

Critical Thinking in Writing Classrooms



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Competing Definitions of Critical Thinking

- In Philosophy, critical thinking has historically emphasized the intellectual processes and procedures required to arrive at logical and reasoned conclusions, as characterized by scholars like Peter Facione and Richard Paul.
- In Psychology, critical thinking is recognized as “self-direction” (as opposed to guided direction) within a core set of “mental activities.” Cognitive Psychologist Daniel Willingham explains: “From the cognitive scientist’s point of view, the mental activities that are typically called critical thinking are actually a subset of three types of thinking: reasoning, making judgments and decisions, and problem solving.
- In Education, we see an effort to classify how critical thinking is both delivered and assessed in curricula through domains such as: analysis, application, judgement and habits, such as: precision, questioning, relating, comparing, etc.

AAC&U Critical Thinking Framework and VALUE Rubric

“Critical thinking is a habit of mind characterized by the comprehensive exploration of issues, ideas, artifacts, and events before accepting or formulating an opinion or conclusion.”

AAC&U Critical Thinking Framework and VALUE Rubric

“Critical thinking is a **habit of mind** characterized by the **comprehensive exploration** of issues, ideas, artifacts, and events **before accepting or formulating an opinion or conclusion.**”

These conceptualizations of critical thinking tend to emphasize the cognitive task of thinking critically without describing the product of that thinking in the form of language use.

These conceptualizations also tend to emphasize critical thinking as generic, not discipline or domain specific.

Disciplinary Critical Thinking Reflection. Take a few minutes:

- What is one kind of thinking or habit of mind that is really important in your academic discipline or profession?
- What ways of thinking do you most want to encourage from your students?
- Is there a name for this general kind of critical thinking (evaluating, interpreting, explaining, applying, synthesizing) or is this thinking a unique habit?

What are some informal writing exercise you could give students in class to get them to practice this way of thinking that you value?

What are some formal assignments that you could develop which would ask students to demonstrate their critical thinking in written language?

Sandy Sarcona: Examples from Nutrition

INFORMAL

Students writing a personal statement for graduate school and/or internship.

- Step 1: - [SWOT Analysis](#) - Strengths, Weakness, Opportunities and Threats.
- Step 2: using a white board, blank sheet of paper or computer - have students write out a list of their strengths in one column and list of experiences in another.
- Step 3: start creating themes connecting their strengths and experiences.

EXAMPLE

- My leadership skills have been developed by being involved with the campus Nutrition Club and getting elected as president, and in my job as a shift leader for servers in my restaurant.
- Critical thinking and creativity were among the skills I acquired working with children as a teaching assistant in an after-school program.

Sandy Sarcona: Examples from Nutrition

FORMAL

Students writing a research paper.

- Step 1: Develop a research question
- Step 2: Gather articles related to the topic (four assigned for this paper)
- Step 3: Complete a data table for each article
- Step 4: Use the data table to compare and contrast the results of the study; consider various interventions and limitations that may lead to different results.

Author (Year)	Purpose of Study	Study Population	Intervention	Results	Conclusion	Limits

Rubric - evaluate critical thinking in synthesizing the results of the studies.

John Pisciotta: Examples from Biology

- “Intellectual processes & procedures required to arrive at logical and reasoned conclusions”
- In many fields this requires **Experimentation & Experimental Design**

Examples from Biology: activities for students

- Assign students to identify a topic of current interest in biology
- (ex. Treatment for a new disease – Ex. Covid)
- Assign students to *generally* state why this topic is important
- Assign students to present 3 specific reasons, based on critical analysis of prior research (potential for A.I. chat to help ID topics)

- Describe 2 approaches to study the biological question, noting pros & cons of each
- -In vitro
- -In vivo

Experimental Design

- Have students Formulate a novel testable hypothesis
- Then outline an experiment to test their hypothesis
- State two different variables that could be experimentally tested
- Specify positive control
- Specify negative control
- Explain the importance of including controls

Consider how you might adapt this Critical Thinking Experimental Framework

- Chemistry
- Physics
- Engineering
- Psychology & the Social Sciences

- What fields would require an alternative approach?

Other Strategies to Consider

- ❑ Think of tasks that would let students link concepts in your course to their personal experiences or prior knowledge, such as through a narrative or metaphor exercise.
- ❑ Ask students to teach difficult concepts in your course to a new learner, such as through a letter, memo, lesson plan, or presentation.
- ❑ Think of controversial theses in your field (for thesis support assignments or believer - versus - doubter exercises).
- ❑ Think of problems, puzzles, or questions you could ask students to address through a reflective writing.
- ❑ Give students raw data (such as lists, graphs, or tables) and ask them to write an argument or analysis based on the data. You might ask students to write an argument or analysis in an informal writing (through their own voice) and then revise that argument into a formal writing (in a professional or academic voice).
- ❑ Design templates that will guide your students through a thinking process that you value. The templates create a frame of “ slots ” and transitions that students have to flesh out with generalizations and supporting details.
- ❑ Have students role play unfamiliar points of view (imagine X from the perspective of Y) or “ what if ” situations.
- ❑ Select important articles in your field, and ask students to write summaries or abstracts of them. (Or ask students to write summaries of your lectures.)
- ❑ Think of a controversy in your field, and ask students to write a dialogue between characters with different points of view.
- ❑ Develop cases by writing scenarios that place students in realistic situations relevant to your discipline, where they must reach a decision to resolve a conflict.

