Scientific Writing

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Why Publish

- For the work to be known
- ‘Paying back’ the funder
- Building career
- Good for organisation
- Improves writing and analytical skills

Why write

- You have made a minor, but very interesting, observation
- You have made a useful advance
- You are putting published information into a new context
- You are synthesizing information in a novel way that will be of interest to others

Structure of scientific papers

- TITLE:
- The title should embody either the aim or the conclusion
- Catchy titles are good, but it can be difficult to make them work, and they still need to indicate their subject and the conclusion or aim

Abstract

- **Ninety-nine per cent of readers will read only the *title* and *abstract* of your paper (and most people will only read the title)**
- **These are therefore the most important parts to get right**

- The abstract should summarize your entire paper including your main findings and the importance of your results. All this should be done using no more than 200 to 250 words

Introduction

This is the first thing that anybody will read. You need to grab the reader's attention and convince him or her that it is worth reading the rest of the paper. The introduction should not be too long, or it will be swamped with unnecessary information and mislead the reader. The introduction itself should have a logical structure to it and should flow from paragraph to paragraph.

Eg. If writing a paper on ecology:

The first paragraph should introduce some general aspect of biology or conservation

The second paragraph can go on to more specific issues, perhaps those particularly relevant to your study

Subsequent paragraphs may add more detail or outline particular problems

The final paragraph should focus in on the objectives of your study. At this point it is good to be very specific – for example by listing a few questions that you will address

Methods

- This section should contain enough detail to enable someone to repeat your work
- The study area can be a separate section before methods, or can be part of the introduction
- Maps should be simple, clear and informative
- If it is available, mention the statistics/graphics package you used to analyse your data

Results

- This section presents your results but excludes any discussion
- Figures and tables are usually the clearest way of showing results compared with text
- As a rule of thumb, figures are preferable to tables
- You should avoid repeating data in both tables and figures, or in tables and text
- Avoid three-dimensional graphics!
- Note that some journals will accept “data-rich” papers and others won’t, while others have web archives for large data sets

Discussion

- This section tells us what your results mean, why they
- are important and how they fit in with existing
- knowledge. Be clear and specific about the interpretation
- of your results and the implications of your
- work. The discussion is also where you point out
- alternative explanations for your findings and argue
- why you think your interpretation is the best (or tell us
- what further test is needed to show which hypothesis
- is correct). You should also acknowledge errors (and
- convince us why they do not alter your conclusion).

- The final paragraph should tell us your conclusion –
- what your take-home message is. Avoid statements
- 6
- **Remember the introduction should entice the reader to read further**
- Which first sentence is better?
- *Elephants depend greatly on their habitat for survival* does not tell the reader anything new or exciting – most organisms
- require habitat to survive!
- OR
- *In Ghana, 40 per cent of the habitat on which elephants depend has been destroyed.*
- The introduction also puts your work into a broader context.
- *Sunbirds pollinate many plants in Kenya* may sound too specific to a general reader who is not a bird expert.
- OR
- *Pollination is an important ecosystem service, and sunbirds play a role pollinating many plant species* introduces the concept
- of pollination and ecosystem services and then focuses on your study group.
- like “further work is still needed” in your conclusion as
- this could contribute to your paper being rejected. If
- you do wish to recommend future work, then state
- what needs to be done and who should do it.

reference

- You need to list the references you have cited in your
- text. Things that should be cited are other authors'
- ideas or facts shown by previous work. You should
- always cite the original authors – but don't pad out the
- references to impress the reviewers. There are fairly
- strict rules concerning how you write references, and
- you need to follow the exact format requested by the
- journal. Spell the authors' names and journal titles
- correctly – they may be asked to referee your paper!
- Use bibliographic software (such as Endnote,
- Reference Manager, ProCite, Papyrus) if possible.

The submission and next steps

- Before you submit your manuscript you should give it
- to several friends/bosses/colleagues to read and give
- constructive criticism – an excellent way to improve
- your writing skills. It is also crucial that all mistakes
- and confusing bits of text are corrected before it goes
- to the editor.

- Ensure that you have followed the journal's
- instructions for contributors to the letter,
- including instructions for page layout, tables,
- figures and plates.
- ❑ Don't be a "chancer": make your submission
- polished.
- ❑ Submit electronically if possible.
- ❑ Your first aim is to sell it to the editor. Write a
- polite covering letter in which you summarize
- why the work described in the manuscript is
- important and why you are submitting it to the
- journal – particularly important because the
- editor is not necessarily an expert in your field.
- ❑ Possibly recommend peer reviewers


PEANUTS
"DEAR CONTRIBUTOR"
"THANK YOU FOR SUBMITTING YOUR STORY TO OUR MAGAZINE"
"TO SAVE TIME, WE ARE ENCLOSING TWO REJECTION SLIPS..."
4-5
"...ONE FOR THIS STORY AND ONE FOR THE NEXT STORY YOU SEND US!"
SCHULZ

The abstract:

- ❑ puts your work into context and presents your conclusions
- ❑ tells us what you did
- ❑ tells us what you found out (but doesn't provide statistics)
- ❑ clearly states the implications of your findings
- ❑ must not go beyond the maximum number of words asked for by the journal
- ❑ doesn't include references

Keywords

These are what people use when searching for articles in literature indexes. Some will be quite specific to your topic (such as the animals or plants you worked on or the particular conservation approach you took). They should not be as broad as “ecology” or “conservation”.