How to Write a Scientific Abstract

Jörg Mühlhans, University of Vienna (MediaLab)

In scientific communication, abstracts play a crucial role and serve an important purpose: They summarize studies, experiments or entire research projects and give a brief overview of the background, purpose, methods, hypothesis, data collection/analysis and results of research, and in most cases include a short discussion, e.g. about limitations or inconsistencies. Depending on the field of research or the publication form, an abstract can range from 100-500 words and may include additional references and keywords.

The structure is also a key element of the abstract, separating different parts in paragraphs makes it visually appealing and allows key information to be found quickly. Headlines may be included in some cases, especially in the background, references may be included if applicable.

If the abstract describes an experiment, the setup should be explained briefly, methods stated with references (e.g. inventories or technologies) and the sample should be described according to the "standards" in the field of research. References should always follow the citation method/referencing system used in the journal or required for the conference.

The results section should take enough space in the abstract but still be reduced to the main findings or most important results. The abstract is the only piece of information when applying for a (poster) presentation in a conference/congress. Also, the entire abstract must be written in a way understandable to a wider audience.

In the conclusions, the purpose or aims of the study should be connected to the results and irregularities or limitations should be pointed out. Questions that arose during the process or new questions that might be answered with further research should be pointed out.

Abbreviations that are absolut common knowledge in the specific field of research may be used without description, e.g. the use of the letter "n" to describe the sample size in a psychological/empirical study or the short name of an inventory commonly known in this community, like "NEO-FFI" or "BFI-10". Less common abbreviations must be introduced, e.g. "heart rate (HR) and galvanic skin response (GSR) have been measured".

Keywords: abstract, structure, citation, style, writing

You've probably noticed that this brief overview of the most important topics in writing abstract kind of looks like an abstract with ~320 words itself. Here are some links with more detailed instructions/advices on writing a good abstract:

https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3732725/

https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3136027/

https://www.wiley.com/en-us/network/publishing/research-publishing/writing-and-conducting-research/how-to-write-a-scientific-abstract

Write an Abstract for the Course

Words: **300-500 including the references**

Style: **APA 7** (see https://apastyle.apa.org/)

Find an interesting title

Recently, it has become more common and accepted to create more "catchy" titles, even in science. This does, of course, not apply to every field (e.g. medical research) and should not go too far.

Write about the background of your topic/study

Include the research question and how the used method can be used to answer it, also state if it has already been used by others in similar field, include the references in that case. State you aims, that might be a gap in the literature, a totally new topic or something that requires more research because of the existence of contradicting results.

State the method(s) and setup

As brief as possible, list the technologies and methods used in your research / study / experiment. Also describe the sample size and the setup of the experiment.

Summarize your results or state your preliminary results

In most cases, writing an abstract for a lecture happens simultaneously to the data analysis and the final results are not present. Try to analyze as much data as possible and focus on 1-2 specific questions. Do not describe what you think might be the result. Only factual results are stated in the abstract, if not all of the data could be included until the deadline also state what will still follow in the data analysis.

Conclude and criticize

End your abstract with how your results answered your initial questions and be self-reflected about what might be improved, what was not possible (=limitations) and what might have influenced or biased the data, thus the results.

References

If your abstract contains references as in-text-citations (e.g. Andrande, 2011, 172), you need to give the full information in the reference section, e.g.:

Andrade C. (2011). How to write a good abstract for a scientific paper or conference presentation. Indian journal of psychiatry, 53(2), 172–175. https://doi.org/10.4103/0019-5545.82558

Find 5 good keywords

In most cases, abstracts can (and should) include 5 keywords that really describe the topic of the study and the methods. For instance:

Keywords: Motion Capture, Dance, Qualisys, Tango, Expression