

## Critical Thinking Framework

### إطار التفكير النقدي

\* **Mohammed Madian**

[mohamedmadin79@gmail.com](mailto:mohamedmadin79@gmail.com)

#### **Abstract:**

Critical thinking is that mode of thinking – about any subject, content, or problem — in which the thinker improves the quality of his or her thinking by skillfully taking charge of the structures inherent in thinking and imposing intellectual standards upon them. The Paul-Elder framework has three components:

1. The elements of thought (reasoning)
2. The intellectual standards that should be applied to the elements of reasoning
3. The intellectual traits associated with a cultivated critical thinker that result from the consistent and disciplined application of the intellectual standards to the elements of thought

**Keywords: Humanities, Social Sciences, Psychology, Logic, Strategies.**

---

\* **Professor of Philosophy - Faculty of Arts - Cairo University.**

## ملخص:

التفكير النقدي هو ذلك النمط من التفكير - حول أي موضوع أو محتوى أو مشكلة - حيث يقوم المفكر بتحسين جودة تفكيره من خلال تولي مسؤولية البنى الكامنة في التفكير بمهارة وفرض المعايير الفكرية عليها. يتكون إطار عمل Paul-Elder من ثلاثة مكونات:

- 1) عناصر الفكر (الاستدلال).
- 2) المعايير الفكرية التي ينبغي تطبيقها على عناصر الاستدلال.
- 3) السمات الفكرية المرتبطة بالمفكر الناقد المثقف والتي تنتج من التطبيق المتسق والمنضبط للمعايير الفكرية على عناصر الفكر.

**الكلمات المفتاحية:** العلوم الإنسانية، العلوم الاجتماعية، علم النفس، المنطق، الاستراتيجيات.

(1)

## How to Be a Critical Thinker

Sometimes it can be hard to navigate this world of ours. It's so easy to be led down the Explore this Article wrong paths by the charlatan map-makers of human society. Merely trusting in this system ensures that you will be misled and scammed and made a fool. Without critical thinking ability there is nothing standing between you and the lies. However, with critical thinking ability there is nothing standing between you and the truth.

### Steps

- 1- **Make a choice.** The truth is that sometimes the lies are kinder to the mind and heart. it's easier to find comfort in the falsehood and fantasies human beings have made for themselves. You have 6 make the choice between truth and comfort. They aren't always separate, or mutually exclusive, but they often are.

You must be willing to endure the heartache and the mental distress for the sake of what is true. If you cant accept that, you will never be able to truly think critically. You will always be biased based upon what you would rather believe to be true.

- 2- **Examine your own beliefs first.** Anyone can be critical of the things other people believe. You can point and laugh and consider them silly for the things they believe to be true. Meanwhile, you may hold onto something even more ridiculous and laughable, but you cannot see it.

Make a list of the things that you hold to be true. Things that really mean something to you. Your personal philosophies and religious beliefs, the things you think about yourself, your biases about people and art and culture. This takes a long time, but it isn't meant to be done all at once. It's something you do everyday. When a thought occurs to you, ask yourself 'Is this true or is this just something I'm hanging on to?'

Wisdom comes from understanding other people, but enlightenment comes from understanding yourself Start with and be most focused on yourself. You're the only person that you can control It's most important that you are a critical thinker, not that you run everyone else's beliefs through a series of tests.

- 3- **Abandon assumption.** There is no coincidence that we find ourselves often apologizing in the form of "well" I assumed you meant... An assumption is where you sacrifice your senses and mental faculties for the sake of a guess. Why assume when you can deduce? Why believe when you can know? Stop assuming. The fact is, you get no credit for a guess even if you're right. Don't assume that the car next to you will yield, watch carefully and react accordingly. Don't assume that you're well and healthy, go to the doctor and find out.

Assumption is what leads us to our most convincing, yet most incorrect beliefs. Ask yourself "Why do I believe this to be true? Is it founded?" If not, abandon it. You might end up being right, but having evidence for your beliefs is more important than making correct guesses.

- 4- **Use logic and reasoning foremost.** There are a thousand books on logic. Go find one and read it. Learn about what is logically valid and what isn't. For instance, populace bias. The number of people that believe in something does not correlate to its truth. Lies and fantasies are seductive and easier to adopt than hard truths. The greatest scientific discoveries in history have been rallied against and disbelieved passionately at one time or another. Don't assume that what is popular is what's true. Reason it out. Does it really make sense? Is there evidence?

- 5- **Have a broad basis of knowledge.** While not everyone needs to learn the ins and outs of quantum physics, it's important to remain well-informed. That which you are blind to can be used against you. Someone can convince you, perhaps, that the Latin sentence *veni vidi vici* means "Buy Paul's snake oil". That is, unless you know that it actually means "I came, I saw, I conquered" or bother to look it up. Know your stuff.

Especially science and history. The energy healers would try to sell you on their ability to regulate your levels of vital energy, or chi. Despite the fact that no scientific research has ever proven such energy to exist. Unless you know that, you might end up parting with a couple of hundred dollars for a stranger to wave his hands over you for twenty minutes. Unless you know the scientific method, you can't identify pseudo-science.

- 6- **Recognize Jargon.** it's literally everywhere. Advertising, medical research. natural 'cures', spirituality, self. help books, car salesmen, lawyers, banking institutions, and insurance companies. What does 'all natural' mean and how different is it from the alternative? Five dollars? What is 'energy' and has it been identified in scientific research? What are auras and past lives and are there possibly other ways a 'psychic' could know so much about you?

