# Conflicting Logics in Education to Critical Thinking

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## Abstract

The article aims at (1) organizing the theoretical field of critical thinking on the basis of an overall and systematic conception of education, (2) exposing tensions and contradictions in the various conceptions of critical thinking and (3) suggesting a directing principle for the teaching of critical thinking.

In order to achieve these far-reaching aims, let us project "The Cognitive Map of Instruction" developed by Zvi Lamm on the discourse of critical thinking. Through this "map" we see that all sub-trends of teaching critical thinking may be divided into three defined "logics," and that these sub-trends harbor two kinds of internal contradictions: between the different "logics" of teaching, and between their pattern of teaching and the idea of critical thinking.

Since none of the three "logics" suggested by Lamm in The Cognitive Map of Instruction suits the purpose of teaching critical thinking, the article turns away from this "map," that served it so well to locate and expose the various trends of critical thinking. This turn is made on behalf of another idea of Lamm - that of undermining pedagogy. This well-rooted idea may direct the pedagogy of critical thinking toward a coherent and effective instruction.

# Conflicting Logics in Education to Critical Thinking

"Being in favor of critical thinking in our schools," writes John McPeck, "is thus a bit like favoring freedom, justice or a clean environment: it meets with general approval from the outset. But as with those other concepts, it is not at all clear that people mean the same thing by critical thinking, not that they would all continue to approve of it if they did agree about what it meant. For very often with such matters, approval diminishes in inverse proportion to the clarity with which they are perceived" (McPeck, 1981, p. 1).

Similarly, Robert Ennis describes the spread of the idea of critical thinking in the United States, and asks, "But are all these people [educators favoring critical thinking] talking about the same thing?" (Ennis, 1987, p. 10).

McPeck's conjecture and Ennis's question are clearly rhetorical. McPeck concludes that the wide support for the idea of critical thinking is due to its ambiguity, and Ennis concludes that "all these people" are not talking about the same thing. Theoreticians of critical thinking are indeed divided in their responses to the two *intertwined* fundamental questions: (1) What is critical thinking? (2) How can one educate toward critical thinking?

In this paper I will attempt to deal with these two fundamental questions through the use of "The Cognitive Map of Instruction" developed by Zvi Lamm in his book *Conflicting Theories of Instruction* (1976; see table). Its application to various conceptions of critical thinking will allow for their methodological sorting and the exposure of constructive contradictions within them, in order to indicate which pattern of instruction is most suited to the idea of critical thinking.

I will focus here on seven concepts of critical thinking. The implicit conception which is included in the sub-movement of the movement for critical thinking - informal logic; John Passmore's conception, developed before the movement for critical thinking reached self-consciousness; and the conceptions of John McPeck, Robert Ennis, Harvey Siegel, Richard Paul and Matthew Lipman, whose conceptions are more developed and known than others. Ralph Johnson (1992, p. 40) refers to them as "The Group of Five."

## Conflicting Logics of Instruction

Efforts at creating a typology of instruction have been and continue to be attempted. Plato noted in the *Protagoras* the differences between "education" and "training." Dewey (1938) differentiated between "new" and "old" education. Contemporary thinkers have attempted to characterize types of instruction (Scheffler, 1964; Kohlberg & Mayer, 1972; Adler, 1982; Fenstermacher & Soltis, 1986; Egan, 1997). In my opinion, Lamm's attempt to sort through the types of instruction has benefits over similar attempts, because the explication which it offers for

the term "instruction" is more systematic and entails greater articulations and implications for education.[1]

"The Cognitive Map of Instruction" reduces the theories of instruction to three conceptual structures, termed "theories" or "logics." The logics apply consistently to the nine fundamental elements of instruction, termed "dimensions." When instruction as an activity is guided by a consistent linking of concepts provided by a logic of instruction, a "pattern" is created - a coherent world of instruction.

Logics of instruction conflict: *The conflict does not occur in the realm of the goals from which these logics are derived, but rather in the realm of their practical results*. The patterns of instruction neutralize one another in terms of their educational effect.

"The Cognitive Map of Instruction" attempts to describe the existing as well as possible fundamental patterns of instruction. Three logics of instruction exist ccording to the "Map:" the "monist logic of imitation," the "monist logic of molding," and the "pluralist logic of development." These logics represent the three "ideal types," or the three "meta-ideologies" of instruction.

Viewing the logics of instruction as "ideal types" indicates that they are merely conceptual constructions, do not exist in the educational reality and cannot exist purely. Perceiving them as "meta-ideologies" indicates that theories of education have a structure of knowledge of ideology and not of scientific theory.[2] The various educational theories (ideologies) may be sorted according to the three logics which serve as meta-theories (meta-ideologies) of education or instruction.

The existence of the three logics is not coincidental; rather, it is a necessary product of the three components of the human condition: society, culture, and the individual (Lamm: "Education is a servant to three masters"). These three elements dictate the needs that established instruction must meet: training young people for a role in society, introducing them into the culture, and supporting the actualization of their personalities.

The logics are based on the meaning that the dimensions receive from the super-goals. The super-goals of instruction are referred to as "socialization," "acculturation" and "individuation." Every logic prioritizes one of the three foundations of the human experience - society, culture and individual - and derives its goals from it.

The first pattern of instruction, *imitation*, is derived from the super-goal of instruction referred to as "socialization." The goal that establishes this pattern is to socialize the students to a certain society through imparting certain behaviors that will help them function and succeed in society.

Instruction in this pattern is based on illustration, and learning is based on imitation. This pattern is supported by a series of notions related to the nature of man and society, the essence of knowledge, the process of instruction and learning, the purpose of education and others. The image of The Educated Person that directs this pattern is that of a man or woman (who is perceived at an intersection of societal roles) who performs his or her societal roles appropriately. The basic category here, that which must be imparted, is "behavior" or "skill."

