

Elements and Guidelines for Critical Thinking

By Janette Benson, Department of Psychology

A hallmark of higher education is to engender in students an orientation to critical thinking. There are many definitions of what critical thinking is and how best to instill it in students, but at the core, most agree that critical thinking is the ability to adopt an orientation to knowledge that is thoughtful, open-minded, considerate of different points of view, and results in the ability to develop an argument or opinion that is grounded in clear logic and supported by defensible evidence. One of our goals at the University of Denver is to educate our students to become responsible members of society. To do so, we need to provide students with the tools to make thoughtful decisions about the wide range of issues and necessary knowledge they will face throughout their studies and beyond.

This handout provides an overview of specific elements of critical thinking and some guidelines to help students to engage in a critical thinking process. These materials can be used in a number of different ways. For example, one might simply decide to distribute this document to students, ask them to read it, and to try to apply this approach to their own examples when they are reading or discussing classroom material. Another example might be to provide a brief overview of the changes in thinking that are desired in students over the course of their four years of university study. It might be useful to explain that typical first-year students come to the University with their own experiences and prior knowledge about many of the topics they will study. While personal experiences provide a rich source of knowledge, "prior knowledge" may also restrict thinking to a "make-sense epistemology," where there is a tendency to agree with statements that fit with or make sense to prior or existing beliefs (Perkins, Allen and Hafner, 1983), rather than requiring critical analysis and evaluation. In contrast, a "critical epistemology" requires one to "...examine the data and the reasoning for inconsistencies, take alternative perspectives, construct counterarguments, and look for bias and overgeneralizations ...[which]...is necessary to do for a deeper understanding of the situation and to achieve more reasoned and informed decision making" (King, 1994, p. 33). Once students have an idea of the type of transition in thinking that is required to adopt a critical reasoning stance, you might suggest that they actively engage in classroom examples of identifying author bias, distinguishing fact from opinion and so on as illustrated in the following handout.

Finally, you might consider providing students with the following information. First is just one definition of critical thinking that I like because it is broad and covers all the key issues. Of course, you could easily find your favorite with a simple Internet search.

"Broadly speaking, critical thinking is concerned with reason, intellectual honesty, and open-mindedness, as opposed to emotionalism, intellectual laziness, and closed-mindedness. Thus, critical thinking involves: following evidence where it leads; considering all possibilities; relying on reason rather than emotion; being precise; considering a variety of possible viewpoints and explanations; weighing the effects of motives and biases; being concerned more with finding the truth than with being right; not rejecting unpopular views out of hand; being aware of one's own prejudices and biases, and not allowing them to sway one's judgment." Kurland (1995).

Second is a list of attributes of critical thinkers that provides a concrete sense of the behaviors often associated with someone who is engaged in critical thinking:

A critical thinker is someone who (Ferrett, 2000):

- asks pertinent questions
- assesses statements and arguments
- is able to admit a lack of understanding or information
- has a sense of curiosity
- is interested in finding new solutions
- is able to clearly define a set of criteria for analyzing ideas
- is willing to examine beliefs, assumptions, and opinions and weigh them against facts
- listens carefully to others and is able to give feedback
- sees that critical thinking is a lifelong process of self-assessment
- suspends judgment until all facts have been gathered and considered
- looks for evidence to support assumption and beliefs
- is able to adjust opinions when new facts are found
- looks for proof
- examines problems closely
- is able to reject information that is incorrect or irrelevant

References

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- Kurland, D. J. (1995). *I know what it says...what does it mean?* Belmont, CA: Wadsworth.
- Perkins, D.N., Allen, R., and Hafner, J. (1983). *Differences in everyday reasoning*. In W. Maxwell (Ed.), *Thinking: The Frontier Expands*. Hillsdale, NJ: Erlbaum.



Here are some elements of critical thinking and guidelines for you to consider when you read the text:

(a) Differentiating between fact and opinion:

1. Fact - a statement that can be proven true by other verifiable facts.
2. Opinion - a statement of a person's feelings or impressions.

Guidelines to differentiate between facts and opinions:

- What externally verifiable information is presented that makes this statement true or factual?
- How does the author differentiate between the interpretation of information and the presentation of factual data?

(b) Recognizing and evaluating author bias and rhetoric:

1. Author bias is present when the author persuasively presents only his/her own opinion and no other points of view that may exist on a particular topic.

Guidelines to recognize and evaluate author bias and rhetoric:

- What qualifications does the author have for writing on a particular topic? Does the author cite a wide range of studies and points of view, or just those that support his/her point of view?
- When and where was the article first published? How is the credibility of the article affected by when and where it was published?
- What do you think the author wants his/her readers to think or to know when they are done reading the article?

(c) Determining cause-and-effect relationships, and understanding the difference between cause and effect and correlation:

1. Has it been shown that one situation of determinable fact causes, or must be present before it is possible to find a second, fundamentally related situation? (If yes, there is causation.)
2. Is it simply more likely that when one situation is present another situation is also present, but the first one does not cause the occurrence of the second one because there are instances when the two situations do not co-occur? (If yes, there is correlation.)

(d) Determining the accuracy and completeness of information presented:

1. Once you have determined fact from opinion, the absence or presence of author bias and rhetoric, whether relations among variables are causal or correlation, then you need to determine whether the information is accurate and complete. To do this, compare several different articles on a topic (e.g., what you read in your text compared with additional articles).

Guidelines:

- What facts are mentioned in all the articles?
- What facts seem important, but are only mentioned in some, but not all articles?
- What additional sources could you use to check the completeness and accuracy of the information presented in the articles?

(e) Recognizing logical fallacies and faulty reasoning:

To be a critical thinker you need to be able to recognize all of the following types of logical flaws:

1. Incorrect assumption of cause/effect relations (e.g., "Every time I wash my car it rains; therefore, if I wash my car it will rain.").
2. Inaccurate or distorted use of the interpretation of numerical or statistical information (e.g., "Lowering of the speed limit to 55 mph on highways results in fewer traffic fatalities."). Before this can be considered as a true statement, you need to check other facts. Has the number of people using those highways stayed the same, or are there fewer fatalities because the number of people using the highway dropped when the speed limit dropped?
3. Faulty analogy, comparison carried too far, or comparison of things that do not have anything in common (e.g., "Apples and oranges are both fruit that grow on trees; therefore, apples and oranges taste the same.").
4. Oversimplification. Potentially relevant information is ignored in order to make a point (e.g., "The majority of voters in the United States are Democrats; therefore Democratic candidates will win every election.").
5. Stereotyping. People or objects are lumped together under simplistic labels (e.g., "All Hispanic Americans speak Spanish; therefore, Spanish language advertising will have a wide appeal for all Hispanic Americans.").
6. Ignoring or evading the central question or issue by digression or obfuscation (e.g., When asked about a tax increase, a senator replies, "I have always met the obligations I have to those I represent.").
7. Faulty generalization. A judgment is based on insufficient evidence (e.g., "Ducks and geese migrate south for the winter. Therefore, all waterfowl migrate south for the winter.").

(f) Making judgments and drawing logical conclusions:

1. What judgments can you make and what conclusions can you draw from your reading?

Guidelines for making judgments and drawing logical conclusions:

- What conclusions did the author make in his/her article?
- Do his/her conclusions logically follow?
- Do you agree with the author's conclusions and can you defend your position?
- Are there other conclusions that could be drawn from the same information?
- What additional information would be important to know before making any judgment of the value and importance of the information presented in the article?