

spring 2009

workshops ON TEACHING

Teaching Critical Reading in the Sciences, Social Sciences, and Humanities

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Most of the texts we use in teaching our sections require specialized and sophisticated reading practices. However, most students come to college without training in these practices. Our task as instructors is to see the challenges of academic reading from our students' point of view and teach them ways to engage effectively with texts in our fields. How did you learn to grasp the form and value of a scientific article? Or track an essay's argument, or interpret a literary text? In this workshop we will look at what it means to read critically and actively in a number of different disciplines and share strategies in disciplinary groups for teaching students effective skills as critical readers. Participants will come away with ideas and tips they can bring directly to their own classrooms to enrich their teaching and students' learning.

Further information available at http://gsi.berkeley.edu/conf_wkshop/workshops.html, or e-mail us at gsi@berkeley.edu.

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Teaching Students to Read Critically in the Humanities

Preliminaries:

1. What's "critical reading" for the humanities? Each instructor should work out a working idea of the kinds of goals, procedures, and strategies involved in it. As scholars we all internalize some procedures and have trouble understanding that our less advanced students lack this procedural knowledge. It needs to be made explicit to most of them. So what follows attempts to make aspects of this procedural knowledge—as I understand it—explicit.
2. "Reading" is a highly generic term for students; they don't necessarily understand that instructional purpose, genre, and strategy are involved.
3. Students try to fit whatever new ideas they're reading with things they already think rather than letting the "other" be "other" on its own terms—let's call that "schema interference." So students think they see things in a text that aren't "there" to a reader with different expectations. But schemas aren't bad. Students need *both* to connect the material to their current understanding *and* to allow the new material to help them reshape their evolving understanding.
4. Instructors typically assign way too much reading material for students to realistically process. This leaves students to come up with "economies of effort" that may derail the instructional purpose of the reading.
5. Students may go to the Internet to find auxiliary material to supplement (or reduce the challenge of) the main reading and then be reluctant to pick up the terms of discussion the instructor is introducing.

How-tos for the Humanities:

1. In the first class meeting, many instructors provide a brief text, musical piece, or image for students to analyze. Demonstrate the kinds of questions you ask when you analyze such a text or image. Help students begin to articulate what's curious to them in the passage. Guide this discussion in the direction of some important tips you've thought through beforehand.
2. Provide this set of tips to students to take with them as they do their first analytical reading assignment. Let them know what kind of text they'll be reading, a few essential questions to ask, and what *good* websites they can use for reference.
3. Return to these tips and expand on them frequently. Keep the students focused on performing the procedures until they're second nature to them. Although flexibility of thought is the ultimate goal, the practices constitute an important step toward flexibility.
4. Let students know that there's a lot more to reading than decoding. Show them a few different kinds of texts and demonstrate, briefly, that reading a poem, reading a chapter of a novel, and reading a blog are quite different activities—there's some overlap, but each has its own set of characteristics. Introduce the ideas of *genre* and *strategy*.
5. A hallmark of a UC Berkeley education is learning to do independent analysis and thinking about primary sources, particularly in the humanities. Let students know that whatever sorts of "helps" or summaries they find on the Internet will be no better than what they can come up with themselves with a bit of work—and it's the ability to do this work that's the objective of their UC Berkeley education.
6. Class "discussion" needs to be understood in terms of a collective analysis of a text or image, not a performance venue for seasoned talkers. In other words, try to cultivate a classroom setting in which the processes of reading, questioning, misprision, adjustment, and location of interpretive cruxes take place openly and without any negative judgment of the participants.

Sample Tip Sheets

In the following pages, you will find samples of reading tip sheets used by GSIs in Medieval Literature, English, and Rhetoric. Feel free to use or adapt them for your students. Or come up with your own approach.

Tips for Reading Medieval Texts in Translation

Now that you have your first reading assignment, what exactly will you do with it?

First off, read actively. Interact with the text; get into a dialogue with it. Get your own copy of the text. Get a pen. Get a notebook. Mark things you don't understand and try to pinpoint your question or the kind of information you need.

Look up information you need in appropriate reference works. A short list of items available to UCB library users:

Oxford English Dictionary Online
<http://dictionary.oed.com/entrance.dtl>

Oxford Reference Online—Literature
http://www.oxfordreference.com/views/SUBJECT_SEARCH.html?subject=s13

Oxford Reference Online—Mythology & Folklore
http://www.oxfordreference.com/views/SUBJECT_SEARCH.html?subject=s17

Oxford Reference Online—History
http://www.oxfordreference.com/views/SUBJECT_SEARCH.html?subject=s11&authstatuscode=200

Note that Celticists do not find Wikipedia to be particularly reliable for medieval Celtic studies topics, for reasons we'll address later in the semester.