You've got to be watchful. Most of the time, we glaze over these terms as though they actually mean something. It isn't until we are enlightened about the subject that we can spot it all. Well, don't wait to be scammed or made a fool of, recognize jargon for what it is. A bunch of empty words used to spruce up something you wouldn't otherwise fall for.

- 7- **Ask questions.** Ask as many as you want. If someone becomes nervous or something starts to fall apart because you're asking too many questions, that's a big red flag. Truthful, helpful and informative people want to be asked questions. Deceitful con-artists do not.
- 8- **Know the difference between impossible and improbable.** A truly critical thinker isn't even limited by the laws of logic. You may not adopt a belief without evidence, but a critical thinker also doesn't hold a strong disbelief in the absence of it. There are trillions of things that we can know, but there are likely just as many things that we can't. A critical thinker is hesitant to judge anything to be impossible. Implausible or improbable, yes. Impossible is much harder to prove.

(2)

## Critical Thinking and Scientific Studies

Here I will introduce beliefs, methodologies, and practices that are considered valid interpretations of CT by various academic disciplines. Some of the theories that follow are CT at its finest, many are elements of CT that are viewed as being CT itself, and some are only related to CT in the most remote manner.

Present instruction is likely to produce teachers who, on the one hand, are confident that they not only understand critical thinking but also know how to teach for it, but who, in point of fact, understand neither. Many will equate critical thinking with mere active involvement or “cooperative learning.” Others will believe that some acquaintance with the terms of Bloom’s Taxonomy or Howard Gardner’s theory of multiple intelligences is equivalent to understanding critical thinking. Some will equate it with an emphasis on learning styles or with concept maps or some other tool or facet or dimension of learning.

Reason is held to be an inherent human capacity that springs to life only when one experiences doubt or uncertainty, (emphasis mine) when there is a need to clear up perplexity, to make sense of things for oneself. Being critically minded means nothing more than exercising our innate potential to reason, to pause and think about things.

### Humanities

As an example of how humanities programs generally view CT I have selected excerpts from texts used by humanities professors who presented on CT. They use texts such as those by Browne and Keeley, and by Grinols, both of which contain articles to critically think about, along with some direction on how to think about them, rather than explanations, or discussions of CT itself. CT takes on different forms depending on what discipline is claiming to be practicing it.

The following passage illuminates how Browne and Keeley view the role of thinking and writing:

Before there is a writing process, there is a cognitive process. The work of a writer’s process of cognition is to understand the world so it may be written about.... If we attach to the conceptualizing of a writing process the conceptualizing of a process of cognition, we can question

how these concepts overlap and mutually reinforce, or possibly subvert, each other.

Grinols listed two significant factors she considers important for those who are teaching CT. She “emphasized the importance of creating an environment that stimulates critical inquiry,” and “suggested that instruction should include a metacognitive strand helping students become aware of their own attitudes and the interaction of affective factors with critical thinking”.

Grinols observed that the performance professors require of their students in reading, writing, and thinking skills is considerably more than the students are able to demonstrate, and yet little, if any, time or teaching emphasis is devoted to encourage the processes necessary for critical thinking, evaluative reading, and creative writing. This observation led Grinols into a debate over the purpose of a college education, whether its purpose is to “train the mind, to develop aesthetic sensitivity, and to encourage intellectual excellence,” or, because of “changing demographics, exploding technological development, and a vastly altered employment environment, “should “career preparation be one (if not the) primary function of a college education”.

Grinols argued that critical thinking ability is necessary for both intellectual pursuit and career preparation. “Furthermore,” “the abilities to read critically and write coherently are vital components of the learning process, whether in formal education, on the job, or simply as an effective member of society”.

As the reader will notice, Grinols' definition of CT incorporated reading and writing as necessary components. Present day reading theory rejects the notion of absolute meaning on the page. Meaning is generated by readers according to their knowledge of the topic and written language, their notion of the way the world functions, as well as their perception of the given communicative situation.

With this perspective it may require CT in order to read effectively, but the act of performing that reading does not make one a critical thinker, **critical reading is another CT subskill**.

“reading is reasoning,” because the reader has to use the same sort of organization and analytic action of ideas as occurs in thinking of supposedly higher sorts”.

“It would be quite difficult today to find a competent teacher who would argue against the case that reading is thinking,” claims Hanf, “but it may be quite easy to find a teacher who does not know how to teach the strategies of translating reading into Further reproduction prohibited without permission. thought” (p. 225). Hanf, suggested that reading is thinking, that a subskill of reading, mapping, makes one “keenly involved in critical thinking. Mapping develops CT.

Hanf then quotes Taba to help validate his claim. “Educators have long said that the main purpose of school is to teach students to think. Yet this objective has remained a pious goal instead of becoming a tangible reality”

Mapping is thinking, constructing and creating the organizational design of ideas, selecting the information that is relevant, and sorting this into its proper place, relating all facts to the whole and relating facts to other facts, and finally responding with personal reaction to the material.

Because Russell listed as one of the problems with educational writing “...that critical thinking has so many definitions”, Hanf claimed he could reduce the ambiguity by choosing three basic CT skills: “(1) acquisition of information, (2) organization (structuring and symbolizing), and (3) evaluation.” He then concluded with the statement: “Even though these intellectual activities may be ordered in different sequences and called by different names, they are fundamental thinking.

### **Social Studies**

Educational literature during the last several years has presented a different view of the teacher, as a reflective decision maker, who still must be exceptionally informed about the issue under discussion. However, in a reflective classroom, the teacher's role is to stimulate thinking, encourage dialogue, and guide students in evaluating the worth of ideas. The role of teachers becomes a facilitative one where teachers raise questions, foster doubt, present competing views, challenge the ideas of students, and promote rigorous and democratic dialogue.

