

SCIENTIFIC WRITING AS AN ART: AN OVERVIEW

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ABSTRACT

Writing well is an art that takes time to be perfect, but if you don't try it, you won't nail it. The value of writing should never be underestimated, as writing well improves your work [1]. If the writing is clear, it can turn bad science into good science and makes more impactful and valuable [1]. Writing helps the speaker to express the issue before audience very easier. There are various types of writing such as articles, journals, literature review etc [3]. The scientific writing should be simple, objective and concise. Writing depends on the reader's needs (for a normal reader technical terms mathematical expressions has never suited well) [2]. Various types of manuscripts are used in scientific writing. One of the key developers in scientific publications is the adoption of the IMRAD's [Introduction, Methods, Results and Discussion] structure [5]. Apart from this other form is TAKAR (Title, Abstract, Keywords, Acknowledgements, and References) [5]. Approaches made by writers for in the design of the contents are about various forms in more than one journal [4]. In case of reference also various styles are used, such as Vancouver's style, the Harvard system. Writing is a most important factor to criticize and evaluate the publications [9]. Writing process should not intend to be sane, effective. Writing is a decision making process and Writers designs in different ways for their scientific work [7]. All written communications are affected by a larger context or situation [8]. This article helps the reviewers to know about the different writing methods its rhythm and styles.

Keywords: Writing style, Ledgable, Language, Style and rhythm, Precision, Bibliography

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INTRODUCTION

Writing style is much like any other type of style which helps us to express who we are as writing is a decision-making process [6]. Science writers address the larger public about the science, medicine and technology that shape modern life, as well as the broader social issues or the environment—that science so profoundly influences [10].

The result of scientific writing can be presented in a simpler & most effective way by your rhythmic and stylish writing so the value of writing well should never be underestimated. Imagine for example that you hold in your hand two papers both of which describe same set of experimental result. One is long dense and totally difficult to understand. Other is concise engaging and easy to follow. Which one will you choose to read? Answer to question hits directly at value of good writing. After writing it is easier to speak and expose the issue before any audience [20]. Method of writing has a clear impact on the precision of your result as well as quality of the scientific work [19].

Being simple without becoming simplistic is the most important formulae that have to be remembered while writing a scientific report. Nevertheless, no important details should be omitted [11]. While approaching to writing the problems may occur on entire design which can distract up the readers in total [12].

The role played by the scientific articles in the translation of research into clinical practice need not to be emphasized as it is the only available path for the up-to-date information's for any special field of research community and for the medical practitioners [20].

Only through clear and thorough compelling writing can the clinicians transfer the benefit of the research to the patients and to fellow researchers eventually to explore the topic one step further. It is through the correctly written article that the clinicians appreciate the concepts being developed and judge the extent to which results can be applied in their setting. The results serve as basis on which clinical actions can be planned and implemented [13-14].

Goals of scientific writing [3]

1. Making a clear presentation of a complex scientific problem/ accomplishment by Researching, selecting, and organizing material.
2. Addressing a specific hypothesis

3 Advocating a particular viewpoint

4 Providing a clear path further to reproduce the work

5 Producing document in a clear emphasized method in front of readers

• The elements of scientific style

Words

Word choice directly impacts the readability of your writing. First and most important thing is that cluster of complex words are one of the greatest enemies of clear scientific writing. Word choice also impacts a great effect while reading. It should be always noted that reader should get a proper idea from a series of words [14].

Sentences

A well-written sentence usually leads with the action [15]. Passive language, although extremely common in scientific writing, is a bore that the readers' eyes will tend to glide over it without taking in [16].

Paragraphs

The first sentence of each paragraph should tell the reader what you expect them to get from the specific paragraph [17].

Principles of effective communication [18]

- All written communication is affected by a larger context or situation.
- Effective communication is receiver centered.

Design or problem solving approach to writing [18]

The writing process is not intended to be strictly linear: effective writers work in many different ways.

Analyzing: understanding the situation

- Decide the purpose and use of specific document.
- Identify readers and be aware of the limitations that you may face while writing

Planning: getting organized

- Identify major blocks of content.

- Examine alternatives which would be more suitable.
- Select an overall pattern.
- Develop detailed content.
- Interpret and reveal the meaning of the content.

Writing: creating a draft

- Concentrate on flow and make notes to yourself.

Revising: editing

- Evaluate appropriateness of content and organization and always focus on accuracy, clarity, and effectiveness of statement.

Analysis of communication problems [45]

Readers' abilities, background, interests, and purposes affect:

- Level of presentation (technical, mathematical, conceptual, and practical)
- Order of presentation (summary, need for background, acceptability of information)
- Emphasis of material (significance to readers' decisions, interests, involvement)
- Language and style (how simple or complex)

Constraints [44]

- Time
- Budget
- Staff support
- Software and computer tools
- Editorial requirements of journal editors
- Tone (reflects reader-writer relationship, e. g., friendly, formal)

The scientific writing should be

Simple, objective, concise: no words in excess/with any irrelevant expressions [21]. Nevertheless, no important details should be omitted. If the writing is not in a good way it will deviate the readers from the original point of view [22]. For a good scientific writing the following things should be considered.

