Special Edition

Announcing

27th International Conference on Critical Thinking

Near University of California at Berkeley

July 23 – 26, 2007

The Miniature Guide to Critical Thinking

Concepts and Tools

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and
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Please join us for the

27th International Conference on Critical Thinking
Near University of California at Berkeley
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For more than 25 years, the Foundation For Critical Thinking has emphasized the importance of teaching for critical thinking in a strong, rather than a weak, sense. We are committed to a clear and substantive concept of critical thinking (rather than one that is ill-defined); a concept that interfaces well with the disciplines, that applies directly to the needs of everyday and professional life, that emphasizes the affective as well as the cognitive dimensions of thought. We advocate a concept of critical thinking that organizes instruction in every subject area at every educational level, around it, and on it, and through it. One implication of such an emphasis is this: that only through long-term planning can a substantive concept of critical thinking take root in instruction and learning. We need short-term strategies, of course. But without long-term planning nothing substantial occurs. Deep learning does not result.

The 27th International Conference will focus on fostering a substantive concept of critical thinking—for the long run—whether by individual instructors, by departments or divisions, or across education communities. All conference sessions will be interactive—integrating reading, writing and teaching as modes for taking ownership of the ideas.

To register, visit our website: www.criticalthinking.org
Or call toll-free 800.833.3645.

Contents

Why Critical Thinking?

The Problem:

Everyone thinks; it is our nature to do so. But much of our thinking, left to itself, is biased, distorted, partial, uninformed or down-right prejudiced. Yet the quality of our life and that of what we produce, make, or build depends precisely on the quality of our thought. Shoddy thinking is costly, both in money and in quality of life. Excellence in thought, however, must be systematically cultivated.

A Definition:

Critical thinking is the art of analyzing and evaluating thinking with a view to improving it.

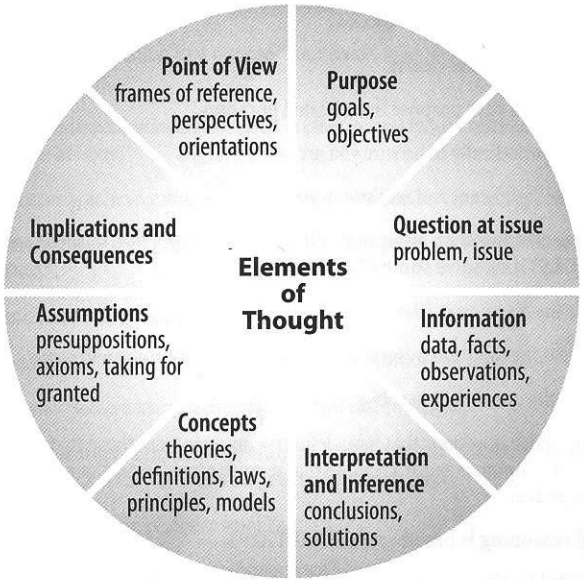
The Result:

A well cultivated critical thinker:

- raises vital questions and problems, formulating them clearly and precisely;
- gathers and assesses relevant information, using abstract ideas to interpret it effectively;
- comes to well-reasoned conclusions and solutions, testing them against relevant criteria and standards;
- thinks openmindedly within alternative systems of thought, recognizing and assessing, as need be, their assumptions, implications, and practical consequences; and
- communicates effectively with others in figuring out solutions to complex problems.

Critical thinking is, in short, self-directed, self-disciplined, self-monitored, and self-corrective thinking. It requires rigorous standards of excellence and mindful command of their use. It entails effective communication and problem solving abilities and a commitment to overcome our native egocentrism and sociocentrism.

The Elements of Thought



Used With Sensitivity to Universal Intellectual Standards

Clarity → Accuracy → Depth → Breadth → Significance
Precision
Relevance

A Checklist for Reasoning

1) All reasoning has a PURPOSE.

- State your purpose clearly.
- Distinguish your purpose from related purposes.
- Check periodically to be sure you are still on target.
- Choose significant and realistic purposes.

2) All reasoning is an attempt to FIGURE something out, to settle some QUESTION, solve some PROBLEM.