This teacher is one who would teach students to “question how knowledge is produced and distributed, utilize dialogue, and make

knowledge meaningful, critical, and ultimately, emancipatory”. “Teachers, as educators,” argued Liston and Zeichner, “should be more concerned with enabling students to acquire and critically examine moral beliefs”. This entails a careful and impartial consideration of the politics and origins of moral issues.

One of the goals of social studies is to promote democratic moral values such as justice, equality, freedom, and dignity, while fostering thinking, behavior, and action consistent with these democratic values. The school environment can influence children’ learning of these values .

Stanley suggested that “the opportunity for students to learn to think critically should also include the analysis of open-ended social problems that do not have a clear indication of origins, causes, or criteria for a solution”. Because many possible solutions could be considered valid, a student’s ability to analyze the problem and defend the proposed solution, rather than the position taken on the issue, must be the criteria for student evaluation.

By determining how much program fostered rational thought, rather than students merely memorizing what the teacher or textbook said, it was possible to assess the educative value of program. Social studies instruction according “has a pronounced and natural tendency to inculcate an uncritical, monological, nationalistic perspective despite the multilogical nature of the major issues in it”.

“competent social studies teachers will not be satisfied if students only learn content. They will include student practice with identifying and solving problems”.

Knowledge of content, however, is essential to developing a student's critical thinking abilities. Attempts to teach generic thinking skills or models without contextual knowledge are likely to have little, if any, impact on student performance in subject areas. In several studies on problem solving the major finding was that those most skilled in using CT to address social issues possessed problem-solving strategies, and in-depth knowledge of the subject matter being discussed.

## Psychology

For the past 15 years cognitive psychology has virtually dominated the field of psychology. Psychologists have been concerned with learning about the skills and strategies used in problem solving, reasoning, and decision making and the way these abilities relate to intelligence.

A new area of psychology called cognitive process instruction recommends using this previously accumulated psychological knowledge about human thought processes and mechanisms to improve CT.

Psychological researches CT as “the ability and willingness to assess claims and make objective judgments on the basis of well-supported reason.

And many philosophers believe “thinking and reasoning processes exist in an elegant little bubble, uncontaminated by real life. Students spend time learning about thinking as if it has no connection to what in fact they do” and that they “regard emotions and thinking as entirely different processes. Tavis if you question beliefs and find them lacking there are emotional consequences.

...People can be extremely intelligent, have taken a critical thinking course, and know logic inside out. Yet they may just become clever debaters, not critical thinkers, because they're unwilling to look at their biases.

Total egocentrism may be defined as getting what you want and not caring who it affects, nor what that affect may be. Unfortunately, many people who have learned a little become proud of their accomplishment and develop an intellectual arrogance. Elder and Paul call this weak sense CT.

"Critical thinking is disciplined, self-directed thinking which exemplifies the perfections of thinking appropriate to a particular mode or domain of thought. It comes in two forms. If disciplined to serve the interests of a particular individual or group, to the exclusion of other relevant persons and groups, it is weak sense critical thinking. If disciplined to take into account the interests of diverse persons or groups, it is fairminded or strong sense critical thinking.

People tend to look only for evidence that confirms their beliefs, and be critical of information that contradicts their beliefs. Studies, or

evidence, that confirm their beliefs come under less scrutiny. “We’re talking about self-protection here—the idea that your worth is reflected in your ability to be right.

Psychologists have shown that there are “positive illusions” that people need to feel self-confident, happy, contented, and motivated. There are also illusions that become the source of much human misery, because they keep us “clinging to beliefs and attitudes that are outmoded, inappropriate, and, in the long term, even harmful”.

When we compare psychology with philosophy in relationship to CT, we come to the conclusion that where philosophy looks at logic as a major component, or sometimes the very essence of CT, by contrast psychology “is concerned with how people process information in reasoning tasks.” has an (understandable) bias for the approach taken by psychologists. We believe “that an understanding of how people do reason is essential for getting people to improve the way they reason. The fact is that in our everyday thinking, the psychological processes quite often are not logical”.

### **Philosophy and Logic**

Reasoning is often taken to be the hallmark of the human species. Colloquially, reasoning examines “what follows what.” It allows us to reach conclusions about the nature of the world. When we reason, we use our knowledge about the truth of one or more statements to determine if another statement, the conclusion, is true. A conclusion is an inferential belief that is derived from other statements.

Philosophy should provide a conceptual structure for the teaching of thinking because it is “the discipline which has, traditionally, thought about thinking and provided the criteria for improving thinking”. Philosophy’s subdisciplines—logic, ethics, epistemology, metaphysics, and aesthetics—provide rules and patterns for examining reasoning, value judgment, knowledge acquisition, existence, and appreciation of the world around us.

Philosophers think that CT is the ability “to identify the less obvious alternatives to positions, claims, arguments, generalizations and definitions and to evaluate the alternatives with reasonable objectivity”.

Logic is the branch of philosophy that explicitly states the rules for

deriving valid (correct) conclusions. If a conclusion is not derivable from the original premise, it is invalid, and if it does not follow the rules of logic, it is also illogical. According to the rules of logic, the truth of a statement or even its correctness is not the issue, only whether a conclusion follows from a given statement. Thus, according to logic, a “conclusion can be valid even if the assumptions are false.” Although we maintain that the ability for rational, logical thought is unique to humans, all too often we reach invalid or illogical conclusions.