Good interpretive questions to start with in a medieval literary text:

Is the mode of expression closer to verbose or to sketchy? Is the tone dramatic, dry, comical, tragic? Point to some examples.

Who are the characters—what are their names? What are they like—social, political, economic, religious, educational background? What kinds of actions, words, or attributes (clothing, possessions, language, etc.) signal someone's characteristics or social standing? (In *The Wooing of Étaín*, for example, how do you know what Midir is like and what Echu is like?)

What things seem to matter to them in the world of the text?

What are the conflicts and the objectives of the characters?

What do you think needs to happen for the plot to resolve? Why?

What part does the landscape play in the narrative?

Did the narrative end the way you thought it would? What unexpected elements did you encounter?

What do you like about the text? What do you dislike? Why?

After you've read the piece, write a brief summary of it in your notebook. Write down any further questions you have. Question your questions. Why do you find those particular questions important? Is it a matter of needing knowledge—do you need to find more information in a dictionary or some other reference work? Does something just not make sense from the point of view of your experiences and expectations? Why?

Write it down and return to it. Do you want to bring something up in a discussion with others? Bring your questions to class meetings and be ready to direct us to them.

After reading the entire piece a couple of times, you can return to it with broader questions:

Is there a single plot, or are there multiple strands of plot? Do they intersect, or do they come up in sequential episodes? Do different episodes comment on one another?

Do the characters go about attaining their objectives in the same way people in your culture do? Do they do what characters in your culture's stories do? In what ways do their behaviors or feelings differ?

Different cultures may tell similar stories but talk about quite different issues through those stories. In what ways are the text's issues similar to situations in your culture or in your culture's stories? In what ways are they different? (For example, "The Wooing of Étaín" and the movie *Titanic* are both organized around love triangles, but how are the pressures on the love affairs different from the medieval Irish tale to the modern American film?)

Write your questions and your reactions.

Becoming an Active Reader

For this class, you will write essays in which you formulate and present a coherent analysis of what you have read. To do this, you must consider a variety of issues. How does the text work? What meaning does it construct? How do the language, tone, and imagery of the text contribute to its sense of meaning? The only way you can begin to answer these questions is to spend time with the text. Read it. Read it again. The following tips are intended to help you become an active reader, aware of your responses to the text, and able to communicate clearly your thoughts and ideas about the materials you have read.

Remember that being an active reader is also being an active questioner. **Always** read with a pen and notepad handy. You want to jot down any ideas and pages references so you can reflect again later. You want to mark key passages, themes, and tropes in the text and to note any questions that arise while reading. Post-its are a great tool for marking your books for papers and discussions. You can “label” the passage topic on the post-it while reading to help collect textual evidence for your essays.

The First Reading

On your first reading of a text, you will probably be most interested in simply following what happens. Such interest in the plot is natural, but try not to let that blind you to other things that are going on while the plot unfolds. Mark passages that strike you for whatever reason. Is a word, phrase, symbol, theme used repeatedly? How does the author set the mood or tone of the piece? Mark the passage so that you can return to it easily.

Freewriting

Immediately after reading the work for the first time, write about it for fifteen minutes. Do not concern yourself with logic, style, punctuation, or any other standard of “correctness.” If, in the middle of a sentence, another idea comes to you—go with it. The point of this exercise is to get down as many of your impressions of what you have read as possible without having to consider any possible use for what you are writing. Just let yourself think about what you have read and record those thoughts.

To develop your compare and contrast skills, you can continue with the following exercise: After a quick break, do another free-writing on the various ways you think the text links up to other texts and themes of the course. What are the connections with and differences from other works in terms of thematic content, generic conventions, literary style?

Seeing your Ideas and Asking Questions

You never know what a session of freewriting will produce, and once you have it in front of you it is hard to know what to hang on to and what to toss away. Presumably, you work this semester will make you a better judge of what is a useful line of inquiry and what is not, but until you have informed such opinions, go through what you have written and underline what looks to you like a possible idea or significant question. List these on a separate sheet of paper and begin to think about how to follow-up on them. Whatever topic you have begun to focus on, plan to look for solid evidence of that on you next reading.

For our Next Class – Due Thursday, August 29th

After completing the reading the first five chapters of *Little Women*, freewrite for ten minutes. Time yourself and write continuously for the designated amount of time. Take a break. Then reread you freewriting, and underline any possible ideas or significant questions. Write these ideas/questions down on the back of the page or a separate piece of paper. You will hand-in your freewriting to me in class, and the ideas and questions you come up with will be part of our discussion.

