

# Critical Reading Guide for Scientific Articles<sup>\*</sup>

Critical reading goes a step beyond reading for information: it involves evaluating the information rather than simply absorbing it. When reading critically, it is more important to ask questions than to learn facts.

## Preliminary Information (before you start reading)

<b>Title:</b>	<ul style="list-style-type: none"><li>• The title may give you information about the content of the article: the focus, methodology, subject, etc.</li><li>• What does the title lead you to expect from the article?</li></ul>
<b>Author(s):</b>	<ul style="list-style-type: none"><li>• Note the author(s) of the text.</li><li>• What is the author's discipline/expertise/background?</li><li>• Reading names at first may not make sense to you, but as you expand your knowledge about a particular field you will see the same names appearing again and again.</li></ul>
<b>Source:</b>	<ul style="list-style-type: none"><li>• Where was the work published? Note its original source.</li><li>• Is it from an academic journal, textbook, or popular magazine?</li><li>• When examining an article, the publication it appeared in can lend to or deny the material credibility.</li></ul>

## Analysis Information (skimming quickly)

<b>Purpose</b>	<ul style="list-style-type: none"><li>• Why do you think the author wrote this paper/conducted this study?</li><li>• Does it seem to be refuting someone else's interpretation of some phenomenon? Is it offering new information?</li><li>• You'll usually find clues to the answer to these questions in the abstract.</li></ul>
<b>Abstract:</b>	<ul style="list-style-type: none"><li>• Read the abstract carefully. This will give you an uncritical summary of the paper's subject/content; it will give you an idea of the following:<ul style="list-style-type: none"><li>- The rationale for the study</li><li>- The main results</li><li>- How they were discovered</li><li>- An interpretation of the result</li></ul></li></ul>

## Primary Details (while you are reading)

<b>Introduction:</b>	<ul style="list-style-type: none"><li>• Read the introduction to get a sense of the goals/purpose of the study (i.e. what the author is trying to validate/argue/discover.</li><li>• Is the study mostly based on other studies? Is it something new?</li></ul>
<b>Hypothesis:</b>	<ul style="list-style-type: none"><li>• Write out the hypothesis as you find it in the article. It is sometimes only one sentence, but it is sometimes two or three.</li><li>• Knowing the author's stated hypothesis will allow you to think about whether or not she/he has proved it as you read the paper.</li></ul>
<b>Limits:</b>	<ul style="list-style-type: none"><li>• Does the text you are analyzing focus on a particular methodology, phenomenon or idea?</li><li>• Is it restricted to a particular group of people?</li><li>• Is it more widely applicable than the study actually tests for? Why or why not?</li></ul>
<b>Concepts / Words:</b>	<ul style="list-style-type: none"><li>• Note the words or concepts you had to look up.</li><li>• Did the author coin his/her own terms, or use common terms in unusual ways?</li></ul>

<sup>\*</sup> Slightly adapted with permission from Critical Analysis Guide developed by Amanda Graham, Yukon College

## Presentation and Argumentation (while you are reading)

<b>Central Objective:</b>	<ul style="list-style-type: none"> <li>• What is the central objective of the paper and what is the major question that is being addressed?</li> </ul>
<b>Hypothesis/ Follow-Through:</b>	<ul style="list-style-type: none"> <li>• Does the hypothesis address the main question of the study?</li> <li>• Are there any underlying assumptions to the hypothesis?</li> <li>• Has it been tested properly?</li> </ul>
<b>Use of Controls:</b>	<ul style="list-style-type: none"> <li>• What controls were used in the study?</li> <li>• Are these controls adequate? Why or why not?</li> </ul>
<b>Procedures:</b>	<ul style="list-style-type: none"> <li>• What procedures/methodologies have been used in order to address the central question?</li> <li>• What kind of experimental procedures have been conducted?</li> <li>• What is the rationale behind each procedure?</li> <li>• Has each procedure been explained properly?</li> <li>• Does each procedure properly test the central hypothesis?</li> <li>• Are there any limitations to the procedures/methodologies used?</li> </ul>
<b>Results:</b>	<ul style="list-style-type: none"> <li>• Do the results adequately and accurately describe the data presented?</li> <li>• Are the results consistent and do they fit into the context of the paper?</li> <li>• Are the results good enough to test the central hypothesis?</li> <li>• Do they allow the researcher/reader to accept/reject that hypothesis?</li> <li>• Do they substantiate the author's claims? Why or why not?</li> </ul>
<b>Figures and Tables:</b>	<ul style="list-style-type: none"> <li>• Are the figures and tables helpful to your understanding/ease of reading, or are they redundant?</li> <li>• Are they organized effectively?</li> </ul>
<b>Discussion:</b>	<ul style="list-style-type: none"> <li>• Are the author's conclusions logical based on the results or do they seem too optimistic/large/unjustified?</li> <li>• Are facts and opinions clearly separated, or are they difficult to distinguish?</li> </ul>
<b>Summary/Conclusion:</b>	<ul style="list-style-type: none"> <li>• Overall, is this article useful for your purposes?</li> <li>• Does it fit into your knowledge/current understanding of the topic, or is it something new?</li> <li>• If it is new, does it help you to understand the topic, or do you need more information?</li> </ul>

## Evaluation (after you have finished reading)

<b>Interpretation:</b>	<ul style="list-style-type: none"> <li>• Has the author drawn an effective/logical interpretation from his or her results?</li> <li>• Did the control mechanisms have any influence on the experimental results?</li> <li>• Do you agree with the author's interpretation? (Why or why not?)</li> <li>• Are there any limitations to the results obtained or the interpretation of the results?</li> <li>• Does the author's interpretation of the results expand your knowledge of the topic?</li> </ul>
<b>Other:</b>	<ul style="list-style-type: none"> <li>• Record anything else you may like to recall about the reading.</li> <li>• What is a question that this article makes you ask?</li> <li>• Where has the author made assumptions about the work?</li> <li>• Is there another way that the author could have explored/researched/answered this question?</li> <li>• Is further research necessary?</li> </ul>