The second pattern of instruction, *molding*, is derived from the super-goal of instruction referred to as "acculturation." The goal of this pattern is to impart not a specific behavior but rather values and principles that will shape character traits and supervise behaviors. These values and principles are embodied in texts representing a preferred culture. Instruction in this pattern is based on the creation of situations in which the student identifies with the teacher who, through his behavior and personality, models the desired values and principles. Learning occurs through the internalization of these principles and values. This logic is also supported by a series of notions concerning culture, society and the individual, and the relationship between them. The image of The Educated Person guiding this pattern is one of a person who has freed himself from his crude nature: impulses, prejudices, misconceptions etc. (In this case of education for critical thinking, he has liberated himself from uncritical thinking.) This occurs through the use of lofty cultural principles and values that are internalized, becoming a "second nature." The basic category here, that which needs to be molded, is "character traits" or "dispositions" - principles and values that have been internalized. (The pattern of molding is somewhat of a synthesis between the two other patterns, in that it strives to teach certain general principles and values for the purpose of internalization. Successful internalization is a function of consideration of the state of the individual. It thus remains a fragile pattern which tends to slip, under the pressure of certain conditions, in the direction of other patterns.)

The third pattern of instruction, *development,* is derived from the super-goal of instruction. termed "individuation." This pattern differs in principle from the two previous patterns in that it does not carry the image of the The Educated Person with a defined content. Its "pluralism" (as opposed to the "monism" of the previous patterns) affects both the students and the content of instruction. Its relationship to the content of instruction is instrumental. The content is meant to support the student's development, and every student develops in his individual way through his attraction to different contents. The content itself has no intrinsic value, for intrinsic value is relevant only to the significance the individual sees in it during the course of his learning. Instruction in this pattern is perceived as support to the development of the individual and the learning. Learning is perceived as a process regulated by the student. The image of the The Educated Person guiding this pattern is that of a person who fulfills his specific nature or creates his unique world. The Educated Person is not portrayed by his behaviors or beliefs, but by his relationship to them in his functioning as an authentic or autonomous man or woman. The basic category here, that which needs to be developed, is "personality." (Categories like "autonomy" or

"authenticity" are not traits or dispositions; they are wholistics. They are not characteristics of a person; they are the person himself or herself).

In summary, "instruction," defined here as education through knowledge, is a formal term. It has no singular immanent meaning, but rather three possible fundamental meanings - the three logics of instruction. These logics function as interpretive systems attempting to respond to the same questions: What is the essence of society, culture and the individual? What goals do society, culture and the individual dictate to education? What are the means by which the individual is trained for life in society and culture? What means assist in furthering one's development? What is the meaning of education to critical thinking? And more. No logic has an a priori preference. The logics have an ideological cognitive construct, and there is no rational way to decide between ideologies. (In the language of Karl Popper, whose influence in this part is significant, ideologies cannot be refuted.) The decision in favor of one of these patterns is an issue of practical judgement or contextual rationality. In certain contexts (the quality and intentions of students, teachers, school, community, etc.) instruction must take place according to a specific logic.

The two relevant insights, implicit in this description and analysis of the "Cognitive field of instruction," are as follows:

1. Patterns of instruction are in conflict with each other, and it is impossible to merge two or three logics successfully into one educational framework. A decision in favor of one logic of instruction is a "tragic" decision, for it involves the loss of the benefits of the other logics.

2. The patterns of instruction themselves, and not the declared goals or contents with which they deal, are the decisive factor in the educational process. In instruction, "the medium is the message:" the method or the manner of instruction is the content of the instruction.[3]

Educational theories do not always "fall into the pockets" of logics of instruction as simply as billiard balls. Many theories serve as educational "molecules," each comprised of two or three "atomic" logics. *When an educational theory includes more than one logic of instruction, it includes a contradiction* This contradiction is not expressed in the realm of the ideal, meaning the goals of the instruction, but rather in the praxis of instruction. The Educated Person is likely to be one who is somewhat adjusted to his society, has managed to internalize cultural values and principles and is fulfilling himself over the course of his life. Moreover, all these foundations are dialectically interdependent, for there is no individual without a society or a culture, and no society or culture without individuals, etc. *But the educational practice must focus on imitation, molding or development* Instruction in accordance with two or three patterns of instruction, meaning instruction that simultaneously attempts to impart behaviors, mold dispositions and develop personality, contradicts itself or neutralizes its own effect (perhaps even educating towards apathy or cynicism).

*The patterns of instruction have internal educational goals (the goals from which they are derived), and it is impossible to use them for the achievement of other goals* In other words, there is an internal link between goals and means in education. Certain goals necessitate certain means, and certain means achieve certain goals. (This stands in opposition to our daily experience, which shows that a single goal can be achieved through various means, for example travelling to a destination on foot or in a vehicle.) The patterns of instruction are not "transparent," and they cannot achieve any goal. The goals are present in the patterns of instruction, and goals not present will not be achieved.

A critical thinker is likely to be one who is in control of critical thinking skills, motivated by internalized principles or dispositions of critical thinking, and has a critical (autonomous or authentic) personality. However, *instruction in critical thinking must adopt one pattern of instruction,* meaning that it must focus on impartting skills of critical thinking (the pattern of imitation), or on the molding of thinking dispositions according to the principles of critical thinking (the pattern of molding), or on the development of a critical personality (the pattern of development). Thus, *education toward critical thinking is a function of the pattern of instruction in which it is occurring, and not of its declared goals or the contents learned through it* It is impossible to educate toward critical thinking by using all the patterns of instruction; for each has its own goals, which at times conflict with the goal of educating toward critical thinking.

The decisive question is therefore, *What pattern of instruction best suits the image of The Educated Person, perceived as a critical thinker?* In order to resolve this issue, the question regarding the essence of critical thinking must be formulated thus: *What is the category to which we must apply the concept of "critical thinking"?* From the response to this question, the response to the second question regarding means will be derived: How can one educate towards critical thinking?

Various conceptions of critical thinking reduce it to an array of categories: "behavior," "skill," "disposition," "trait," "personality," "motivation," "passion," "emotion," "ability," "capacity," "knowledge," "attitude," "ideals," "understanding," "insight, "awareness," etc. Their educational method is a result of this reduction; for education designed to impart skill, for example, differs from education seeking to shape character; and education designed to convey knowledge is different from education seeking to arouse passion, etc. The various categories to which the different approaches apply the term "critical thinking" may be divided into three fundamental categories, creating three "ideal types" of education toward critical thinking: "skills," "dispositions" (internalized principles and values) and "personality." From the perspective of educational logic, these categories necessitate that the conceptions of critical thinking function according to one of the patterns of instruction: imitation for the impartation of skills, molding for the shaping of dispositions, and development for the development of personality.