- State the question at issue clearly and precisely.
- Express the question in several ways to clarify its meaning and scope.
- Break the question into sub-questions.
- Distinguish questions that have definitive answers from those that are a matter of opinion and from those that require consideration of multiple viewpoints.

3) All reasoning is based on ASSUMPTIONS.

- Clearly identify your assumptions and determine whether they are justifiable.
- Consider how your assumptions are shaping your point of view.

4) All reasoning is done from some POINT OF VIEW.

- Identify your point of view.
- Seek other points of view and identify their strengths as well as weaknesses.
- Strive to be fairminded in evaluating all points of view.

5) All reasoning is based on DATA, INFORMATION & EVIDENCE.

- Restrict your claims to those supported by the data you have.
- Search for information that opposes your position as well as information that supports it.
- Make sure that all information used is clear, accurate, and relevant to the question at issue.
- Make sure you have gathered sufficient information.

6) All reasoning is expressed through, and shaped by, CONCEPTS and IDEAS.

- Identify key concepts and explain them clearly.
- Consider alternative concepts or alternative definitions of concepts.
- Make sure you are using concepts with care and precision.

7) All reasoning contains INFERENCES or INTERPRETATIONS by which we draw CONCLUSIONS and give meaning to data.

- Infer only what the evidence implies.
- Check inferences for their consistency with each other.
- Identify assumptions that lead you to your inferences.

8) All reasoning leads somewhere or has IMPLICATIONS and CONSEQUENCES.

- Trace the implications and consequences that follow from your reasoning.
- Search for negative as well as positive implications.
- Consider all possible consequences.

Questions Using the Elements of Thought

(in a paper, an activity, a reading assignment...)

Purpose:	What am I trying to accomplish? What is my central aim? My purpose?
Questions:	What question am I raising? What question am I addressing? Am I considering the complexities in the question?
Information:	What information am I using in coming to that conclusion? What experience have I had to support this claim? What information do I need to settle the question?
Inferences/ Conclusions:	How did I reach this conclusion? Is there another way to interpret the information?
Concepts:	What is the main idea here? Can I explain this idea?
Assumptions:	What am I taking for granted? What assumption has led me to that conclusion?
Implications/ Consequences:	If someone accepted my position, what would be the implications? What am I implying?
Points of View:	From what point of view am I looking at this issue? Is there another point of view I should consider?

The Problem of Egocentric Thinking

Egocentric thinking results from the unfortunate fact that humans do not naturally consider the rights and needs of others. They do not naturally appreciate the point of view of others nor the limitations in their own point of view. They become explicitly aware of their egocentric thinking only if trained to do so. They do not naturally recognize their egocentric assumptions, the egocentric way they use information, the egocentric way they interpret data, the source of their egocentric concepts and ideas, the implications of their egocentric thought. They do not naturally recognize their self-serving perspective.

As humans they live with the unrealistic but confident sense that they have fundamentally figured out the way things actually are, and that they have done this objectively. They naturally believe in their intuitive perceptions—however inaccurate. Instead of using intellectual standards in thinking, they often use self-centered psychological standards to determine what to believe and what to reject. Here are the most commonly used psychological standards in human thinking.

"IT'S TRUE BECAUSE I BELIEVE IT." Innate egocentrism: I assume that what I believe is true even though I have never questioned the basis for many of my beliefs.

"IT'S TRUE BECAUSE WE BELIEVE IT." Innate sociocentrism: I assume that the dominant beliefs within the groups to which I belong are true even though I have never questioned the basis for many of these beliefs.

"IT'S TRUE BECAUSE I WANT TO BELIEVE IT." Innate wish fulfillment: I believe in, for example, accounts of behavior that put me (or the groups to which I belong) in a positive rather than a negative light even though I have not seriously considered the evidence for the more negative account. I believe what "feels good," what supports my other beliefs, what does not require me to change my thinking in any significant way, what does not require me to admit I have been wrong.

"IT'S TRUE BECAUSE I HAVE ALWAYS BELIEVED IT." Innate self-validation: I have a strong desire to maintain beliefs that I have long held, even though I have not seriously considered the extent to which those beliefs are justified, given the evidence.

