Writing a Research Paper

The Methods Section

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“If an abstract is of interest, the editor next looks at the methods section of the manuscript before deciding whether to reject the paper or pass it on to the screening editor on duty for that day. The screening editor decides whether the manuscript should be sent for external review.”

(E. Langdon-Neuner, as referenced in Swales and Feak, Academic Writing for Graduate Students, 3rd ed. The University of Michigan Press, 2012)
What is the purpose of the Methods section?

• To describe research goals, questions to be answered or the hypotheses, what was done to answer the research question, describe how it was done, justify the experimental design, and explain how the results were analyzed.

“Every method described is related to some results and all results are related to a method.”


• To make sure that readers have a very clear idea of how you collected your data. In fact, your description should be clear enough for the interested reader to reproduce your experiment and find similar results. This is called replicability. If other people can reproduce (or replicate) your results, then they are more likely to believe your conclusions.

• To convince readers that you were careful and systematic in thinking through your methods, so that they can believe your results and conclude that you are a clear-thinking, competent professional who does reliable work. And used the scientific method.
Overall Shape of a Research Paper

Adapted from Swales and Feak, *Academic Writing for Graduate Students*, 3rd ed.
The University of Michigan Press, 2012
Some Variables to Consider

Label . . .

Length . . .

Subsections . . .
  • break up large expanses of text
  • make reading easier

Audience . . .

A discussion of the method’s limitations . . .

Don’t mix Methods with Results or Discussion
Logically and precisely written . . . 
In chronological order . . . 
In the past tense . . . 
Usually using passive voice . . .
What are the parts of a Methods section?

1. A description of the materials and equipment used in the study. In some disciplines materials may be humans or animals. Equipment may include devices and other treatments used to test materials for various properties.

2. An explanation of how the materials were prepared for experimental procedures.

3. An overview of the research protocol. The research protocol is the sequence of manipulations and measurement procedures that make up the experiment. Its description should follow the exact sequence of how the procedures were executed and the data collected.
What are the parts of a Methods section?

4. An explanation of how measurements were made. Also included are details about what variables were measured and what protocols were used for those measurements. The description of measurement instruments can include the manufacturer and model, calibration procedures, and other specifications. It also may be necessary to justify why and how certain variables were measured.

5. The last step in the methods section is to describe how the data will be presented in the results section. It should include an accounting of the statistical tests used (descriptive and/or inferential) to analyze the data.