Close Reading Worksheet

A close reading, or explication, seeks to confront the particular words, images, and organization of a (usually literary) scene or passage. Close reading is a technique used to break up dense or complex ideas and language, or to draw attention to such individual parts as images or word choice. A critic employs close reading to better understand the relationship between the form of a passage and its content, and to clarify the meaning of a passage in the overall context of the text. Your close reading of a passage constitutes the basis of your interpretation and becomes evidence in your argument.

While you do not need to discuss every line in your chosen passage, you should address the main features of the passage and quote from it to demonstrate your interpretation. Consider the following elements. They may occur separately or together; their relative importance will vary depending upon the passage at hand. As you analyze a passage, you want to focus on how the form of presentation contributes to the meaning a text conveys.

1. **Context:** How is the passage situated in the text? What comes before and after it? How does your reaction to the passage change in relation to scenes, characters, and narration that precede or follow?
2. **Speaker/s and Narrator/s:** Who is speaking or narrating and why? Is the speaker or narrator objective or biased? How do you know?
3. **Chronology:** What chronology do events, dialogue, or the appearance of characters take in the flow of the passage? How is the order of presentation important?
4. **Concepts:** What are the main ideas the passage or speaker is trying to convey?
5. **Imagery:** What sorts of images, similes, or metaphors are used? What is their effect?
6. **Language:** Are repetition, formal or informal language, conventional or unconventional sentences, important to the way meaning is produced in the passage?

Reading Arguments Critically

1. Determine the rhetorical situation of the argument (TRACE – see next page).
2. Note the main claim, or thesis, of the argument, if it appears explicitly. If it does not, paraphrase it in the margin.
3. Pick out and mark the main claims in support of the thesis.
4. Consider the evidence offered. Write comments about the claims themselves, and how well they are supported. Question evidence in both quantity and quality.
5. Note key terms and how the writer defines (or fails to define) them. Would most readers agree with the definitions? How would you define or illustrate key terms that need clarification?
6. If the writer presents any analogies, are the things being compared truly similar? Note any problems.
7. Are there any contradictions? Does any evidence cited in the text contradict other evidence in the text or other evidence that you know about that is not cited?
8. Upon what assumptions are the thesis and claims based? Does the argument, or any of its assertions, rest upon an assumption that all readers may not share?
9. Where, if at all, are counter-arguments represented? Do you think they are depicted fairly?
10. What is your personal response? What do you agree with? What seems true to you? What do you disagree with? Why?

The Rhetorical Situation – TRACE

Every text is part of a rhetorical situation influenced and shaped in its construction by various intersecting factors. These factors include the Text, the Reader, the Author, the cultural context or Constraints, and the events—or Exigency—that initiated the text’s construction.

- **For You as the Reader**

Text. What kind of text is it? What are its qualities and features?

Reader. Are you one of the readers the writer anticipated? Do you share common ground with the author and other audience members? Are you open to change?

Author. Who is the author? How is the author influenced by background, experience, education, affiliations, values? What is the author’s motivation to write?

Constraints. What beliefs, attitudes, habits, affiliations, or traditions will influence the way you and the author view the argument?

Exigency. What caused the argument, and do you perceive it as a defect or problem?

- **For the Targeted Reader at the Time It Was Written**

Text. What kind of text is it? Is it unique to its time?

Reader. What was the nature of the targeted readers? Were they convinced? How are they different from other or modern readers?

Author. Who is the author? What influenced the author? Why was the author motivated to write?

Constraints. What beliefs, attitudes, habits, affiliations, or traditions influenced the author’s and the readers’ views in this argument?

Exigency. What happened to cause the argument? Why was it a problem? Has it recurred?

- **For You as the Writer**

Text. What is your argumentation strategy? What is your purpose and perspective? How will you make your paper convincing?

Reader. Who are your readers? Where do they stand on the issue? How can you establish common ground? Can they change?

Constraints. How are your training, background, affiliations, and values in either harmony or conflict with your audience? Will they drive you apart or help build common ground?

Exigency. What happened? What is motivating you to write on this issue? Why is it compelling to you?

Critical Reading in the Social Sciences

Introduction

What is critical reading?

It is reading actively with the goals of identifying arguments, weighing evidence, evaluating sources, looking for conflicts of interest, and questioning underlying assumptions. It is distinctly different from the passive reading associated with reading novels, which many students mistakenly apply to academic texts. Regardless of discipline, critical reading is an important skill that will help students become more informed and, hopefully, more effective citizens.

What does it mean for social sciences?

In the social sciences critical reading also means being aware of how a reading fits into an analytic lineage. That means identifying the research question being asked, what has been said about that question, and what the current author is contributing to the analysis.

