Resources by Skill: Critical Thinking

The Importance of Critical Thinking

Critical thinking is very difficult to define. The Foundation for Critical Thinking lists a few contestant definitions:

- Critical thinking is the intellectually disciplined process of actively and skillfully conceptualizing, applying, analyzing, synthesizing, and/or evaluating information gathered from, or generated by, observation, experience, reflection, reasoning, or communication, as a guide to belief and action. It is based on universal intellectual values that transcend subject matter divisions: clarity, accuracy, precision, consistency, relevance, sound evidence, good reasons, depth, breadth, and fairness. (National Council for Excellence in Critical Thinking, 1987)
- Critical thinking is a self-guided, self-disciplined thinking which attempts to reason at the highest level of quality in a fair-minded way. (Elder, 2007)
- 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. (Paul and Elder, 2008)
- The ability to think critically involves three things: (1) an attitude of being disposed to consider in a thoughtful way the problems and subjects that come within the range of one's experiences, (2) knowledge of the methods of logical inquiry and reasoning, and (3) some skill in applying those methods. (Glaser, 1941)

Other researchers have similar definitions:

- Critical thinking consists of seeing both sides of an issue, being open to new evidence that disconfirms your ideas, reasoning dispassionately, demanding that claims be backed by evidence, deducing and inferring conclusions from available facts, solving problems, and so forth. **(Willingham, 2008)**
- Critical thinking is acquiring, developing, and exercising the ability to grasp inferential connections holding between statements. **(Mulnix, 2012)**
- All definitions of critical thinking share certain traits, notably an ability to use reason to move beyond the acquisition of facts to uncover deep meaning. **(Weissberg, 2013)**

Whitaker (2002) provides a more in depth discussion of the historic difficulty defining critical thinking. This difficulty makes critical thinking difficult to measure, which in turn makes it difficult to ascertain if critical thinking is being or can be taught. For example, **Weissberg (2013)** is skeptical that efforts to teach critical thinking are valuable enough to continue.

However, critical thinking is intuitively important for forming justified opinions, which in turn is pervasively important throughout all of human intellectual activities.

Fostering Critical Thinking Skills

Despite a continuing debate over whether critical thinking skills can be taught at all, several strategies have emerged about how to best teach critical thinking. **Willingham (2008)** claims that it is difficult – if not impossible – to teach critical thinking without accompanying factual content knowledge. For example, scientific thinking, involving formation of hypotheses, development of tests, and evaluation of evidence, certainly requires critical thinking, yet is difficult if certain relevant scientific facts have not been learned.

Van Gelder (2005) uses results from cognitive science to address methods of teaching critical thinking. He finds that:

1. Learning to think critically is difficult, about as difficult as becoming fluent in a second language, and takes a lot of time to master.
2. Practicing critical thinking activities is essential to developing the skill. Modelling critical thought is not enough.
3. Practicing *transferring* critical thinking strategies to other content areas is especially important, and should be taught explicitly.
4. Critical thinking lessons should come along with some explicit instruction on the theory of thought, which allows a more advanced perception of thinking as a process. For example, names of argument types allow students to distinguish between them more readily.
5. Argument maps are excellent ways of describing argument structures, which in turn can help with a deeper understanding of argumentation in general.
6. Everyone, students and adults alike, is prone to cognitive biases. In order to mitigate these biases, a critical thinker would put extra effort into searching for evidence that contradicts what she currently believes, will give extra "weight" to opposing arguments, and will cultivate a willingness to change her mind when the evidence is in favor of doing so.

These strategies are seconded by **Willingham (2008)** and **Mulnix (2012)**.

