

Long Definition

The Nature of Critical Thinking: Outlines of General Critical Thinking Dispositions and Abilities

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Critical thinking is “reasonable reflective thinking focused on deciding what to believe or do.” This definition (or *conception*) of critical thinking I believe captures the core of the way the term is used by people in the field of critical thinking. But as I urge in a paper on the topic, definition (2016), there are a number of other acceptable definitions (that is, other conceptions of the concept, critical thinking) that have been offered by people in the field. They emphasize different aspects of critical thinking in differing amounts of detail and depth but all apply to the same basic concept of critical thinking. They complement each other.

In deciding what to believe or do, one is helped by having and reflectively employing the set of critical thinking dispositions and abilities that I outline in detail in this paper. This conception of critical thinking can also serve as a set of comprehensive goals for a critical thinking course, curriculum, self-study, and assessment in critical thinking. Usefulness, not elegance or mutual exclusiveness, is the purpose of this outline.

An earlier version of this conception is in my “Critical Thinking: Reflection and Perspective Part I” (Ennis, 2011a). For the sake of brevity, clarification in the form of examples and qualifications, is omitted there (as it is here), but can be found in several sources listed below, including both the recent (2015) and the 1991b versions of “Critical Thinking: A Streamlined Conception” (the latter of which is

downloadable here); “A Taxonomy of Critical Thinking Dispositions and Abilities” (1987b); A Conception of Critical Thinking – With Some Curriculum Suggestions (1987a); “A Conception of Rational Thinking” (1980); and to a large extent “A Concept of Critical Thinking” (1962); but most fully in *Critical Thinking* (1996a).

This outline of dispositions and abilities is the result of many years of work in the elaboration of a simple definition (the conception) of critical thinking given above. This elaboration resulted from consultation with classical and current authorities on good thinking, and from repeatedly asking the question, “How do people go wrong in their thinking?” Pursuing this question was not circular because there is much that we know from experience, if we just think about it.

A recent addition to the list of abilities is elementary graphs & maths, including a few concepts in elementary statistics. The need to include graphs & maths (Ability #4) is evident to anyone familiar with current discussion and citation of studies of public issues.

For interactive teaching suggestions that would make critical thinking instruction more engaging, see “Twenty-One Strategies and Tactics for Teaching Critical Thinking” on this web site, <http://criticalthinking.net>, under “How can critical thinking be taught?” An earlier version of these strategies and tactics is in “Critical Thinking: Reflection and Perspective Part II” (Ennis, 2011b).

Although the word ‘critical’ in the English language is sometimes used in a pejorative negative sense, the standard concept of critical thinking promoted in our education system is not negative. To my knowledge, no participant in the critical thinking movement endorses a negative notion. A second disavowal: The concept of critical thinking presented here does not require that critical thinking be persuasive, but critical thought will, let us hope, be on the whole more persuasive than uncritical thought. The future of democracy depends on it.

GENERAL CRITICAL THINKING DISPOSITIONS

Ideal critical thinkers are disposed to

1. Seek and offer clear statements of the conclusion or question
2. Seek and offer clear reasons, and be clear about their relationships with each other and the conclusion
3. Try to be well informed
4. Use credible sources and observations, and usually mention them
5. Take into account the total situation
6. Keep in mind the basic concern in the context
7. Be alert for alternatives
8. Be open-minded
 - a. Seriously consider other points of view
 - b. Withhold judgment when the evidence and reasons are insufficient
9. Take a position and change a position when the evidence and reasons are sufficient
10. Seek as much precision as the nature of the subject admits
11. Seek the truth when it makes sense to do so, and more broadly, try to “get it right” to the extent possible or feasible
12. Employ their critical thinking abilities and dispositions See Note 2.

GENERAL CRITICAL THINKING ABILITIES

A summary outline is presented first, followed by a detailed outline that includes criteria and details, is difficult reading when read straight through, and should be

consulted when in search of details and criteria. At appropriate points in the detailed outline one will find some references to prior work that provides enlightening discussion, and a number of principles and criteria, especially for the more advanced topics (e.g., argument and inference to best explanation, ascribing assumptions, definition).

