


Scientific Writing in English: Techniques and Tools



Introduction
Part I

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Contributions

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Courses

- **Scientific Writing (USP–Sao Carlos)**
 - V. Zucolotto
- **Writing in the Sciences (coursera.org)**
 - Kristin Sainani

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/>

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**“Interesting and Unpublished is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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