**Research Recap**

**Primer on Scientific Writing**

**Scientific Communication in Writing**

Verbal communication is of short duration and is easily forgotten, but written reports exist for a long time, underscoring the importance of a precise, clear writing style.

The scientific paper is a vehicle of persuasion. When it is published, it is available to other scientists for review. If the results stand up to criticism, they become part of the accepted body of scientific knowledge unless later disproved.

A well written scientific paper must fulfill two objectives:

* It must clearly and completely describe the procedures that were followed and the results that were obtained.
* It must place these results in perspective by relating them to the existing state of knowledge and by interpreting their significance for future study.

To place research in perspective requires:

* Summarizing the state of knowledge on the general topic.
* Relating the work to the general body of knowledge on the topic.
* Stating the critical hypotheses which the study addresses.
* Interpreting the results of the study in relation to the hypotheses and to the general state of knowledge.
* Identifying the scientific questions and procedural weaknesses that need to be addressed in the future.

**Specific Suggestions Regarding Scientific Writing**

* Write clearly and concisely.
* Avoid slang and jargon.
* Use the first person sparingly.
* Tense should change from one section to the next, but don't change tense within a paragraph. Past tense is used for describing procedures and present tense is used to describe results and conclusions.
* Avoid personal opinions.
* Define abbreviations the first time you use them.

**Basics of Formatting a Scientific Paper**

**Title and Abstract:**

The titleshould generally be fewer than ten words and should reflect the specific, factual content of the paper.

A good title is straightforward and uses keywords that researchers in a particular field will recognize.

The abstract is a summary of an article. Generally, it is between 50-100 words, and it should state the goals, results, and the main conclusions of the study.

An abstract should have the following elements:

* An introductory sentence.
* A sentence stating the specific question addressed.
* A sentence listing the main techniques or procedures.
* Two or three sentences describing the results.
* One sentence describing the main conclusion.

**Introduction Section:**

The introduction defines the subject of the report. It must outline the scientific purpose(s) or objective(s) for the research performed and give the reader sufficient background literature to understand the rationale and the rest of the report.

**Method Section:**

In this section, the researcher describes the participants, materials used, and how the study was performed. Enough information should be provided for the reader to duplicate the study.

**Results Section:**

The results section should summarize the data from the study without discussing the implications. Descriptive statistics are usually provided first for the primary study variables (e.g., means, standard deviations, and ranges). Then the hypotheses are restated. The researcher explains what inferential test was used to test each hypothesis, and the results are briefly described.

**Discussion Section:**

This section involves an interpretation of the data in relation to the original objectives or hypotheses.

The following specific elements should be included:

* How the results compare with the hypotheses and/or objectives.
* How the results are consistent or inconsistent with previously published works, both empirical and theoretical work.
* Strengths and weaknesses of the study.
* Consider the broader meaning of the conclusions relative to applied contexts.
* Identify ideas for further research.

**Literature Cited:**

This section lists all articles or books cited in the research report. It is not the same as a bibliography, which simply lists references regardless of whether they were cited in the paper. Format will vary based on the discipline one is publishing in.

**Quotes:**

“Good writing isn’t a science. It’s an art, and the horizon is infinite. You can always get better.” -David Foster Wallace

“Academic writing you have to get right. Fiction you have to get plausible. And there's a world of difference.” - Elliott Colla

**Additional Helpful Resources:**

[https://owl.purdue.edu/owl/research\_and\_citation/apa\_style/apa\_formatting\_and\_style\_guide/general\_format.html](https://apastyle.apa.org/)

<https://apastyle.apa.org/>

<https://www.youtube.com/watch?v=VEqRqSsNDjc>

<https://www.easybib.com/guides/citation-guides/apa-format/>