School curricula consist, for the most part, of pre-packaged sets of unambiguous, non-negotiable materials designed by concerned authorities as the body of knowledge to be learned. Usually, this body of knowledge, which is meant to be free of cognitive dissonance, is fragmented into discrete parts and organized in sequential order within disciplinary boundaries. Each discipline represents a well-specified entity having no organic relations with others. The idea here is that knowledge is made up of discrete entities and is contained in texts and the problem of pedagogy, therefore, is a question of employing the methodological procedure that facilitates its transmission. So knowledge acquisition becomes a

process of accumulation, and the "amount" of knowledge acquired is coextensive with the amount of material covered. The pedagogical structure brought about by this objectivist conception of knowledge is one that replicates the simple, linear, and mechanical model of communication. It basically includes the so-called body of knowledge as the unambiguous message to be transmitted to the students, the teacher as the agent transmitting that body of knowledge and, of course, the student as the receiver.

Teaching as Transmitting

As knowledge is a ready-made structure, independent of the knower, the function of teaching becomes reduced to a mere mechanical process of transmission. It is this very practice that Paulo Freire refers to as the banking concept of education. The significance of the banking metaphor lies in the fact that, within the objectivist framework, students are viewed as receptacles into which knowledge gets deposited. This knowledge is expected to accumulate as more of it gets in. Educational evaluation, therefore, represents the process that helps withdraw the accumulated amount and gives the examiner a precise indication of the extent to which specified "units of knowledge" have been grasped. It is important to note here that knowledge is evaluated in quantitative terms. That should not be surprising, for, to fulfill the objectivity requirement of the underpinning epistemology, knowledge must be dealt with as discrete units and transmitted as such. Thus the transmission of pre-designed

units of knowledge must be interpreted, if not as a logical consequence of the objectivist epistemology described above, at least as an implication thereof. Ann E. Berthoff (1986) puts the matter in a very succinct and elegant way: "Pedagogy always echoes epistemology: the way we teach reflects the conception we have of what knowledge is and does" (Berthoff, 1986, p. 11). Berthoff's statement touches one of the key points that the present study concerns itself with. The way one teaches is strongly determined by the conception of knowledge one holds and no significant change in the pedagogical process is to be expected without a modification in the underlying epistemological assumption.

In the transmission model wherein knowledge is totally determined by competent authorities prior to the learning experience, pedagogy turns out to be a simple, unidirectional or mechanical process. It practically excludes all communicational interaction. The teacher's task is that of carrying out the content and the methodological procedure: she is not authorized to effect any significant changes. In fact, she is seen by many in the higher rungs of the professional ladder as a specialized technician trained in the business of shaping youngsters' minds in conformity with dominant values and norms. While she may occasionally use her ingenuity to rethink her methodological approach and thereby galvanize the spirit of the class, the content of learning and the learning procedures are not expected to vary a great deal. In short, the teacher has very little, if any, role in the decisions that deeply affect the students' life. From the above, it follows that the student has no choice but to ingest the certified data presented to her. Giroux's comment summarizes

the whole point that is being made here. "Teachers and students within this context are expected to be either passive transmitters or consumers of knowledge, rather than negotiators of the world in which they work and act." (Giroux, 1983, p. 179). From this perspective, any attempt by the student to inquire into the body of knowledge presented to her constitutes a waste of time. It does so by virtue of the fact that the propositional content of this body of knowledge is taken to be an accurate representation of transcendent truths. As an incontrovertible given, it is immune to critical inquiry. Supposedly, the time spent in such a "futile exploration" would yield greater results if invested in more extensive coverage.

Along with the sanctioned knowledge of which the student is a passive recipient, comes a set of algorithms that she, at a given moment, applies mechanically to pre-set puzzles and at other times can enunciate very well without being able to apply. The result of that, as it is well known, is that, once no longer involved in the particular situation requiring their use, the student often forgets them. That the student is denied participation in her own learning is further reflected in the way that her perspectives on particular issues are handled and in the content of the curricula as well. Her point-of-view or frame of reference plays no contributing role in the structuring of the learning experience. When occasionally articulated, it is greeted with a fair degree of courtesy but still held as an extraneous interference which is expected to have no deviating or shaping influence on the pre-structured linear process of teaching and learning. The importance of this exclusionary practice lies in the fact that what matters in the evaluative phase of the process is often, if not exclusively, the

pre-ordained bits of knowledge transmitted by the teacher, not the complex dynamics which emerges as a result of interactions. In other words, what the teacher teaches takes precedence over what the student learns and consequently what evaluation actually measures is the retentive capacity of the student's memory.

The instructional content of school curricula makes the denial of the student's input an even more conspicuous fact. A cursory glance at the programs offered in many schools reveals that the abilities privileged by the school authority are almost exclusively those developed in the areas of the natural sciences, math, social studies and English. The development of artistic ability, seemingly, plays no part in the education of the child. Art education is seen as devoid of vital social necessity and is therefore relegated to the margins of educational concerns. Yet, a surprising number of so-called under-achievers as well as academically advanced students are potential artists. They often exhibit incredible artistic talents which the schools fail to recognize as valuable social assets. As William Levi and R.A. Smith (1991) bluntly put it: "What counts in an acquisitive society like our own are prosperity and security; what counts much less are moral and spiritual values, education for wisdom, and, of course, aesthetic perception and artistic tastes" (p. 7). As a result, some students are frustrated because not only their performance levels fall below the minimum academic standards but also the inflexible pedagogical structure with which we are presently concerned inhibits the development of their artistic abilities. Levi's and Smith's evaluation of the critical necessity of art education presents the arts as fulfillment of vital human needs, not playthings that one uses for recreational purpose. The line of thought articulated

in the study undertaken by both authors refers to the eclipse of the arts or the divorce of art and society as cultural barbarism. For, as they conceive it, art plays as important a social role as science: it is a mode of intellection that projects human experience in a way that falls outside the purview of the scientific domain. The authors go on to say that "Art has much to teach us about both the cognition of reality and the appraisal of life and in both these areas its revelatory capabilities come powerfully into play" (Levis & Smith, p. 22).

Thinking as Reasoning

One of the most widespread complaints of teachers against their students is that the latter do not want to think nowadays. In the schools' hallways, at workshops and other occasions the frustration really stands out: "Students refuse to think; all they want is quick answers." It is fair to say that while this blame may be justified on some important grounds, it nevertheless, overlooks a very simple fact: thinking cannot occur in just any pedagogical environment. Although thinking is as natural as sleeping, walking, and speaking, it can also be restrained or stifled. Certainly no one would deliberately refrain from engaging in that mental activity: the biological function it fulfills makes it a necessity of life. It is important to remember that the thinking impulse is present and discernible at a very early age of human life. Young children display a passionate interest in exploring the world around them; they do so naturally: no coercion or threat is necessary. Their quest for knowledge and meaning

seems to be unquenchable. However, the trend begins to take the opposite course as some external factors interfere with it. In this case, our current pedagogical environment may be singled out as one such factor. For, it is a context wherein children, unfortunately, begin to develop the awareness that what they think has no relevance to their learning. They are given a set of rules that they must learn how to apply effectively: little if any time is devoted to reflection. Their failure to do so is the ground on which teachers usually justify their complaint. Is the failure to apply rules the real issue here?

The commitment of the conventional method of teaching to the principles of the objectivist outlook reduces thinking to logical reasoning or skillful manipulation of the tools of inquiry. In a situation in which the goal and means of inquiry are respectively pre-determined and specified, thinking is obviously reduced to its teleological and algorithmic dimensions. The effective application of logical canons to the propositional structures of ready-to-hand arguments or problem-solving is interpreted as the defining characteristic of thinking. The rigid and unidirectional process embedded in the pedagogy of transmission clearly instantiates this oversimplified view of thinking. The narrow space that is supposedly provided for thinking allows no deviation from the rules of logic and the student, placed in this context, is considered to be thinking when she demonstrates a certain ability in the application of the linear process of reasoning handed to her. Raymond S. Nickerson's (1987) characterization of "good thinking" is a case in point:

My stereotype of a good thinker can be characterized in terms of knowledge, abilities, attitudes, and habitual ways of behaving. Here are some of the characteristics that would be on the list:

- uses evidence skillfully and impartially;
- organizes thoughts and articulates them concisely and coherently;
- distinguishes between logically valid and invalid inferences;
- suspends judgment in the absence of sufficient evidence to support a decision
- understands the difference between reasoning and rationalizing;... (p. 29).

Similar but more inclusive taxonomies of thinking skills are developed by experts in the field. Robert H. Ennis' is very relevant to the issue at hand, but it is unfortunately put aside due to space constraint.

The fostering and development of those skills in the classroom situation are recognized here as an essential task of education. However, they are only parts of the rule-oriented aspect of thinking which is properly defined as logical reasoning. Logical thinking, in turn, is, fundamentally, a truth-seeking cognitive process, a process the exclusive emphasis of which is on accuracy of knowledge or objective certainty. Thinking as a whole is, however, a much more complex mental activity. It is irreducible to algorithmic procedures. It is perhaps almost impossible to specify what lies within its scope. Thomas H. Warren's (1994) clarification of the concepts of thinking and reasoning can be used to further illuminate the point. According to Warren, reasoning is a rule-oriented process which requires the application of the skills of rationality and calculation. It concerns itself with such rational and computational

procedures as quantitative analysis, argumentation, fallacy recognition, syllogistic reasoning, information-processing, and the like. It aims at knowing. Thinking, on the other hand, denotes a mental activity which transcends the realm of reasoning. It is a quest for meaning. Here is how he puts it in Rethinking Reason :

Thinking... is characterized essentially by reflection, "ponderment" or "feeling." Thinking involves the activity of ponderment and perplexity. Reasoning is bent on measuring, thinking is a quest for meaning. The impulse behind reasoning is "how-much?" and "does it follow?" the impulse behind thinking is "why?" and "what is the significance?" Reasoning counts: thinking contemplates (p. 222).

