How to read a primary research scientific article

When charged with reading a primary source article, it can be intimidating as they are generally dense and hard to understand. Full of data and evidence, these readings get confusing if you do not know how to properly work through them. If you were to read a work of this sort from front to back, you would most likely miss the points that the author is trying to convey to the reader and would have a hard time internalizing any of the information at all. Thus, this reference tool outlines the steps you should take when reading a primary source paper.

*I. Evaluation of Source*

Before reading any of the written work, you should focus on the title and area of publication for the editorial. The nature of the source is important and can give you insight as to the type of writing you will be dealing with. For example, a newspaper article will have a different tone, reading level, and density than one in a scientific journal. Once you evaluate the source, the title is your next concern. Breaking it down word by word or into smaller segments allows for easier processing and a deeper understand of what the author is doing. Another way to gauge the type of article you’re grappling with is to note the author and date of publication. These can give you insight to the reliability of the source, any biases that might be present, and historical context.

*II. The Abstract*

To get an overview of the article as a whole, the next phase is to read the abstract. This is a short paragraph and generally contains the scope, purpose, results, and contents of the work. Reading and understanding this part can prepare you for what you will likely encounter in the rest of the article. It is a baseline for the author to build off in greater detail and allows you to get a sense of the quality of paper and writing.

*III. The Discussion*

Jumping towards the end and reading the discussion section prior to the methods and results can allow you to better understand what the author did in their research and why they did it. The methods and results sections are written in a more technical manner with raw data and many graphs, making them the hardest parts of scientific primary source articles to understand. The discussion will allow you to see what the author was trying to accomplish and it will tell you, in somewhat condensed and simplified form, what results the researcher received.

*IV. Methods and Results*

The last sections you read before the conclusion should be the methods and results. It is likely that this will be the most time consuming and dense section but after reading the abstract and discussion, you should feel confident that you have a basic understanding of the research and can make inferences as to what the author’s key points will be in these areas. There may be primary figures or graphics included in this section, which are only integrated in scientific articles if they are absolutely essential. It is important that you do not skip over them, but rather spend time identifying their key elements. Do not be discouraged if you have to reread certain parts multiple times or spend time interpreting and understanding any charts or graphics.

*V. Conclusion and Reflection*

 After reading the majority of the article, you should finish with the conclusion. Providing a wrap up to the research and writing, this is a final thought to read before reflecting on and internalizing all of the information from the article. If you do not take a moment to look back at any confusing parts or think about what the author conveys through their writing, it is much less likely that you will be able to discuss the article or make key connections about this research to other topics you are learning about.

How to read a review article

As opposed to a primary sources, review articles tend to evaluate and discuss previously published research. The general goal of these authors is to sum up the current state of research on a particular topic. For example, they will give you insight to

* Recent advances and discoveries in a field
* Gaps in the research
* Current debates
* Ideas of where research might go next

There are various types of review articles, including systematic and narrative. Systematic reviews “limit bias by disclosing the purpose of the paper, the assembly of the literature, and the appraisal of study quality” (Callcut & Branson, 2009). On the other hand, narrative reviews summarize current knowledge on a topic without detailing the methods used to select which articles would be included in the review. Narrative reviews are subject to more bias; systematic reviews are more common.

*I. Focus on overview and source*

Your first goal when beginning a review paper should be to understand where this article was published, what other publications it is referencing, and what the author is trying to prove. To accomplish this, you should focus on reading the title and abstract, and noting the journal where it is published. From these items, you will receive background information about the article. It is crucial that you have a basic understanding of what is being reviewed and why the author chose to write the review before working through the rest of the article.

*II. The Body*

After grasping a purpose and overview of the article, it is time to move into the actual text. Although these documents are easier to read than primary source articles, it is still important to take your time and reread any dense or unclear sections. This is the most time consuming but you will be able to gain greater depth in the original studies that are being reviewed as well as the most important aspect, which is why the author chose to do a review on these articles.

*III. Internalizing the review*

As review articles refer to many different studies, articles and authors, it is important for you to gain clarity for yourself through a post-reading process. You should try to summarize the article and purpose for the review as if you had to explain it to someone else. If you are unable to do this, it demonstrates that you need to look back through the work again to deepen your comprehension.

Cited: Callcut, R. A., & Branson, R. D. (2009). How to read a review paper. *PubMed, 54*(10), 1379-1385.