"IT'S TRUE BECAUSE IT IS IN MY SELFISH INTEREST TO BELIEVE IT." Innate selfishness: I hold fast to beliefs that justify my getting more power, money, or personal advantage even though these beliefs are not grounded in sound reasoning or evidence.

Because humans are naturally prone to assess thinking in keeping with the above criteria, it is not surprising that we, as a species, have not developed a significant interest in establishing and teaching legitimate intellectual standards. It is not surprising that our thinking is often flawed. We are truly the "self-deceived animal."

Universal Intellectual Standards:

And questions that can be used to apply them

Universal intellectual standards are standards which must be applied to thinking whenever one is interested in checking the quality of reasoning about a problem, issue, or situation. To think critically entails having command of these standards. To help students learn them, teachers should pose questions which require students to apply them, questions which hold students accountable for them, questions which, through consistent use by the teacher in the classroom, help students internalize them.

The ultimate goal, then, is for these standards to become infused in the thinking of students, forming part of their inner voice, which then guides them to better and better reasoning. While there are a number of universal standards, we have elected to comment on the following:

Clarity:
Could you elaborate further on that point? Could you express that point in another way? Could you give me an illustration? Could you give me an example?

Clarity is a gateway standard. If a statement is unclear, we cannot determine whether it is accurate or relevant. In fact, we cannot tell anything about it because we don't yet know what it is saying. For example, the question "What can be done about the education system in America?" is unclear. In order to adequately address the question, we would need to have a clearer understanding of what the person asking the question is considering the "problem" to be. A clearer question might be "What can educators do to ensure that students learn the skills and abilities which help them function successfully on the job and in their daily decision-making?"

Accuracy:
Is that really true? How could we check that? How could we find out if that is true? A statement can be clear but not accurate, as in "Most dogs are over 300 pounds in weight."

Precision:
Could you give me more details? Could you be more specific? A statement can be both clear and accurate, but not precise, as in "Jack is overweight." (We don't know how overweight Jack is, one pound or 500 pounds.)

Relevance:
How is that connected to the question? How does that bear on the issue? A statement can be clear, accurate, and precise, but not relevant to the question at issue. For example, students often think that the amount of effort they put into a course should be used in raising their grade in a course. Often, however, "effort" does not measure the quality of student learning, and when that is so, effort is irrelevant to their appropriate grade.

Depth:
How does your answer address the complexities in the question? How are you taking into account the problems in the question? Is that dealing with the most significant factors?

A statement can be clear, accurate, precise, and relevant, but superficial (that is, lack depth). For example, the statement "Just Say No", which is often used to discourage children and teens from using drugs, is clear, accurate, precise, and relevant. Nevertheless, it lacks depth because it treats an extremely complex issue, the pervasive problem of drug use among young people, superficially. It fails to deal with the complexities of the issue.

Breadth:
Do we need to consider another point of view? Is there another way to look at this question? What would this look like from a conservative standpoint? What would this look like from the point of view of...?

A line of reasoning may be clear, accurate, precise, relevant, and deep, but lack breadth (as in an argument from either the conservative or liberal standpoints which gets deeply into an issue, but only recognizes the insights of one side of the question).

Logic:
Does this really make sense? Does that follow from what you said? How does that follow? Before you implied this and now you are saying that, I don't see how both can be true.

When we think, we bring a variety of thoughts together into some order. When the combination of thoughts are mutually supporting and make sense in combination, the thinking is "logical." When the combination is not mutually supporting, is contradictory in some sense, or does not "make sense," the combination is "not logical."

Clarity	Could you elaborate further? Could you give me an example? Could you illustrate what you mean?
Accuracy	How could we check on that? How could we find out if that is true? How could we verify or test that?
Precision	Could you be more specific? Could you give me more details? Could you be more exact?
Relevance	How does that relate to the problem? How does that bear on the question? How does that help us with the issue?
Depth	What factors make this a difficult problem? What are some of the complexities of this question? What are some of the difficulties we need to deal with?
Breadth	Do we need to look at this from another perspective? Do we need to consider another point of view? Do we need to look at this in other ways?
Logic	Does all this make sense together? Does your first paragraph fit in with your last? Does what you say follow from the evidence?
Significance	Is this the most important problem to consider? Is this the central idea to focus on? Which of these facts are most important?
Fairness	Do I have any vested interest in this issue? Am I sympathetically representing the viewpoints of others?

