

Science Writing

Science writing is highly structured, concise, and specific. The IMRD format is typically used to structure science writing, be it a lab report or journal article. In order to clearly convey information, sentences are typically short and pointed. Wordiness can mask your point. Likewise, short words are always preferable to long words (the 'thesaurus' function is not appropriate for science writing). One major difference between science writing and other writing is the presence of figures. Figures are essential to good science writing. Tables, charts, and graphs are the most effective means of presenting results. Expect to find them!

Structure:

IMRD Lab Report Format

(From Davis, *Scientific Papers and Presentations*, 1997)

Abstract (Length is typically short, 200-250 words)

- Research objectives and basic justification for the work
- Basic methods used
- Results and significant conclusions

Introduction

- Subject of the research and where it fits in the larger body of work
- Background and justification (the 'why' of your research)
- Objectives
- Most of the references go in this section!

Methods

- Materials used and location of study
- Sampling methods
- Analysis methods
- Statistical evaluation

Results

- Presentation of data (Tables, Figures go here)
- **Look out for redundancy of data in the text and in the figures!

Discussion/Conclusions

- Interpretation of the results
- Significance of the results
- Implications for future work

Clarity:

(From Day, *How to Write and Publish a Scientific Paper*, 1994)

Day has a whole list of phrases that can be left out or shortened (pp195-200). Some examples:

"An example of this is the fact that"	for example
"A large majority of"	most
"It is interesting to note that"	(serves no purpose, leave it out)

Watch out for the word ‘this’, particularly when it begins a sentence. What is this? The noun to which ‘this’ refers should be very clear.

Voice:

The methods section is the only place in the report that should contain the first person (ex. I collected samples at 12 locations). There should be no voice in the writing, only logic. In science, you do not ‘believe’ anything, you present evidence and draw conclusions.

(That said, undergraduate lab reports using ‘I think’ are usually okay, depending on the professor)

Figures:

Figures must be referred to within the text. All figures must be numbered and contain a figure heading. For example, audience’s understanding is highly correlated to clarity of scientific writing (Figure 1).

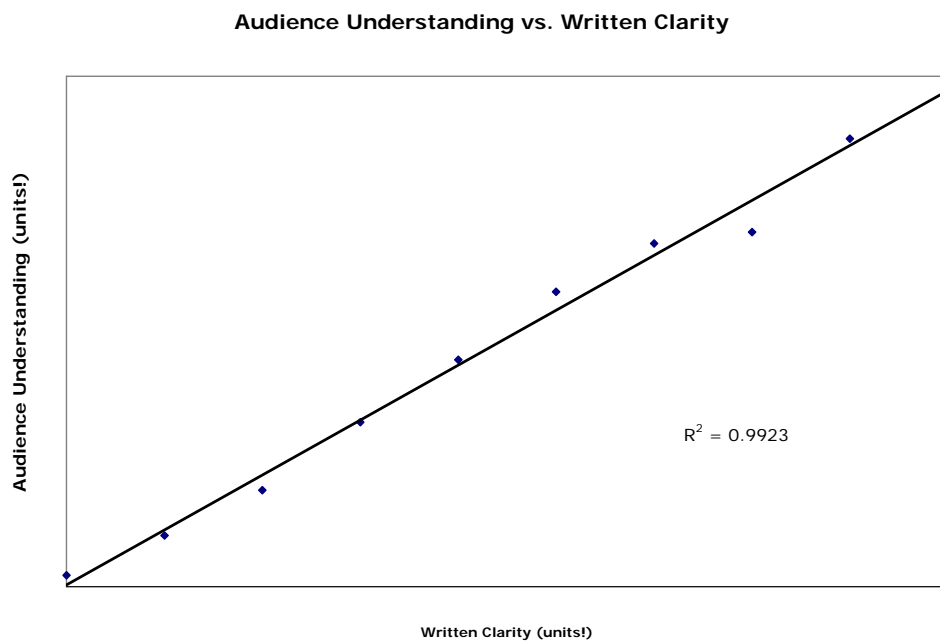


Figure 1: Audience Understanding is highly correlated to Written Clarity ($R^2=0.99$)

Miscellaneous:

The word ‘data’ is plural! This datum, these data.

Ransom’s Rules for Technical and Scientific Writing (*From Davis*)

1. If it can be interpreted in more than one way, it is wrong
2. Know your audience; know your subject; know your purpose.
3. Keep your writing clear, concise, and correct.