This conceptual differentiation substantiates the point that is being argued in this section. It provides a clear line of demarcation between the two concepts and thereby brings the argument into a sharper focus. From the standpoint summarized above, it can hardly be said that the conventional model of educational practice has a real commitment to students' thinking. That's not to say, though, that the teacher, purposely, refuses to acknowledge the legitimacy of the students' voice. It is rather the overall practice in which she is engaged that inhibits the natural flow of thinking. After all, as stated earlier, both the teacher and the student are pawns in a game the rules of which they have no effective control over.

Be it as it may, thinking, in the full meaning of the word, is to a large extent, non-existent in the traditional classroom environment. If all the student has to do is master the prescribed algorithms and apply them in an effective way, thinking cannot be said to be occurring necessarily. For, communicational interaction which is an instance of genuine thinking plays no part in the process. The student, somehow, ends

up realizing that she must remain ensconced in her own point of view or frame of reference while ingesting bits of fragmented data that have not been through any process of settlement or negotiation. When she is allowed to examine particular bits of information, all she can really engage in, as cognitive inquiry, is a logical assessment if, in fact, she possesses the rudiments of logical analysis at all. She cannot invest her whole self in it because she is not supposed to modify the "given," which is usually what thinking does.

CHAPTER 3

PAUL'S CRITICISM AND ALTERNATIVE MODEL

Paul's Criticism

The deficiencies and detrimental impact associated with this transmission model of academic instruction are laid bare in Richard Paul's critical assessment of the situation. In his Critical Thinking (1990) Paul presents the transmission model of instruction as a crippling authoritarianism whereby the learner is trained to behave in mindless conformity with established norms. He explains the debilitating impact of the model in terms of the intellectual passivity and indifference it fosters through the "inculcation" of knowledge. In Paul's view the uncritical reception of pre-digested thoughts is inimical to learning. It is so, in the sense that it stunts the learner's reflective capacity and inquiring spirit. As a result, she becomes intellectually dependent, subservient to authority, and unable to critically interrogate and thwart oppressive social relations. Here is how he puts it:

Our present process of raising children and teaching them has, in my judgment, this unhappy effect. Children come to adulthood today as intellectual, emotional, and moral cripples. They are not whole or free persons... they may have learned to effect an adult veneer, how to put on socially accepted masks; at root, however, infantile, egocentric identification and commitments rule them. They do not know how to conduct a serious discussion of their own most fundamental beliefs... they have learned to avoid "understanding" (p. 98).

Paul is addressing here a very serious issue. He is referring to an educational practice which promotes submissiveness, narrow-mindedness, and emotional insecurity, rather than creating the environment that is truly conducive to self-directed learning,

intellectual development and emotional maturity. The inference to be drawn under the circumstance is simply that the current educational institution fails to carry out its most fundamental task, since it is creating the very problem that it is supposedly designed to solve.

A faulty conception of knowledge and learning is what Paul believes to lie at the root of the problem. He points to the disembodied view of knowledge involved in current pedagogical practice as a key factor. The detachment of knowledge from the thinking that generates it, he argues, not only strips it of its very essence, but also breeds an exclusionary mode of thinking which he terms monological thinking. By that he means the convergent mode of thinking which requires one true answer to a question, one possible solution to a problem, and that takes place in one frame of reference. As Paul contends, it is that approach to knowledge and thinking that leads some people into believing that knowledge is a determinate object that can mechanically be transmitted from one individual to another, and that learning simply consists in ingesting that knowledge. That, in his view, constitutes the shaping force of didactic instruction, as he is wont to call it.

An educational process that is truly emancipatory is, from Paul's perspective, one that enables the student to transcend the natural inclination toward monological thinking. Monological thinking, he asserts, perpetuates mental states that are rationally ill-grounded and therefore antithetical to the advancement of knowledge and learning.

People typically presuppose their points of view to be the truth. This uncritical closed-mindedness perpetuates prejudices. Individuals are not inclined to examine and question their own biases, unless they develop critical insights into them. Neither are they inclined to consider whether

another's point of view is more accurate or insightful than their own. We must help students discover that no single point of view contains all the truth, that no single perspective is without limitations and weaknesses... It is our responsibilities as teachers to design activities and assignments that directly facilitate this end (Paul, p. 267-268).

It is important to emphasize here that Paul's understanding of effective thinking is situated in a broader perspective than the mere overcoming of egocentric tendency. It includes a determined intellectual effort on the part of the thinker to transcend academic and cultural boundaries as well. As far as his analysis is concerned, self-contained academic disciplines foster prejudice by interpreting reality within their particular frames of reference. He points out that "to the extent that a human problem is rendered technical, it is reduced to a relatively narrow system of exclusionary ideas. Specialized disciplines develop by generating ever more specialized subdisciplines abstracting further and further, from the "wholeness" of things" (Paul, p. 94). The same is true, he argues, of culturally specific interpretations of reality. They emanate from a set of experiences that are limited by particular socio-historical, political and geographical contexts and are therefore inherently biased. So, an essential task of education is to enable student to reconstitute the fragmented "whole" through multidisciplinary and multicultural thinking. In the conceptual framework laid out by Paul, this mode of thinking is supposedly a non-algorithmic, non-procedural one. It is a macro-integrative process of cognition based on a multi-perspectival approach to reality. In his critical thinking model that we are about to scrutinize, he refers to it as multilogical thinking.

Paul's Alternative Model

Knowing as constructing

A conceptual shift from knowing as discovering to knowing as constructing is posited in Paul's critical thinking model as a necessary condition for the restructuring of the educational process. The shift, as explained in the model, must not be interpreted as an arbitrary choice but rather as a responsible cognitive act meeting the imperative of the knowing process as it unfolds in actuality. It draws attention to the fact that knowledge, contrary to what it is made out to be in the standard paradigm of educational practice, is the outcome of collaborative intellectual effort, not something that antecedes human inquiry.

Paul illustrates his cognitive position in the following statement:

The world is not given to us sliced up into logical categories, and there is not one, but an indefinite number of ways to "divide" it, that is, experience, perceive, or think about the world, and no "detached" point of view from the supreme perspective of which we can decide on the appropriate taxonomy for the multiple realities of our lives. Conceptual schemes create logical domains and, it is human thought, not nature that creates them (p. 417).

As the product of human thinking, conceptual schemes are conditioned by the perceptual fields from which they emanate and the state of knowledge by which perception is shaped. So knowledge belongs in the category of those conceptual structures which must undergo constant revision and correction as new possibilities arise and the field of human perception widens. When applied to educational theory and practice, knowledge, thus construed, is to be approached not as a finished product

available for consumption, but as propositions or a set of data to be problematized. In Paul's theoretical scheme, this set of data retains the status of knowledge only for those who have participated in its creation. To the student, it is but a springboard for the critical learning process. It simply serves as a basis on which the student learns how to learn or how to construct knowledge. Simply put

knowledge is not to be confused with beliefs nor with those things, like printed texts or spoken lectures which represent knowledge... A book contains knowledge only in a derivative sense, only because minds can analytically and thoughtfully read it, and only through that active critical process, and only thus, gain knowledge (Paul, p. xi).

If the factual information presented to students is to stimulate thinking and not to be uncritically absorbed, then a learning environment radically different from the transmission model is necessary, according to Paul. The pedagogical process must be structured in a dialogical context wherein differing and conflicting points of view get to be articulated and explored in an interactive manner.

Dialogue as the Methodological Setting for Real Learning and Knowing

The social nature and provisional status of knowledge make dialogue the appropriate setting for its acquisition, justification, and revision in Paul's conceptual framework. In the dialogical context, the teacher is no longer the transmitter of knowledge and the student, the receptacle. By means of the materials at hand and her teaching strategies, the teacher sets the stage for the learning/knowing process to unfold. She is a facilitator. The point here is that students become actively engaged

in their own learning because the dialogical process of inquiry brings their thinking into play. That is the context for authentic learning, as far as Paul's model indicates. Here is how Paul conceives it "In general, students learn best in dialogical situations, in circumstances in which they must continually express their views to others and try to fit others' views into their own" (Paul, p. 246). In the same line of thought, he claims that "only when students have a rich diet of dialogical and dialectical thought, do they become prepared for the messy, multidimensional real world, where opposition, conflict, critique are everywhere. Only through a rigorous exposure to dialogical and dialectical thinking, do students develop intellectually fit minds" (Paul, p. 248). The dialectical component here is to be understood as the mode of thinking that is required when it comes to testing the strengths and weaknesses of opposing points of view. It is disciplined thinking that calls for the application of the standards of reasoning and the tools of logical analysis. It involves identifying assumptions, assessing evidence, tracing implications and the like.