Some of the views of critical thinking are heterogeneous, reducing critical thinking to two or three categories. In such a case, they call for two or three *conflicting patterns of instruction* Some of the views of critical thinking are homogenous, reducing critical thinking to one category that calls for one pattern of instruction. In this case they do not include conflicting patterns of instruction, though at times *the necessary pattern of instruction conflicts with the idea of critical thinking*. (Thus, there are two kinds of potential contradiction in the teaching of critical thinking).

## Critical Thinking in the Pattern of Imitation

Conceptions interpreting the notion of "critical thinking" as thinking skills which, when controlled, can assist the student in succeeding in life, serve as a version for the pattern of imitation in the area of critical thinking.[4] The approach of informal logic can represent this pattern. The connection between critical thinking and informal logic is described by Ralph Johnson, one of the creators of this field: "Critical thinking depends crucially on the capacity of the reflective agent to engage in the practice of argumentation. And since, as I shall argue, informal logic is the logic of argumentation, it then follows that there is an intimate connection between critical thinking and informal logic" (Johnson, 1992, p. 71).

In the framework of informal logic, critical thinking is perceived as a skill, as the fourth "R" that is the basis for the other "R's" (reading, 'riting, and 'rithmetic). It is learned as a behavior to be used in a practical life. Thus, for example, when the interviewer asks, "What would you say to someone in your class who starts out by asking 'What's the payoff of critical thinking in terms of my daily life?'" Michael Scriven, one of the developers of the field, responds:

> I'd say, "Tell me what you value and I'll tell you how critical thinking pays off for that, whatever it is. Whether it's choosing a job, choosing a spouse, or choosing a graduate school that's important to you, I'll show you how to do it better." There's really not much that's important that I can't prove very quickly is tied to critical thinking. Reducing crime in the cities, choosing a political party, controlling addictions and so on. That's the game I think we ought to play. I don't do much on the question of "Why bother to reason?" which people sometimes raise. They say it's just an arbitrary assumption that we should treat things in a reasonable way, but when you watch them cross the street, you notice they look both ways, and that's the giveaway. They may be making this crazy philosophical point but they don't really mean it. Let's get down to what we really mean. You're going to buy a car; is it wrong to look at the road tests? When it gets down to money and your life, and the quality of life, then you want to start getting rational (Scriven, 1993, p. 34).

He adds, "I think one problem is that critical thinking can get stuck in the mud when it is taught in philosophy departments because they don't emphasize the payoff end, the practical aspect of critical thinking." And later, "the nation's survival depends on critical thinking" (Ibid, pp. 41, 43).

Scriven reduces the concept of "critical thinking" to the skills of thinking that can be provided for use in daily life through courses designed for this purpose. This approach necessitates instruction according to the pattern of imitation; and in this respect, Scriven's approach is completely coherent. *The question remains whether the pattern of imitation suits Scriven's goal and that of other devotees of informal logic, meaning their concept of critical thinking.* John Passmore describes a possibility where a "critical thinker" is perfectly familiar with Max Black's *Critical Thinking* (a book of formal logic), though he remains a non-critical thinker: "He applies the skills he acquired in discerning, analyzing and developing arguments based *only* on the exercises appearing in the book. In other classes and outside of the classroom, he continues to think non-critically" (Passmore, 1980, p. 167).

Educators tend to judge this phenomenon in the framework of the transfer issue, some recommending "teaching for transfer." This recommendation is applied in most books on informal logic replete, for instance, with newspaper articles to which the students are meant to apply the skills they have acquired. Nonetheless, students use their sophisticated thinking skills on the articles read during class time, but not on those they read outside the classroom. This may not be an empirical problem but rather a conceptual one. The pattern of imitation teaches isolated skills devoid of meaningful context. Skills out of context tend to be unflexible or untransferable. It seems that the expression "instruction through the pattern of imitation for transfer" includes an internal contradiction within the term.

A more crucial contradiction appearing in instruction for critical thinking in the pattern of imitation is a result of the "hidden curriculum" of this pattern - the covert messages sent by the practice of teaching, of which the teachers and students are unaware. Learning in the pattern of imitation is based upon repetition and exercises, accompanied by praise of the excellent and censure of the weak. Anyone learning critical thinking through imitation has also learned, in addition to the skills of critical thinking, that his or her opinions and motivations are of no importance; that to know is to remember; to think is dangerous, since thinking can disrupt the precise replication of the teacher's words; authorities must be obeyed, because they know; knowledge is objective, cumulative and unequivocal; problems are well defined; every problem has a clear-cut solution; one's worth is dependent on others' opinions of him/her; learning involves futile suffering, etc. In short, he/she is proficient in the skills of critical thinking (in the best case), but is he or she a critical thinker? Is this not the possibility to which Passmore intimated in his caricature of the "automatic critical thinker," who knows how to repeat several of the behaviors of a critical thinker but does not know how to think critically?

The taxonomic approach to critical thinking may also suit the pattern for instruction by imitation. Ennis' taxonomies (Ennis, 1962; 1987), for example, focus on the methodological sorting of the abilities of critical thinking considered as proficiency in certain skills of thinking. These include the skills of logical thinking as well as others. In his later "Taxonomy of Critical Thinking Dispositions and Abilities," the twelve abilities of thought are divided into three areas: clarity (basic and advanced), logical thought (inference) and abilities of thinking designed to support information (basic support). These abilities are considered as proficiency in certain skills that can be taught as isolated skills, i.e. through the method of imitation.