Think about the readers needs [22-27]

If you are writing for a scientific journal the important things to be noticed are, methods and detailed results. For less specialized journal, explain work further and explore all possible consequences. For wide circulation papers, interest of common, unknown, Ledgable people and include humor, cartoons or figures.

Create your own style [22-24]

It's a mistake to try to copy someone style

Be specific [28]

Be careful with your conclusions, more specific, avoid biased opinions. Always present clear definitions of the used terms, symbols, equations, clear source of error.

Attention to the following issues [28]

Clarity, completeness, coherence, honesty, order, rigor, versatility

Respect the following rules

Use active voice, write in present tense, write in positives, use specific language, be conservative, prefer short sentence, but avoid writing in a telegraphic style [29].

Capture the reader's attention

Inside each phrase, the first and last words are the once that receive more attention. Choose a more intense language, using adjectives

and more pronounced expressions to support your most important points [30-32].

Avoid the following sentences that could be interpreted as shown [30-32]

Introductory sentences	Possible interpretation
• As it is widely known	• I think
• It is evident that	• I think
• It also may be true	• I don't know what to think
• Everybody knows that	• some people think that
• For obvious reasons	• I have no proof
• There is no doubt that	• I am convinced that
• As stated above	• This is superfluous
• A typical example	• The most adequate example
• As far as we know	• We may be wrong
• As we know	• We probably don't know

Style and rhythm

Prefer short sentences. If you start the report with a verbal tense, you should keep it till the end. In the same way, you should be consistent with the subject. When you are addressing a bigger audience, use original and imaginative sentences [33].

The simplest and most effective way to send a message is to tell a story if possible dramatic, that is in some way related to the theme. Excessive use of technical jargon tends to hide an inability to communicate or, worse, ignorance. Vaguer terms should be avoided, as it creates the illusion of understanding [34-36].

Points to remember [35-37]

- If you think that you can cut a word from the text, do it without thinking twice.
- Avoid the excess of adjectives, such as "very big", "Remarkable", "admirable" or "extremely interesting".
- Avoid words such as "really", "obviously", "clearly", "Evidently" and "naturally" as well as expressions such as "it is Logical" and "it is natural".
- Each section and paragraph should be relevant and in the Correct position.
- Subjects should be presented in an ordered and clear Sequence
- The results should make a sense and supported by conclusions.
- All reference should be noted in a correct sequence.
- Leave a space between the numerical value and the corresponding unit.
- In the Portuguese and French systems the comma separates units from decimals, while in the Anglo-Saxon; the separation is made by the point. Please notice that in the latter case the
- Comma is used to separate the units from the thousands.
- Never add an s to a symbol (m means either meter or meters).
- Do not leave a space between the prefix and the symbol
- Symbols and mathematical expressions must be written in italics, except the functions: $\sin(x)$.
- Number and units are written in normal style.
- Centralize and number the equations at the right.
- If possible, present all numbers with the same precision.

Technical report

This is not a list of rigid rules but only suggestions that are consider being useful. When writing a technical report, you must present the following topics [41]:

·Introduction or summary, where you make clear very shortly the goals of your work.

·Exposition of the theoretical concepts of models that will be tested.

·Description of the experimental arrangement used: the type of equipment used, referring only to the most important technical aspects (precision, sensitivity, quality and purity of materials, etc.).

·Presentation of graphs and tables obtained.

·Calculation of uncertainties.

·Critical analysis of the results and comments.

·Conclusions.

Reference styles

Depending on the way in which sources are recorded, reference styles can be divided into three main categories: documentary notes styles, parenthetical (or author-date) styles, and numbered styles. [42]

o Documentary note styles

In documentary note styles (documentary-note citation systems), references are given in footnotes or endnotes. The notes are indicated by digits, which then recur with the full reference at the bottom of the page (footnote) or after the entire text (endnote). The digit is usually placed after the full stop ending the sentence to which the reference belongs [43-45].

Oxford and MHRA are documentary note reference styles.

o Parenthetical styles or author-date styles

In parenthetical, or author-date styles, in-text references are given within parentheses before the full stop of the sentence containing the reference [42].

APA, Harvard, and MLA are parenthetical reference styles.

o Numbered styles

In numbered styles, sources are referred to with Arabic numbers within square brackets or in superscript, and the references are listed in a numbered reference list after the text. References are numbered in the order in which they first appear in the text [41].

Vancouver and IEEE are numbered styles.

To make the reference list and bibliography consistent and easy to read across different papers there are predefined styles stating how to set them out-these are called citation styles. Different subjects prefer to each use different styles [42]. The following are the most popular:

- APA: APA is an author/date based style. This means emphasis is placed on the author and the date of a piece of work to uniquely identify it.
- MLA: MLA is most often applied by the arts and humanities, particularly in the USA. It is arguably the most well used of all of the citation styles.
- Harvard: Harvard is very similar to APA. Where APA is primarily used in the USA, Harvard referencing is the most well used referencing style in the UK and Australia, and is encouraged for use with the humanities.
- Vancouver: The Vancouver system is mainly used in medical and scientific papers.
- Chicago and Turbans

These are two separate styles but are very similar, just like Harvard and APA. These are widely used for history and economics [41].

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CONFLICT OF INTERESTS

Declare none

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