On Paul's view the significance of dialogical inquiry lies in its generative power and its capability to help overcome egocentric and sociocentric thinking. Dialogue, he points out, has the potential to generate much more learning than conceived in the teacher's lesson plan. When different points of view are expressed, dimensions of particular issues that were hitherto unseen come to light. As a consequence, the process comes to assume a multidirectional character since each point of view is valued and integrated in the whole. The cognitive import of such a dynamic interaction is that students become aware of the complexity and

multidimensionality of issues, the limitations of their individual points of view and therefore the importance of a multiperspectival approach to reality or issues. Such awareness, it must be noted, plays a central role in Paul's dialogical setting. It is the basis on which intellectual efforts can be made by committed individuals to transcend their egocentric and sociocentric thinking. He formulates his point in the following terms:

Children must experience dialogical thinking because such thinking is essential for rationally approaching the most significant and pervasive everyday human problems, and without it they will not develop the intellectual tools essential for confronting their own instinctual egocentric thought (Paul, p. 214).

He goes on to argue that

If egocentricity and sociocentricity [by egocentricity and sociocentricity Paul means respectively the tendency to view everything exclusively in relationship to oneself and one's own social group] are the disease, self-awareness is the cure... the solution then is to reflect on our reasoning and behavior: to make our assumptions explicit and critique them...; to listen carefully and open mindedly to those with whom we disagree... therefore the development of students awareness of their egocentric and socio-centric patterns of thought is a crucial part of education in critical thinking (Paul, p. 310).

Strong Sense Critical Thinking

Paul bases his critical thinking model on the assumption that the human mind exhibits that innate tendency to think in a non-reflective and non-rational manner. In other words, metacognitive thinking develops as a targeted end within the context of a

formal educational process: it is not a proclivity of the human mind. He puts it this way:

It is certainly of the nature of the human mind to think - spontaneously, continuously, and pervasively - but it is not of the nature of the human mind to think critically about the standards and principles guiding its spontaneous thought. It has no built-in drive to question its innate tendency to believe what it wants to believe... the human mind spontaneously experiences itself as in tune with reality... It takes a special intervening process to produce the kind of self-criticalness that enables the mind to effectively and constructively question its own creations (Paul, p. 30).

What then is Paul's conceptualization of that intervening process to which he refers as critical thinking?

Critical thinking is disciplined, self-directed thinking which exemplifies the perfections appropriate to a particular mode or domain of thinking. It comes in two forms. If the thinking is disciplined to serve the interests of a particular individual or group, to the exclusion of other relevant persons or groups, I call it sophistic or weak sense critical thinking. If the thinking is disciplined to take into account the interests of diverse persons or groups, I call it fair-minded or strong sense critical thinking (Paul, p. 33).

Paul's concept of critical thinking is used in contradistinction with two other types of thinking: uncritical thinking and the sophistic critical thinking mentioned above. Uncritical thinking is thinking that ignores rational, logical and epistemological demands in favor of its egocentric interests. Sophistic critical thinking, on the other hand, is thinking that meets intellectual standards but that is used in a self-serving way. Strong sense critical thinking, as featured in the model proposed by Paul, includes the following: the perfections of thought, the elements of thought, and the domain of thoughts. The category of perfections of thoughts refers to the skillful

applications of intellectual standards in the assessment and settlement of issues.

Below is a list of those standards on which the contrasting characteristics are included:

clarity	vs	unclarity
precision	vs	imprecision
specificity	vs	vagueness
accuracy	vs	inaccuracy
relevance	vs	irrelevance
consistency	vs	inconsistency
logicalness	vs	illogicalness
depth	vs	superficiality
completeness	vs	incompleteness
significance	vs	triviality
fairness	vs	bias or one-sidedness
adequacy	vs	inadequacy

While the use of those canons has a great importance in the critical thinking process, it is nevertheless insufficient. It must be joined and strengthened by the ability to bring the following elements of thought into play.

- 1) The problem or question at issue.
- 2) The purpose and goal of the thinking.
- 3) The frame of reference and points of view involved.
- 4) Assumptions made.

- 5) Central concepts and ideas involved.
- 6) Principles and theories used.
- 7) Evidence, data, or reasons advanced.
- 8) Interpretations and claims made.
- 9) Inferences, reasoning and lines of formulated thought
- 10) Implications and consequences involved.

The command of these elements of thought, in turn, has a great deal to do with the thinker's ability to relate her thinking to particular domains of thoughts or different conceptual frameworks. This ability, Paul emphasizes, is a sine qua non for the achievement of the perfections of thought. However, Paul believes that strong sense critical thinking involves much more than the cognitive dimensions delineated above. He argues that "good thinking", as he often refers to effective thinking, exhibits conformity to very specific intellectual virtues. He lists seven of them, under the heading of traits of mind.

- a. Intellectual humility: Awareness of the limits of one's own knowledge, including sensitivity to circumstances in which one's egocentrism is likely to function self-deceptively; sensitivity to bias and prejudice, and limitations of one's view point.
- b. Intellectual courage: The willingness to face and assess fairly ideas, beliefs, or viewpoints to which we have not given a serious hearing, regardless of our strong negative reactions to them.
- c. Intellectual empathy: Recognizing the need to imaginatively put oneself in the place of others to genuinely understand them.
- d. Intellectual Integrity: Recognition of the need to be true to one's own thinking, to be consistent in the intellectual standard one applies, to hold one's self to the same rigorous standards of evidence and proof to which one holds one's antagonists.

- e. Intellectual perseverance: Willingness to pursue intellectual insights and truths despite difficulties, obstacles, and frustrations.
- f. Faith in Reason: Confidence that in the long run one's own higher interests and those of human kind at large will be served best by giving the freest play to reason...
- g. Intellectual Sense of Justice: Willingness to entertain all viewpoints sympathetically and to assess them with the same intellectual standards, without reference to one's own feelings or vested interests...

So, from Paul's theoretical standpoint, it is the systematic integration of the cognitive dimensions and these traits of mind in the process of thinking that exemplifies genuine critical thinking. Otherwise, it is but an incomplete, defective, or disembodied mental operation. As Paul clearly states it "the mere conscious will to do good does not remove the prejudices which shape our perceptions or eliminate the on-going drive to form them. To minimize our egocentric drives we must develop critical thinking skills in a special direction. We need, not only intellectual skills, but intellectual character as well." (Paul, p. 55).

From the above, then, it follows that critical thinking is a complex mode of thinking that is metacognitive, recursive, self-correcting and ethical. It is metacognitive by virtue of the fact that it reflects on its own assumptions, implications and consequences; it is recursive in the sense that it is self-generating in its constant turn upon itself and; it is self-correcting because it judges its strengths and weaknesses in relation to other perspectives and finally; it is ethical because of the intellectual virtues it integrates.

Critical Thinking as a Rational Quest for Knowledge and Truth

Paul construes strong sense critical thinking not only on the basis of the intellectual virtues embedded in it, but also in terms of its epistemological import and its logical potency. Genuine knowledge and objective truth are pointed as central concerns of his critical thinking model. To substantiate the point, it is important to take a closer look at the theoretical scheme he proposes and draw a line of demarcation between the two different but intimately related dimensions of which it consists.

Paul's Strong Sense Critical Thinking, it must be remembered, exhibits the intermingling of two kinds of intellectual process: the one that concerns itself with effectiveness in the application of rational standards and which he categorizes as intellectual ability, and the other that brings into play a certain number of intellectual virtues and to which he refers as intellectual character. Intellectual ability is that category within which fall the perfections, the elements and the domains of thought mentioned earlier. Paul's reference to these structural components of critical thinking is made strictly in epistemological and logical terms. In his quest for the cultivation of rational passions, he specifies that

A passionate drive for clarity, accuracy, and fair mindedness, a fervor for getting to the bottom of things, to the deepest roots of issues, for listening sympathetically to opposition points of view, a compelling drive to seek out evidence, an intensive aversion to contradiction,... inconsistent application of standards, a devotion to truth as against self-interest - these are the essential commitments of the rational person (Paul, p. 218).

Paul stresses the significance of these commitments by pointing out that "virtually all the progress made in science and human knowledge testifies to this power [the power of reason], and so the reasonability of having confidence in reason..." (Paul, p. 319). By definition, clarity, accuracy, consistency, and relevance are but logical categories. They are criteria employed in the assessment of arguments. The achievement of valid, reliable or genuine knowledge is usually the ultimate goal of the mode of inquiry exhibiting rigor in its employment of rational procedures. In his emphasis on what he means by the rational thinker, he explains that "by it [rational] we do not simply mean a general skill in the use of reason to serve our interests... [We] have in mind those who in some sense are committed to fair-mindedness, who have made a moral commitment to developing reason in the service of truth..." (Paul, p. 133). Paul's insistence upon the significance of the generative power of dialogical inquiry serves as an evidential warrant for this quest for knowledge and truth. As explained earlier, the dialogical process requires that participants "step out" of their frames of references and enter points of view that differ and/or conflict with their own. The point of that, of course, is far from being an exercise in role-playing for its own sake. The crisscrossing of frames of reference fulfills a very important epistemological purpose. It is a validating process: it helps to ascertain the cognitive accountability of perspectives. It does so by allowing participants to become aware of dimensions of a particular issue that were previously unseen. In other words, this integrative process of learning which Paul terms multilogical thinking supposedly produces less distorted, more reliable "truths" and knowledge than the ones achieved in the monological

framework. In Paul's conceptual framework, they are genuine knowledge and truths because the participants have actively engaged in their construction.