Ennis' taxonomy includes a list of fourteen dispositions toward critical thinking, assuring that the abilities of critical thinking will be transferred to other areas of knowledge and experience. (Ennis' concern regarding the question of transfer may be witnessed in the "real life" case in which he chose to exhibit the use of his taxonomy: serving on the jury of a murder trial). Thus, a critical thinker needs dispositions as well as skills for critical thinking. Devotees of the approach presented in the instruction of informal logic and in the instruction of the skills of Ennis' taxonomy are liable to claim, based on Kant's famous statement, that "skills of critical thinking without dispositions of critical thinking are empty, and dispositions of critical thinking without skills of critical thinking are blind." While this claim seems reasonable, *instruction toward critical thinking must determine to which element, skills or dispositions, it is giving priority in the process of instruction*. For as we have seen, instruction meant to impart skills may damage the dispositions to use them, and instruction designed to mold dispositions may harm the efficiency in imparting the desired skills. As previously mentioned, the decision between the patterns of instruction is a "tragic" one, and necessitates an ability to overcome the human ingrained disposition toward harmonization of all good things.

Ennis and devotees of informal logic, who favor teaching skills of critical thinking as the mainstay of the curricular menu of educating towards critical thinking, would most likely claim that a description of education for critical thinking as education in the method of imitation is plagued with the "Straw Man" fallacy - presenting their approach in a distorted fashion so that it will be easy to attack. They would state that the goal of education for critical thinking that they convey is not the impartation of skills for the purpose of adapting to society, but the development of internalization of principles and values of critical thinking. Such a claim conveys us to the second pattern of instruction - the pattern of molding. However, before we discuss education toward critical thinking in the pattern of molding, let us make one important point: The pattern of imitation is driven by the principle of "visible results," meaning that behaviors acquired in the pattern of imitation are public behaviors. They may therefore be easily modeled, exercised and evaluated. They also suit the school framework (which is not coincidental, for schools were originally created for the purpose of socialization, and are therefore governed by the pattern of imitation). This may be the reason that those concluding that critical thinking is the product of principles and values that have been internalized, or of dispositions and not behaviors that have

been acquired, work at placing the principles of critical thinking within the skills of critical thinking. However, the skills learned in the pattern of imitation have no internal disposition to become dispositions; just as lingual skills that were acquired through the pattern of imitation, such as proficiency in Latin, do not have a disposition to become a disposition for a perfect order.

## Critical Thinking in the Pattern of Molding

Conceptions reducing the term "critical thinking" according to principles whose internalization will shape the intellectual character or thinking dispositions in the spirit of critical thinking - character and dispositions that will supervise thinking behaviors or skills - are a version of the pattern of molding in educating towards critical thinking. This pattern of molding seeks to make man good (in our case - a critical thinker), not necessarily to make life good for him. Raymond Nickerson represents this approach in his article "Why Teach Thinking?" in which he struggles between the possible answers to this question. Rejecting the utilitarian approach (that typifies the pattern of imitation) and adopting the deontological non-utilitarian approach (that typifies the pattern of molding), he writes:

> Why should we want students to become good thinkers? One possible answer is so that they will be equipped to compete effectively for educational opportunities, jobs, recognition, and rewards in today's world - or to put it more succinctly, so that they will have a better chance of being successful. This is a pragmatic answer that seems to be implicit in much of the discussion of the need to do a better job of teaching thinking... While this answer has some merit, it can be challenged... We want students to become good thinkers because thinking is at the heart of what it means to be human; to fail to develop one's potential in this regard is to preclude the full expression of one's humanity. Thinking well is a means to many ends, but it is also an end in itself (Nickerson, 1987, p. 32).

For the most part, approaches to critical thinking can be grouped under the category of the pattern of molding. The approaches towards critical thinking of John Passmore, John McPeck, Richard Paul, Harvey Seigel, and Matthew Lippman are primarily acculturized views of critical thinking. According these views, "critical thinking" should be reduced (also) to dispositions and not (only) to skills. These dispositions are not means to some aims but aims in themselves, charged with intrinsic value.

David Perkins and his colleagues propose a "theory of thinking dispositions" (differing from the theory of thinking skills), that uses the primary elements of the acculturized view in educating toward thinking and critical thinking (Perkins et al., 1993). In their opinion, educating toward thinking dispositions, including dispositions to critical thinking, necessitates movement from the model of instruction termed "transmission" to that of "enculturation." In the first model, "the

teacher's role is to prepare and transmit information to learners. The learners' role is to receive, store and act on this information." This model, they claim, transfers information, principles and values but not commitment to them. In order to create commitment to the learned contents, "teachers must not only transmit but inspire, move, convince, engage, enthrall" (Tishman et al., 1993, pp. 149, 150). The teache,r and the educational environment as a whole, should encourage students to tend toward "healthy skepticism." Rather than requiring them to passively take in information, instruction challenges students to ask questions, probe assumptions, seek justification. The model of enculturation is designed to provide thinking dispositions. (Perkins and his colleagues list seven dispositions: to be broad and adventurous, toward sustained intellectual curiosity, to clarify and seek understanding, to be planning and strategic, to be intellectually careful, to seek and evaluate reasons and to be metacognitive. Some mixture of these dispositions yields disposition to critical thinking). The provision of these dispositions occurs through three elements that organize the culture of thinking in the classroom: provision of exemplars of the disposition; encouragement of personal interactions involving appropriate dispositions, and direct teaching of the disposition. In his/her behavior, the teacher demonstrates the dispositions of thinking, encourages relationships in the class based on these dispositions and provides direct explanations regarding them.

In the terminology of "The Cognitive Map of Instruction," the above authors claim that instruction in the pattern of imitation (the transmission model) is well-suited for the impartation of thinking skills but not for the nurturing of thinking dispositions. In order to mold such dispositions, a shift must be made to the pattern of molding ("the enculturation model"). *The question remains however, whether "thinking dispositions" and "a disposition to think critically" reside in the same categorical realm or whether they have differing qualities, necessitating different methods of instruction.*

Passmore claims that critical thinking is adisposition or a "character trait": "'Being critical' is more like the sort of thing we call a 'character-trait' than it is like being skilled in a performance. To call a person 'critical' is to characterize him, to describe his nature" (Passmore, 1980, p. 168). According to him, a character trait is different from a thinking skill (He directs his criticism toward those who identify critical thinking with the skills in logical thinking). Unlike a skill, the trait characterizes a personality and cannot be used negatively. Being critical is defined as a trait used by a person to criticize norms, including one's own, while regular criticism (typified by the average teacher) is criticism in relation to accepted norms. However, Passmore claims that a critical personality alone will not suffice. We need an educated critical personality, meaning a personality able to criticize through participation in the "great cultural traditions." The trait of criticism can be acquired through the creation of an "educational climate," that allows for open discussion regarding deeply ingrained beliefs. This climate is created in part by the teacher, who demonstrates a critical approach in his instruction regarding accepted beliefs. Criticism as an educated trait may be acquired through what R. S. Peters defines as "initiation for culture," i.e.

through the instruction of selected contents emphasizing the critical element as being culture-creating.