Writing Assessment Considerations:

- How do we know when a student has utilized a habit of mind?
- How can we tell that an issue was comprehensively explored by a student?
- How can we tell that this thinking and exploration took place prior to formulation of an opinion or conclusion?
- What do we need to look for in a work of writing (that is, what forms of language use) to indicate that a student has thought critically?
- How do we assign value to this work in grading and assessment rubrics?

Some strategies to consider as you incorporate critical thinking into writing coursework:

1. Use critical thinking as the basis for assignment design rather than trying to map it onto an existing assignment.
2. Consider an arrangement for written work that leads students down a critical thinking pathway.
3. Consider semantic signals of the critical thinking you expect. Teach students to use them and expect them/require them in assignments.
4. Incorporate critical thinking in assignment assessment, rubric, and grade rationales.

#1 Use critical thinking as the basis for assignment design rather than trying to map it onto an existing assignment.

Let's take a moment to reflect on some important questions:

- Turn back to our previous reflection on ways of thinking in our disciplines that we want to encourage.
- Now, consider what kind of activity or assignment would get students to think in this way. Is it a common writing form (reading reflection, lab report, argumentative essay, research essay, case analysis, etc.) or would the assignment have to be something new entirely?

#2 Consider an arrangement for written work that leads students down a critical thinking pathway.

Arrangement is a term used to describe what happens first, second, third, etc. in a written. In secondary education students typically learn a five-paragraph essay arrangement (Introduction w/ thesis followed by three supporting body paragraphs followed by a conclusion).

- Turn to your idea for a new critical thinking assignment.
- Now, consider if there is a **sequence** or **arrangement** to that thinking. To think in this way, do thinkers have to do something first, second, third, etc.? For example: If I want students to be able to apply a theory they've learned to a case, I might expect the a writing assignment begins with a summation of the case, then provides a summation of the theory, then analyzes the case in relation to the theory.
- Requiring an assignment arrangement can lead students down a particular critical thinking pathway.

#3 Consider semantic signals of the critical thinking you expect.

This is perhaps the trickiest part of the assignment planning process so don't feel befuddled if you blank on this reflection:

- How will you know that the habit of critical thought you expect from students has happened? What would you have to see in a work of writing ton signal to you that critical thinking has happened?
- Semantic signals are ways the student has written which make meaning. For example, a paragraph that summarizes a theory on its own terms is signaling to me as the reader/instructor that this student is showing readers what this theory means, and in turn that the student has given the theory meaning.
- Semantic signals can also be sentence level. For example a sentence that places two sources in comparison/juxtaposition signals that the writer is synthesizing ideas.
- What are two or three semantic signals that would show you a student writer has performed the critical thinking you expect.

Teach students to use them and expect them/require them in assignments.

#4 Incorporate critical thinking in assignment assessment, rubric, and grade rationales.

Faculty have varying preferences for the specificity of assignment requirements. Some offer assignments with many requirements and restrictions and others provide open-ended prompts with few restrictions in how the student responds. By incorporating critical thinking into an assignment's assessment rationale means that: A) students "writing for the grade" will factor critical thinking into their performance; and B) busy faculty trying to provide timely feedback will assure that critical thinking is part of that feedback.

Turn to your idea for a new critical thinking assignment.

- To encourage a critical thinking skill you have in mind, is there an arrangement for the whole assignment you want to require or recommend?
- To encourage a critical thinking skill you have in mind, is there a type of paragraph you want to require or recommend?
- Is there a semantic move you want to require or recommend in the assignment?
- Is there an addendum to the assignment you want to require or recommend?

Key Takeaways

- Despite its ubiquity in higher education, we need to get specific about what we mean when we say that we're teaching CRITICAL THINKING.
- We need to consider what general critical thinking skills are most important in our fields and disciplines.
- ...and we also need to consider what ways of thinking are unique and discipline-specific.
- Course content needs to show students what critical thinking looks like in our fields
- Writing assignments can be designed to promote the kinds of thinking we want students to practice
- Our assignment sheets and grading rationales should identify and target the ways of thinking that we want students to perform.
- Most importantly: expectations for critical thinking should emerge from conversations among colleagues, departments, and programs--not merely become idiosyncrasies of individual instructors.