What difficulties do students face?

Students at the beginning of their college career might confuse the concept of critique with the idea that they are always supposed to criticize a reading. Others might confuse critical engagement with a text with the hopeless task of discerning the part of an article that is objective and factual from the part that is opinion, biased, or just plain false.

Where do these difficulties come from?

This confusion stems from a model of teaching prevalent at the high school level that teaches students to memorize answers that have been coded as ‘facts’ for one-time testing. In general, beginning college students have not been prepared to critically engage with their texts, understand how the texts are part of an intellectual lineage, or question the assumptions that have been built into the particular models of understanding that they have been exposed to in different disciplines.

Therefore, in asking students to become critical readers within many disciplines at the college level, we are asking students to develop a skill set which is diametrically opposed to that which they have become proficient in at the high school level.

How do we help students surmount these difficulties?

To alleviate these difficulties I offer a comprehensive approach that includes a four-part approach to critical reading as well as suggestions for assignments, in-class discussions, and ways to help students better relate to social science articles.

Overview of the Four-Step Approach

This approach includes three layers of reading as well as a “response” component. Good readers will reread a piece several times, until they are satisfied they know it inside and out. It is recommended that you read a text three times to make as much meaning as you can.

First Reading – Previewing

The first time you read a text, skim it quickly for its main ideas. Pay attention to the introduction, the opening sentences of paragraphs, and section headings, if there are any. Previewing the text in this way gets you off to a good start when you have to read critically.

Second Reading – Annotating and Analyzing

The second reading includes annotating and analyzing the evidence in support of the argument. It should be a slow, meditative read, and you should have your pencil in your hand so you can annotate the text. Taking time

to annotate your text during the second reading may be the most important strategy to master if you want to become a critical reader.

Third Reading – Review

The third reading should take into account any questions you asked yourself by annotating in the margins. You should use this reading to look up any unfamiliar words and to make sure you have understood any confusing or complicated sections of the text.

Fourth Step – Responding

Responding to what you read is an important step in understanding what you read. You can respond in writing or by talking about what you've read to others.

Below I provide details about the first two levels of reading and the “response” portion of the approach. Additionally, I provide suggestions for critical reading assignments, topics for in-class discussions, and ways to help students better relate to academic texts.

Part I: The First Reading – Previewing

Previewing a text means gathering as much information about the text as you can before you actually read it. You can ask yourself the following questions:

1) What is my purpose for reading?

If you are being asked to summarize a particular piece of writing, you will want to look for the thesis and main points. Are you being asked to respond to a piece? If so, you may want to be conscious of what you already know about the topic and how you arrived at that opinion.

2) What can the title tell me about the text?

Before you read, look at the title of the text. What clues does it give you about the piece of writing? It may reveal the author's stance, or make a claim the piece will try to support. Good writers usually try to make their titles do work to help readers make meaning of the text from the reader's first glance at it.

3) How is the text structured?

Sometimes the structure of a piece can give you important clues to its meaning. Be sure to read all section headings carefully.

4) What information can you glean from the introductory and concluding paragraphs?

Usually, authors will foreshadow the main points of their text in the introductory paragraphs. As well, in the concluding paragraphs they will usually review the ground they've covered as well as re-state their argument.

5) What is conveyed by the opening sentences?

Quickly skimming over the opening sentences of paragraphs should give you a good idea of the main ideas contained in the piece.

6) What are the author's main points?

The main points are the major subtopics, or sub-ideas the author wants to explore. Main points make up the body of the text and are often signaled by major divisions in the structure of the text.

7) What is the author's thesis?

After previewing the article / chapter you should be able to identify the author's thesis.

Part II: The Second Reading – Annotating

Annotating is an important skill to employ if you want to read critically. Successful critical readers read with a pencil in their hand, making notes in the text as they read. Instead of reading passively, they create an active relationship with what they are reading by “talking back” to the text in its margins. As well, writing while reading aids your memory in many ways, especially by making a link that is unclear in the text concrete in your writing. You may want to make the following annotations as you read:

- Mark the thesis and main points of the piece
- Write signposts that will help organize the text for you
- Note for yourself the main evidence used to support the argument
- Mark key terms and unfamiliar words
- Underline important ideas and memorable images
- Write your questions and / or comments in the margins of the piece
- Write any personal experience related to the piece
- Mark confusing parts of the piece, or sections that warrant a re-read
- Underline the sources, if any, the author has used

Mark the thesis and main points of the piece

Mark the thesis and main points of the piece. The thesis is the main idea or claim of the text, and it relates to the author’s purpose for writing. Sometimes the thesis is not explicitly stated, but is implied in the text, but you should still be able to paraphrase an overall idea the author is interested in exploring in the text. The thesis can be thought of as a promise the writer makes to the reader that the rest of the essay attempts to fulfill.

