Critical Thinking Definition and Framework: The Tree Model

Much of our work is motivated by the realization that, although critical thinking skills are prized both by the community and by instructors, critical thinking is sufficiently multifaceted and higher education is sufficiently specialized that instructors naturally focus on the critical thinking skills most relevant to their disciplines, and naturally describe those skills in the terms employed within their academic fields. As a result, it can be difficult, if not impossible, for students to understand how the skills that they acquire in one class are related to the skills that they acquire in another. And without this understanding, there can be no transfer of learning between courses, no development of a coherent and scaffolded set of critical thinking skills across the curriculum, and no application of this skill set after graduation. A metaphorical explication of this situation, in the form of a critical thinking fairy tale, can be found at

https://wm1-download.uwsp.edu/relay/dwarren/Liam_and_the_Leaves_-_20171214_144626_34.html

To counter this fractured condition, we have advanced a definition of critical thinking that is flexible enough to accommodate multiple disciplines and substantive enough to generate assessible critical thinking learning outcomes. This definition functions much as a tree-trunk would: grounding the entire structure while allowing general skill sets to branch off this base and become increasingly specialized until they generate specific, leaf-like, skills. This framework is illustrated in Figure 1 below.

By understanding critical thinking to be a process of identifying, analyzing, evaluating, and constructing reasoning in deciding what conclusions to draw or actions to take, we have been able to distinguish between the four large skill sets of identifying, analyzing, evaluating, and constructing reasoning. These skill sets, in turn, divide into narrower skill clusters (e.g. evaluating reasoning divides into evaluating claims and evaluating inferences), and these narrower skill clusters eventually terminate in skills small enough to be taught and assessed in the classroom according to disciplinary standards (e.g. evaluating inferences may involve invoking the concept of deductive validity in a philosophy class but would be more appropriately understood in terms of inductive strength in a science class).

