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Parts of a Research Paper

One of the most important aspects of science is writing, ensuring that you get all of the parts of the research paper in the right order.

You may have finished the best research project on earth but, if you do not make an interesting and well laid out paper, then nobody is going to take your findings seriously.

The main thing to remember with any research paper [1] is that it is based upon an hourglass structure. It starts with general information, as you conduct a literature review [2], and becomes specific as you nail down a research problem [3] and hypothesis [4].

Finally, it again becomes more general [5] as you try to apply your findings to the world at general.

Whilst there are a few differences between the various disciplines, with some fields placing more of an emphasis upon certain parts than others do, there is a basic underlying structure.

These steps are the building blocks of constructing a good research paper. This section covers laying out the parts of a research paper, including the various experimental methods [6] and designs.

The principles for literature review [2] and essay of all types follow the same basic principles.

- Abstract [7]
- Introduction [8]
- Method [9]
- Results [10]
- Discussion [11]
- Conclusion [12]
- Reference List [13]

The Introduction

For many students, writing the introduction [8] is the first part of the process, setting down the direction of the paper and laying out exactly what the research paper is trying to achieve.

For others, the introduction is the last thing written, acting as a quick summary of the paper. As long as you have planned a good structure for the parts of a research paper, both methods are equally good and it is a matter of preference.

A good introduction [8] generally consists of three distinct parts, starting with

1. a general presentation of the research problem.
2. You should then lay out exactly what you are trying to achieve with this particular research project.
3. stating your own position.

Ideally, you should try to give each section its own paragraph, but short or long papers will vary.

1) The General Presentation

Look at the benefits to be gained by the research or why the problem has not been solved. Perhaps nobody has thought about it, or maybe previous research threw up some interesting leads that the previous researchers did not follow up.

Another researcher may have uncovered some interesting trends, but did not manage to reach the significance level [14], due to experimental error [15] or small sample sizes [16].

2) Purpose and the Exact Direction of the Paper

The research problem [3] does not have to be a statement, but must at least imply what you are trying to find.

Many writers prefer to place the thesis statement [17] or hypothesis here, which is perfectly acceptable, but most include it in the last sentences of the introduction, to give the reader a fuller picture.

3) A Statement of Intent From the Writer

The idea is that somebody will be able to gain an overall view of the paper without needing to read the whole thing. Literature reviews [2] are time-consuming enough, so giving the reader an idea saves their time.

In this section, you look to give a background to the research, including any relevant information learned during your literature review. You are also trying to explain why you chose this area of research, attempting to highlight why it is necessary.The second part should state the purpose of the experiment and should include the research problem, as a part of focusing the introduction towards the thesis statement or hypothesis.The third part should give the reader a quick summary of the form that the parts of the research paper are going to take and should include a condensed version of the discussion.

The Method

This should be the easiest part of the paper to write, as it is a run-down of the exact design [18] and methodology [19] used to perform the research. Obviously, the exact methodology varies depending upon the exact field and type of experiment [20].

There is a big methodological difference between the apparatus based research of the physical sciences and the methods and observation methods of social sciences. However, the

key is to ensure that another researcher should be able to replicate the experiment exactly, whilst keeping the section concise.

You can assume that anybody reading your paper is familiar with all of the basic methods, so try not to explain every last detail. For example, an organic chemist or biochemist will be familiar with chromatography, so you only need to highlight the type of equipment and should not explain the process in detail.

In the case of a survey [21], if you have too many questions to cover in the method, you can always include a copy of the questionnaire in the appendix [22]. In this case, make sure that you refer to it.

The Results

This is probably the most variable part of any research paper, and depends upon the results [10] and aims of the experiment.

For quantitative research [23], it is a presentation of the numerical results and data, whereas for qualitative research [24] it should be a broader discussion of trends, without going into too much detail.

For research generating a lot of results [25], then it is better to include tables [26] or graphs [27] of the analyzed data and leave the raw data in the appendix, so that a researcher can follow up and check your calculations.

A commentary is essential to linking the results together, rather than displaying isolated and unconnected charts, figures and findings.

It can be quite difficulty to find a good balance between the results [10] and the discussion [11] section, because some findings, especially in a quantitative [23] or descriptive experiment [28], will fall into a grey area. As long as you not repeat yourself to often, then there should be no major problem.

It is best to try to find a middle course, where you give a general overview of the data and then expand upon it in the discussion - you should try to keep your own opinions and interpretations out of the results section, saving that for the discussion.

The Discussion

This is where you elaborate upon your findings, and explain what you found, adding your own personal interpretations.

Ideally, you should link the discussion [11] back to the introduction, addressing each initial point individually.

It is important to try to make sure that every piece of information in your discussion is directly related to the thesis statement [17], or you risk clouding your findings. You can expand upon the topic in the conclusion [29] - remembering the hourglass principle.

The Conclusion

The conclusion [12] is where you build upon your discussion and try to refer your findings to other research and to the world at large.

In a short research paper, it may be a paragraph or two, or practically non-existent.

In a dissertation, it may well be the most important part of the entire paper - not only does it describe the results and discussion in detail, it emphasizes the importance of the results in the field, and ties it in with the previous research.

Some research papers require a recommendations section, postulating that further directions of the research, as well as highlighting how any flaws affected the results. In this case, you should suggest any improvements that could be made to the research design [18].

The Reference List

No paper is complete without a reference list [13], documenting all of the sources that you used for your research. This should be laid out according to APA [30], MLA [31] or other specified format, allowing any interested researcher to follow up on the research.

One habit that is becoming more common, especially with online papers, is to include a reference to your paper on the final page. Lay this out in MLA, APA and Chicago format, allowing anybody referencing your paper to copy and paste it.

Latest ideas [34]

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  [35]
  The Illustrated Guide to a Ph.D. [35]
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  [36]
  11 Amazing Online Sources [36]
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  [37]
  The Science of Pride [37]
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[38]
The Danger Of A Single Story [38]

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