The main points are the major subtopics, or sub-ideas the author wants to explore. Main points make up the body of the text, and are often signaled by major divisions in the structure of the text.

Marking the thesis and main points will help you understand the overall idea of the text and the way the author has chosen to develop her or his thesis through the main points s / he has chosen.

Mark key terms and unfamiliar words

While you are annotating the text you are reading, be sure to circle unfamiliar words and take the time to look them up in the dictionary. Making meaning of some discussions in texts depends on your understanding of pivotal words. You should also annotate key terms that keep popping up in your reading. The fact that the author uses key terms to signal important and / or recurring ideas means that you should have a firm grasp of what they mean.

Underline important ideas and memorable images

Mark passages that strike you for whatever reason so that you can easily return to them. You will want to underline important ideas and memorable images so that you can go back to the piece and find them easily. Marking these things will also help you relate to the author’s position in the piece more readily. Writers may try to signal important ideas with the use of descriptive language or images, and where you find these stylistic devices there may be a key concept the writer is trying to convey.

Write your questions and / or comments in the margins of the piece

Writing your own questions and responses to the text in its margins may be the most important aspect of annotating. “Talking back” to the text is an important meaning-making activity for critical readers. Think about what thoughts and feelings the text arouses in you. Do you agree or disagree with what the author is saying? Are you confused by a certain section of the text? Write your reactions to the reading in the margins of the text itself so you can refer to it again easily. This not only will make your reading more active and memorable, but it may indicate material you can use in your own writing later on (properly cited, of course).

Write any personal experience related to the piece

One way to make a meaningful connection to a text is to connect the ideas in the text to your own personal experience. Where can you identify with what the author is saying? Where do you differ in terms of personal experience? Identifying personally with the piece will enable you to get more out of your reading because it will become more relevant to your life, and you will be able to remember what you read more easily.

Mark confusing parts of the piece, or sections that warrant a reread

Be sure to mark confusing parts of the piece you are reading or sections that warrant a reread. It is tempting to glide over confusing parts of a text, probably because they cause frustration in us as readers. But it is important to go back to confusing sections to try to understand as much as you can about them. Annotating these sections may also remind you to bring up the confusing section in class or to your instructor.

Underline the sources, if any, the author has used

Good critical readers are always aware of the sources an author uses in her or his text. You should mark sources in the text and ask yourself whether the source is relevant, credible, and current.

Part III: The Second Reading – Analyzing

Analyzing a text means breaking it down into its parts to find out how these parts relate to one another. Being aware of the functions of various parts of a piece of writing and their relationship to one another and the overall piece can help you better understand a text's meaning. To analyze a text, you can look at the following things:

- Evidence
- Evaluation
- Assumptions
- Sources
- Author bias

Analyzing evidence

Consider the evidence the author presents. Is there enough evidence to support the point the author is trying to make? Does the evidence relate to the main point in a logical way? In other words, does the evidence work to prove the point, or does it contradict the point, or does it show itself to be irrelevant to the point the author is trying to make?

Evaluating sources

Good critical readers are always aware of the sources an author uses in her or his text. You should mark sources in the text and ask yourself the following questions:

- Is the source relevant? In other words, does the source work to support what the author is trying to say?
- Is the source credible? What is his or her reputation? Is the source authoritative? What is the source's bias on the issue? What is the source's political and / or personal stance on the issue?
- Is the source current? Is there new information that refutes what the source is asserting? Is the writer of the text using source material that is outdated?

Analyzing assumptions

Consider any assumptions the author is making. Assumptions may be unstated in the piece of writing you are assessing, but the writer may be basing her or his thesis on them. What does the author have to believe is true before the rest of her or his essay makes sense?

Example: “[I]f a college recruiter argues that the school is superior to most others because its ratio of students to teachers is low, the unstated assumptions are (1) that students there will get more attention, and (2) that more attention results in a better education” (Crusius and Channell, *The Aims of Argument*, Mayfield Publishing Co., 1995).

Analyzing author bias

Taking a close look at the author’s bias can tell you a lot about a text. Ask yourself what experiences in the author’s background may have led him or her to hold the position s / he does. What does s / he hope to gain from taking this position? How does the author’s position stand up in comparison to other positions on the issue? Knowing where the author is “coming from” can help you to more easily make meaning from a text.

Part IV: Responding

Responding to what you read is an important step in understanding what you read. You can respond in writing or by talking about what you’ve read with others.