(3)

### The importance of critical thinking

- 1) **Critical thinking is a domain-general thinking skill.** The ability to think clearly and rationally is important whatever we choose to do. If you work in education, research, finance, management or the legal profession, then critical thinking is obviously important. But critical thinking skills are not restricted to a particular subject area. Being able to think well and solve problems systematically is an asset for any career.
- 2) **Critical thinking is very important in the new knowledge economy.** The global knowledge economy is driven by information and technology. One has to be able to deal with changes quickly and effectively. The new economy places increasing demands on flexible intellectual skills, and the ability to analyse information and integrate diverse sources of knowledge in solving problems. Good critical thinking promotes such thinking skills, and is very important in the fast-changing workplace.
- 3) **Critical thinking enhances language and presentation skills.** Thinking clearly and systematically can improve the way we express our ideas. In learning how to analyse the logical structure of texts, critical thinking also improves comprehension abilities.
- 4) **Critical thinking promotes creativity.** To come up with a creative solution to a problem involves not just having new ideas. It must also be the case that the new ideas being generated are useful and relevant to the task at hand. Critical thinking plays a crucial role in evaluating new ideas, selecting the best ones and modifying them if necessary
- 5) **Critical thinking is crucial for self-reflection.** In order to live a meaningful life and to structure our lives accordingly, we need to justify and reflect on our values and decisions. Critical thinking provides the tools for this process of self-evaluation.
- 6) **Good critical thinking is the foundation of science and democracy.** Science requires the critical use of reason in experimentation and theory confirmation. The proper functioning of a liberal democracy requires citizens who can think critically about social issues to inform their judgments about proper governance and to overcome biases and prejudice.

### **Some Prominent Features Of Critical Thinking**

- 1- Critical thinking is reflective.
- 2- Critical thinking involves standards
- 3- Critical thinking is authentic
- 4- Critical thinking involves being reasonable

### **Natural versus Critical Thinking**

- As humans we think; as critical thinkers we analyze our thinking.
- As humans we think egocentrically; as critical thinkers we expose the egocentric roots of our thinking to close scrutiny.
- As humans we think sociocentrically; as critical thinkers we expose the social influences on our thinking and actively decide what ideas, "authorities", religious groups, belief systems, etc., we allow to influence our thinking.
- As humans we are drawn to standards of thinking unworthy of belief; as critical thinkers we expose inappropriate standards and replace them with sound ones.
- As humans we live in systems of meanings that typically entrap us; as critical thinkers we learn how to raise our thinking to conscious examination, enabling us to free ourselves from many of the traps of undisciplined, instinctive thought.
- As humans we use logical systems whose root structures are not apparent to us; as critical thinkers we develop tools for explicating and assessing our participation in the logical systems in which we live and which we influence.
- As humans we live with the illusion of intellectual and emotion freedom; as critical thinkers we take explicit intellectual and emotional command of who we are, what we are, and the ends to which our lives are tending.
- As human thinkers we are governed by our thoughts; as critical thinkers we learn how to govern the thoughts that govern us.

#### (4)

### **The Common Pattern of Critical Thinking**

The Process of Thinking Critically Despite the diversity of our 11 examples, one can recognize a common pattern. Dewey analyzed it as consisting of five phases:

1. suggestions, in which the mind leaps forward to a possible solution;
2. an intellectualization of the difficulty or perplexity into a problem to be solved, a question for which the answer must be sought;
3. the use of one suggestion after another as a leading idea, or hypothesis, to initiate and guide observation and other operations in collection of factual material;
4. the mental elaboration of the idea or supposition as an idea or supposition (reasoning, in the sense on which reasoning is a part, not the whole, of inference); and
5. testing the hypothesis by overt or imaginative action.

Perhaps the best way to conceptualize the critical thinking process is as a checklist whose component events can occur in a variety of orders, selectively, and more than once. These component events might include:

- (1) Noticing a difficulty,
- (2) Defining the problem,
- (3) Dividing the problem into manageable sub-problems,
- (4) Formulating a variety of possible solutions to the problem or sub-problem,
- (5) Determining what evidence is relevant to deciding among possible solutions to the problem or sub-problem,
- (6) Devising a plan of systematic observation or experiment that will uncover the relevant evidence,
- (7) Carrying out the plan of systematic observation or experimentation,
- (8) Noting the results of the systematic observation or experiment,
- (9) Gathering relevant testimony and information from others,
- (10) Judging the credibility of testimony and information gathered

from others,

(11) Drawing conclusions from gathered evidence and accepted testimony,

(12) Accepting a solution that the evidence adequately supports .

Checklist conceptions of the process of critical thinking are open to the objection that they are too mechanical and procedural to fit the multi-dimensional and emotionally charged issues for which critical thinking is urgently needed (Paul 1984). For such issues, a more dialectical process is advocated, in which competing relevant world views are identified, their implications explored, and some sort of creative synthesis attempted.

### **Components of the Process**

1. Observing:
2. Feeling:
3. Wondering:
4. Imagining:
5. Inferring:
6. Knowledge:
7. Experimenting:
8. Consulting:
9. Judging:
10. Deciding:

(5)

## Critical Thinking in Everyday Life: 9 Strategies

Most of us are not what we could be. We are less. We have great capacity. But most of it is dormant; most is undeveloped. Improvement in thinking is like improvement in basketball, in ballet, or in playing the saxophone. It is unlikely to take place in the absence of a conscious commitment to learn. As long as we take our thinking for granted, we don't do the work required for improvement.

Development in thinking requires a gradual process requiring plateaus of learning and just plain hard work. It is not possible to become an excellent thinker simply because one wills it. Changing one's habits of thought is a long-range project, happening over years, not weeks or months. The essential traits of a critical thinker require an extended period of development.

How, then, can we develop as critical thinkers? How can we help ourselves and our students to practice better thinking in everyday life?

