Reading a Scientific Article

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To read a scientific article is a comprehensive task. Normally one can approach this task with treating it like textbook; reading the scientific article from title to references cited, accepting everything along the way without any your reflection or criticism over the article, is the most wrong way of reading an article. Reading a scientific research article for the first time may be confusing and little difficult to comprehend. The current information suggests you how to read a scientific article beat by beat and thoroughly. You should not approach a scientific article like a textbook; i.e. reading from beginning to end of the chapter or book without pause for reflection or criticism. Additionally, it is highly recommended that you highlight and take notes as you move through the article. Having proper notes while reading an article will keep you focused on the task and help you work towards proper comprehension of the entire article.

Have the glance over the article: Most journals use common structure: An abstract, which is followed by Introduction, Methods, Results, and Discussion. Each of these sections normally contains easily recognizable features, and if you read with an awareness of these, you will read an article more quickly and comprehend better. You are not trying to understand the entire article at this point, but just get a basic idea. You don't have to read in detail; the discussion or conclusions part will be sufficient to help you to determine whether the article is relevant to respective research. You may then continue on to the Introduction. Pay proper weightage to the structure of the article, headings, table, charts and figures.

1. Know the important parts: Because articles contain so much information, it may be difficult to distinguish the important part of an article from the secondary parts.

2. Know the vocabulary. Go through the article and simultaneously highlight words and phrases. Some words or phrases you may be able to understand it from the context in which it is used, but for few phrases you may need the help of a scientific dictionary.

3. Know the format of the article and try to have comprehension of it. An abstract followed by Introduction, Methods, Results, and Discussion. These sections typically contain required features, which you will start to recognize easily. If you learn to look for these features you will start to read and understand the article more quickly.

- **Abstract:** The abstract gives a quick glance of the article. It will usually contain four pieces of information: rationale of study (why they did it); methodology (how they did it); results (what they found); conclusion (what it means). Begin by reading the abstract to make sure this is what you are looking for and that it will be worth your time and efforts.
- **Introduction:** The introduction gives background information about the topic and sets out specific questions to be addressed by the authors. You can skim through the introduction if you are already familiar with the paper's topic.
- **Material & Method:** The Material & Method section are mostly difficult to comprehend, especially for undergraduate students, because of technical language. However, you can more fully understand the design of the experiments and evaluate their validity by reading the Methods section carefully. It gives technical details of how the experiments were carried out and serves as a manual if anybody else wanted to perform the same experiments. This is another section you may only want to have glance unless you wish to identify the methods used by the researchers or if you intend to replicate the research by yourself.

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- **Results:** The results are most important and soul of the scientific article. The results section contains of what was found during the study, and obtained data during the study was shown in the form of figures and tables. Normally, authors may not include information that would need to be referenced, such as comparison to other studies. Instead, such material is placed in the Discussion section, placing the work in context of the other similar or comparable studies.
- **Discussion:** The discussion section, in which researcher have the opportunity to give their opinions on the study done. One should know that the discussions are the authors opinions or interpretations and may not necessarily facts. The Discussion are the means to provide answer to the question framed in Introduction and explains how the results support the conclusion. It is also good opportunity for researcher to have ideas about what kind of research questions are still there in the field and what types of questions you want your own research project to handle.
- **Once you read the whole article, reflect on and draw out own conclusions**. Here are some questions you must ask yourself as you read whole article:
  - Have you understood all the terminology which you came across in whole article?
  - Are you spending much time on the less significant parts of the article, and missing any important part?
  - Do you have any reason to question the credibility of this research?
  - What specific problem does the research address and is it important?
  - How do these results relate to research interests or to other works which you have read?

Bibliography: Reading the bibliography cited may lead you to other useful information. You might also get a better understanding of the basic terminology, main concepts, major researchers in the area the current topic is.

Second Read: Read the article a second time in chronological order. Reading the article second time will confirm your overall comprehension. You may even start to make connections to other articles that you have read on this topic.

Notes Making: Take notes as you read. Effective readers take notes, it improves recall and comprehension. You may think you will remember everything you read, but details will slip away. Develop a template for recording notes on articles you read, or adapt the template for use. As you accumulate a large collection of articles, this template will help you distinguish articles and quickly locate the correct reference for your own writing.

References:

1. https://library.ncu.edu/
2. How to read clinical journals: I. Why to read them and how to start reading them critically. Can Med Assoc J. 1981;124:555–8. [PMC free article] [PubMed] [Google Scholar]