Template for Analyzing the Logic of an Article

Take an article that you have been assigned to read for class, completing the "logic" of it using the template below. This template can be modified for analyzing the logic of a chapter in a textbook.

The Logic of "(name of the article)"

1) The main purpose of this article is _____.
(State as accurately as possible the author's purpose for writing the article.)

2) The key question that the author is addressing is _____.
(Figure out the key question in the mind of the author when s/he wrote the article.)

3) The most important information in this article is _____.
(Figure out the facts, experiences, data the author is using to support her/his conclusions.)

4) The main inferences/conclusions in this article are _____.
(Identify the key conclusions the author comes to and presents in the article.)

5) The key concept(s) we need to understand in this article is (are) _____.
By these concepts the author means _____.
(Figure out the most important ideas you would have to understand in order to understand the author's line of reasoning.)

6) The main assumption(s) underlying the author's thinking is (are) _____.
(Figure out what the author is taking for granted [that might be questioned].)

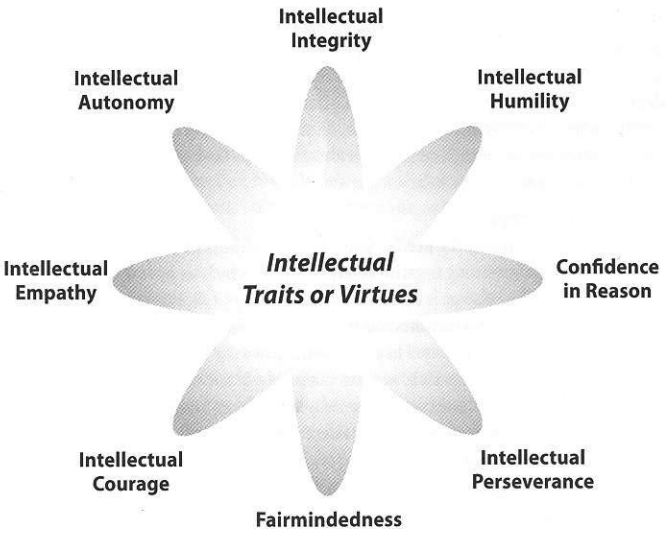
7a) If we take this line of reasoning seriously, the implications are _____.
(What consequences are likely to follow if people take the author's line of reasoning seriously?)

7b) If we fail to take this line of reasoning seriously, the implications are _____.
(What consequences are likely to follow if people ignore the author's reasoning?)

8) The main point(s) of view presented in this article is (are) _____.
(What is the author looking at, and how is s/he seeing it?)

Criteria for Evaluating Reasoning

1. **Purpose:** What is the purpose of the reasoner? Is the purpose clearly stated or clearly implied? Is it justifiable?
2. **Question:** Is the question at issue well-stated? Is it clear and unbiased? Does the expression of the question do justice to the complexity of the matter at issue? Are the question and purpose directly relevant to each other?
3. **Information:** Does the writer cite relevant evidence, experiences, and/or information essential to the issue? Is the information accurate? Does the writer address the complexities of the issue?
4. **Concepts:** Does the writer clarify key concepts when necessary? Are the concepts used justifiably?
5. **Assumptions:** Does the writer show a sensitivity to what he or she is taking for granted or assuming? (Insofar as those assumptions might reasonably be questioned?) Does the writer use questionable assumptions without addressing problems which might be inherent in those assumptions?
6. **Inferences:** Does the writer develop a line of reasoning explaining well how s/he is arriving at her or his main conclusions?
7. **Point of View:** Does the writer show a sensitivity to alternative relevant points of view or lines of reasoning? Does s/he consider and respond to objections framed from other relevant points of view?
8. **Implications:** Does the writer show a sensitivity to the implications and consequences of the position s/he is taking?