Summary outline of general critical thinking abilities (or skills):

Ideal critical thinkers have the ability to:

(Basic Clarification)

1. Focus on a question
2. Analyze arguments
3. Ask and answer clarification questions
4. Understand and use elementary graphs and maths

(Bases for a Decision)

5. Judge the credibility of a source
6. Observe, and judge observation reports
7. Use existing knowledge
 - a. background knowledge, including (with discretion) internet material
 - b. their knowledge of the situation
 - c. their previously-established conclusions

(Inference)

8. Deduce, and judge deductions

9. Make, and judge inductive inferences and arguments

a. Enumerative induction

b. Argument and inference to best explanation 10. Make, and judge value judgments

(Advanced Clarification)

11. Define terms, and judge definitions

12. Handle equivocation appropriately

13. Attribute and judge unstated assumptions

14. Think suppositionally

15. Deal with fallacy labels

16. Be aware of, and check the quality of, their own thinking

(“metacognition”)

17. Deal with things in an orderly manner

(Not Constitutive, But Often Helpful If Not Misused)

18. Employ rhetorical strategies

Detailed outline of general critical thinking abilities (or skills):

Citations are to sources of extended elaboration.

(Basic Clarification, 1 – 4)

1. *Focus on a question:* a. Identify or formulate a question b. Identify or formulate criteria for judging possible answers c. Keep the question and situation in mind

2. *Analyze arguments:* a. Identify conclusions b. Identify reasons or premises c. Identify simple assumptions (see also Ability #13) c. Identify and handle irrelevance d. Determine the structure of an argument, possibly with a diagram e. Summarize

3. *Ask and answer clarification questions, such as:* a. Why? b. What is your main point? c. What do you mean by....? d. What would be an example? e. What would not be an example (though close to being one)? f. How does that apply to this case (describe a case, which appears to be a counterexample)? g. What difference does it make? h. What are the facts? i. Is this what you are saying: _____? j. Would you say more about that?

4. *Understand and use elementary graphs and maths:* a. Read graphs, scatterplots, tables, bar charts, etc. b. Do and understand arithmetic and other elementary mathematics, such as percentages c. Understand the concepts of correlation, standard deviation, and statistical significance (1) Correlation: the degree to which two variable vary together (2) Standard deviation: very roughly, the amount of variation in a group of numbers (3) Statistical significance: Commonly a difference between mean scores is judged statistically significant if a certain amount of difference could not have happened by chance more than at a chosen level. Often one time out of a hundred is the chosen level, but five times out of a hundred is sometimes chosen. The latter is easier to attain.

(Bases for Inference, 5 – 7)

5. *Judge the credibility of a source* (Ennis, 1974a). Major criteria (but not necessary conditions): a. Expertise b. Lack of conflict of interest c. Agreement with other sources d. Reputation e. Use of established procedures f. Known risk to reputation (i.e., the source's knowing of a risk to reputation, if wrong) g. Ability to give reasons h. Careful habits

6. *Observe, and judge observation reports.* Major criteria (but not necessary conditions, except for the first) include these: a. Minimal inferring involved b. Short time interval between the observation and the report c. Report by the observer, rather than someone else (that is, the report is not hearsay); crucial in the courts d. Provision of records e. Corroboration f. Possibility of corroboration g. Good access h. Competent employment of technology, if technology applies i. Satisfaction by observer (and reporter, if a different person) of the credibility criteria in Ability #5 above

7. *Use existing knowledge* a. background knowledge, including (with discretion) internet material b. their knowledge of the situation c. their previously established conclusions

(Inference, 8 – 10)

8. *Deduce, and judge deduction* (Ennis, 1969a, 1981, 1996a, 2001, 2004): a. Basic criterion: An argument is deductively valid, if and only if, denial of the conclusion contradicts the assertion of the premises. b. Class logic c. Conditional logic d. Interpretation of logical terminology, including (1) Negation and double negation (2) Necessary and sufficient condition language (3) Such words as “and”, “only”, “if and only if”, “or”, “some”, “unless”, and “not both” e. Qualified deductive reasoning (a loosening for practical purposes), (Ennis, 2004, 2006, 2007)

9. *Make and judge inductive inferences and arguments (Enumerative and Best-Explanation Induction)* a. *To generalizations* (enumerative induction). Broad considerations: (1) Typicality of data, including valid sampling where appropriate (2) Volume of instances (3) Conformity of instances to the generalization (4) Having a principled way of dealing with outliers b. *To explanatory hypotheses and conclusions:* (Argument and inference to best explanation (Battersby, 2006; Ennis, 1968, 1982a, 1982b, 1996a, 2012; Harman, 1965, 1968, 1973; Lewis, 2000; Mackie, 1974; Lipton, 2004; Woodward, 2008)) (1) Major types of explanatory conclusions and hypotheses, showing how broadly this type of inference and argument applies: (a) Specific and general causal claims (b) Claims about the beliefs and attitudes of people (c) Interpretation of intended meanings (d) Historical claims that certain things happened (including criminal accusations)