Paul's Theoretical Contributions to Critical Thinking

The strong-sense approach to critical thinking constitutes a very important contribution to the theoretical development of the field. Until the work of Richard Paul, the main concerns of critical thinking theorizing were skills acquisition and competencies development. A cursory glance at the relevant literature reveals that none of the other leading critical thinking theorists ever thought of integrating an ethical perspective in their theoretical accounts. They construed critical thinking almost exclusively in logical terms. When they translated it into a pedagogical praxis, the focus was on the implementation of methodological strategies that would help enhance cognitive flexibility and intellectual ability. Kerry S. Walters observes that

Most orthodox theoretical accounts of critical thinking argue that the ultimate function of good thinking (and by implication, the primary goal of thinking skills instruction) is to distinguish between justified and unjustified claims or beliefs. This is done by applying the rules and techniques of formal and informal logic to propositional expressions in order to determine if their statements are true and their arguments valid or sound (Walters, p. 6-7).

Such well-known theorists as Harvey Siegel and Robert H. Ennis are leading proponents of this logicist conception of critical thinking. Their reductionist approach has been the object of intense critical debates (Walters, 1994).

Paul's strong-sense critical thinking is a reconceptualization of the field that attempts to problematize the logicist perspective and lay bare the empty formalism and the strong objectivism associated with it. Its insistence on the necessity for a multilogical approach to issues has far-reaching implications. It decenters the linear and analytical view of inquiry and privileges a multiperspectival and integrative one. This can be explained on the ground that both analysis and synthesis are joined together in an interactive process that creates a dynamic equilibrium as a particular issue is explored from different standpoints. What results from the interaction is a recursive pattern, not a linear one. This recursive pattern, it must be noted, serves to justify Paul's view according to which genuine thinking is metacognitive and self-correcting. Obviously, with the assumption that self-reflection is an iterative process that follows a circular path, the linear conception becomes untenable.

The implication of this cognitive position is that critical thinking is a constructive as well as a self-deconstructive mental activity. Through the dynamic interaction of differing viewpoints, the limitations of a single perspective get revealed and the relational character of thought asserts itself. This awareness, in turn, brings into play a host of cognitive operations which include the reversal, displacement and restructuring of a particular thought orientation. Another important outcome of Paul's model is related to the concept of understanding. If in the conventional model of inquiry understanding is the apprehension of objective reality, in Paul's theoretical scheme, it takes on a radically different meaning. Paul does not construe understanding as something that is achieved as the result of what Peter Eibow

derogatorily calls a "distancing technique." It is rather an interpretation that emerges from the interplay of intersubjective acts, or to use Gadamer's metaphor, from a "fusion of horizons." In other words, understanding is seen as an hermeneutic act that comes out of empathic sensitivity.

From the above it follows that Paul's model concerns itself with more than just the enhancement of intellectual ability. As Paul emphatically points out, intellectual ability does not necessarily imply intellectual virtue; cognitive ability alone can be easily used in a self-serving way. This is where the traits of mind championed by Paul comes into play. The critical thinker in the strong sense is not simply someone who can marshal an argument, identify assumptions and use evidence in an effective way; she has moral responsibilities as well. Beside the application of intellectual tools, moral considerations play an important role in her critical judgments and actions. That is what Paul means by strong sense critical thinking and also what places the model in sharp contrast with the conventional conceptions. This model represents a radical departure from other accounts of critical thinking because it calls for the integration of a dimension which was far removed from the concerns of schools' curricula. It is fair to say that Paul turns critical thinking into a humane intellectual process as opposed to the more aggressive one implied in the models that emphasized the enhancement of intellectual skills and competencies to the detriment of intellectual virtues. As a morally responsible citizen, Paul's critical thinker recognizes that efficiency is not the sole determinant of the choice she has to make. A deep moral

commitment to the well-being of others must also be an important part of her decision-making.

The Limitations of Paul's Strong-Sense Critical Thinking

Despite its illuminating insights, Paul's construal of critical thinking is marked by some serious limitations. One of its main weaknesses is that it exemplifies the very didactic approach that it sets out to displace. A critical examination of Paul's theoretical model reveals that much of what seems to represent a departure from conventional critical thinking theorizing constitutes, indeed, a set of unsubstantiated claims which resonate more like fragments of a rhetorical discourse than statements enunciating an adequately worked out theoretical construct. To be sure, Paul assigns very precise meaning to his terms, but that alone proves inadequate as far as a theoretical work is concerned. The elucidation of the foundational concepts within the context of their relational structure, is to a large extent, lacking in his model. It is not quite clear how Paul relates his dialogical world view to his conception of dialectical, and multilogical thinking. What is the importance of dialectical thinking in a multilogical context? What is the relationship between multilogical thinking and dialogical thinking? How does Paul reconcile the cognitive or epistemological closure involved in dialectical thinking with the open-ended process of dialogue or with his constructivist epistemology? And finally, how much latitude does the passion for accuracy, consistency, and precision championed by Paul leave for the thinker's

creative imagination? Those are important issues which Paul's account of critical thinking fails to address. One is inclined to think that this failure stems, to a large extent, from Paul's deep involvement in his didactic mode of presentation.

Another limitation characterizing Paul's model has to do with the underpinning epistemological assumption. Paul posits a constructivist view of knowing without delineating the epistemological principles thereof. His way of handling the issue gives the impression that constructivism refers to just one single cognitive position. He makes clear, in many of the repetitious passages of his books that knowledge is construction without, however, specifying the particular brand of constructivism to which he adheres. His statements in some parts of his work imply that he subscribes to radical constructivism. For instance in his criticism of the theory of knowledge underlying conventional pedagogy he states that "each learner creates knowledge" (Paul, 24). In other areas, however, he seems to shift his epistemological orientation to social constructivism. The following is an illustrative example.

We must remember that knowledge, however extensive, is a highly limited social construction out of an infinitude of possible such constructions. Although all humans live in a veritable sea of potentially expressible truths, they express only a few of them, only a few become knowledge (Paul, 29).

The problem here is that radical constructivism and social constructivism are based on very different premises regarding the construction of knowledge. One holds that each individual constructs her own knowledge (radical constructivism), the other maintains that knowledge is a social construction (social constructivism). In addition, people's cognitive structures are construed differently by different versions of constructivism.

For instance, while the Chomskyan version interprets cognitive structures as innate, the Piagetian one presents them as products of developmental construction. The essential point here is that while Piaget and Chomsky are both constructivists, they hold, however, radically different epistemological assumptions. One must bear in mind also that the positions have their respective pedagogical implications, and that attempts to integrate both in a given theoretical perspective or educational theory would require careful analytical consideration. The gist of the argument here is that the mere reference to knowledge as construction is not ipso facto an adequate specification of an epistemological orientation. It is also necessary to provide a detailed account of the orientation in question and establish the logical ground thereof.

A third problem associated with Paul's model includes an overemphasis on rationality and an uncritical use of the concept of rationality itself. The overemphasis on rationality reveals a lingering commitment to the logicist and objectivist approach to thinking which leads the model to vitiate its own possibilities. Paul construes knowing, critical thinking or critical dialogue as open-ended processes. This conception is in fine tune with his constructivist epistemology. However, he urges the genuine critical thinker to have truth as her priority. How could one have truth as priority in an inquiry without being committed to some form of objectivism? Besides, objectivism entails logicism: the objectivist world view has logical thinking as its attendant mode of inquiry, which is, in no way identical to critical thinking. At issue here, is the fact that Paul posits a constructivist epistemology as the underpinning philosophy of his critical thinking model, and at the same time, develops an argument

which not only contradicts his philosophical assumptions but also thwarts the potentiality of his model. The fact here is not that the cognitive value of rational thought is being denied. We are emphasizing that passion for rationality is fueled by a belief in objective truth and objective knowledge. Usually thinkers who subscribe to such a belief favor analytical thinking as their mode of inquiry. Analytical thinking may be needed in some instances, but it cannot prevail in the context of critical dialogue which is supposed to be an open-ended process. Analytical thinking is teleological, exclusionary, and reductionist by nature. Cognitive closure is where it leads to. Walters argues that "logicism's tendency to totalization encourages a thinking style that can give rise to unreasonably aggressive or adversarial spirit" (p. 11). If that is true, then Paul's overall argument is self-contradictory; it implicitly advocates a mode of thinking which invalidates his notions of fair-mindedness, and empathic sensitivity.

Paul's conception of critical thinking remains firmly entrenched in the logicist tradition. The passion for rationality and the rigorous application of algorithmic procedures it advocates are not necessary characteristics of critical thinking. Some particular pieces of work may be highly regarded or praised for the ingenuity and fine artistry they exhibit but still remain utterly challenging due to their ambiguous character. Usually, it is the ambiguity involved in the thought process they incorporate that makes them attractive and long-lasting. In Philosophy of Education (1995), Nell Noddings makes the following remark regarding Paul's conceptualization of critical thinking. It is worth quoting at length:

Paul contrasts the product of critical thinking to faulty thinking in a list of dichotomies: clear versus unclear, precise versus imprecise, specific versus vague, accurate versus inaccurate... fair versus biased. As critics have pointed out, however, no one of these is necessarily an attribute of critical thinking. A product may be accurate, for example, and still be the product of rote learning. On the other side, a powerful example of critical thinking (so judged by experts) may contain inaccuracies: Further, not all critical thinking is characterized by precision, specificity, or even plausibility. And judgements such as relevance and significance might depend more on the field of application than on the reasoning itself (Noddings, p. 86).

