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LETTER TO EDITOR

Guide for efficient reading of a scientific article

Guía para la lectura eficiente de un artículo científico

Guia para leitura eficiente de artigo científico

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Dear Editor:

Reading scientific articles is a fundamental skill for students, teachers, and professionals in science. Sometimes, the task of reading and understanding these texts can be overwhelming due to the amount of technical information and specialized language. However, with the right approach and constant practice, it is possible to develop a deeper understanding and effective reading of these articles.

From the above, it is deduced the importance of the information literacy. Information literacy refers to the ability to identify when the information it is needed, where to find it, how to evaluate it, and how to use it effectively. This concept implies not only the ability to read, but also to critique and apply the knowledge derived from scientific research.(1)

In line with this trend, which suggests that more and more people should be able to know and apply these informational skills (self-management), the following is a review of the composition of a scientific article, since its reading can be facilitated if we know how to identify the key elements present in each section.(2)

A scientific article is a written report that describes the original results of a research already carried out. The main characteristic of a research article is that it must always produce advances in knowledge, so it is obvious that it can only fulfill its purpose when it has been published and made available to the scientific community so that it can be read, understood and incorporated by its peers.[3]

Before reading a scientific article, it is important to select it. Whether it is because there is a topic of interest to be investigated or because of personal purpose, it is important to know why and for what purpose you want to read a scientific article. Depending on the answer, studies with specific designs are sought. For example, if you want to know which treatment is the best, the ideal is to select systematic reviews or meta-analyses, based on clinical trials, in which the effects of different interventions are compared. If the aim is to identify factors that increase the risk of presenting a certain disease or clinical condition, case-control or cohort studies may be chosen. In addition, depending on the particular interest in that topic (reading for a task, reading to make a decision, reading to learn more, etc.), the reading approach will be decisive[1]. It is best to select a topic that piques one's interest in a field of research (that one wants to begin to know or learn more about), rather than an assigned reading.[2]

A typical scientific article is composed of several key sections. Understanding the content of each is essential to extract the maximum value from the text:

- Title: the title is the first part of the article that the reader encounters and it should be informative and accurate, summarizing the content in a few words. A good title should provide enough information for the readers to decide whether the article is relevant to their interests or not.[4]
- Abstract: The abstract provides a quick overview of the objectives, methods, results, and conclusions of the study. Commonly, reading the abstract is sufficient for readers to determine whether they should continue reading the entire article.[5]
- Introduction: the introduction sets the context of the study, defines the problem, and presents the main objectives of the research. This is where the authors explain why the topic is important and how their study addresses gaps in current knowledge.[6]
- Methodology (Methods): this section details how the study was conducted, describing the research design, participant selection, sample selection criteria, experimental procedures and data analysis methods, among others.[4] Clarity in the methodology is crucial, since it allows other researchers to replicate the study to verify its results.
- Results: this section presents the findings that aim to respond to the objective, they appear in a logical manner, using tables, graphs and descriptions of the data, but without being repetitive. The most interesting results of the study are always presented, but are never discussed in this section.[6]
- Discussion: in this section, the authors interpret the results, compare them with other studies and discuss the implications of their findings. Limitations of the study are also acknowledged, providing a balanced view of the research.[4,6]
- Conclusions: Conclusions summarize the key points of the study and suggest directions for future research. Researchers usually propose open questions or areas of study that still require exploration, thus guiding future work in the field.[7]

In addition to the main sections of an article, other important aspects include scientific integrity and conflicts of interest. Scientific integrity implies honesty in the presentation of results and transparency in quality processes. Conflicts of interest, on the other hand, may arise when authors have personal or financial interests that could influence the interpretation of the results.[8] Readers should be alert to these potential influences to critically evaluate the objectivity of the study.

Reading a scientific article should be an active process. Rather than reading an article from beginning to end without pause, it is useful to follow a systematic approach that allows a deeper understanding of the content, most commonly recommended:

a) "Skim" the article: before reading it completely, briefly review the article to familiarize yourself with its structure and length. Look at the figures, tables and headings to get a general idea of the results and sections.
b) Review the Title and Abstract in detail: this allows a quick assessment of whether the article is relevant to the reader's interests.
c) Analyze the Results: it is advisable to review the main results, tables and figures.
d) Read the Discussion and Conclusions: these sections provide the interpretation of the results and the conclusion as a general closure of what was obtained with the study.
e) Review the Methodology and Introduction: the methodology is very useful if you want to compare studies and is an important part of understanding the results of the study. It is important to mention that prior knowledge of the techniques and data analysis is necessary to be able to evaluate this information. In the introduction, you can review the context and the concepts that help to a better understanding the topic addressed.

Efficient reading of scientific articles is an essential skill for those seeking to keep up with advances in their field, and identifying the parts of an article facilitates and contributes significantly to this. With practice and the right approach, it is possible to improve understanding and critical analysis of scientific studies.

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