(e) Reported definitions (Ability #11b1) (f) Claims that some proposition is an unstated, but used, reason (Ability #13b3) (2) Characteristic investigative activities: (a) Designing and doing experiments, including planning to control variables (b) Seeking evidence and counterevidence, including statistical significance, correlations, mean differences, and standard deviations (c) Seeking other possible explanations (3) Rough criteria, application of which requires judgment. The first four are essential, the fifth desirable: (a) The proposed conclusion would explain or help explain the evidence (b) The proposed conclusion is consistent with all known facts (c) Competitive alternative explanations are inconsistent with facts (d) A competent sincere effort has been made to find supporting and opposing data, and alternative hypotheses (e) The proposed conclusion seems plausible and simple, fitting into the broader picture

10. *Make and judge value judgments*, taking into account: a. Background facts b. Consequences of accepting or rejecting the judgment c. Prima facie application of acceptable principles d. Alternatives e. The need to balance, weigh, decide

(Advanced Clarification, 11 – 17)

11. *Define terms and judge definitions*, using appropriate criteria (Three basic dimensions: form, stance, and content. These should be appropriate for the situation.) a. Definition form. For discussion of Forms 1 through 4 and 6, see Ennis (1996a, Ch 12 & 13). For #5 see Ennis (1964 or 1969b). For all (in science), see Ennis (1974b). (1) Synonym form (one word = another word) (2) Classification form (genus-differentia), (items properly labeled by a term (a noun) are members of a class and are differentiated from other members of the class) (3) Range form (like classification, but with imprecise boundaries) (4) Equivalent-expression form (term being defined is embedded in a larger expression, which is equated with another expression) (5) Operational form (like equivalent-expression, but the second expression describes an operation and a consequent observation; can be strict (as in behaviorism) or loose), (Ennis, 1964, 1969b) (6) Example and non-example form (non-examples sometimes being particularly informative) b. Definitional stances (report, stipulate, express a position): (1) Report a meaning (criteria: the five criteria for an explanatory hypothesis in Ability #9b3) (2)

Stipulate a meaning (criteria: convenience, consistency, avoidance of equivocation)

(3) Express a position on an issue (positional definitions, including “programmatically”, “persuasively”, and scientific definitions), (criteria: all dispositions and abilities, (Scheffler, 1960; Stevenson, 1944; Ennis, 1996a, 2001))

c. Content of the definition The situation in which a definition is used bears upon the dimensions. Situations include:

- (1) Teaching or learning a language
- (2) Providing a convenient label for something
- (3) Being a premise in an argument
- (4) Serving as part of a theory
- (5) Providing guidance

12. *Handle equivocation appropriately* (equivocation being the exploitation of a shift in meaning), both when deliberate and when not deliberate (the latter being called “impact equivocation” (having the impact of equivocation))

13. *Attribute and judge unstated assumptions* (an ability that consists of both basic clarification and inference):

- a. Pejorative flavor (implication of dubiousness or falsity): commonly but not always associated to some degree with the other types of assumptions; criteria are to be found in Abilities #5 through #9 above
- b. Types:
 - (1) Presuppositions (required for a proposition to make sense)
 - (2) Needed assumptions (needed by the reasoning to be at its strongest (though not logically necessary); see Inferences (Abilities 8 to 10 above), (Ennis, 1961, 1982c, 2001); (called “assumptions of the argument” by Hitchcock (1985)
 - (3) Used assumptions are consciously or unconsciously used by the assumer (judged by hypothesis-testing criteria (Ability #9b3); Ennis (1982c); called “assumptions of the arguer” by Hitchcock (1985).

14. *Think suppositionally*: Consider and reason from premises, reasons, assumptions, positions, and other propositions with which one disagrees or about which one is in doubt, without letting the disagreement or doubt interfere with one’s reasoning

15. *Deal with fallacy labels*. Employ, recognize, and appropriately react to “fallacy labels” in discussion and presentation (oral and written). Examples of fallacy labels are “circularity,” “bandwagon,” “post hoc,” “equivocation,” “non sequitur,” and “straw person”

- a. Fallacy labels are often convenient ways for those conversant with the vocabulary to communicate the nature of a believed flaw in some thinking (e.g., “post hoc”).
- b. They can be intimidating, though actually relatively

uninformative, to those not conversant with the language (e, g., “non sequitur”). d. Fallacy labels often pick out a problem, but sometimes activities that fit a fallacy label are not fallacious, for example, appeal to authority and circularity. Some appeals to authority are appropriate, and deductively valid arguments are literally circular. b. Criteria and principles for judgments underlying the appropriate use of fallacy labels appear in Abilities 1-14 above. But there does not appear to be an intuitive comprehensive summary of critical thinking concerns in fallacy language.