First, we must understand that there are stages required for development as a critical thinker:

**Stage One:** The Unreflective Thinker (we are unaware of significant problems in our thinking)

**Stage Two:** The Challenged Thinker (we become aware of problems in our thinking)

**Stage Three:** The Beginning Thinker (we try to improve but without regular practice)

**Stage Four:** The Practicing Thinker (we recognize the necessity of regular practice)

**Stage Five:** The Advanced Thinker (we advance in accordance with our practice)

**Stage Six:** The Master Thinker (skilled & insightful thinking become second nature to us)

We develop through these stages if we:

- 1) accept the fact that there are serious problems in our thinking (accepting the challenge to our thinking) and
- 2) begin regular practice.

We will explain 9 strategies that any motivated person can use to develop as a thinker. As we explain the strategy, we will describe it as if we were talking directly to such a person.

**First Strategy: Use “Wasted” Time.** All humans waste some time; that is, fail to use all of their time productively or even pleausurably. Sometimes we jump from one diversion to another, without enjoying any of them. Sometimes we become irritated about matters beyond our control. Sometimes we fail to plan well causing us negative consequences we could easily have avoided (for example, we spend time unnecessarily trapped in traffic — though we could have left a half hour earlier and avoided the rush). Sometimes we worry unproductively. Sometimes we spend time regretting what is past. Sometimes we just stare off blankly into space.

The key is that the time is “gone” even though, if we had thought about it and considered our options, we would never have deliberately spent our time in the way we did. So why not take advantage of the time you normally waste by practicing your critical thinking during that otherwise wasted time? For example, instead of sitting in front of the TV at the end of the day flicking from channel to channel in a vain search for a program worth watching, spend that time, or at least part of it, thinking back over your day and evaluating your strengths and weaknesses. For example, you might ask yourself questions like these:

When did I do my worst thinking today? When did I do my best? What in fact did I think about today? Did I figure anything out? Did I allow any negative thinking to frustrate me unnecessarily? If I had to repeat today what would I do differently? Why? Did I do anything today to further my long-term goals? Did I act in accordance with my own expressed values? If I spent every day this way for 10 years, would I at the end have accomplished something worthy of that time?

It would be important of course to take a little time with each question. It would also be useful to record your observations so that you are forced to spell out details and be explicit in what you recognize and see. As time passes, you will notice patterns in your thinking.

**Second Strategy: A Problem A Day.** At the beginning of each day (perhaps driving to work or going to school) choose a problem to work on when you have free moments. Figure out the logic of the problem by identifying its elements. In other words, systematically think through the questions: What exactly is the problem? How can I put it into the form of a question. How does it relate to my goals, purposes, and needs?

1) Wherever possible take problems one by one. State the problem as

clearly and precisely as you can.

- 2) Study the problem to make clear the “kind” of problem you are dealing with. Figure out, for example, what sorts of things you are going to have to do to solve it. Distinguish Problems over which you have some control from problems over which you have no control. Set aside the problems over which you have no control, concentrating your efforts on those problems you can potentially solve.
- 3) Figure out the information you need and actively seek that information.
- 4) Carefully analyze and interpret the information you collect, drawing what reasonable inferences you can.
- 5) Figure out your options for action. What can you do in the short term? In the long term? Distinguish problems under your control from problems beyond your control. Recognize explicitly your limitations as far as money, time, and power.
- 6) Evaluate your options, taking into account their advantages and disadvantages in the situation you are in.
- 7) Adopt a strategic approach to the problem and follow through on that strategy. This may involve direct action or a carefully thought-through wait-and-see strategy.
- 8) When you act, monitor the implications of your action as they begin to emerge. Be ready at a moment’s notice to revise your strategy if the situation requires it. Be prepared to shift your strategy or your analysis or statement of the problem, or all three, as more information about the problem becomes available to you.

**Third Strategy: Internalize Intellectual Standards.** Each week, develop a heightened awareness of one of the universal intellectual standards (clarity, precision, accuracy, relevance, depth, breadth, logicalness, significance). Focus one week on clarity, the next on accuracy, etc. For example, if you are focusing on clarity for the week, try to notice when you are being unclear in communicating with others. Notice when others are unclear in what they are saying.

When you are reading, notice whether you are clear about what you are reading. When you orally express or write out your views (for whatever reason), ask yourself whether you are clear about what you are trying to say. In doing this, of course, focus on four techniques of

clarification : **1) Stating what you are saying** explicitly and precisely (with careful consideration given to your choice of words), **2) Elaborating** on your meaning in other words, **3) Giving examples** of what you mean from experiences you have had, and **4) Using analogies**, metaphors, pictures, or diagrams to illustrate what you mean. In other words, you will frequently State, Elaborate, Illustrate, And Exemplify your points. You will regularly ask others to do the same.

**Fourth Strategy: Keep An Intellectual Journal.** Each week, write out a certain number of journal entries. Use the following format (keeping each numbered stage separate):

1. Situation. Describe a situation that is, or was, emotionally significant to you (that is, that you deeply care about). Focus on one situation at a time.
2. Your Response. Describe what you did in response to that situation. Be specific and exact.
3. Analysis. Then analyze, in the light of what you have written, what precisely was going on in the situation. Dig beneath the surface.
4. Assessment. Assess the implications of your analysis. What did you learn about yourself? What would you do differently if you could re-live the situation?