In addition, empirical evidence proves Paul's championing of his conception of rationality totally unjustified. Paul's uncritical acceptance of the Enlightenment's intellectual investment in rationality seems to ignore the undesirable outcomes. If the Enlightenment has achieved anything significant it is definitely not its conception and application of rationality. It is hard to imagine how such a rationally prone civilization like the West could have been the one to author the two 20th century world wars, the Holocaust in Germany and the bombing of Hiroshima and Nagasaki. It is extremely difficult to understand why the rational men of the west do not see it irrational to spend billions on deadly weapons and to engage in productive activities that threaten the ecosystem of which they are part. If rationality is relevant to critical thinking (we are still convinced that it is), it has to be reconceptualized or construed in terms that go beyond Paul's traditional usage.

The overriding importance Paul attaches to rationality may well be the reason why he omits creative thinking in his critical thinking theorizing. For many critical theorists tend to view creative and critical thinking as two opposite mental processes and dismiss the former as irrational. While it would be unfair to situate Paul in that

category of theorists -- because he claims not to be therein -- it is still important to point out that creative thinking represents only a very small parenthetical remark in his whole theoretical scheme. Only two paragraphs on pages 219-220 are devoted to creative thinking. The bulk of the work consists mainly of a set of detailed statements without much justification.

The omission of creative thinking makes his strong-sense critical thinking an incomplete theoretical model. For creative and critical thinking are two different aspects of the same reality. It is impossible for a critical thinker not to be creative at the same time. The creative mind is always at play whenever the critical thinker is marshalling evidence, and identifying assumptions to evaluate statements. One of the two may prevail in some context or for some purpose, but they always evolve in a dynamic and intimate interrelationship. As Matthew Lipman puts it "We must accept the fact that there is no such thing as pure critical thinking or pure creative thinking. There is just thinking, and higher order thinking is the order that blends the critical and the creative." (Lipman, 1992, p. 154). In a similar vein, Delores Gallo in Educating for Empathy, Reason and Imagination (1994) contends that "the common polarizing differentiation made between critical thinking and creative thinking is deceptive, since it often leads one to see creative thinking as the discrete opposite of rational thought. It minimizes the contribution of necessary evaluative convergent, critical processes to effective creative production and similarly obscures the import of the speculative, divergent, imaginative processes to effective critical thought" (Gallo, p. 47). This is the wealth of analytical insight that Paul's model lacks by excluding

creative thinking from the theorizing process. After all, the passion for rationality, accuracy, and precision, as Paul advocates, may have an inhibiting effect on creativity. A balance between rational rigor and creative imagination is necessary. This necessity can be recognized, however, if analytical attention is given to both. That is what Paul's model fails to take into account.

CHAPTER 4

EPISTEMOLOGICAL BASIS OF AUTHENTIC CRITICAL THINKING

The theoretical perspective that is being presented in this chapter starts with the assumption that a critical thinking theorizing that truly commits itself to open-mindedness must be based on an open epistemological discourse. By open epistemological discourse is meant a view of cognition that dispenses with objectivist mind-sets and posits knowledge, reality and rationality as discursive conventions. One can quickly notice that this view of cognition is also a version of constructivist epistemology. It differs, however, from mainstream constructivism in the sense that it attempts to deconstruct and supplant the old dichotomies thought/reality, internal/external, creative thinking/critical thinking, subject/object characterizing modernist philosophical theories. In other words, it seeks to effect a reversal of the old epistemological problematic by integrating the insights of the post-modern theory of cognition.

Knowledge, reality and rationality are discursive conventions because they acquire meaning and can be apprehended only within particular discursive formations. It is impossible to imagine their existence outside any discursive field. Discourse creates the objects that it talks about, be it the knowledge and meaning that it articulates or the regulatory principles that are used to inquire into them. They are all discursive entities, and therefore have no transcendental existence. Ernesto Laclau and

Chantal Mouffe, in Hegemony and Socialist Strategy (1994) subscribe to a similar position:

Our analysis rejects the distinction between discursive and non-discursive practices. It affirms: a) that every object is constituted as an object of discourse, in so far as no object is given outside every discursive condition of emergence b) that any distinction between what are usually called the linguistic and behavioral aspects of social practice, is either an incorrect distinction or ought to find its place as a differentiation within the social production of meaning, which is structured under the form of discursive totalities (p. 107).

What is being stated here is not that discourse creates the physico-chemical phenomena that occur in the world but rather that it makes statements about the observation and experience of those phenomena. The statements usually undergo revision, modification and change depending on what further observation and experience yield or reveal. They are temporary judgments which constitute our knowledge, our truth, and our reality. Laclau's and Mouffe's clarification is crucial here:

The fact that every object is constituted as an object of discourse has nothing to do with whether there is a world external to thought, or with the realism/idealism opposition. An earthquake or the falling of a brick is an event that certainly exists, in the sense that it occurs here and now, independently of my will. But whether their specificity as objects is constructed in terms of natural phenomena or 'expression of the wrath of God', depends upon the structuring of a discursive field. What is denied is not that such objects exist externally to thought, but the rather different assertions that they could constitute themselves as objects outside any discursive condition of emergence (Laclau and Mouffe, p. 108).

The tendency to construe knowledge as representation of reality stems from a misunderstanding of our discursive practices and their relationship to the phenomenal world of human experience. It helps perpetuate a false dichotomy between a world

standing outside of our inquiry practice and a discourse that mirrors that world. The problem with that dichotomy is that it tends to give rise to a number of irreconcilable theoretical schemes constituting themselves as theoretical enclaves or self-enclosed worlds with very rigid or impenetrable boundaries. That the dichotomy is false can be explained on the ground that both knowledge and reality are theoretical constructs or conceptual entities created through our communicational interactions. At first, that may sound absurd or even offensive to scholars with a strong realist persuasion, but a careful reflection will reveal that when we refer to either knowledge or reality we are dealing with a conceptual structure. If we admit that there exist no transdiscursive concepts or structures, and that concepts or structures are what we use to impose meaning on our observation and experiences, then light will shine through. To clarify our epistemological conviction further and to demarcate it from mainstream constructivism, it is important to report a passage that Walter Truett Anderson has quoted from a book:

Heinz von Foerster says: "Out there there is no light and no color, there are only electromagnetic waves; 'out there' there is no sound and no music, there are only periodic variations of the air pressure; out there there is no heat and no cold, there are only moving molecules with more or less mean kinetic energy, and so on.

von Foerster thus crisply states the constructivist point that the meaning of the things we experience is created out of the raw materials from "out there. But, others inquire, don't we also create the raw material? Aren't electro-magnetic waves, air pressure, kinetic energy also constructs? And since we are admitting that anything we say about "out there" is a construct, don't we create out there?... (Anderson, p. 76).

Anderson's report constitutes a clear summary of the conception of knowledge that is being defended in this paper. It shows, very succinctly, how the post-modern view of

knowledge, the one to which we subscribe here, collapses the boundary between the "internal" and "external" worlds.

The same argument holds when it comes to dealing with rationality. We tend to think of rationality as though it is a "given". With this tendency, we create a world of illusion in which rationality becomes the transcendental judge of our knowledge claims and actions. In this world, reason and only reason gets to pronounce the last verdict because, it is supposedly neutral or impartial. This belief in the absolute authority of reason leads many scholars to dismiss any critique of reason as a barbaric enterprise. In Educating Reason: Rationality, Critical Thinking and Education (1988), Harvey Siegel criticizes such deconstructionists as Henry A. Giroux and Derrida for advocating a model of rationality that is incompatible with the ideal of critical thinking. A critical reading of their works reveals, however, that what they in fact do, is not disparage reason altogether, but rather dethrone it from its conventional ontological status and reintegrate it into the discursive matrix whence it emanates.

From the constructivist perspective advanced in this paper, our standards of rationality are also situated in discourse. We find no algorithms, no methods of procedures, no accuracy, no consistency in nature. By means of discourse or through our dialogical interactions, we create these devices that we use to assess and evaluate our knowledge claims. To project them as a "neutral matrix" or an "Archimedean point" on which we stand to support or refute our hypothetical statements is to indulge in wishful thinking, for those standards are also subject to reevaluation and revision. We can only use standards of rationality to evaluate standards of rationality. We have

no alternative to the circular or recursive process of knowing how we know. In The Tree of Knowledge (1987), Maturana's and Varela's opinion is that "Maybe one of the reasons why we avoid tapping the roots of our knowledge is that it gives a slightly dizzy sensation to the circularity involved in using the instrument of analysis to analyze the instrument of analysis. It is like asking an eye to see itself." (Maturana and Varela p. 24).