Essential Intellectual Traits

Intellectual Humility **vs Intellectual Arrogance**

Having a consciousness of the limits of one's knowledge, including a sensitivity to circumstances in which one's native egocentrism is likely to function self-deceptively; sensitivity to bias, prejudice and limitations of one's viewpoint. Intellectual humility depends on recognizing that one should not claim more than one actually knows. It does not imply spinelessness or submissiveness. It implies the lack of intellectual pretentiousness, boastfulness, or conceit, combined with insight into the logical foundations, or lack of such foundations, of one's beliefs.

Intellectual Courage **vs Intellectual Cowardice**

Having a consciousness of the need to face and fairly address ideas, beliefs or viewpoints toward which we have strong negative emotions and to which we have not given a serious hearing. This courage is connected with the recognition that ideas considered dangerous or absurd are sometimes rationally justified (in whole or in part) and that conclusions and beliefs inculcated in us are sometimes false or misleading. To determine for ourselves which is which, we must not passively and uncritically "accept" what we have "learned." Intellectual courage comes into play here, because inevitably we will come to see some truth in some ideas considered dangerous and absurd, and distortion or falsity in some ideas strongly held in our social group. We need courage to be true to our own thinking in such circumstances. The penalties for nonconformity can be severe.

Intellectual Empathy **vs Intellectual Narrowmindedness**

Having a consciousness of the need to imaginatively put oneself in the place of others in order to genuinely understand them, which requires the consciousness of our egocentric tendency to identify truth with our immediate perceptions of long-standing thought or belief. This trait correlates with the ability to reconstruct accurately the viewpoints and reasoning of others and to reason from premises, assumptions, and ideas other than our own. This trait also correlates with the willingness to remember occasions when we were wrong in the past despite an intense conviction that we were right, and with the ability to imagine our being similarly deceived in a case-at-hand.

Intellectual Autonomy **vs Intellectual Conformity**

Having rational control of one's beliefs, values, and inferences. The ideal of critical thinking is to learn to think for oneself, to gain command over one's thought processes. It entails a commitment to analyzing and evaluating beliefs on the basis of reason and evidence, to question when it is rational to question, to believe when it is rational to believe, and to conform when it is rational to conform.

Intellectual Integrity **vs Intellectual Hypocrisy**

Recognition of the need to be true to one's own thinking; to be consistent in the intellectual standards one applies; to hold one's self to the same rigorous standards of evidence and proof to which one holds one's antagonists; to practice what one advocates for others; and to honestly admit discrepancies and inconsistencies in one's own thought and action.

Intellectual Perseverance **vs Intellectual Laziness**

Having a consciousness of the need to use intellectual insights and truths in spite of difficulties, obstacles, and frustrations; firm adherence to rational principles despite the irrational opposition of others; a sense of the need to struggle with confusion and unsettled questions over an extended period of time to achieve deeper understanding or insight.

Confidence In Reason **vs Distrust of Reason and Evidence**

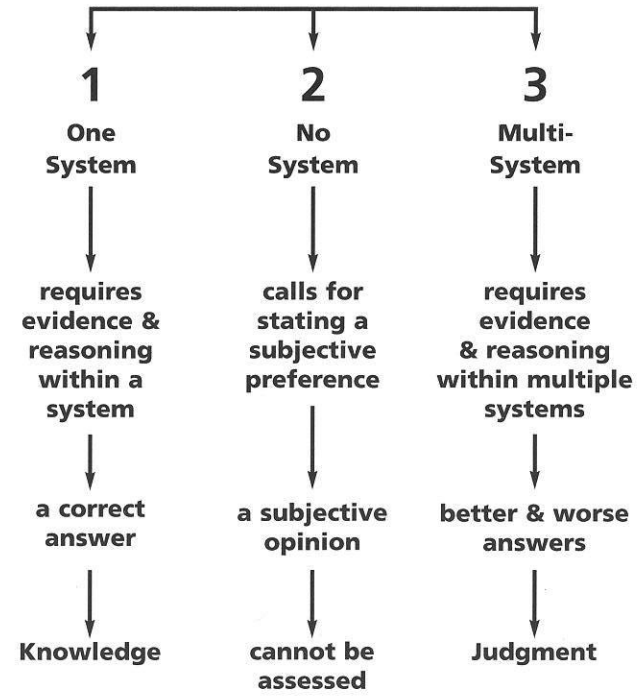
Confidence that, in the long run, one's own higher interests and those of humankind at large will be best served by giving the freest play to reason, by encouraging people to come to their own conclusions by developing their own rational faculties; faith that, with proper encouragement and cultivation, people can learn to think for themselves, to form rational viewpoints, draw reasonable conclusions, think coherently and logically, persuade each other by reason and become reasonable persons, despite the deep-seated obstacles in the native character of the human mind and in society as we know it.

