

Scientific Research and Thesis Writing Methodology



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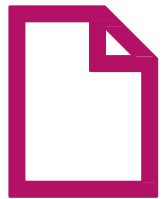
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WHAT DISTINGUISHES A GOOD MANUSCRIPT FROM A BAD ONE?



How to Write a Research Paper (WRP)?

- ▶ Although we'll focus more on the writing of a research paper in this lecture, the **research process** is an important first step. Research will help you in several ways:
 1. Understanding your subject.
 2. Formulating ideas for your paper
 3. Developing a thesis statement
 4. Speaking about your topic with authority



How to Write a Research Paper (WRP)?

Gather resource materials and begin reviewing them.
Here are a few good information sources:

- ▶ Google Scholar
- ▶ Online encyclopedias, almanacs, and databases
- ▶ Books and periodicals
- ▶ Newspapers
- ▶ Government publications, guides, and reports





How to Write a Research Paper (WRP)?

- ▶ As you read and evaluate the information you discover, take notes. Keep track of your reference materials so you can cite them and build your bibliography later.
- ▶ [The Purdue Online Writing Lab \(OWL\)](#) and other university writing lab websites are excellent resources to help you understand what information you'll need to collect to properly cite references.



Organize before you start writing

- ▶ Your research spawned tons of ideas.

Great!

Now you're ready to begin the process of organizing your presentation.



Organize before you start writing

- ▶ *before* you begin writing. **Don't** skip the organization or the journal that you are going to submit your paper to. A very Important step—it's **critical to your paper's success**.
- ▶ Without it, your paper will lack focus and you'll spend much more time in the revision process trying to make sense of your jumbled thoughts.



Outlines of your Research Paper

- ▶ An outline will help you organize your thoughts before you dig into the writing process.
- ▶ Any information that doesn't fit within the framework of your outline, and doesn't directly support your thesis statement, no matter how interesting, **doesn't belong in your research paper.**
- ▶ Keep your focus narrow and avoid the kitchen sink approach. (You know, the one where you throw in every bit of interesting research you uncovered, including the fungal growth in the U-joint of your kitchen sink?)
- ▶ Everything you learn may be fascinating, but not all of it is going to be relevant to your paper.



Outlines of your Research Paper

- ▶ Need more help? Here's an effective outlining strategy. [4 Ways to Organize Your Thoughts](#)

1. Do some reconnaissance reading

Unless I know my topic inside and out, I start with a little reconnaissance reading. I head to Google and look at what **others have written on my topic**. I try to think of new and interesting ways to address it. I look for an angle.

- ▶ As you're reading, **take notes** when you see interesting research or quotes you might want to share. Note the **URLs**, too, so you can reference them with links in your article.
- ▶ I keep my notes in a **Google Doc** on the same page where I'm eventually going to create my outline and write my article.
- ▶ Having all the information **in one place** will allow you to write faster when the time comes.



Outlines of your Research Paper

2. Write down your objective

Now that you've figured out an **angle**, it's helpful to write down an objective.

- a) What do you want the reader to understand by the end of this article?
- b) Put some thought into your objective and see if you can write it in one sentence.
- c) My objective for this Lecture is:



Outlines of your Research Paper

Example

- ▶ At the end of this Lecture, readers will understand why outlines are useful and how to use them to organize their writing.
- ▶ Everything you write should support your **objective**.
- ▶ **An objective** will help you stay focused and prevent you from drifting off on tangents.



Outlines of your Research Paper

3. Create a list of all the main points you want to make

I often begin this step while I'm doing my recon reading and ideas are popping into my head. This can be a quick brainstorming process. Don't invest a lot of energy in organizing just yet. You'll get to that in the next step.



Outlines of your Research Paper

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Outlines of your Research Paper

4. Organize, revise, and eliminate

- ▶ Now it's time to organize the list of points. Figure out the structure of your article. Will it work well as numbered how-to steps? A listicle? In standard essay format?
- ▶ **Take-a-look** at the points you've jotted down and begin putting them into a logical order.
- ▶ **Cross-check** each point to make certain that it's relevant to your objective. If you've strayed off the path and included extra information that doesn't really fit the scope of your article, eliminate it.