From the foregoing it follows that the model of rationality defended in this study turns the traditional quest for epistemic certainty into a futile intellectual preoccupation. In fact, the issue of certainty versus uncertainty is devoid of any epistemic import within the theoretical perspective we are trying to articulate here. It stems from a foundationalist epistemology which the present study dismisses as inimical to the conception of inquiry as an open-ended process. The search for certainty is predicated on the belief in ultimate essence and foundation. As such, it points the way toward the elimination of inquiry. In a conceptual scheme wherein knowledge is construed as a structural dynamics and reality as a process, the goal of inquiry is hardly the attainment of certainty, for there are no determinate objects or entities to be apprehended. Even the notion of an approximation to such objects turns out to be a vacuous one. The notion of approximation applies insofar as entities or objects are extra-discursive and have definite configurations. But in a context wherein whatever is grasped can only be defined in discursive terms, the notion comes to lose its meaning. The history of science is punctuated with examples defying such a notion. It was once believed that atom was the smallest indivisible particle of matter.

That belief remained somewhat unquestionable for quite some time until later discoveries came to prove it unwarranted. What seems to be the case here is that entities are products of conceptual categorization and therefore are not preontologically given; they have no meaning outside the structure of discourse; they are cognitive constructions. The same argument can be used to challenge the notion of uncertainty that is so prominent in current critical theories. To be uncertain about the validity of a particular theoretical scheme or knowledge-claim is to believe in an underlying substrate with which the theoretical scheme or knowledge-claim in question has an independent relation. In other words, it is to believe in a foundation or essence of reality. For, epistemological skepticism is an offspring of philosophical foundationalism and essentialism. In Embracing Contraries (1986), Peter Elbow argues that

Epistemologically, doubting reflects the trial-by-fire foundation of knowledge whereby we feel no position should be accepted until it has withstood the battering of our best skeptics. Believing reflects the consensus foundation of knowledge whereby we feel that no position should be accepted until a respected group of authority positively endorses it through participation in it (Peter Elbow, p. 266).

So, both certainty and uncertainty fundamentally reflect the same foundationalist conception of knowledge: they simply differ in the methodological approaches to which they give rise. From this vantage point, the quest for coherence would seem to be more consistent with epistemic openness than that of uncertainty or the skeptical attitude toward knowledge-claims.

Toward an Integrated Model of Critical Thinking

The construal of knowledge and reality as relational structures constituted by discourse gives rise to a way of thinking the focus of which is on relations as opposed to objects. This way of thinking displaces the traditional practice of breaking down configurations into independently observable components and explains things rather through their interrelation or in terms of their context. Since it explores patterns or structures in their interconnectedness, it is irreducible to analytical thinking, for analytical thinking deals with static configurations. Analysis is essentially a fragmentating process which arrests the dynamic flow of events by isolating them from their meaningful contexts. Thinking in terms of relations is contextual thinking; it is often referred to as "systemic" or holistic thinking. Its focus is on the integrated "whole". The emphasis on the "whole" does not mean however, that analytical thinking is totally eclipsed. Analysis still remains an integral part of the process; but it simply plays a complementary role. The overall process, is still integrative, and therefore non-reductionist.

The integrative approach puts forth here deals with creative and critical thinking as two mutually interdependent dimensions of the same complex cognitive process. It argues that there is no effective thinking that is not simultaneously creative and critical. The reference to a particular piece of thinking as either creative or critical has to do with what the underlying process emphasizes and/or the vantage point from which it is looked at. Marx's Capital can be viewed either as a piece of creative or

critical work depending on the purpose for which it is used. If the emphasis is on how his theoretical perspective came about, then it will be seen as a highly creative piece of work. If, on the other hand, the work is being looked at from the standpoint of the methodological rigor embedded in it, then it will be viewed as a highly critical piece of work. The point here is that any piece of creative work the mind brings forth involves some sort of critical awareness. There are some rational choices made in the creative process that brings it about. That is what makes it significant in the first place. The same argument holds for a critical work. Part of its success is due to the critic's use of his imagination in tracing implications, marshalling evidence and drawing conclusions. In his Thinking and Education (1992), Matthew Lipman advocates a similar conception of creative and critical thinking. He argues that "...there is no creative thinking that is not shot through with critical judgments, just as there is no critical judgment that is not shot through with creative judgments. We can, of course, construct abstract ideal types in which pure forms of thinking are delineated, but in actuality admixture is the rule" (Lipman, 194). While many scholars contrast critical thinking with creative thinking in terms of criteria usage, Lipman's view is more in tune with the theoretical orientation of the study undertaken here. He reasons as follows:

Here I am compelled to acknowledge that, even as ideal types, critical and creative thinking may not be mutually exclusive. Take the question of sensitivity to context. Both types of thinking manifest this feature; the only difference is that in creative thinking it is predominant, whereas in critical thinking it is, although still essential, of somewhat lesser importance. Is it not possible, then, that both critical and creative thinking may be criterion-guided but that this is a matter of greater importance in critical thinking than in creative thinking? (Lipman, 206).

Another way to explain the complementarity of critical and creative thinking is through the interaction of the uses of algorithms and heuristics in the process. As critical thinking is criterion-governed, it fulfills a regulatory function in creative thinking; and as creative thinking is heuristically oriented, it tends to make critical thinking more flexible.

The emphasis on relational structures as the concern of effective thinking explains cognitive skills, competencies and evaluative criteria in terms of the organic structure of which they are parts. It contributes to the specification of a model of thinking which involves no hierarchical schemes. It helps to reveal the fact that no matter how simple a particular cognitive skill may be, it is still as significant as any other ones in the network of relations within which it is integrated. Its being a precondition for the acquisition of a more complex one does necessarily relegate it to the bottom of a pyramid of skills as it is the case in Bloom's Taxonomy. It is always important to keep in mind that knowing or learning evolves in a circular fashion; it goes from simple steps to more complex ones. It is not a linear process that goes from bottom to top. From this standpoint, "complex thinking" is conceptually a more accurate way to refer to the model that we are presently delineating than the "higher-order thinking" currently in use. Although complex thinking is part of Richard Paul's and Matthew Lipman's conceptual frameworks, the term "higher-order thinking" is used as well. This reveals a certain inconsistency in their conceptual structures and a reluctance on their parts to dispense with the tendency of construing objects or relationships in hierarchical terms.

The idea that knowing or learning evolves in a complex and circular fashion reveals the self-transcending feature of the integrative mode of thinking under study. As thinking integrates, it also dissociates itself from its object to examine its own process. In other words, it reflects not only on its content but also on its methodology. It is this self-awareness, this self-reflectiveness or this ability to transcend itself that accounts for much of the criticalness in genuine critical thinking and it is also what differentiates it from analytical thinking. So when we refer to "effective thinking" as being integrative, we do not wish to use the term in an ordinary sense: we view it instead as the result of an iterative process of combination and dissociation. What this recursive pattern of combination and dissociation suggests or implies, is that effective thinking is simultaneously constructive, deconstructive, and reconstructive. It is constructive in the sense that it operates across a multiplicity of frames of reference and seeks to integrate as many perspectives or insights as possible when the focus happens to be on arguments or theoretical perspectives having a common referential point. In areas of investigation like science and medicine, it works across disciplinary boundaries or specialized fields and explore the interconnectedness of structures within structures or systems within systems. Physics, chemistry and biology become a broad field of investigation within which relationships are explored and meanings are made. Medicine dispenses with its practice of dealing with organs as isolated objects and considers the organism as a meaningfully structured whole. The deconstructive dimension comes into play as the same integrative process must decenter privileged sets of relations, displace hierarchical oppositions, or even

undermine the conceptual infrastructure of a particular theoretical edifice depending on the depth, scope and purpose of the inquiry involved.

The deconstructive approach is an integral part of the model being proposed here. It recommends a shift of emphasis from the center to the margins of thought configurations. This recommendation is justified on the ground that points of view, worldviews, or conceptual schemes are individuated through a process of exclusion and marginalization. Through a process of strategic exclusion, they establish themselves as privileged centers and relegate to the margin all that is perceived to be irrelevant. The ensuing hierarchical scheme presents itself as selfsame identity or a unified frame of reference. It is what in the deconstructive perspective is known as logocentric thinking. Such a thinking attempts to achieve certainty through the mastery of cognitive dissonance.

The margins or boundaries of conceptual schemes become the logical site of effective thinking. The focus on the marginal or the excluded enables the thinker to reestablish the differential relations that logocentric thinking represses. It reveals the fact that center and margin, inside and outside are mutually constitutive. In so doing, it provides the ground for the redrawing of boundaries through the deconstructive reversal and displacement of hierarchical oppositions. In this respect, the works of Michel Foucault constitute one of the most representative illustrations. Be it in The Archeology of Knowledge (1972), The Birth of the Clinic (1975), Discipline and Punish (1979), The Order of Things (1973), The History of Sexuality (1980), the focus of Foucault's attention is fundamentally on the marginal or the excluded. Through his

reconfiguration of the western intellectual landscape, Foucault not only grants legitimacy to the marginalized element but also confers upon it a strong discursive voice.

An important implication of the argument advanced in this paper is that meaning or understanding is one of the central goals of critical thinking. The dispensation with the conventional epistemological problematic eschews any commitment to truth as a viable goal of critical inquiry. Truth, as traditionally conceived fits only within the conceptual framework of the objectivist paradigm wherein epistemic certainty is attainable and knowledge is associated with truth. In Percepts, Concepts, and Theoretic Knowledge (1973), Harold Lee points out that:

Truth is not a fundamental category of epistemology. Knowledge is the fundamental category, but knowledge is not to be defined in terms of truth. Knowledge is relative to the evidence, and in empirical matters, the evidence is never all in. Thus knowledge is fallible and does not rest on truth. (Lee, p. 242).