Fairmindedness **vs Intellectual Unfairness**

Having a consciousness of the need to treat all viewpoints alike, without reference to one's own feelings or vested interests, or the feelings or vested interests of one's friends, community or nation; implies adherence to intellectual standards without reference to one's own advantage or the advantage of one's group.

Three Kinds of Questions

In approaching a question, it is useful to figure out what type it is. Is it a question with one definitive answer? Is it a question that calls for a subjective choice? Or does the question require you to consider competing points of view?



A Template for Problem-Solving

To be an effective problem solver:

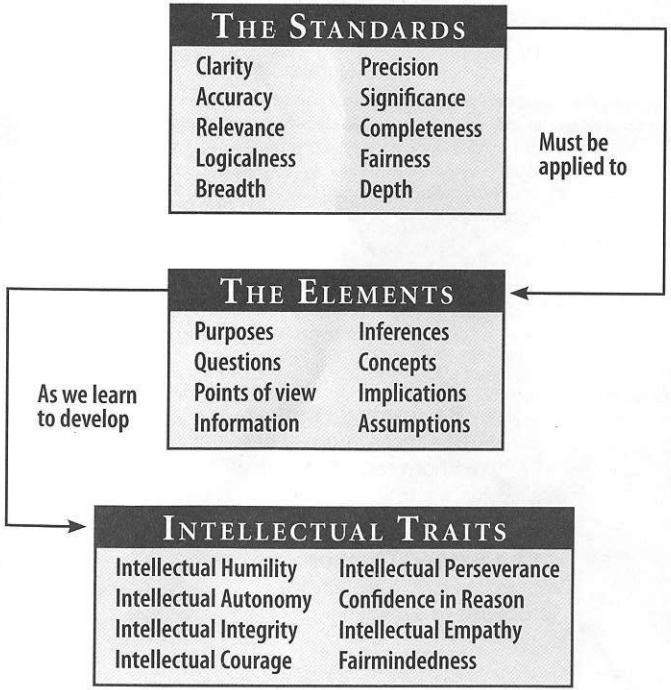
1) Figure out, and regularly re-articulate, your goals, purposes, and needs. Recognize problems as emergent obstacles to reaching your goals, achieving your purposes, and satisfying your needs.
2) Wherever possible take problems one by one. State the problem as clearly and precisely as you can.
3) Study 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. Concentrate your efforts on those problems you can potentially solve.
4) Figure out the information you need and actively seek that information.
5) Carefully analyze and interpret the information you collect, drawing what reasonable inferences you can.
6) Figure out your options for action. What can you do in the short term? In the long term? Recognize explicitly your limitations in terms of money, time, and power.
7) Evaluate your options, taking into account their advantages and disadvantages in the situation.
8) 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.
9) 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.