According to Passmore, it seems that there is a contradiction between instruction seeking to arouse a critical discussion and that which seeks to impart knowledge:

> How then can we reconcile the two requirements: the need for building up a body of knowledge, a set of habits, from which criticism can take its departure, and the need for introducing children from an early stage to the practice of critical discussion? The contrast, thus expressed, sounds absolute. But information can be imparted in an atmosphere in which the child is encouraged to question it, rather than discouraged from questioning it, in which he is not only permitted, but encouraged to ask questions about its sources, its reliability (Ibid, p. 177).

In the terminology of "The Cognitive Map of Instruction," Passmore proposes to utilize the pattern of molding for instruction. This pattern is supposed to lead to the molding of the trait of educated critical thinking through the use of the student's identification with the exemplary behavior of the teacher, who demonstrates and encourages critical thinking along with the learned contents representing critical thinking at its best. *The question to be discussed is whether the pattern of molding is suited to the concept of critical thinking*.

In accord with Passmore, John McPeck defines "critical thinking" as an informed disposition called "reflective skepticism." The disposition to be skeptic is supported, or rather constituted, by knowledge of the structure of the theoretical disciplines. The "skepticism" is not empty or formal but "reflective," has content that is comprehension of the structure of the knowledge - the fundamental concepts and processes of research - of the theoretical disciplines. Such knowledge is a necessary and almost sufficient condition for critical thinking in these areas. Thus, McPeck recommends a liberal curriculum representing the pattern of molding. *The question remains whether the pattern of molding itself does not conflict with the concept of critical thinking*.

In Harvey Siegel's "The Reasons Conception" of critical thinking, there is a dominant element of instruction in the pattern of modeling, in addition to the element of the pattern of imitation. The "Reasons Conception" is comprised of two elements, the "reason assessment component" and the "critical spirit component." The first includes skills of logical thinking and principles of the structure of knowledge and is primarily the logical component of the critical thinker; while the second includes encouragement of critical thinking in the classroom, and is the dispositional component. The "reason assessment component" is to be molded through instruction, designed to impart, according to Gilbert Ryle's famous distinction, "knowledge how" (skills of logical thought) and "knowledge that" (principles of knowledge structures). The "critical spirit component" is to be imparted through the "critical manner" - a manner obligating the teacher to

provide reasons for this positions and to encourage the students to demand reasons both of him and of themselves. "All of this suggests that education aimed at the development of critical thinking is a complex business, which must seek to foster a host of attitudes, emotions, dispositions, habits and character traits as well as a wide variety of reasoning skills" (Siegel, 1990, p. 41).

According to the analysis presented here, Siegel's approach carries a typical pedagogic fallacy, that informal logic has yet to locate. We shall refer to it as "translation fallacy." Educators suffering from this fallacy "translate" a complex educational ideal into complex educational activity. However, complex educational activity is expressed as conflicting educational actions, i.e. include conflicting patterns of instruction. Therefore, critical thinking as an idea is indeed a "complex business" (a mixure of skills, dispositions, knowledge etc.), but not as an activity. Critical thinking may be dependent on two elements - the "reason assessment component," that includes control of thinking skills and comprehension of the principles of knowledge structures, and the "critical spirit," that includes dispositions or traits of critical thinking. However, *education for critical thinking must focus on one goal* - the impartation of skills, the molding of dispositions or the development of personality, i.e. *it must adopt a single pattern of instruction*. Siegel's "Reasons Conception" calls for two conflicting patterns of instruction: that of imitation (for the impartation of thinking skills) and that of molding (for the impartation of principles and dispositions of critical thinking). In such a case, one pattern of instruction will neutralize the educational effect of the other.

Richard Paul's concept of "critical thinking in the strong sense" (Paul, 1992; 1994) requires instruction using the pattern of molding. It is designed for the creation of an *insight* which needs, in his opinion, to guide all critical thinking and shape its underlying attitude or disposition. Critical thinking in the "strong sense" is guided by the insight that arguments are functions of context, products of "forms of life," "plans" or "world-views." The method developed by Paul, designed to arouse this insight, is based on the creation of conflicts between "world-views."

Paul concludes that the method of instruction that intends to create consciousness of the dependency of reasons on "world-view," must "follow up" the method of instruction which intends to impart skills of logical thinking. If not, the critical thinking achieved in the informal logic courses could become critical thinking in the "weak sense." Thus it would be a tool of rationalization ("sophism" in his language) and not of rationality. However, what Paul refers to as "follow up" is a *contradiction between two opposing patterns of instruction*: the pattern of imitation in logic courses and the pattern of molding in the awakening of insight concerning the dependence of arguments on "world-view." In other words, *contents can complement each other, but not methods of instruction* Skills acquired through principles or insights can be followed up, but a pattern of instruction in which skills were imparted cannot be followed up by a pattern of instruction that molds insights or dispositions; for one pattern of instruction negates the products

of another pattern of instruction. Paul's approach, like Siegel's, falls victim to "translation fallacy."

Matthew Lipman's definition of "critical thinking" also calls for instruction using conflicting patterns. He describes "critical thinking" as "thinking that facilitates judgement because it relies on criteria, is self-correcting and is sensitive to context" (Lipman, 1991, p. 116). This definition creates a personification of thinking. It would be appropriate here to speak of a critical thinker who bases his thought on criteria, is sensitive to context and tends to be self-correcting. *Such a definition calls for two conflicting patterns of instruction* The pattern of imitation must be used for imparting skilled criteria thinking, and the pattern of molding must be used to develop the sensitivity and openness needed for the two other aspects of critical thinking.