Lee goes on to say that "... truth applies only to what fits within some particular categorical scheme: and this is why truth is not a fundamental category of epistemology" (Lee, 243). Lee's point is well taken here because our critical thinking theorizing allows inquiry into a particular conceptual structure to yield different understandings or interpretations. If different interpretations of the same reality can be valid, then what one really achieves, as a result of inquiry, is properly defined as meaning, not truth. The problem with the traditional conception of truth is that it is associated with a reductionist mode of thinking which construes validity in exclusionary terms. It operates with a binary logic according to which something

either is or is not the case. Another way to put it is that there can only be one correct interpretation of a given phenomenon. This objectivist conception of truth, as alluded to earlier, is inimical to effective thinking. It sets different interpretive schemes into an adversarial relationship and therefore stunts the possibility for a constructive dialogue. The point here is that the end of critical thinking is critical judgment, and judgment is not truth. Judgments are evaluations based on evidence. Evidence, in turn, is conditioned by the interpretive scheme that makes it relevant and the point of view underlying the interpretive framework used. This mutual determination of interpretation and evidence not only makes the quest for meaning the actual end of critical inquiry but also welcomes a polysemic view of reality -- that is the acceptance of more than one viable interpretation, or the plausibility of different perspectives on a particular issue.

Pedagogical Implications

The recognition that knowledge and reality are discursive constructs and that effective thinking aims at understanding makes dialogue the authentic setting for critical inquiry. Of course, the choice of dialogue here as the appropriate methodology for critical inquiry is not a novel idea. Many critical thinking theorists recognize dialogue as the proper methodological approach. What differentiates our dialogical perspective from some others such as the one proposed by Richard Paul, is that the one endorsed here stems from an open epistemological discourse and a view of critical

inquiry as an open integrative process. Paul champions dialogue, and openness but remains somewhat ensconced in a closed epistemological framework and operates with an uncritical conception of rationality. He fails to realize that participants in a "dialogue" will hardly integrate differing and/or conflicting points of view in their inquiries if they are convinced that rationality is an unquestionable authority in the construction of meaning. The uncritical acceptance of rationality entails an exclusionary logic which makes the very idea of dialogue a vacuous rhetorical discourse.

Our constructivist epistemology gives way to a dialogical perspective with no authority at the center. It assigns authoritative finality to no one and to nothing. Teacher, instructional materials, students, including the rational norms to be used in the inquiry process play equal roles. The conception of authority that lends itself to our dialogical perspective is the one applied in the deconstructive mode of thinking. The deconstructive approach displaces instantial authority into functional authority. In other words, authority is viewed as a function, not as an instance. Michael Ryan, in Marxism and Deconstruction (1989), points out that "the move from instance to function in analysis also entails a move from absolutes to differential situational relations" (Ryan, p. 40-41). This deconstructive displacement of authority is of crucial importance to dialogue. It has democratic implications which, if taken seriously into account, will contribute to make dialogical inquiry a truly collaborative undertaking. As we mentioned earlier, the belief in an ultimate determinant, or in instantial authority contributes to the perpetuation of the traditional hierarchical scheme of

relations. In a hierarchical order, priority is accorded to the highest instance or to the view of the highest instance. In any way it is looked at, the question of priority or instancial authority is expected to act as a deterrent to genuine dialogue. Take, for instance, the authority of the text or the unquestionable authority of the knowledge that is believed to be contained therein. If participants must hold a reverential attitude toward that authority, they have to belittle the importance of any contributions that they would make. As a consequence, the absorption of "discrete units of ready-made knowledge becomes the rule. As a corollary, no dialogue is possible and therefore no real learning takes place. The same consequence is produced when it is the authority of the teacher that prevails. In the case of algorithmic procedures, the pedagogical practice turns into an empty formalism which distracts attention away from the substance of the text and from the participants' experiential fields.

The dialogical process requires empathic sensitivity on the part of the participants. Careful listening and empathic understanding are two of the sine qua non of dialogue. For, dialogue is not a casual exchange of views among participants. It calls for the questioning of the deep-seated assumptions upon which the views are based. David Bohm (1996) explains that "Dialogue is really aimed at going into the whole thought process and changing the way the thought process occurs collectively. We have not really paid much attention to thought as a process. We have engaged in thought, but have only paid attention to the content, not to the process" (Bohm, p, 9). That is an important constructivist statement. Constructivist thinking investigates not only thought content, but thought process as well. Investigation in this case is not to

be understood as mere observation; it is the cognitive operation leading to the deconstructive displacement and reconfiguration of thought patterns. At this point it is important to contrast dialogue with debate. Dialogue is an integrative process. All participants contribute and learn. What emerges from dialogue is shared meaning, as Bohm is wont to say. Debate is an adversarial situation in which a particular view will prevail at the expense of the other ones involved. It is an exclusionary process. What we call dialogue in academia and in other intellectual circles is often a refined type of debate in which participants pretend to be real listeners. In reality, however, few of them listen: the majority remains ensconced in their frames of reference, practicing, on the surface, a sterile form of pluralism. To be sure, debate, like analysis still retains a certain importance inquiry, but when used exclusively it is not very effective in terms of settling judgments. It is an exclusionary practice operating with what Elbow refers to as the "distancing technique."

Dialogue sets the ground for the interactions through which the fundamental questions of reflective inquiry are learned and knowledge is created. None of the points of view involved in a dialogical process contains knowledge. Knowledge resides in or constitutes itself through the interactions of points of view. It is relational, dialogical, and therefore ceases to exist outside the dialogical context. In Contemporary Literary Theory, G. Douglas Atkins quotes Shoshana Felman as saying that:

The position of alterity is therefore indispensable. Knowledge is what is already there, but always in the other, knowledge, in other words, is not a substance but a structural dynamic; it is not contained by any individual but comes about out of the mutual apprenticeship between two partially

unconscious speeches which both say more than they know. Dialogue is thus the radical condition of learning and of knowledge, the analytically constitutive condition through which ignorance becomes structurally informative; knowledge is essentially, irreducibly dialogic (p. 16).

A significant part of the knowledge created through the inter-change is the awareness that one's frame of reference contains only a fragment of a larger, more complex relational web. This awareness, in turn, plays a pivotal role in the development of critical thinking skills and dispositions. It serves as a rationale, a motivating force for a persistent exploratory attitude which includes self-reflection, reflection across frames of reference, and reflection across disciplinary boundaries. The willingness to defend or attempt to validate positions that differ from and/or conflict with one's own is no mere theatrical game. It requires a deep empathic sensitivity which is but a temporary repression of the ego. Through repeated practices of role-taking, participants learn the types of critical questions to ask, and when and how to ask them. They also learn how to cope with the issues of relevance, consistency, coherence, and comprehensiveness. In other words, they learn how to learn while learning a particular content, content being an interpretive scheme, a hypothesis, an argument, a story or a controversial issue. Dialogue enables those who partake in it to realize that learning is exploration and change, to repeat Gregory Bateson's phrase. Another way to put it is that dialogue not only empowers the learner to construct, deconstruct and reconstruct knowledge and reality, but it also makes her aware that she does so.

The Goals of Critical Inquiry

The emergence of self-awareness through empathic role-taking is an important cognitive step in dialogical inquiry. Not only does it set the ground for the enhancement of effective communicational interaction, it is also an essential pre-condition for the attainment of self-transcendence. Self-awareness is to be understood here not as the knowledge of the existence of the self, -- since this is already a defining characteristic of humans - but instead as the knowledge that the self is an entity individuated through self-reflective communication. In The Tree of Knowledge (1992) H.R. Maturana and F. Varela make the following statement:

...Language as a phenomenon takes place in the recursion of linguistic interactions--linguistic coordinations of linguistic coordinations of actions... and language appears to an observer as a domain of descriptions of descriptions... With language also arises the observer as a language entity: by operating with language with other observers, this entity generates the self and its circumstances as linguistic distinctions of its participation in a linguistic domain (Maturana & Varela, p. 211).

Although we have generated objects including our "selves" through what the authors refer to as "social coupling", we tend to forget this fact and consider them instead as fixed categories having a pre-linguistic existence. We continue to deal with the world in this fragmented way and think we can achieve deeper understanding and objective certainty through further fragmentation. Frijof Capra, a staunch advocate of systemic thinking, believes that "Out of ignorance (avidya), we divide the perceived world into separate objects that we see as firm and permanent, but which are really transient and

ever-changing. Trying to cling to our rigid categories instead of realizing the fluidity of life, we are bound to experience frustration after frustration (Capra, p. 294-295).

As we keep distancing ourselves from one another and from the world that we bring forth through self-reflective communication we entrap ourselves in an individualistic and foundationalist conception of knowing which legitimizes and perpetuates hierarchical oppositions, adversity, and aggressiveness. We cling to analysis as our dominant mode of inquiry whereby we maintain this outmoded epistemological outlook. The peculiarity of analytical thinking, it must always be kept in mind, is to dissociate, atomize and exclude. It often leads to a multitude of self-enclosed worlds leaving debate as the only possible mode of communicational interaction.

