

Close Reading of a Scientific Article

A Guide

The public perception of controversial scientific issues is often based on over-simplified or inaccurate understandings of scientific claims. In order to further your development as careful, reasonably skeptical readers, we will move beyond these superficial understandings and consider the complexities of the scientific process through direct analyses of the scientific literature. In particular, you will work as part of a group to closely read a scientific report, determine how well the science supports the authors' claims, and evaluate the value of the study in the context of our work.

The close reading of a scientific document involves careful analysis of the purpose and methodology of the study and interpretation of data, as well as raising questions of the studies context. This guide will help you address questions crucial to such a reading.

As you read the scientific articles during this course, try to address the following questions. Make notes and mark the text thoroughly and in detail so you will be readily able to discuss your findings with your group or in class, as needed.

Getting an overview:

1. What is the objective of the study?
2. How was the study conducted?
3. What are the major conclusions (claims)?
4. What are the primary results that are presented to support the claims?

Analyzing the context:

5. **Authoritativeness:** Is the source of the study (where it was published) reasonably likely to include material by authors (and have a review panel) who are experts in the subject at hand? Are the authors' credentials/professional positions appropriate? (Be sure to learn about the nature of the source. Is it peer-reviewed? What audience does it serve? What is its reputation?)
6. **Timeliness:** Given the goals of the study, is the material recent enough to be representative of current conditions/knowledge? If not, how might this have affected the results or conclusions?
7. **Biases:** Do the authors' places of employment, statements of funding sources, acknowledgements, or the nature of the publication itself indicate that significant biases may be at work? If so, how might those biases affect the study or the conclusions the authors reach?

Critiquing the study:

8. **Methodology:** Are there aspects of the study methodology that seem questionable given the objectives of the research? What is actually being measured and how closely does this match the objectives (i.e., how artificial is the study)? Does the sample reasonably represent the target population?
9. **Results and Conclusions:** Do the results adequately support the stated claims? Are the claims over-generalized in light of the study details? Are there other reasonable interpretations of what the results show? What conclusions do you think can be reasonably drawn?
10. **Implications:** Given the aims of the project at hand and what you know about the study, what is its value? What do *you* think this work means in this context?