We anticipate that most instructors who explicitly address critical thinking skills will concern themselves with skills from across the critical thinking tree. A communication instructor, for example, might help students to identify a persuasive speech (a leaf from the identification branch), teach students how to evaluate persuasion by identifying and assessing hidden assumptions (leaves from the analysis and evaluation branches), and allow students to practice communicating their own reasoning (a leaf from the construction branch). By helping students see the placement of these skills within a common, cross-curricular framework, instructors will allow students to understand how the skills that they are acquiring in one class are related to the skills that they are learning in another. This, in turn, will enable students to transfer their learning between their courses and beyond. And that, surely, is what education is all about.
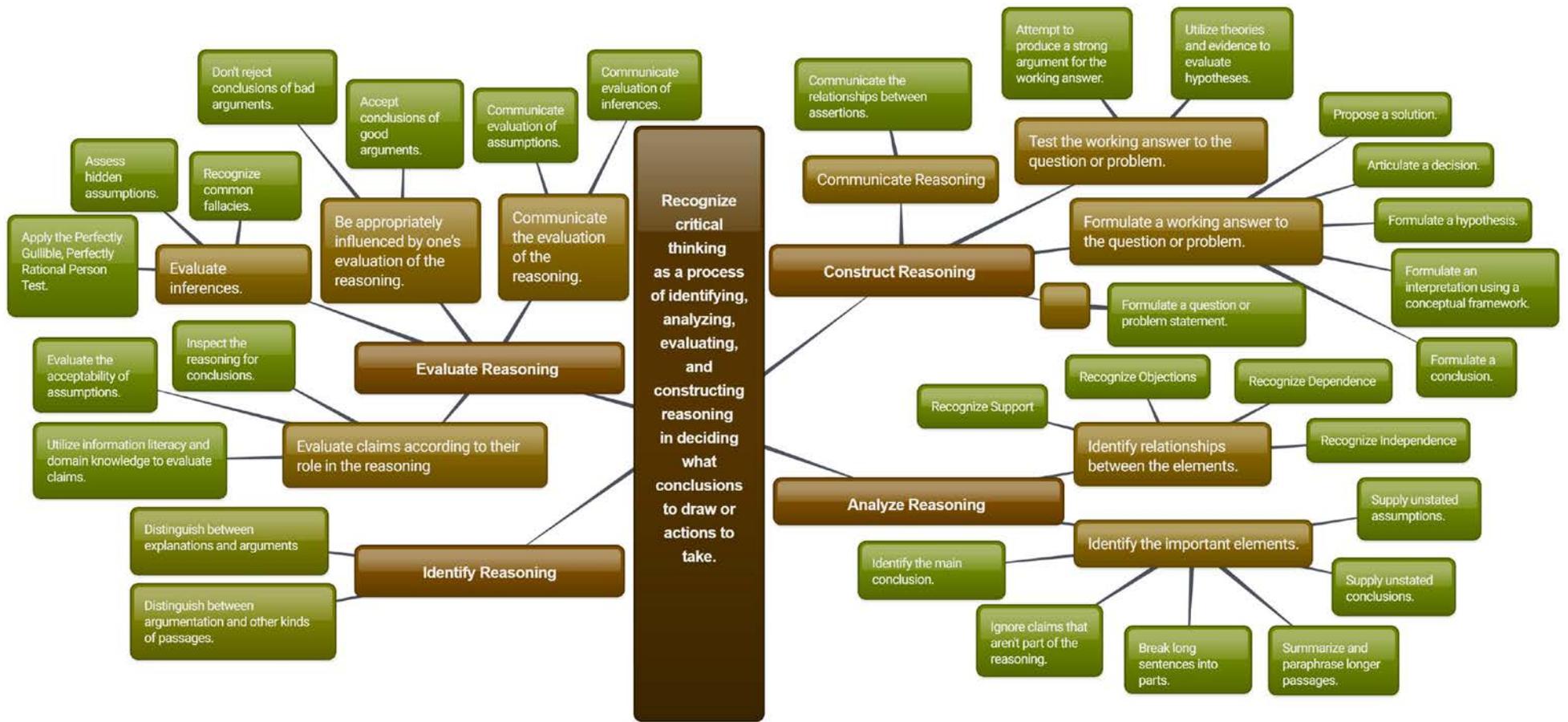
Don't reject conclusions of bad arguments.

Accept conclusions of good arguments.

Communicate evaluation of assumptions.

Communicate evaluation of inferences.

Communicate the relationships between assertions.

Attempt to produce a strong argument for the working answer.

Utilize theories and evidence to evaluate hypotheses.

Assess hidden assumptions.

Recognize common fallacies.

Be appropriately influenced by one's evaluation of the reasoning.

Communicate the evaluation of the reasoning.

Recognize critical thinking as a process of identifying, analyzing, evaluating, and constructing reasoning in deciding what conclusions to draw or actions to take.

Communicate Reasoning

Test the working answer to the question or problem.

Propose a solution.

Apply the Perfectly Gullible, Perfectly Rational Person Test.

Evaluate inferences.

Construct Reasoning

Formulate a working answer to the question or problem.

Articulate a decision.

Formulate a hypothesis.

Evaluate the acceptability of assumptions.

Inspect the reasoning for conclusions.

Evaluate Reasoning

Formulate a question or problem statement.

Formulate an interpretation using a conceptual framework.

Formulate a conclusion.

Utilize information literacy and domain knowledge to evaluate claims.

Evaluate claims according to their role in the reasoning

Recognize Support

Recognize Objections

Recognize Dependence

Recognize Independence

Identify relationships between the elements.

Distinguish between explanations and arguments

Identify Reasoning

Analyze Reasoning

Supply unstated assumptions.

Identify the important elements.

Distinguish between argumentation and other kinds of passages.

Identify the main conclusion.

Ignore claims that aren't part of the reasoning.

Break long sentences into parts.

Summarize and paraphrase longer passages.

Supply unstated conclusions.

Figure 1