However, the method of instruction developed by Lipman in the framework of his "Philosophy for Children" program must clearly be categorized in the pattern of molding. In a "community of inquiry" the participant is meant to internalize the principles of the critical conversation that will shape his intellectual charcter and mode of thinking.

Any content, including philosophy, can be taught through the use of the three patterns of instruction. Though it is perhaps more pertinent to teach philosophy in the "community of inquiry," it is not obligatory to do so. Philosophy can be taught in a lecture designed to cover the "material" in order to succeed at an exam, which determines the extent of memorization of the "material" - in other words, the pattern of imitation. (In most places where philosophy has been taught, this has been the method.) The pattern of imitation is dominant in the average school, and other patterns of instruction introduced in schools tend to disappear under its shadow. Lipman is aware of this possibility, and therefore sees the penetration of his method of instruction into schools as "subversive activity." However, schools have undermined many "subversive activities," and have assimilated them into their own pattern of instruction.

As stated, the pattern of molding is a somewhat flimsy synthesis of the two other patterns of instruction or logics of education, tending to slip toward one of the other patterns under the pressures of external conditions. The average school exerts tremendous pressure on "foreign" patterns of instruction to apply themselves to the pattern of imitation on which it is based. Thus, for example, it is possible and correct to instruct to critical thinking in the "strong sense," according to a method designed to create insight regarding the dependence of arguments on the "world-view" developed by Paul. However, the school pattern of instruction exerts pressure to teach it in a different manner. One might ask if it is not more economic and secure ultimately to lecture this "truth," rather than hope that it will burst forth as an insight in the ongoing and demanding process of activities that Paul recommends.

Passmore's approach is also exposed to manipulation by school instruction. He recommends educating in the "traditions of the great cultures," in an atmosphere encouraging open and critical discussion. However in the average school, which Passmore does not question, open and critical discussion will come to an end when the teacher, principal or supervisor thinks that he is not "keeping up pace" or "covering" the chapters of the "traditions of the great cultures" included in the curriculum. In other words, in the context of school learning, instruction to critical thinking tends to be ritualized. As for education to critical thinking in the Passmore style, the students may learn to recognize Aristotle's criticism of Plato, Galileo's criticism of Aristotelian science and Impressionism's criticism of Academic painting; but will they learn to be critical thinkers? Educating toward critical thinking, as Siegel claims, is a broad ideal that must redesign the entire educational Instruction of critical thinking in the pattern of molding is exposed not only to manipulation by the school's pattern of instruction but also to manipulation resulting from the internal system of the pattern of molding. The pattern of molding was originally designed to create indoctrination in beliefs on which a specific culture was based. It sought to instill beliefs (which would mold character traits) according to which everything would be evaluated; however, these beliefs would not be held up to criticism. When instruction to critical thinking applies the pattern of molding, it uses the pattern against itself. It does not use it to impart beliefs but rather shapes a critical approach to them. Yet when instruction to critical thinking applies the pattern of molding, it presents itself and the world-view supporting it as a belief that is not itself to be criticized. (Is it possible that Paul forgot that critical thinking in the "strong sense" is also dependent on "world-view"?) Critical thinking acquired in the pattern of molding does not contain an element obligating it to be self-directed as well. Critical thinking learned in the pattern of molding tends to become ideology; and ideology tends to create "true believers" who hold dogmatically to its beliefs. The expected products of instruction to critical thinking in the pattern of molding are *uncritical critical thinkers* - thinkers who criticize everything but their own critical thinking. Instruction to critical thinking in the pattern of molding does not break the pattern's internal structure; it indoctrinates to critical thinking. The method of instruction in the pattern of molding, which is the content of its instruction, educates to non-critical thinking even when its content is critical thinking. The delusion that the instruction of critical thinking through the use of the pattern of molding escapes from the grasp of the "old education," which is designed for indoctrination of principles and values and for shaping unflexible dispositions, encourages its devotees to espouse the idea eagerly: an idea has finally been found that can be preached with a clean conscience.[5]

*"Critical thinking" does not reside in the categorical realm of "good thinking" of any kind*
Dispositions of good thinking can and should be molded by the pattern of molding - what Perkins refers to as the "enculturation model." However, it is questionable whether dispositions of critical thinking can and should be molded by the pattern of molding. By its very nature, the pattern of molding cannot develop a critical attitude to the beliefs it is attempting to instill, thereby contradicting the idea of critical thinking. The essence of this idea is that no belief is protected

from critical thinking, including the belief in critical thinking itself. Ultimately, it is quite possible that unexamined lives are worth living.


## Critical Thinking in the Pattern of Development

Conceptions that reduce the term "critical thinking" to autonomous or authentic personality, and claim that it is possible to develop such a personality through the use of "negative education" - meaning education that avoids forcing any "extrinsic aims" upon the students (including critical thinking) - are a version of the pattern of development in educating to critical thinking. No approach to critical thinking is suited to the pattern of development. This is surprising, considering the fact that critical thinking is an essential and declared goal of this pattern. In "The Cognitive Map of Instruction" it is noted that the "nature of desired achievement" in the pattern of development is "the discovering of new principles [creative thinking] and testing them [critical thinking]." The aim of the pattern of development is not to impart specific skills or mold dispositions, but to develop critical and creative attitudes towards them. This approach characterizes the autonomous or authentic personality, developed by instruction that respects the student's autonomy or authenticity, his freedom to regulate his process of learning.

According to the logic of the pattern of development, it is impossible to educate directly to critical thinking. Any attempt to coerce the students to a level of skill in critical thinking or to seduce them to internalize the ideas of critical thinking (recall Perkins, "The teacher must enthrall...") damages their autonomous or authentic development - their chance of becoming critical thinkers. The traditional patterns of instruction - imitation and molding - are guided by "extrinsic aims" and are indoctrinary at their core. One can only educate to critical thinking in a pattern that give preference to "intrinsic aims" or to primary motivations. In this type of learning, the student explores his freedom and gives a basis to his autonomous and authentic experience - a fundamental condition for being a critical thinker. Critical thinking is rooted in a person's internal freedom "to distance himself" from his beliefs and to evaluate them, to be "beyond" or "external" to them or alienated to them in a way (alienation as a positive ideal). When this freedom is suppressed by the process of instruction, including the process of instruction to critical thinking, the primary existential condition for critical thinking is destroyed.