Write a response to the article

One way to make sure you have understood a piece of writing is to write a response to it. It may be beneficial to first write a summary of the text, covering the thesis and main points in an unbiased way. Pretend you are reporting on the “facts” of the piece to a friend who has not read it, the point being to keep your own opinion out of the summary. Once you have summarized the author’s ideas objectively, you can respond to them. You can agree or disagree with the text, interpret it, or analyze it. Working with your reading of the text by responding in writing is a good way to read critically. Moreover, by developing a habit of reading and writing in conjunction, both skills will improve.

Keep a writer’s notebook

It is often helpful to regularly record your responses and thoughts in a more permanent place that is yours to consult. A writer’s notebook, or journal, is a place in which you can respond to your reading. You should feel free to say what you really think about the piece you are reading, to ask questions, and to express frustration or confusion about the piece. The writer’s notebook is a place you can come back to when it is time to write an assignment, to look for your initial reactions to your readings or to pull support for an essay from personal experience you may have recorded. Writing about what you are reading is a way to become actively engaged in the critical reading process.

Discuss the text with others

Cooperative activities are important to critical reading just as they are to the writing process. Sharing your knowledge of a text with others reading the same text is a good way to check your understanding and open up new avenues of comprehension. You can annotate a text on your own first, and then confer with a group of classmates about how they annotated their texts. Or, you can be sure to participate in class discussion of a shared text—verbalizing your ideas about a text will reinforce your reading process.

Assignments to Promote Reading Efficiency

- 1) **Freewrite:** immediately after reading the article or chapter, write about it for 15 minutes. Do not concern yourself with logic, style, punctuation, or any other standard of “correctness.” If, in the middle of a sentence, another idea comes to you—go with it. The point of this exercise is to get down as many of your impressions of what you have read as possible without having to consider any possible use for what you are writing. Just let yourself think about what you have read and record these thoughts.
- 2) **Reflect on the title:** Before reading the article or chapter, reflect on its title. Write a paragraph about what is conveyed by the title, what the article’s focus will be, and what you believe the argument will be.

Don't worry about "getting it right," as that isn't the point of this exercise. Then read the article in question and, when you are done, summarize the author's argument. After summarizing the argument, reflect on: a) how your reading of the article / chapter was informed by reflecting on its title, and b) whether you were misled by the title.

- 3) **Reflect on the abstract:** Same as above, but with the article's abstract instead of the title.
- 4) **Evaluate the argument:** Read the introduction and conclusion of the article. Then identify the argument of the text. Then take ten minutes to free-write, identifying what types of evidence the article will need to provide to persuade you of its argument. Read the article, and then write a paragraph that analyzes the extent to which the article did or did not meet your expectations. Were you persuaded by the evidence? Why or why not?
- 5) **Freewrite about connections to other readings:** After freewriting about the article, take a short break, and then do a free-write on the various ways you think the text links up to the preceding texts covered in the class, and / or themes of the course. What are the similarities and differences in terms of subject matter, research question, geographical focus, temporal focus, type of data, and argument?
- 6) **Identify citation lineages:** A) make a list of the theoretical approaches mentioned in the text, B) make a list of the specific authors referred to, C) make a list of the key concepts used in the text (can the reader glean a working definition of these concepts from the text?), D) mark each member of the lists created above in reference to the author's relationship to it. Does the author mention the theoretical approach, concept, or thinker under consideration as an advance to previous thinking, or does he / she emphasize the limitations of it? E) What is the author's main analytical point as opposed to the ideas of other thinkers in the text?
- 7) **Answer reading questions:** Another strategy is for the instructor to provide reading questions a few days before the readings are due. These can include standard questions, such as "what is the author's argument?" and "how does his / her argument relate to the readings that preceded it?" Or, the questions can be more specific to the article, such as asking them to define key concepts in the reading. The questions provide students with guidance about how to read texts and help focus class discussion around salient points. Also, teachers can provide extra incentive by offering extra credit to students who submit satisfactory written responses to the questions.

In-class Discussions

- 1) **Discuss reading strategies:** Set aside class time for a short discussion about the reading process. Ask each student to share one or more strategies that help them with their reading assignments. This could pertain to places they read, the number of pages they attempt to read at one sitting, comfort of the reading environment, time of day, etc..This exercise will help the students become more conscious of their reading habits / strategies, learn about the reading strategies used by others, and help build classroom solidarity.
- 2) **Discuss difficulties:** Have a similar conversation about the difficulties students face vis-à-vis the readings and how they have sought to address those difficulties.
- 3) **Apply metaphors:** A difficulty experienced by many social science students is understanding that a particular article is a piece in an ongoing analytical lineage. To address this difficulty, below I provide metaphors that help students read analytically within a particular disciplinary lineage. As well, these metaphors help students understand that the main task that they are expected to be proficient in is to understand analytical arguments and the assumptions that those arguments are based on, not only for the author they are reading now but for the authors that the current author is citing.

