Ten Tips for Writing an Effective Introduction to Original Research Papers

After the title and abstract, the introduction is the next thing your audience will read, so it's vital to begin strongly. The introduction is your opportunity to show readers and reviewers why your research topic is worth reading about and why your paper warrants their attention.

The introduction serves multiple purposes. It presents the background to your study, introduces your topic and aims, and gives an overview of the paper. A good introduction will provide a solid foundation and encourage readers to continue on to the main parts of your paper—the methods, results, and discussion.

In this article, we present 10 tips for writing an effective introduction. These tips apply primarily to full papers and letters reporting original research results. Although some tips will be more suited to papers in certain fields, the points are broadly applicable.

Introductory paragraph:
- Give a general introduction to the topic for a broad audience
- Narrow the focus to your particular topic
- State your research problem and aims

Literature review (usually several paragraphs):
- Summarize the relevant literature on your topic
- Describe the current state of the art
- Note any gaps in the literature that your study will address

Research targets (usually one paragraph):
- State your hypothesis or research question
- Briefly describe how you will accomplish your aims
- Give a preview of your main results and state the contribution of the work (optional)

Paper overview (optional; one paragraph):
- Give a section-by-section overview of the paper's contents

An example structure of an introduction

❶ Start broadly and then narrow down

In the first paragraph, briefly describe the broad research area and then narrow down to your particular focus. This will help position your research topic within the wider field, making the work accessible to a broader audience, not just to specialists in your field.

❷ State the aims and importance

Papers rejected for "not showing the importance of the topic" or "lacking clear motivation" usually neglect this point. Say what you want to achieve and why your reader should be interested in finding out whether you achieve it. The basic structure can be as simple as "We aim to do X, which is important because it will lead to Y."

❸ Cite thoroughly but not excessively

Once you've narrowed your focus to the specific topic of your study, you should thoroughly cover the most recent and most relevant literature pertaining to your study. Your review of the literature should be complete, but not overly long—remember, you're not writing a review article. If you find that your introduction is too long or overflowing with citations, one possible solution is to cite review articles, rather than all the individual articles that have already been summarized in a review.

❹ Avoid giving too many citations for one point

Consider the following sentence: “Many studies have found a significant association between X and Y [4-15].” This sentence cites too many studies at once. Although references [4-15] might provide a good overview of the topic, this sentence doesn’t provide enough context or explanation for these past studies. If all of these references are worth citing, they should be discussed in greater specificity. For example, “A significant association has been found between X and Y in men [4-7], women [8-11], and children [12-15].”

❺ Clearly state your hypothesis or research question

For research in empirical sciences, stating a hypothesis can be an effective way of framing the research. For example, instead of stating “In this study, we show that X is related to Y by method A,” you could say, “In this study, we hypothesize that X is related to Y, and we use method A to test this hypothesis.” For research in formal sciences or exploratory research, consider stating a research question instead: “In this study, we examine the following research question: Is X related to Y?” Note that the research question doesn’t always have to be stated in the interrogative form (with a question mark); instead, you can put the question into a declarative sentence: “In this study, we investigate whether X is related to Y.” Hypotheses and research questions are effective because they help give shape to the paper and serve as important “signpost phrases” that guide readers through your paper smoothly.

❻ Consider giving an overview of the paper

An organizational overview is more common in some fields than others. It is particularly common in technology, but less so in medicine. In the last paragraph of your introduction, consider giving a section-by-section overview of your paper if it is appropriate for your field. For example, “In Section II, we describe our analysis methods and the datasets we used. In Section III we present the results. In Section IV, we discuss the results and compare our findings with those in the literature. In Section V, we state our conclusions and suggest possible topics for future research.”

❼ Keep it short

Try to avoid an overly long introduction. A good target is 500 to 1000 words, although checking the journal’s guidelines and past issues will provide the clearest guidance.

❽ Show, don’t tell

One goal of the introduction is to explain why your research topic is worthy of study. One of the most common pitfalls is to simply say, “Subject X is important.” Instead of simply saying that the topic is important, show why the topic is important. For example, instead of writing “The development of new materials is important for the automotive industry,” you could write, “The development of new materials is *necessary for the automotive industry to produce stronger, lighter vehicles, which will improve safety and fuel economy*.”

❾ Don’t bury your readers in detail

In the introduction, if your paper is in a field that commonly summarizes the study’s main results before starting the methods, you should avoid stating too many detailed results because these results need the development in the other sections of your paper to be properly understood. Instead of saying “We find that our algorithm requires 55% of the memory and 45% of the computation time of the conventional algorithm,” it is usually better to give a general overview of the findings in the introduction: “Here we compare the proposed algorithm with a conventional algorithm in terms of memory use and computational speed, *showing that the proposed algorithm is both smaller and faster*.” Some older style guides suggest holding back the main result to build suspense, but now journals in many fields—medicine being a notable exception—encourage giving a preview of your main results in the introduction.

⑩ Check the journal requirements

Many journals have specific requirements for the introduction in their guidelines for authors. For example, there might be a maximum word count stated or the guidelines might require specific content, such as a hypothesis statement or a summary of your main results.

Concluding remarks

I would like to close with one last piece of advice: When you begin drafting a paper, the introduction should be one of the first things you plan. The introduction serves as the roadmap for your paper; by clearly stating the study' s background, aims, and hypothesis/research question, the introduction can guide you as you write the rest of the paper. It's such an important section—setting the scene for everything that follows—that many authors write the methods, results, and discussion sections in full before completing the introduction.

I hope these tips help you to write effective introductions that capture the attention of readers and reviewers.

If you're interested in more writing tips, check out our 10 Tips for Writing an Effective Abstract. Also, through our EditingPLUS service, you can get writing tips and advice specifically about your manuscript from a specialist editor.