"A critical thinker," writes John Chaffee, "is not only *capable* of reflecting, exploring, and analyzing but *chooses* to think in these advanced, sophisticated ways" (Chaffee, 1993, p. 131). The possibility of choice lies at the core of educating to autonomy or authenticity, i.e. critical thinking. When the student has the possibility of choice, he may also choose non-critical thinking or a non-critical relationship to the world and to himself. This is a danger that cannot be avoided. However, here as well, the "method is the content of the instruction." The choice of a non-critical relationship calls non-critical relationships into question from the "inside," for there is a

contradiction between non-critical relationship and choice. Non-critical "true believers" are bound to the belief (or "meta-belief") that their beliefs are derived from some foundation in the world, that they are forced upon them. Experiencing choice through freedom undermines a person's propensity to attribute a deeper essence to the world than to himself, in other words to be non-critical.[5]

According to the conception of the pattern of development, it is impossible to educate directly to critical thinking. This must be done indirectly, through the creation of an educational environment that encourages learning according to primary motivations Yet what are these "primary motivations"? Is instruction in the pattern of development prepared to allow the child to exhaust all his "primary motivations"? In order to deal with these questions, the ideology of the pattern of development assumes that the child has general primary motivations such as curiosity, an investigative nature, creativity and self-realization as well as primary motivations specific to various fields. This assumption does not withstand the test of critical thinking, being too essentialistic and optimistic. In the language of informal logic, we might say that the pattern of development is plagued with the fallacy of "begging the question": it inserts into the "child's nature" all that it sought to extricate from it. Primary motivations thus shaped, conclusive and good, are a mythological creation. "Primary motivations," self-realization and autonomy are not a given; they are the product of hard work, and must be developed through intentional educational activity.

## Conclusion: Towards the "Fourth Pattern"

We have seen that the approaches of education to critical thinking may be sorted according to the three theories of instruction appearing in "The Cognitive Map of Instruction." This match is not a product of successful coincidence but derived from the fact that education occurs in three possible patterns of instruction: education as socialization - imitation; education as acculturation - molding; and education as individuation - development. (In metaphoric language we may say that these three logics of instruction constitute the magnetic field of education. Approaches to teaching, whatever their content may be, must be divided according to its three poles). Each pattern of instruction claims that it actualizes The Aim of Education. Against such a background it is natural to expect that education for critical thinking will behave similarly and appear in three patterns of instruction, each claiming that it is the best educator to critical thinking.

Viewing the various approaches to critical thinking through "The Cognitive Map of Instruction" enabled us to expose what Paul refers to as "situations of self-deception" - the gap between goals declared by the approaches to critical thinking and goals displayed in their patterns of instruction. In response to Ennis' question ("Are all these people talking about the same thing?"), we answer, "No!" At times, any one person may not be talking about "the same thing," for his approach may include conflicting patterns of instruction or a pattern of instruction contradicting the idea of

critical thinking he is seeking to impart. (Charles Silberman noted in his once popular book *Crisis in the Classroom* that the decisive mistake of teachers is that they think students learn what they teach [Silberman, 1971, p. 181]. The analysis proposed here adds another decisive error: that teachers think they are teaching what they teach. Teachers teach content; but the students learn primarily from the pattern of instruction the teachers use and from the messages inherent in it.)

This deconstruction was meant to assist us in responding to the central question: in what pattern of instruction should critical thinking be taught? However, we seem to have been led to a dead end. The two "positive" patterns, imitation and molding, necessitating a-priori educational goals, damage the autonomy and authenticity of the individual - a fundamental condition for critical thinking. The "negative" pattern, development, that rejects a priori educational goals, assumes what is being sought: that a person is critical from the outset, and if we merely leave the child alone he will develop into a critical thinker par excellence.

In order "to save" education for critical thinking, we must dispose of the ladder of the "The Cognitive Map of Instruction" (or at least weaken our grasp on it) once its critical potential has been exhausted. We must then attempt to develop a "fourth pattern," one that will depart from Lamm's hermetic system and suit the idea of critical thinking.

A hierarchy seems to exist in the three primary categories, "skills," "dispositions" (or internalized values and priciples), and "personality," which comprise the "ideal types" of education to critical thinking. The "personality" category is broader than that of "dispositions," for (autonomous or authentic) personality is likely to supervise or criticize its own dispositions; while "dispositions" precede skills, which they guide and actualize. Since we claim that education to critical thinking must adopt only one pattern of instruction, it is fitting that it employ the pattern centered upon the most basic category. This is the pattern of development, whose goal is to develop autonomous personality, recognizable by its critical relationship to its beliefs. However the pattern of development, at least in its radical or romantic version (a version influenced by Dewey that Dewey criticized), includes assumptions that are overly essential vis-a-vis the "child's nature." Primary motivations do not exist in their own right in the child's soul; they do not wait "there" for "their" opportunity to actualize themselves. (What Dewey wrote about faculties can also be stated about primary motivations: "...The supposed original faculties of observation, recollection, willing, thinking, etc. are purely mythological. There are no such ready-made powers waiting to be exercised thereby trained" -  Dewey, 1916, p. 62). "Primary motivations" must be awakened, developed and guided. This is a process necessitating a pattern of instruction not easily plotted on Lamm's "Cognitive Map of Instruction." However, it suits a pattern of instruction described by Lamm elsewhere: the pattern of the "undermining didactic" (Lamm, 1972).

The essence of the undermining didactic is the use of educational pressure, whose goal is to undermine mental structures - habits, dispositions, concepts, beliefs, etc. This, not in order to

19

impart or mold new mental structures according to set models of "The Educated Person" (as instruction in the patterns of imitation or molding does), but to awaken a "primary motivation" to rehabilitate what has been undermined and then to undermine it again. (Clearly, with maximum sensitivity to the state of the student; pedagogical tact is always needed, especially in this undermining pattern of instruction.) This educational process aims to develop the personality's flexibility, openness and autonomy. It does not educate directly to critical thinking, because it is impossible to do so.[6] This pattern is not easily situated in Lamm's "Cognitive Map of Instruction," and should arouse critical thinking regarding the map itself. In terms of the patterns of instruction, it belongs to the "cognitive field" of the pattern of development, differing form in that the pattern of development in its "pure" version rejects all educational pressure.