**Strategy Five: Reshape Your Character.** Choose one intellectual trait-intellectual perseverance, autonomy, empathy, courage, humility, etc- to strive for each month, focusing on how you can develop that trait in yourself. For example, concentrating on intellectual humility, begin to notice when you admit you are wrong. Notice when you refuse to admit you are wrong, even in the face of glaring evidence that you are in fact wrong. Notice when you become defensive when another person tries to point out a deficiency in your work, or your thinking. Notice when your intellectual arrogance keeps you from learning, for example, when you say to yourself “I already know everything I need to know about this subject.” Or, “I know as much as he does. Who does he think he is forcing his opinions on me?” By owning your “ignorance,” you can begin to deal with it.

**Strategy Six: Deal with Your Egocentrism.** Egocentric thinking is found in the disposition in human nature to think with an automatic subconscious bias in favor of oneself. On a daily basis, you

can begin to observe your egocentric thinking in action by contemplating questions like these: Under what circumstances do I think with a bias in favor of myself? Did I ever become irritable over small things? Did I do or say anything “irrational” to get my way? Did I try to impose my will upon others? Did I ever fail to speak my mind when I felt strongly about something, and then later feel resentment? Once you identify egocentric thinking in operation, you can then work to replace it with more rational thought through systematic self-reflection, thinking along the lines of: What would a rational person feel in this or that situation? What would a rational person do? How does that compare with what I want to do? (Hint: If you find that you continually conclude that a rational person would behave just as you behaved you are probably engaging in self-deception.)

**Strategy Seven: Redefine the Way You See Things.** We live in a world, both personal and social, in which every situation is “defined,” that is, given a meaning. How a situation is defined determines not only how we feel about it, but also how we act in it, and what implications it has for us. However, virtually every situation can be defined in more than one way. This fact carries with it tremendous opportunities. In principle, it lies within your power and mine to make our lives more happy and fulfilling than they are. Many of the negative definitions that we give to situations in our lives could in principle be transformed into positive ones. We can be happy when otherwise we would have been sad.

We can be fulfilled when otherwise we would have been frustrated. In this strategy, we practice redefining the way we see things, turning negatives into positives, dead-ends into new beginnings, mistakes into opportunities to learn. To make this strategy practical, we should create some specific guidelines for ourselves. For example, we might make ourselves a list of five to ten recurrent negative contexts in which we feel frustrated, angry, unhappy, or worried. We could then identify the definition in each case that is at the root of the negative emotion. We would then choose a plausible alternative definition for each and then plan for our new responses as well as new emotions. For example, if you tend to worry about all problems, both the ones you can do something about and those that you can't; you can review the thinking in this nursery rhyme:

“For every problem under the sun, there is a solution or there is

none. If there be one, think til you find it. If there be none, then never mind it.”

Let’s look at another example. You do not have to define your initial approach to a member of the opposite sex in terms of the definition “his/her response will determine whether or not I am an attractive person.” Alternatively, you could define it in terms of the definition “let me test to see if this person is initially drawn to me—given the way they perceive me.” With the first definition in mind, you feel personally put down if the person is not “interested” in you; with the second definition you explicitly recognize that people respond not to the way a stranger is, but the way they look to them subjectively. You therefore do not take a failure to show interest in you (on the part of another) as a “defect” in you.

**Strategy Eight: Get in touch with your emotions:** Whenever you feel some negative emotion, systematically ask yourself: What, exactly, is the thinking leading to this emotion? For example, if you are angry, ask yourself, what is the thinking that is making me angry? What other ways could I think about this situation? For example, can you think about the situation so as to see the humor in it and what is pitiable in it? If you can, concentrate on that thinking and your emotions will (eventually) shift to match it.

**Strategy Nine: Analyze group influences on your life:** Closely analyze the behavior that is encouraged, and discouraged, in the groups to which you belong. For any given group, what are you "required" to believe? What are you "forbidden" to do? Every group enforces some level of conformity. Most people live much too much within the view of themselves projected by others. Discover what pressure you are bowing to and think explicitly about whether or not to reject that pressure.

**Conclusion: The key point to keep in mind when devising strategies is that you are engaged in a personal experiment. You are testing ideas in your everyday life. You are integrating them, and building on them, in the light of your actual experience. For example, suppose you find the strategy “Redefine the Way You See Things” to be intuitive to you. So you use it to begin. Pretty soon you find yourself noticing the social definitions that rule many situations in your life. You recognize how your behavior is shaped and controlled by the definitions in use:**

1. "I'm giving a party," (Everyone therefore knows to act in a "partying" way)
2. "The funeral is Tuesday," (There are specific social behaviors expected at a funeral)
3. "Jack is an acquaintance, not really a friend." (We behave very differently in the two cases)

You begin to see how important and pervasive social definitions are. You begin to redefine situations in ways that run contrary to some commonly accepted definitions. You notice then how redefining situations (and relationships) enables you to "Get in Touch With Your Emotions." You recognize that the way you think (that is, define things) generates the emotions you experience. When you think you are threatened (i.e., define a situation as "threatening"), you feel fear. If you define a situation as a "failure," you may feel depressed. On the other hand, if you define that same situation as a "lesson or opportunity to learn" you feel empowered to learn. When you recognize this control that you are capable of exercising, the two strategies begin to work together and reinforce each other.

Next consider how you could integrate strategy #9 ("Analyze group influences on your life") into your practice. One of the main things that groups do is control us by controlling the definitions we are allowed to operate with. When a group defines some things as "cool" and some as "dumb," the members of the group try to appear "cool" and not appear "dumb." When the boss of a business says, "That makes a lot of sense," his subordinates know they are not to say, "No, it is ridiculous." And they know this because defining someone as the "boss" gives him/her special privileges to define situations and relationships.

