

Scientific Literature

What do we mean by “scientific literature”?

What are the key characteristics of scientific literature?

Positive Aspects of Scientific Literature

- Peer-reviewed
- Established expectation of acknowledgement of prior work
- Nominally free of opinion or ideology
 - Conclusions must at least be supported by data
- Ability to judge expected quality of work based on reputation of journal
- Permanent record

Negative Aspects of Scientific Literature

- Peer-reviewed (yes, on both lists!)
- Slow to press
- Some journals have poor quality control:
 - Repetitive studies with little new information
 - Poor quality research
 - Lack of context
- High cost to access content
 - “Open Access” mostly shifts costs to authors
- Publication at the mercy of reviewers and editors

How do you search the scientific literature?
Do you feel that your strategy is effective?

How do you keep track of all of the papers
that you find?

Effective Use of Scientific Literature

- It is your responsibility to thoroughly search the scientific literature and to note all relevant prior work: **Be a scholar!**
- To be an effective scientist you must know how to find articles
 - Using database tools is essential! Try **Web of Science!**
<https://www.webofscience.com/wos/woscc/basic-search>
- You also need to have a way to manage citations once you find them: Citation managers
 - Endnote is very good but costs money; free programs Zotero and Mendeley are available

Guidelines for Correct Citation Practices

- Citations are pieces of evidence to support the statements that you make when writing
- You should cite the original source of the relevant information
- You are not allowed to cite a paper because of what it reviews in its introduction
 - Cite what that paper cites!
 - Same applies for any review in a discussion section
- Review articles are effective ways to cite the aggregate knowledge gained in many past studies

What are your reading habits?
How often do you read scientific articles?

How do you read scientific articles?
How do you assess the quality of a scientific
article?

Assessing the Quality of Scientific Articles

- Do the data support the conclusions?
- Is the work well organized and coherent?
- Are the techniques used appropriate to test the hypotheses?
- Does the work acknowledge prior studies in the area and is it consistent with past results?
- Reputation of authors: Are they known for producing high-quality work?

Open Discussion: What else do you want to talk about?