Here is an example of an argument map:

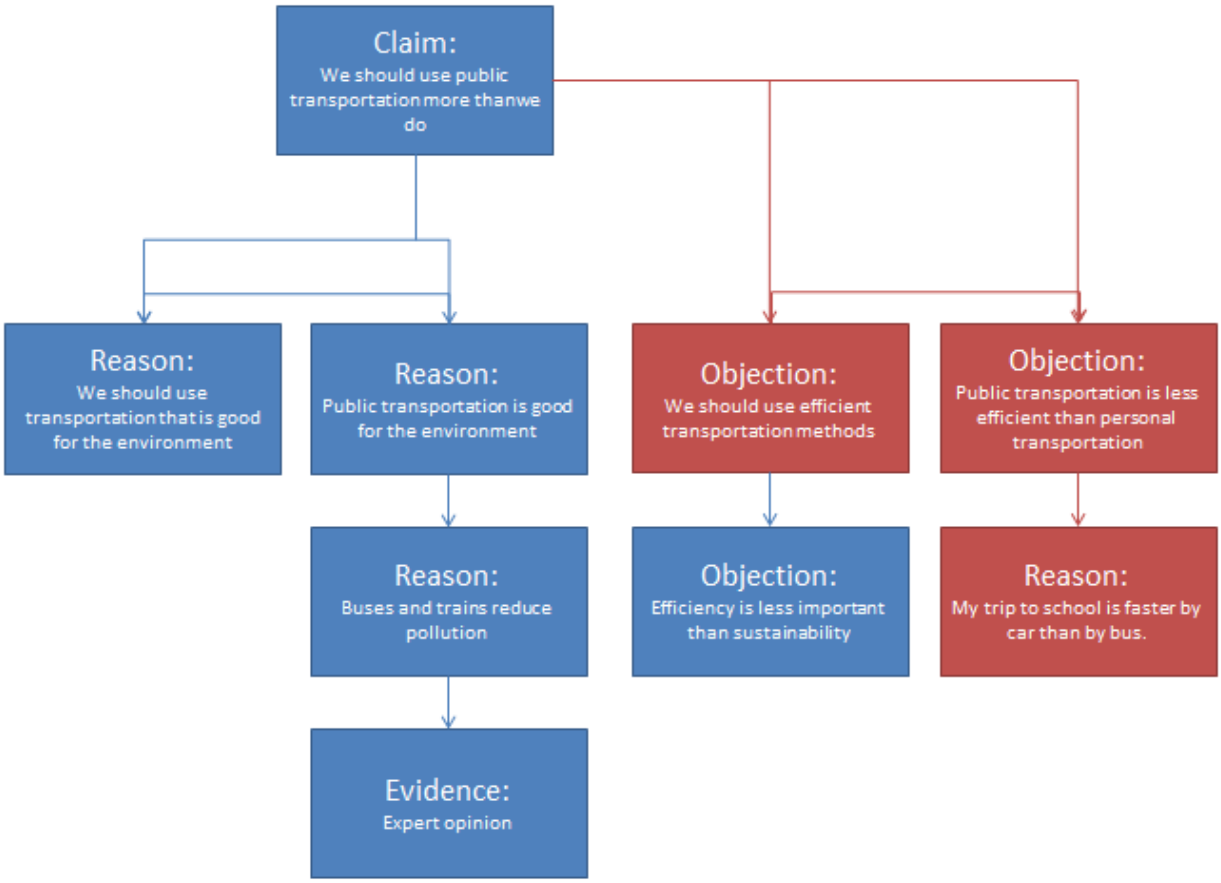

Figure 1: An argument map. The map shows two sides of the argument in different colors, and relationships between claims and sub-claims with arrows. Students could be asked to go from a dialogue format argument to a map, or to answer questions about the map (e.g. labeling fallacies).

Paul and Elder (2006) provide some further tools for students and teachers to use in learning and teaching critical thinking. For example, they provide the following questions to aid the critical thinking process:

- Clarity
  - Could you elaborate further?
  - Could you give me an example?
  - Could you illustrate what you mean?
- Accuracy
  - How could we check 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 a different point of view?
    - Do we need to look at this in other ways?
- Logic
    - Does all of this make sense together?
    - Does your first paragraph fit 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?

Works Cited

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