You now have three interwoven strategies: you "Redefine the Way You See Things," "Get in touch with your emotions," and "Analyze group influences on your life." The three strategies are integrated into one. You can now experiment with any of the other strategies, looking for opportunities to integrate them into your thinking and your life. If you follow through on some plan analogous to what we have described, you are developing as a thinker. More precisely, you are becoming a "Practicing" Thinker. Your practice will bring advancement. And with advancement, skilled and insightful thinking may become more and more natural to you.

## **Bibliography**

- Anderson, Lorin W., David R. Krathwohl, Peter W. Airasian, Kathleen A. Cruikshank, Richard E. Mayer, Paul R. Pintrich, James Rath, and Merlin C. Wittrock, 2001, *A Taxonomy for Learning, Teaching and Assessing: A Revision of Bloom's Taxonomy of Educational Objectives*, New York: Longman, complete edition.
- Berman, Alan M., Seth J. Schwartz, William M. Kurtines, and Steven L. Berman, 2001, "The Process of Exploration in Identity Formation: The Role of Style and Competence", *Journal of Adolescence*, 24(4): 513–528. doi:10.1006/jado.2001.0386
- Casserly, Megan, 2012, "The 10 Skills That Will Get You Hired in 2013", *Forbes*, Dec. 10, 2012. Available at <https://www.forbes.com/sites/meghancasserly/2012/12/10/the-10-skills-that-will-get-you-a-job-in-2013/#79e7ff4e633d>; accessed 2017 11 06.
- Center for Assessment & Improvement of Learning, 2017, *Critical Thinking Assessment Test*, Cookeville, TN: Tennessee Technological University.
- Cohen, Jacob, 1988, *Statistical Power Analysis for the Behavioral Sciences*, Hillsdale, NJ: Lawrence Erlbaum Associates, 2nd edition.
- College Board, 1983, *Academic Preparation for College. What Students Need to Know and Be Able to Do*, New York: College Entrance Examination Board, ERIC document ED232517.
- Commission on the Relation of School and College of the Progressive Education Association, 1943, *Thirty Schools Tell Their Story*, Volume V of *Adventure in American Education*, New York and London: Harper & Brothers.
- Dagleish, Adam, Patrick Girard, and Maree Davies, 2017, "Critical Thinking, Bias and Feminist Philosophy: Building a Better Framework through Collaboration", *Informal Logic*, 37(4): 351–369. [[Dagleish et al. available online](#)]
- Dewey, John, 1910, *How We Think*, Boston: D.C. Heath. [[Dewey 1910 available online](#)]

- —, 1916, *Democracy and Education: An Introduction to the Philosophy of Education*, New York: Macmillan.
- —, 1933, *How We Think: A Restatement of the Relation of Reflective Thinking to the Educative Process*, Lexington, MA: D.C. Heath.
- —, 1936, “The Theory of the Chicago Experiment”, Appendix II of Mayhew & Edwards 1936: 463–477.
- —, 1938, *Logic: The Theory of Inquiry*, New York: Henry Holt and Company.
- Dominguez, Caroline (coord.), 2018a, *A European Collection of the Critical Thinking Skills and Dispositions Needed in Different Professional Fields for the 21st Century*, Vila Real, Portugal: UTAD. Available at <http://bit.ly/CRITHINKEDUO1>; accessed 2018 04 09.
- — (coord.), 2018b, *A European Review on Critical Thinking Educational Practices in Higher Education Institutions*, Vila Real: UTAD. Available at <http://bit.ly/CRITHINKEDUO2>; accessed 2018 04 14.
- Dumke, Glenn S., 1980, *Chancellor’s Executive Order 338*, Long Beach, CA: California State University, Chancellor’s Office. Available at <https://www.calstate.edu/eo/EO-338.pdf>; accessed 2017 11 16.
- Ennis, Robert H., 1958, “An Appraisal of the Watson-Glaser Critical Thinking Appraisal”, *The Journal of Educational Research*, 52(4): 155–158. doi:10.1080/00220671.1958.10882558
- —, 2011, “Critical Thinking: Reflection and Perspective Part I”, *Inquiry: Critical Thinking across the Disciplines*, 26(1): 4–18. doi:10.5840/inquiryctnews20112613
- —, 2013, “Critical Thinking across the Curriculum: The Wisdom CTAC Program”, *Inquiry: Critical Thinking across the Disciplines*, 28(2): 25–45. doi:10.5840/inquiryct20132828
- —, 2016, “Definition: A Three-Dimensional Analysis with Bearing on Key Concepts”, in Patrick Bondy and Laura Benacquista (eds.), *Argumentation, Objectivity, and Bias: Proceedings of the 11th International Conference of the Ontario Society for the Study of Argumentation (OSSA), 18–21 May 2016*, Windsor, ON: OSSA, pp. 1–19. Available at <http://scholar.uwindsor.ca/ossaarchive/OSSA11/papersandcommentaries/105>; accessed 2017 12 02.