16. Be aware of, and check the quality of, their own thinking (metacognition)

17. Proceed in an orderly and reasonable manner appropriate to the situation: a. Follow problem solving steps b. Employ a reasonable critical thinking checklist for dealing with a position on an issue, such as “FRISCO” (Ennis, 1996a): F Focus: What is the point or issue? Keep it in mind R Reasons: What are the reasons in support of, and in conflict with, the point or conclusion? I Inference: Are the inferences reasonable? S Situation: How does all this fit in with the situation? C Clarity: Is it all sufficiently clear? O Overview: On review of the above, how do these features look separately and as a unit? c. Develop and apply these qualities of a reasonable thinker in a situation (“SEBKUS”): S Sensitivity E Experience BK Background Knowledge US Understanding of the Situation

(A facilitative ability, not constitutive of critical thinking, but helpful)

18. Deal with rhetorical strategies Rhetorical strategies can be useful in critical thinking to help make a reasonable critical thinking position more persuasive. It can also be useful to us to be aware of rhetorical strategies in order not to be fooled by them, or even to be persuaded by them especially when the rhetorically-effective position is no better than, or is worse than, another position.

SUMMARY AND COMMENTS In brief, the ideal critical thinker is disposed to try to grasp a position clearly, to “get it right,” to find the truth if it is to be found, and to present a position honestly and clearly; the ideal critical thinker has the ability to clarify, to seek and judge well the basis for a view, to infer wisely from the basis, to suppose and integrate imaginatively, and to do these things with sensitivity and

skill. Space limitations have precluded exemplifying here these principles and criteria, and their application in real-life situations, though I have done so elsewhere (1959, 1962, 1980, 1987a, 1987b, 1991b, 2015, and (especially) 1996a). A broad integrative personal reflection/perspective on the nature of critical thinking can be found in Ennis (2011a), and with application to teaching and assessment in Ennis (2011b).

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NOTES.

1. This is the most recently revised version of a conception of critical thinking abilities and dispositions, earlier versions having appeared in Ennis (1959, 1962, 1980, 1987a, 1987b, 1991a, 1991b, 1996a, 1996b, 2002, 2011a, 2013, 2015) and in Norris & Ennis (1989). All fit under the general definition of critical thinking, “reasonable reflective thinking that is focused on deciding what to believe or do”.
2. Organization and exact wording of critical thinking dispositions has been modified over the years in the direction of theoretical refinement and precision (Norris & Ennis, 1989; Ennis, 1987a, 1991a, 1996a, 1996b, and 2011a, 2013, 2015). But the presentation here is a return almost to the original, because it is simpler and more amenable to use in teaching.
3. The mention of truth in Disposition #11 calls for descriptions of types of constructivism. Radical epistemological constructivism holds that all supposed truths are constructed by us. Conservative epistemological constructivism (the view assumed in this definition/conception of critical thinking) holds that our concepts and terms are constructed by us, but also that (to oversimplify somewhat) the relationships among the referents of our concepts and terms are not constructed by us. We can have true or false beliefs about these. For example it is true that Chicago is north of Miami, though our concept of North, and the references of the words ‘Chicago’ and ‘Miami’, are decided (constructed) by human beings. Pedagogical constructivism holds that students learn best when they construct their own answers to problems and questions: For some (but not all) goals and types of learning, this view has empirical support, but it should not be confused with either type of epistemological constructivism. In particular, the validity of pedagogical constructivism (to the extent that it is valid) does not imply the validity of either type of epistemological constructivism. Pedagogical and epistemological constructivism are totally different ideas, though they are sometimes conflated. There is a vast literature about ‘true’, ‘truth’, and constructivism. The view here assumed is that we all use the words ‘true’ and ‘truth’ regularly in our daily lives, and that these words should be understood here in the same way we use and understand them in our daily lives.

4. “Auxiliary” abilities are those that are not constitutive of critical thinking, but helpful in doing it.