Education to critical thinking, according to the "fourth pattern," uses the undermining didactic that suits the idea of critical thinking. At its foundation, critical thinking is undermining thinking: It undermines concepts, attitudes, identity and, in short, a person's balance (or equilibrium in cognitive language) in his world. When a person's balance is disturbed, "primary motivation" arise to rehabilitate this balance and to propel him towards additional learning and development. Thus, the "fourth pattern" affects the student's "primary motivations," arousing, developing and guiding them. When instruction undermines the student and encourages him to rehabilitate his world in his own way, its lays the foundations for critical thinking.

The seed of the "fourth pattern" exists in all of the approaches discussed above. Its roots lie in the Socratic dialogue, as well as in Dewey's and Piaget's concepts of thinking and learning. It must be developed and placed in the center of education, if we want to make education effective to critical thinking. Whether we wish to do this or not is an ideological question.

## The Cognitive Map of Instruction

| Patterns<br>Dimensions | Imitation | Molding | Development |
|---|---|---|---|
| **Social significance ascribed to teaching** | Socialization | Acculturation | Individuation |
| **Nature of aims in teaching** | Extrinsic aims | Extrinsic aims control intrinsic aims | Extrinsic aims control intrinsic aims |
| **Nature of desired achievement** | Performing according to given models | Acting according to given principles | Discovering new principles and criticizing them |
| **Status of the learner** | Homogeneous group member | Heterogeneous group member | Unique individual |
| **Status of the content** | Utilitarian | Intrinsically valuable | Supportive of the learner's capacities |
| **Status of the teacher** | Employee | Cultural agent | Specialist |
| **Preferred kind of motivation** | Specific teacher's activities | Means as well as end of education | Self-motivation and self-regulation |
| **Preferred kind of activities** | Attention | Teacher-directed activities | Pupil-directed activities |
| **Preferred kind of leadership** | Autocratic | Authoritative | Permissive |

# Notes

1. This does not mean, of course, that the theory of "conflicting theories in instruction" is protected from critical thinking. Rather, it will serve us here primarily as a conceptual cornerstone for critical thinking qua "critical thinking," which indicates the dialectic nature of critical thinking. It must "accept" something in order to "reject" something else. However, the article also includes criticism of Lamm's method. The "fourth pattern" moves beyond his system. It is likely that Lamm strengthened three existing logics of instruction and provided them with a transcendental position, though it is not absolutely clear what makes them merit this special status.

2. According to Lamm (1983), ideology is a "system of knowledge" based on the melding of epistemological principles taken from other "systems of consciousness." The components included in the ideology are *eschatology* (an image of the world as it will be after the ideology is actualized), *diagnosis* (a description of the world as it is), *strategy* (the means for actualizing the eschatological vision), and the *collective* (the target population of the ideology). The ideology is a "distorted consciousness," in that all its components are taken out of their epistemological context and processed into the ideological whole. For example, the diagnosis (which belongs to scientific consciousness) is affected by eschatology (which belongs to religion). According to Lamm, human beings need ideologies in order to act. In his view, to be critical is to be conscious of the paradoxical human condition, in which man has an insurmountable need for ideologies. These ideologies unavoidably provide him with a distorted picture of reality, based on wishful thinking and not on "facts as they are," and leads to tolerance of the positions of the other. To be critical, according to Lamm, means to be able to empathetically hold in one's consciousness at least two conflicting ideological perspectives regarding a single issue. Lamm's view of critical thinking is similar to Paul's "strong sense." To be a critical educator, according to Lamm, entails being conscious that the logic of instruction (ideology) according to which one is acting has no absolute justification or absolute priority over other logics.

3. See, for example, Neil Postman & Charles Weingartner, "The Medium is the Message, Of Course," in, *Teaching as a Subversive Activity*, Delacorte press, NY, 1969, pp. 16-25. David Perkins objects to this, stating that the content is a content of instruction. See, Perkins, *Smart Schools*, The Free Press, 1992, pp. 43-44, 69-72.

4. There is no nessessary or logical link between "skills" and "succeeding in life" or utility. The link stems from the instrumentality of skills that serve as means for some purpose, whatever it may be. No wonder then that "critical thinking" reduced to skills is grasped as a means to "succeeding in life." Halpern, for example, defines "critical thinking" as "the use of those

cognitive skills or strategies that increase the probability of desirable outcomes" (Halpern, 1996, p. 5). Copa, Hultgren and Wilkosz wrote in the same spirit: "We value critical thinking because it helps people take action to solve practical problems." (Copa, Hultgren & Wilkosz, 1991, p. 188).

5. During a visit to the US a few years ago, I was surprised to see a few Gurus of critical thinking and quite a few adherents.

6. Jean-Paul Sartre had a significant influence on the ideology of the pattern of development. He differentiated between "play" and "seriousness," explaining that the "playful man" attributes his beliefs to himself and his choices (similar to the rules of the game, which are "human" and "arbitrary"); while the "serious man" believes that his beliefs are a product of the world, attributing more reality to the world than to himself (Sartre, 1984, p. 580). The critical thinker as the "playful man" is conscious that he chose his beliefs (or at least could have theoretically chosen them), and thus his relation to them wo critical Using Richard Rorty's terminology, "the playful man" is guided by a metaphor of invention, while the "serious man" is guided by the metaphor of discovery (Rorty, 1989, Part I). Nonetheless, the basic insight of the critical thinker is that the world is mediated by choice, invention, or other factors. Since Kant's "Critiques," thinkers work hard discover these factors, or perhaps we should say to invent them.

7. I agree with J. Soltis' comment on the introduction to Hare's book *In Defense of Open-Mindedness*: "There is much talk nowadays about teaching people how to think critically. I think teaching people the attitude of open-mindedness will do more to foster critical thinking than any of the more direct, how-to approaches" (Soltis, 1985, p. ix).

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