Creative and critical dialogue is a way out of this highly compartmentalized world. If individualist thinking gives us the analytical tools with which we have fragmented the world, collaborative thinking provides the cement with which to piece the fragments back together. Creative and critical dialogue is collaborative thinking. It helps bridge the intellectual cleavage by reintegrating the fragmented selves into the complex network of dynamic processes wherein they belong. The fragmented selves in question become critically aware of themselves as parts of a meaningfully integrated network of relations as opposed to pre-ontologically determined self-contained entities. Such a recognition is fundamental to epistemic openness and self-transcendence. It leads to a constant reshaping of perception and a shift in thinking which eclipses the linear pattern of thought. It does so by turning dialogical inquiry into a really

recursive, open-ended process of understanding and meaning-making. The recursive process integrates both the rational and the intuitive selves and maintains them in a balanced and dynamic interrelationship involving the following cognitive operations:

dissociation/integration

analysis/synthesis

critical thinking/creative thinking

self-assertion/self-transcendence

In his call for a shift from the mechanistic to the integrative mode of thinking, Fritjof Capra (1996) espouses a similar line of argument. He draws attention to the consequence of our habitual pattern of thought which he characterizes as mechanistic and reductionist and contrasts it with the implications of the alternative perspective. Below is a table in which Capra brings the two modes of thinking into contrast and specifies the set of values associated with each:

Thinking			Values
<i>Self-assertive</i>	<i>Integrative</i>	<i>Self-Assertive</i>	<i>Integration</i>
Rational	Intuitive	Expansion	Conservation
Analysis	Synthesis	Competition	Cooperation
Reductionist	Holistic	Quantity	Quality
Linear	Non-linear	Domination	Partnership

This table encapsulates much of the argument of this section. To a large extent, it serves as a delineation of the conceptual framework underlying the critical thinking model that we are presenting in this paper. The first and the third rows synthesize our prominent way of thinking and the values that it entails. As shown, our mechanistic way of thinking tends to privilege the rational over the intuitive self. It construes relationships in linear terms and relegates the nonlinear to an inferior or unmanageable plane. This construal emphasizes analysis as the dominant mode of examination and therefore fosters and promotes a reductionist approach to cognition. As the table indicates, this mode of thinking is not value-neutral. It entails a set of institutional practices that legitimate our aggressive behavior. Expansion, competition, quantity and domination take precedence over conservation, cooperation, quality and partnership. Capra aptly points out that much of the exploitative and antiecological behavior we exhibit through our social structures, political systems, and technological approaches is rooted in our mechanistic way of thinking. Imperialism, patriarchy and the pollution of the environment, he contends, are prototypes of a mode of thinking that values self-assertion over integration. Though Capra's analysis interrogates our habitual pattern of thought and calls for a shift from self-assertion to integration, it does not disparage the firmly entrenched tendency that it calls into question. What it recommends is a "dynamic balance between the two. Capra's position is definitely consonant with the perspective that is being developed here; its quest for integration is the underlying principle of the critical thinking model that is being worked out in this chapter. While we fully endorse it, there are three important points that need to be clarified: a) the

shift in thinking advocated by Capra is achievable in a context of dialogical interaction: b) the two modes of thinking evolve in a "trans-dialectical" relationship; c) integration implies self-transcendence as an ultimate cognitive ability.

As implied in our model, change in perception and change in thinking do not occur in a vacuum. They grow out of critical self-awareness which, in turn, is the product of collaborative thinking or dialogical inquiry. Self-awareness implies the awareness of the "other"; it is the result of a conscious reclaiming of the continuum from which the self has individuated itself. This conscious choice which implies a constant return to the source, brings about a non-reified concept of the self. In other words, dialogue makes self-awareness a cognitive possibility, and self-awareness, in turn, reshapes perception and thinking. This way, we end up with a non-hypostatized view of object and entity.

Another strand of the argument is that while the shift in thinking results in a deconstructive displacement of the conventional reductionist mode of thinking, it does not necessarily integrate the two modes into a dialectical relationship. The mode of inquiry in which they interact transcends dialectical thinking. Dialectical thinking is a deterministic, predictable or teleological process which follows a linear pattern, whereas the network thinking that characterizes our model leads to indeterminacy. That is why we refer to it as "trans-dialectical". For, the process of integrative thinking often leads to unexpected results. It is impossible to specify in advance where the interaction is going to lead. To be sure, there are always some negotiations or judgements which find their applicability in concrete situations, be it in a political decision-making

process, in the formulation of an economic policy or in the implementation of an educational policy. However, judgements are to be taken as temporary settlements which further inquiry will supplant, displace, or revise. The whole thinking process however is endlessly recursive: it is not oriented toward a specific utilitarian end. Fundamentally, it is a biological necessity.

The next point to be dealt with in this juncture has to do with the way our model construes integration. From our perspective, self-awareness is the cognitive base of genuine integrative thinking. That does not imply however, a direct causal relationship. Depending on the personality and personal history of a particular thinker, critical self-awareness may harden and develop into self-assertion and never reach the integrative phase. Of course, self-assertion, is a normal outcome of effective thinking instruction, especially if the instruction in question embodies a pedagogical strategy aiming at counteracting a crippling educational practice. But strengthened to an excessive extent, as Capra cautions, self-assertion may constitute an obstacle to the integrative process of cognition. It may preclude the achievement of self-transcendence, one of the ultimate goals of intellectual dialogue. Self-transcendence, as alluded to earlier, is the ability and disposition to go beyond one's point of view or frame of reference and explore and accept the validities of other perspectives. It is a sine qua non for a truly integrative approach to cognition. As one develops this ability and disposition, one really achieves the critical posture that is necessary for the construction of genuine knowledge and meaning.

CHAPTER 5

CONCLUSION

As an open-ended, complex set of cognitive processes critical thinking is bound to elude any rigid conceptualization. Attempts to arrive at a phenomenological description must take into account a host of interrelated factors whose intricate interactions do not readily lend themselves to a static theoretical configuration. A process which emanates from and realizes itself through dialogue is expected to resist all definitional characterizations outside that context. Yet to be emphasized as part of an effective educational program, and to make inroads into established curricula, critical thinking must be discursively articulated and conceptually structured. This is essentially what Richard Paul's work is all about. Paul's model as we have seen, constitutes an important contribution to current scholarship on critical thinking. The ethical dimension it integrates opens a new track of investigation which helps broaden the subject's field of research. The blending of moral responsibilities and intellectual abilities in Paul's conception of critical thinking contributes to making his model a unique piece of scholarship. Until his work, ethical issues occupied only a marginal space in critical thinking theory.

However, the model is not without its problems. For all its merit, it is fraught with a considerable number of contradictions, omissions and inconsistencies which diminish its explanatory power. It adopts a didactic style of argumentation which evades many of the theoretical claims made. It fails to establish the relationship

between critical thinking and creative thinking. Finally, it champions critical inquiry as an open-ended, multiperspectival process of cognition, but, at the same time, exhibits an uncompromising commitment to a logocentric view of rationality. In so doing, Paul's model privileges the cultural imperative of analytical reductionism and constitutes itself, in part, as little more than a refined version of the conventional logicist conception of critical thinking.

The perspective offered in this study as an alternative to Paul's view, provides a conceptual framework for the connection between the interpretation of critical inquiry as an open-ended process and the epistemological discourse that informs the interpretation in question. The main thrust of the argument proposed therein is that until critical thinking theorizing severs its link with the objectivist conception of rational inquiry, it will remain entrapped in a language game that contributes to the perpetuation of the very mind that it sets out to shake off. It will reinforce the long-standing belief in the attainability of epistemic certainty and keep the inquiring subject detached from her object of inquiry. A way out of this intellectual tangle has been suggested. It consists in a radical shift from the objectivist paradigm and toward a critical appropriation of the theoretical groundwork laid by postmodernist thinking. The postmodern criticism of philosophical foundationalism paves the way to a truly integrative dialogical inquiry. It relinquishes the ideology of certainty which seriously constrains traditional investigation and turns epistemology into a productive, meaning making, hermeneutical process of cognition.

While the postmodern reconstruction of knowledge, meaning, rationality, and reality provides a conceptual framework that is conducive to an open perspective of critical thinking, it also has implications that must be taken into account. The decentering of the authority of the teacher and that of the text is among the most important consequences of the application of such a perspective. In this context, dialogue becomes a self-imposed medium, not something that thinkers are forced into. The teacher recognizes the necessity of renouncing her traditional role as a central figure to become a learner among many. However, that cannot be expected to occur as simply as it sounds. She must come with the right attitude and disposition. That pre-supposes a rethinking of the traditional program of teacher education whose over-emphasis on methodological refinements and pedagogical prescriptions takes away much of what would really contribute to the intellectual empowerment of the teacher. She must be conversant with the dominant epistemological discourses, learning or educational theories if she is to be part of any positive educational changes or if she is to be a really transformative intellectual (to use Giroux's phrase).

Another point to underscore here is that the cognitive approach taken in the project does not imply that cognitive change alone is all that is necessary for the restructuring of the educational process. Indeed, the functioning of the schools is intimately linked to a set of institutional power relations that are non-cognitive. It would be erroneous to think of the possibility of educational change independently of the power structure which shapes the educational status quo.

However, the fact that a structural change in the educational process requires a change in power relations that are non-cognitive does not warrant any passive attitude on the part of educators. At their levels, educators must do whatever is necessary to bring about the desirable educational outcome. That is the conviction out of which the integrative conception of critical thinking discussed in this paper grew. Educators must identify themselves as transformative agents, as active participants in the overall social process, not as passive transmitters of knowledge and values.

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