

Critically Reading Journal Articles

Reading a scholarly journal article is not easy. If an article has been published in a scholarly journal, presumably, the editors believed that it contained information significant to the discipline(s) covered by the journal. Here are a few tips that should assist you in critically evaluating the research articles you read.

The Title

Read the title carefully: more information is contained in the title than you think. It is very important that you pay attention to information in the title.

- What are the major ideas addressed in the article?
- Who were the participants? What was their affiliation?
- Were they a special kind of group (e.g., adolescents, girls only)?

The Abstract

The purpose of the abstract is to summarize the article. Read the abstract carefully. If the author has done a good job, the abstract should provide you with the theoretical motivation for the paper, the major results and a brief general discussion. You should not JUST read the abstract, but often it is a great help to understanding the entire article.

- What variables were examined?
- What were the findings?
- Does the study show a cause-and-effect relationship between variables, or does it just show that a relationship exists?
- Where was the work conducted (i.e., laboratory or field). If field, what was the geographical location?

The Introduction

The introduction will give you the rationale for the study (an explanation of what the study investigates and why). The introduction typically includes a review of previous research or theory that provides a context for the specific questions being addressed in the article. You should understand what the research question(s) being studied and what the authors predicted they would find? Reading the introduction of a journal article can be made easier if you keep a number of key questions in mind, and look for the answers to them:

- What is the purpose of the article?
 - Is it reporting an empirical study, a new theory, or is it reviewing previously published theory and research on a certain topic?
- What is the topic of the article?
 - What specifically is the article is addressing? Is it answering a specific question, trying to explain certain observations, presenting a model of some process, exploring the relationship between two or more variables, or something else? Look to the title and abstract for guidance. What variables are mentioned?
- Where is the article going?
 - Look over the structure of the article, paying particular note to headings and subheadings. Scan tables and figures. You want to get an overview of what the article starts out discussing, what it ends up concluding, and how it leads you to that conclusion. If you get a rough outline of the entire article in your head before you begin reading, you have a better chance of seeing how each piece fits into a larger framework.
- Why is this an interesting or worthwhile topic/phenomenon to research? Why would this article interest researchers in the field (the journal editors would not have accepted the article for publication unless it met this role in some way)?

- What is already known about this topic/phenomenon?
- Where are the gaps in contemporary knowledge or understanding of this topic/phenomenon?
- How does the research being reported fill gaps in our knowledge/ or understanding of this topic/phenomenon? What niche does this work fill?
- What specific prediction(s) or hypothesis(es) are being tested? What were the main independent variables (what the researchers manipulated) and dependent variables (what the researchers measured)?

The Method

Generally speaking, when reading the method section you should ask yourself:

- What research techniques are used by the author(s)?
Reading this section should provide you with a better idea of what was actually done in the research as well as a clue into the thinking of the researcher.
- Is the method employed a valid test of the predictions or hypotheses?
There is rarely (if ever) a single way of testing a prediction or hypothesis. The researcher will have made a choice between a number of possible research designs/sets of materials/procedures/sample groups, etc. You need to consider whether the choices made by the researcher will allow them to make valid claims about their the predictions or hypotheses.
- Has the researcher overlooked any possible confounds or extraneous variables which could affect interpretations of the findings?
No piece of research is 'perfect', and there are usually limits as to how much 'control' can be achieved over the research environment. However, some researchers attempt to achieve more control in their research designs than others do. You need to consider whether sufficient control has been achieved.
- How do the methods employed compare with the methods used in other investigations of the same topic/phenomenon?
As researchers usually seek to make comparisons between their study and earlier studies, you need to consider whether or not the method employed allows the researcher to make valid comparisons between studies, and how much you feel they are entitled to generalize their findings.

The Results

This section is very important because it provides numerical evidence that supports or refutes the hypotheses being studied. When reading the results section you should ask yourself:

- How do the results relate to the predictions/hypotheses set out in the introduction (i.e., are they supported or not)?
What differences did the authors find that support or refute the project hypotheses?
- Are the results reported and analyzed in an unbiased manner?
The manner in which data are reported and analyzed could dramatically affect interpretation. For example, different types or formats of graphs can emphasize or de-emphasize the sizes of effects, and different inferential tests can yield different results.

The Discussion

The discussion should summarize the main findings in (relatively) plain English How do the authors interpret the findings? That is, what do they say the findings tell us about their research question? Do we now know something new? Are there new questions raised? Do the authors discuss implications of their findings for theory, or for the "real world"? When reading the discussion section you should ask yourself:

- Have the appropriate interpretations of the results been made?
- Are there ways of interpreting the results that haven't been considered?

- Has the researcher presented an unbiased evaluation of the study/method employed?
- Is the researcher justified in making any theoretical claims that are made on the basis of the study's findings? Were the hypotheses supported or rejected?
- What are the implications of those findings (what do they tell us about theory, research, or real life concerns)?
- What suggestions are being made about future research into this topic/phenomenon or what does the researcher consider to be 'the way forward'?

The Conclusion

The conclusions may be in a separate section at the end of the article or incorporated as part of the discussion section. The conclusions should summarize the important findings of the study and point out their significance to the general research area. They might also point out avenues for future research based on the findings of the study.

Tips for Reading Journal Articles

- Go from the general to the particular:
Articles that report experiments were not necessarily intended to be read straight through. Don't waste time struggling with minute details if you do not first understand the big picture. Before you dive into the article, you should already know roughly what it is going to say! Get that information by reading the title, abstract, and headings and by skimming the introduction, the conclusion (or discussion), and any tables or figures.
- Look for definitions:
Jargon is usually defined somewhere in the article, at least by subtle context if not explicitly. If you do not understand a concept that is being discussed at length, look around for the definition. It may be helpful to consult a textbook or even a dictionary. Do not just pass over the terms you do not understand.
- Examine the tables and figures:
Briefly review the tables and figures presented by the authors to obtain a sense of the data presented in the article. Read the title legends to provide a context for the data presented. Note the important patterns that emerge from your review of the data presentation represented in the tables and figures. This review should provide a useful context when reading the methods, results, and discussion sections of the article.
- Selectively read the method and results:
Read these sections with certain questions in mind. How were the variables measured? Do those measures really capture the conceptual variable, or might they be measuring something else? What did the participants have to do? What were the actual numerical results? Where are the findings that the authors discuss? Are there anomalies that they don't address? What was the main hypothesis? What were the findings regarding those variables?
- A second reading may be necessary:
It is not unusual to have to read an article twice to understand its message. Often there is so much information presented that it cannot all be absorbed in one pass. Even experienced scientists need to read articles slowly, carefully, and repeatedly so do not expect yourself to breeze through them! After you have a good feel for the article's results, go back and re-read the introduction, and finally, go back and read the general discussion to see how the author interprets his or her data.

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