- —, 2018, “Critical Thinking Across the Curriculum: A Vision”, *Topoi*, 37(1): 165–184. doi:10.1007/s11245-016-9401-4
- Ennis, Robert H., and Jason Millman, 1971, *Manual for Cornell Critical Thinking Test, Level X, and Cornell Critical Thinking Test, Level Z*, Urbana, IL: Critical Thinking Project, University of Illinois.
- Ennis, Robert H., Jason Millman, and Thomas Norbert Tomko, 1985, *Cornell Critical Thinking Tests Level X & Level Z: Manual*, Pacific Grove, CA: Midwest Publication, 3rd edition.
- —, 2005, *Cornell Critical Thinking Tests Level X & Level Z: Manual*, Seaside, CA: Critical Thinking Company, 5th edition.
- Ennis, Robert H. and Eric Weir, 1985, *The Ennis-Weir Critical Thinking Essay Test: Test, Manual, Criteria, Scoring Sheet: An Instrument for Teaching and Testing*, Pacific Grove, CA: Midwest Publications.
- Facione, Peter A., 1990a, *Critical Thinking: A Statement of Expert Consensus for Purposes of Educational Assessment and Instruction*, Research Findings and Recommendations Prepared for the Committee on Pre-College Philosophy of the American Philosophical Association, ERIC Document ED315423.
- —, 1990b, *California Critical Thinking Skills Test, CCTST – Form A*, Millbrae, CA: The California Academic Press.
- —, 1990c, *The California Critical Thinking Skills Test--College Level. Technical Report #3. Gender, Ethnicity, Major, CT Self-Esteem, and the CCTST*, ERIC Document ED326584.
- —, 1992, *California Critical Thinking Skills Test: CCTST – Form B*, Millbrae, CA: The California Academic Press.
- —, 2000, “The Disposition Toward Critical Thinking: Its Character, Measurement, and Relationship to Critical Thinking Skill”, *Informal Logic*, 20(1): 61–84. [Facione 2000 available online]
- Glaser, Edward Maynard, 1941, *An Experiment in the Development of Critical Thinking*, New York: Bureau of Publications, Teachers College, Columbia University.
- Halpern, Diane F., 1998, “Teaching Critical Thinking for Transfer Across Domains: Disposition, Skills, Structure Training, and Metacognitive Monitoring”, *American Psychologist*, 53(4): 449–455. doi:10.1037/0003-066X.53.4.449

- Paul, Richard W., 1981, “Teaching Critical Thinking in the ‘Strong’ Sense: A Focus on Self-Deception, World Views, and a Dialectical Mode of Analysis”, *Informal Logic*, 4(2): 2–7. [Paul 1981 available online]
- —, 1984, “Critical Thinking: Fundamental to Education for a Free Society”, *Educational Leadership*, 42(1): 4–14.
- —, 1985, “McPeck’s Mistakes”, *Informal Logic*, 7(1): 35–43. [Paul 1985 available online]
- Paul, Richard W. and Linda Elder, 2006, *The Miniature Guide to Critical Thinking: Concepts and Tools*, Dillon Beach, CA: Foundation for Critical Thinking, 4th edition.
- Stanovich Keith E., and Paula J. Stanovich, 2010, “A Framework for Critical Thinking, Rational Thinking, and Intelligence”, in David D. Preiss and Robert J. Sternberg (eds), *Innovations in Educational Psychology: Perspectives on Learning, Teaching and Human Development*, New York: Springer Publishing, pp 195–237.
- Stanovich Keith E., Richard F. West, and Maggie E. Toplak, 2011, “Intelligence and Rationality”, in Robert J. Sternberg and Scott Barry Kaufman (eds.), *Cambridge Handbook of Intelligence*, Cambridge: Cambridge University Press, 3rd edition, pp. 784–826. doi:10.1017/CBO9780511977244.040
- Tankersley, Karen, 2005, *Literacy Strategies for Grades 4–12: Reinforcing the Threads of Reading*, Alexandria, VA: Association for Supervision and Curriculum Development.
- Thayer-Bacon, Barbara J., 1992, “Is Modern Critical Thinking Theory Sexist?”, *Inquiry: Critical Thinking Across the Disciplines*, 10(1): 3–7. doi:10.5840/inquiryctnews199210123
- —, 1993, “Caring and Its Relationship to Critical Thinking”, *Educational Theory*, 43(3): 323–340. doi:10.1111/j.1741-5446.1993.00323.x
- —, 1995a, “Constructive Thinking: Personal Voice”, *Journal of Thought*, 30(1): 55–70.
- —, 1995b, “Doubting and Believing: Both are Important for Critical Thinking”, *Inquiry: Critical Thinking across the Disciplines*, 15(2): 59–66. doi:10.5840/inquiryctnews199515226
- —, 2000, *Transforming Critical Thinking: Thinking Constructively*, New York: Teachers College Press.

- Toulmin, Stephen Edelston, 1958, *The Uses of Argument*, Cambridge: Cambridge University Press.
- Turri, John, Mark Alfano, and John Greco, 2017, “Virtue Epistemology”, in Edward N. Zalta (ed.), *The Stanford Encyclopedia of Philosophy* (Winter 2017 Edition). URL = <https://plato.stanford.edu/archives/win2017/entries/epistemology-virtue/>
- Warren, Karen J. 1988. “Critical Thinking and Feminism”, *Informal Logic*, 10(1): 31–44. [Warren 1988 available online]
- Watson, Goodwin, and Edward M. Glaser, 1980a, *Watson-Glaser Critical Thinking Appraisal, Form A*, San Antonio, TX: Psychological Corporation.
- —, 1980b, *Watson-Glaser Critical Thinking Appraisal: Forms A and B; Manual*, San Antonio, TX: Psychological Corporation,
- —, 1994, *Watson-Glaser Critical Thinking Appraisal, Form B*, San Antonio, TX: Psychological Corporation.
- Weinstein, Mark, 1990, “Towards a Research Agenda for Informal Logic and Critical Thinking”, *Informal Logic*, 12(3): 121–143. [Weinstein 1990 available online]
- —, 2013, *Logic, Truth and Inquiry*, London: College Publications.
- Zagzebski, Linda Trinkaus, 1996, *Virtues of the Mind: An Inquiry into the Nature of Virtue and the Ethical Foundations of Knowledge*, Cambridge: Cambridge University Press.
- doi:10.1017/CBO9781139174763