- The metaphor of a **citation lineage**: This expression can itself be considered a metaphor. It references the fact that disciplines within an analytic tradition produce texts that are densely referenced and that authors are working within multi-layered traditions of citation.
- The metaphor of a **conversation**: Instead of trying to read for “the facts” encourage students to see an article as an on-going conversation in which the current author of the article being read is engaging with other authors’ ideas. These other authors might span large expanses of time and disciplinary space so the student needs to pay attention to the different authors and concepts mentioned. They need to start to construct a conceptual map for themselves.
- The metaphor of the **party**: Tell students that reading an analytical article feels very similar to going to a party where they know only one person, but everyone else has been going to the same parties for years. The new person (the student) doesn’t know the prior history of the groups (who hates whom, who used to date whom, for example) and needs to be filled in on the back story. This is very similar to many disciplines in which the on-going conversation that a particular author is making an intervention into is quite complex and pulls from divergent sources. When students are first asked to read an analytical argument that is densely referenced, they may get confused and give up. The metaphor of the party lets students know that you expect them to feel over-loaded when they first read an article that is densely layered from multiple citation lineages.
- The metaphor of **enemies and allies**: This is very similar to the metaphor of the party but emphasizes the fact that the author being read either agrees or disagrees with aspects of the argumentation of the other thinkers cited in his / her own article. Students therefore need to pay attention to tone.
- The metaphor of a **language class**: This helps students understand that we are giving them “real” articles that will be difficult for them in the beginning. When students start to read this kind of text they might feel like they are being asked to read a third-year foreign language text when they haven’t yet taken the first two years.

References

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Critical Reading in Biology and the Natural Sciences

Journal articles and scientific papers are the medium through which biologists relay their research to their colleagues. Scientific articles are most often presented in a standard format, beginning with an abstract, followed by an introduction, then methods, results, and finally conclusions. A good paper presents the author's topic, data, and interpretations clearly and logically.

*The reader's challenge is to comprehend the paper's main ideas despite new vocabulary, unfamiliar tone, and often complex subject matter. This requires **active and critical reading**.*

The following strategies suggest how to facilitate active & critical reading while minimizing frustration.

Strategies of Critical Readers

- **Identify the paper's major conclusions from the Title and Abstract.** Keep its theme(s) in mind while reading the entire paper.
- **Look up unfamiliar words** as you encounter them. Re-write them in your own words if necessary, and use that definition when you encounter them later in the paper.
- **Learn from headings** within the Introduction, Methods, Results, & Conclusion. These may be summations of major themes of the paper or signify topic shifts.
- **Tolerate confusion** or ambiguity during your first read. Try not to expect the complexities of the paper to be clarified immediately. Your confusion can generate excellent questions that may be answered during your second read, or if not, provide material for discussion or further investigation.
- **Don't be put off by complicated Methods.** In most cases you don't have to understand all details of the paper's experiments or analyses to make a sufficient synopsis of its main conclusions.
- **Summarize.** As you reach the end of a section of interest, ask yourself if you could explain it to someone else. If yes, great! If no, give it another read.
- **Ask yourself questions** throughout the paper. This is the "critical" component of critical reading. Is evidence well-supported? Presented clearly? What are the study's broader implications?
- **Read the paper a second or third time, highlighting key points.** Check these points with your summaries and the author's abstract. Does your interpretation of the paper match theirs?

Habits of Critical Readers

Effective habits, of mind and of practice, are crucial to developing critical reading skills. A simple routine that works for you can make all the difference. The following are some suggestions.

- **Use a marking system.** This is a note-taking/making scheme that you use consistently to mark-up or take notes on the paper that you are reading. It may include written notes in the paper's margin, short summaries at the end of sections, stars/arrows/circles/numbers at key passages, color coded highlights, or Post-Its that designate main ideas, confusing sentences, evidence, unfamiliar words, etc.
- **Read without distraction.** Critical reading is best done when you are focused and comfortable, but not too comfortable. This might be at a library study cubicle, a coffee shop, or wherever you find you work well and are alert.

Practical Strategies for GSIs

The following are strategies aimed at motivating students to develop their critical reading skills.

