

How to Write a Research Abstract

An abstract is a preliminary report of research results. It serves several purposes: it is generally the first announcement of the findings of a study; it provides access to feedback from one's peers; and it is the stepping-off point for achieving the ultimate aim of a research project, the writing and publishing of a full paper in the peer-reviewed literature. An abstract is a condensed version of the first draft of the paper. Its purpose can be boiled down to providing the answers to the following questions:

1. *Why did you start?*
2. *What did you do?*
3. *What did you find?*
4. *What does it mean?*

The different sections of the abstract address these 4 questions, and, even though it cannot go into detail, every abstract should answer all of them. After the title and list of authors and affiliations, these sections are the introduction (background), the methods used, the results, and a statement of the conclusions drawn.

The Title

The title should be an accurate promise of the abstract's contents. It should convey as much as possible about the context and the aims of the study. Ideally about 10-12 words long, it should include the scope of the investigation, the study design, and the goal. In general it is preferable to make the title a description of what was investigated rather than to state the results or conclusions. The abstract's title should be easy for the reader to understand and should not include jargon or unfamiliar acronyms.

Authors and Affiliations

The list of authors should be restricted to those individuals who actually did the study--conceived of it, designed it, gathered the data, crunched the numbers, and wrote the abstract. The author who will present the abstract should be listed first. Only affiliations relevant to the study should be included -- generally the department and institution at which the work was done.

The Introduction or Background: "Why did you start?"

This should provide a brief context or explanation for doing the study. It should also state the aim of the study, and ideally should include a concise statement of the study's hypothesis. A legitimate scientific study is not done "to prove that something is true" but rather "to find out whether it is true." The difference may seem small, but it makes a huge difference.

Methods: "What did you do?"

The methods section of a research paper could well be written before the research itself is begun and any data collected. In an abstract the description of the methods has to be concise, and much of the details of what was done must be omitted. However, in a few short sentences the reader can be given a good idea of the design of the study, the context in which it was done, and the types of measurements and statistics that were included.

Results: "What did you find?"

Again, space is limited. Still, it is important to give the main results of the study not just in subjective terms but also in the form of some real data. You will need to choose which findings to report here: it should be the most important data in your study, and the findings on which your conclusions will be based.

A table or figure may be included in the abstract if it conveys the findings of the study more effectively than text alone. Keep in mind that the abstract will be fairly small when published, and that details may be lost if the table or figure is too small. Do not include a table or figure unless it is necessary to convey your results.

Conclusions: "What does it mean?"

Here space limitations generally limit you to a simple statement of why you think your findings are important, and their potential implications. The most common mistake here is to make way more of the data than they deserve. Keep your conclusions reasonable and supportable by the findings of your study.

Some General Advice for Writing Abstracts

Follow the instructions. It is astounding how many people submit work that does not fit the description of what is desired, or abstracts that vary in format or style from that specified in the guidelines.

Use simple, declarative sentences. Active voice is preferable to passive voice. "We studied 6 hybrids of *Fraxinus* sp." is much better than "6 hybrids of *Fraxinus* sp. were studied..." Unless they are basic, universally accepted abbreviations, acronyms and abbreviations should be spelled out the first time they are used in the abstract. Similarly, local expressions and jargon should be watched for and eliminated from the abstract.

Before the abstract is submitted, it should be double-checked for accuracy, not only of the data reported but of the description of the methods and all other details. Tables and figures should be checked especially carefully. Having one or more colleagues (who were not involved in the study) read the abstract and offer constructive criticism can be extremely helpful.