Analyzing & Assessing Research

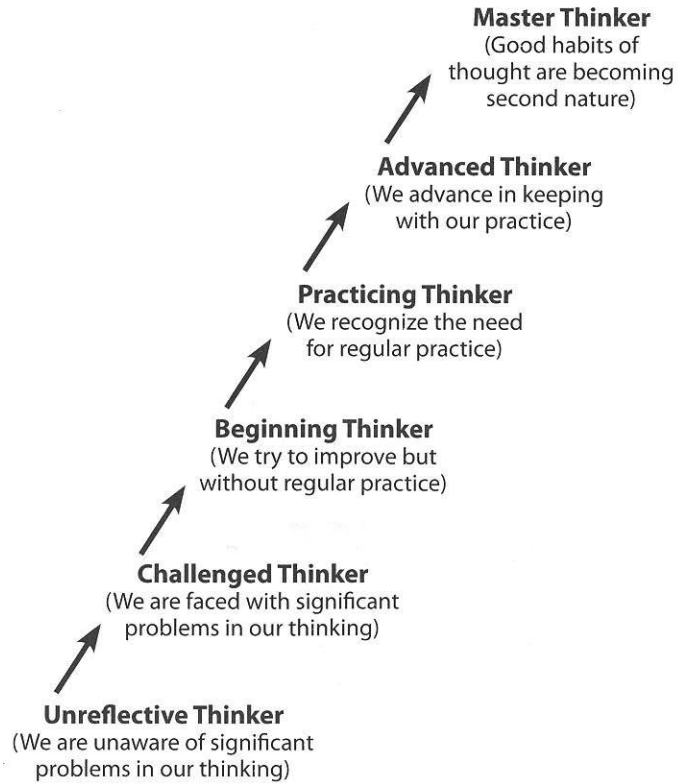
Use this template to assess the quality of any research project or paper.

1) **All research has a fundamental PURPOSE and goal.**
   - Research purposes and goals should be clearly stated.
   - Related purposes should be explicitly distinguished.
   - All segments of the research should be relevant to the purpose.
   - All research purposes should be realistic and significant.
2) **All research addresses a fundamental QUESTION, problem or issue.**
   - The fundamental question at issue should be clearly and precisely stated.
   - Related questions should be articulated and distinguished.
   - All segments of the research should be relevant to the central question.
   - All research questions should be realistic and significant.
   - All research questions should define clearly stated intellectual tasks that, being fulfilled, settle the questions.
3) **All research identifies data, INFORMATION, and evidence relevant to its fundamental question and purpose.**
   - All information used should be clear, accurate, and relevant to the fundamental question at issue.
   - Information gathered must be sufficient to settle the question at issue.
   - Information contrary to the main conclusions of the research should be explained.
4) **All research contains INFERENCES or interpretations by which conclusions are drawn.**
   - All conclusions should be clear, accurate, and relevant to the key question at issue.
   - Conclusions drawn should not go beyond what the data imply.
   - Conclusions should be consistent and reconcile discrepancies in the data.
   - Conclusions should explain how the key questions at issue have been settled.
5) **All research is conducted from some POINT OF VIEW or frame of reference.**
   - All points of view in the research should be identified.
   - Objections from competing points of view should be identified and fairly addressed.
6) **All research is based on ASSUMPTIONS.**
   - Clearly identify and assess major assumptions in the research.
   - Explain how the assumptions shape the research point of view.
7) **All research is expressed through, and shaped by, CONCEPTS and ideas.**
   - Assess for clarity the key concepts in the research.
   - Assess the significance of the key concepts in the research.
8) **All research leads somewhere (i.e., have IMPLICATIONS and consequences).**
   - Trace the implications and consequences that follow from the research.
   - Search for negative as well as positive implications.
   - Consider all significant implications and consequences.

Critical thinkers routinely apply the intellectual standards to the elements of reasoning in order to develop intellectual traits.



Stages of Critical Thinking Development



The Foundation for Critical Thinking

The Foundation for Critical Thinking seeks to promote essential change in education and society through the cultivation of fair-minded critical thinking, thinking predisposed toward intellectual empathy, humility, perseverance, integrity, and responsibility. A rich intellectual environment is possible only with critical thinking at the foundation of education. Moreover, in a world of accelerating change, intensifying complexity, and increasing interdependence, critical thinking is now a requirement for economic and social survival.

The Thinker's Guide Library

The Thinker's Guide series provides convenient, inexpensive, portable references that students and faculty can use to improve the quality of studying, learning, and teaching. Their modest cost enables instructors to require them of all students (in addition to a textbook). Their compactness enables students to keep them at hand whenever they are working in or out of class. Their succinctness serves as a continual reminder of the most basic principles of critical thinking.

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