

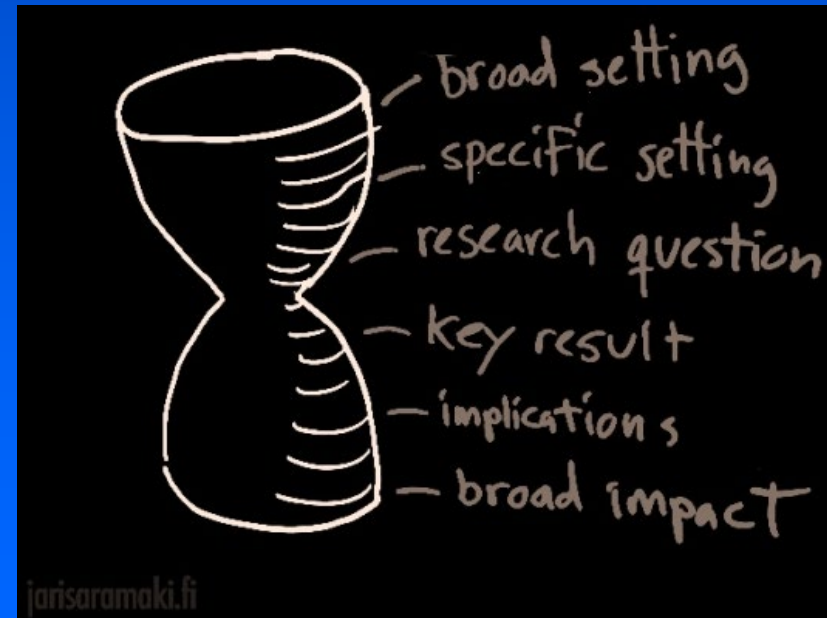
How to write a scientific abstract

some guidelines

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Content

- Some statements
- Common ground of facts
- Proposed structure
- Some hints
- Sources/Literature



Some statements

"The abstract should not create suspense." (Bruner)

vs.

"“we did X and the result was Y. Then we did Z and ...” It becomes a boring list of results. Two important things are missing: context and excitement!" (Saramäki)

"This is best written towards the end, but not at the very last minute because you will probably need several drafts." (Wolfe)

vs.

"The first thing that you should do when starting a new research paper is to write the abstract." (Saramäki)

Some common ground of facts I

- Abstract precedes the paper/article/thesis
- Less than 250 words
- Usually they [abstracts] do not contain references. When a reference is necessary, its details should be included in the text of the abstract. (Wolfe)
- Must be self-contained (Wolfe)
- Should be adopted to the readership
- Main questions to answer: What has been done? What are the main findings?

Some common ground of facts II

- Short description of the interpretation/conclusion in the last sentence
- Avoid using jargon, uncommon abbreviations and references (Borja)
- Try to be quantitative (Wolfe)
- Résumé/distillation of the thesis (Wolfe)
- The storyline can be seen as hourglass-shaped: presenting the broad setting, introducing a more narrow problem and its solution, and returning to the broader picture again. (Saramäki)

Proposed structure of an abstract for a journal article

1. Research background
2. Research problem
3. Idea for solution
4. Applied method(s)
5. Description of results
6. Interpretation of results
7. More general relevance of findings

Some hints

- If the above 7 points are included with 1-2 sentences the abstract is complete.
- If you struggle to write anything to one or more points you should reconsider the submission.
- Discuss and optimize the abstract with all co-authors.
- Do not submit abstracts without knowing that the results will be ready by time of publication.

Example

Sopranos can sing at frequencies that are rather higher than the normal values for the lowest resonance of their vocal tract, but failure to use this resonance would reduce both their vocal power and homogeneity in timbre. We have directly measured the resonance frequencies of the vocal tract of sopranos during singing, and find that, towards the top of their range, they consistently increase the frequency of the lowest resonance to match that of their singing. This significantly increases the loudness and the uniformity of tone, albeit at the expense of comprehensibility.

Elodie Joliveau,
John Smith &
Joe Wolfe:
Tuning of vocal
tract resonance
by sopranos

Nature 427,
page 116 (2004)

Field: Acoustics

Literature

- Jari Saramäki, How to write a great abstract (05.04.17), <https://jarisaramaki.fi/2017/05/04/how-to-write-a-great-abstract>
- Joe Wolfe, How to Write a PhD Thesis, 1996. Modified 2/11/06, <http://newt.phys.unsw.edu.au/~jw/thesis.html#structure>
- Joe Wolfe, Writing and publishing a scientific paper, 2008. Modified 18/1/09, <https://newt.phys.unsw.edu.au/~jw/paper.html>
- Angel Borja, PhD - June 24, 2014 - Updated April 5, 2021, 11 steps to structuring a science paper editors will take seriously, Step 7: Write the Abstract, <https://www.elsevier.com/connect/11-steps-to-structuring-a-science-paper-editors-will-take-seriously>
- Elisabeth Bruner, How to write an abstract, <https://www.bachelorprint.eu/academic-writing/how-to-write-an-abstract>
- Marcos Oliveira. A working-in-progress list of resources on how/why to do a PhD., updated 18 Nov 2019, <https://github.com/macoj/phd>