1. Prepare a checklist of strategies for critical thinking and reading.
2. Assign brief summaries of papers with specific questions aimed at analyzing, interpreting, and/or evaluating a text.
3. Assign a comparison of two texts and ask students to evaluate (by using outside sources) any inconsistencies between them.
4. Assign a paper critique. Provide a grading rubric.
5. Assign short in-section written responses to controversial, misinformed, or politicized statements that students can use the methods of critical thinking to evaluate.
6. Compare the rigor and evidence-based interpretations of data presented in a scientific journal article with a topically similar presentation of the same data in a popular media source (ex. Yahoo news).
7. (Add your own . . .)
- 8.
- 9.
- 10.

A Sample Critique Assignment Grading Rubric

Introduction

- The first page has your name, date & the scientific paper's citation: ____/ 0.5
- Text is in 11 or 12 pt. font, does not (greatly) exceed 600 words: ____/ 0.5
- Introduction/beginning presents the paper's purpose & authors' objectives: ____/ 1
- Introduction/beginning presents sufficient background information: ____/ 1

Body and conclusion of critique

- Paper's concepts, methods, and conclusions are presented accurately: ____/ 1
- A statement of your reaction to this paper and how it relates to what you know about (the subject matter) is included. Suggestions of improvement accompany criticisms: ____/ 0.5
- Relevance of paper's conclusions, based on your evaluation, is expressed: ____/ 1
- Discussion of paper's arguments is sufficient: ____/ 1

Organization and presentation

- Each paragraph begins with a clear and focused topic sentence: ____/ 1
- Slang, jargon, and wordiness are avoided including; as to, due to, in order to, it is suggested that, first of all, the fact that, with regard to, etc: ____/ 0.5
- Grammar and syntax are acceptable and spelling and plurals are correct: ____/ 0.5
- Organization: ____/ 1
- Clarity and tone: ____/ 0.5

Total:_____/10

Comments:

A Sample Critical Thinking Assignment

GSI: NAME, Third reading/answer assignment, Due: DATE

Science and Scientific claims

Assignment (10 pts):

1. Read the attached article, "106 Science Claims and a Truckful of Baloney" by William Speed Weed. He is a freelance writer and regular contributor to Popular Science magazine. He lives in San Francisco. This article is found in *The Best American Science and Nature Writing 2005*, published by Houghton Mifflin.
2. Observe your surroundings and compile a list of 10 scientific claims that you encounter. They can be from food packaging, the internet, billboards, television commercials, shampoo bottles, etc. Describe each claim, its source, and provide an evaluation of each claim as bogus/false, true, incomplete, misleading, or whatever is an appropriate assessment (as is done in the article). Do some internet (or other) research to evaluate each claim. Be careful to use reliable sources, e.g. peer-reviewed journal articles, fine print, text books, doctors, scientists, and *reliable* internet sources. Cite all sources, please.

Note: As with the other writing assignments, you'll be graded on the: (1) thoroughness of your answers (in this case, your description & evaluation of each claim) (2) writing clarity and (3) proper use of citations.

3. Please drop off this assignment into box X in Room Y on Monday, DATE.

Skills of Critical Reading and Thinking and Rules of Evidential Reasoning

Table 1. Skills involved in critical thinking (Wade, 1990).

Skills of Critical Thinking	Simple Techniques
1) Ask questions: be willing to wonder.	Start by asking "Why?"
2) Define the problem	Restate the issue several different ways so it is clear.
3) Examine the evidence	Ask what evidence supports or refutes the claim. Is it reliable?
4) Analyze assumptions and biases.	List the evidence on which each part of the argument is based. The assumptions and biases will be unsupported and should be eliminated from further consideration.
5) Avoid emotional reasoning.	Identify emotional influence and "gut feelings" in the arguments and exclude them.
6) Don't oversimplify	Do not generalize from too little evidence.
7) Consider other interpretations and evaluate them with evidential reasoning.	Make sure alternate views are adequately evaluated.
8) Tolerate uncertainty.	Be ready to accept tentative answers when evidence is incomplete, and new answers when further evidence warrants them.

Table 2. Rules for evidential reasoning (Lett, 1990), or a guide to intelligent living and the scientific method (Lipps, 1999).

Rules for Evidential Reasoning	What to do
1) Falsifiability	Conceive of all evidence that would prove the claim false
2) Logic	Argument must be sound
3) Comprehensiveness	Must use all the available evidence
4) Honesty	Evaluate evidence without self-deception
5) Replicability	Evidence must be repeatable
6) Sufficiency	A. Burden of proof rests on the claimant. B. Extraordinary claims require extraordinary evidence. C. Authority and/or testimony is always inadequate.

Reproduced with permission from Lipps, J.H. 1999. This is science! Pp. 3-16 in J. Scotchmoor and D.A. Springer (eds.). Evolution: Investigating the Evidence. Paleontological Society Special Publication, vol. 9.