

Scientific Writing in English: Techniques and Tools

Introduction Part I

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Book

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WRITING SCIENTIFIC PAPERS IN ENGLISH SUCCESSFULLY

WRITING SCIENTIFIC PAPERS IN ENGLISH SUCCESSFULLY

YOUR COMPLETE ROADMAP

ETHEL SCHUSTER | HAIM LEVKOWITZ | OSVALDO N OLIVEIRA JR.
(EDITORS)



Overview

- **Challenges of Scientific Writing**
 - The importance of publishing
- **Practice**
 - Main sections of scientific paper ...
- **Supporting material**
 - Techniques for scientific writing
 - Tools available

Resources for You

- Scientific writing one-stop-shop
- <http://sciwrite1stopshop.blogspot.com.br/>

Academic vs Scientific Writing

Scientific Writing & Scientific Method

Getting the message across

- What are the contributions of your work?
- Why are these contributions important?

Organizing ideas and results

- What are your key findings?
- What is the importance of your key findings to the field?
- Are your findings complete? If not, what is missing?
- What is the supporting evidence?
- Do they provide a basis for publication?

Scientists publish ideas and concepts, NOT results!

Questions

- Why do we need to write?
- What is scientific writing?
- How is scientific writing different?
- Why write in English?
- What resources are available to help?

Why Write?

- Write >> TO publish
- Publish >> TO share, expose
 - Your work
 - If nobody knows about it, or
 - can benefit from it...

>> Why do it?

Important?

- Writing
 - accounts for “half” the effort
- Publishing
 - Recognition, exposure

Writing?

- An “art”?
- Requires structure
 - Well-written
 - Enables reader to follow thread

Real-world Analogy: A Recipe

- Recipe to bake a cake
- Given set of instructions
- Follow them
 - If clear and well-organized
 - End result: your finished cake 😊

What is Scientific Writing?

- Scientists solved/answered/tested
 - Initial Question, Problem, Hypothesis
- Ready to divulge their
 - Ideas with Results/Findings
- THEN >> publish

What to Publish?

- Scientists publish
 - Ideas
 - NOT JUST results!



**“Interesting and Unpublished is
equivalent to non-existent”**

George M. Whitesides, *Adv. Mat.*, 16, 1375, 2004

Who is your audience?

- Who will read your paper?
 - Highly technical journal
 - Less specific
- What terms must you define?
- What background information?

Example: Readers

— “Implantable electronic device that delivered insulin to the human body”

Sandia engineer [Carlson, 1982]

(1) Electrical engineer familiar with electronics, **not** with diabetes

(2) Medical doctor familiar with diabetes, **not** with electronics of device

Organize your ideas

- **Develop outline**
 - **Show main ideas and correct order**
- **How?**
 - 1. Write down ALL main ideas**
 - 2. List subordinate and relate them**
 - 3. Avoid repetition**

Tip

- Divide information into
 - Sections
 - with descriptive headings

Results

- Complete?
 - Provide basis for publication?
 - Key findings?
 - Supporting evidence?
- >> Organize them into **logical order**
NOT chronological

Tip

- Shuffle results until
 - Effective progression of argument
 - (Some say “printout” ...)

Good Writing?

- Communicates idea
- Clearly
 - Understandable
 - Effectively
- Requires time and effort

Write to reader(s)

- Clearly
 - Plain words
 - Language easily understood
- Concisely
 - Brief
 - Only necessary words

How to attract readers?

- Use specific words
 - Strongly associated with **outcome** of paper
- >> **Keywords**

Important for identification by
Systematic Literature Review (SLR)

Recommendation: READ

- Read in English
- Pay attention AND note
 - what interests you
- Prelude to “annotation”

Recommendation: WRITE

- Write in English from beginning
 - Your paper
 - Even if it is difficult!
 - Lab Notes
 - Keep at it

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~~Final version of paper translated into English?~~

Keep in Mind

- Complex ideas don't require complex language
- Reading scientific writing should be
 - Easy
 - Enjoyable

“Writing in the Sciences” ([coursera.org](https://www.coursera.org))

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