Outlines of your Research Paper

My outline for this article looked like this:

I. Intro

- A. I didn't used to outline
- B. Becoming a professional writer made me change my tune
- C. Outlining brings structure to chaos

II. Do some recon reading

- A. Look for angle, ways the topic has not been covered
 - 1. Look for knowledge gaps
- B. Take notes while you're reading/record URLs
- C. Don't go too far down the research rabbit hole



Outlines of your Research Paper

III. Make a quick list of the points you want to make

IV. Organize the list into a formal outline

A. Get rid of anything that doesn't support objective

1. Save extra stuff in a clip file for future use

B. Some extra stuff is worth keeping as tips/sidebars

C. Demonstrate standard outline format

An outline isn't a prison - it's there to guide you, not control you. You can take conscious detours, or change things around as you write. Outlines are just guidelines, so they shouldn't feel restrictive.



Writing the Research Paper

- ▶ **The good news is**, once you reach this point in the process you're likely to feel **energized** by all the ideas and thoughts you've uncovered in your research, and you'll have a **clear direction** because you've taken the time to create the main idea and organize your presentation with an outline.



Here are the best elements to a research paper:

► **The Introduction**

Here's where you present the **background** and **context** for the rest of your article. **Craft a strong opening sentence** that will engage the reader. Just because you're writing an academic research paper doesn't mean you have to be dry and boring.



Here are the best elements to a research paper:

► **The Introduction**

Explain the purpose of your paper and how you plan to approach the topic. (Is this a factual report? An analysis? A persuasive piece?) Describe how you've organized your approach to the topic. Conclude the introductory paragraph with your thesis statement.



Here are the best elements to a research paper:

- ▶ The introduction is the broad beginning of the paper that answers three important questions:
 - **What** is this?
 - **Why** am I reading it?
 - **What** do you want me to do?
- You should answer these questions by doing the following:
 - **Set the context** – Provide general information about the main idea, explaining the situation so the reader can make sense of the topic and the claims you make and support.
 - **State why the main idea is important** – Tell the reader why he or she should care and keep reading. Your goal is to create a compelling, clear, and convincing essay people will want to read and act upon.
 - **State your thesis/claim** – Compose a sentence or two stating the position you will support with *logos* (sound reasoning: induction, deduction), *pathos* (balanced emotional appeal), and *ethos* (author credibility).



Here are the best elements to a research paper:

▶ **The Body**

- ▶ Here's where your outline will come in handy. As you're writing, remember that your outline isn't meant to be a prison - it's a guideline to keep you on track. Your paper may evolve, so keep it fluid, but do remember to stay focused on your thesis statement and proving your points. Don't let your sources organize your paper! Organize first and use your sources as they become relevant.
- ▶ Consider the Rule of Three.
 1. Find supporting arguments for each point you make,
 2. Present a strong point first, followed by an even stronger one,
 3. Finish with your strongest point.



Here are the best elements to a research paper:

The Conclusion

- ▶ **Now, it's time to wrap it up. Most research papers conclude with a restated thesis statement. Present your thesis again, but reword it.**
- ▶ **Briefly summarize the points you've made. Take a moment to explain why you believe those points support your case. If your research is inconclusive, take a moment to point out why you believe this topic bears further research.**



Reasons to write a Scientific Paper

Reasons to write a Scientific Paper



The purpose of these papers is twofold: to present information so that it is easy to retrieve, and to present enough information that the reader can duplicate the scientific study. A standard format with six main part helps readers to find expected information and analysis:

- **Title--subject and what aspect of the subject was studied.**
- **Abstract--summary of paper: The main reason for the study, the primary results, the main conclusions**
- **Introduction--*why* the study was undertaken**
- **Methods and Materials--*how* the study was undertaken**
- **Results--*what* was found**
- **Discussion--*why* these results could be significant (what the reasons might be for the patterns found or not found)**

There are many ways to approach the writing of a scientific paper, and no one way is right. Many people, however, find that drafting chunks in this order works best: Results, Discussion, Introduction, Materials & Methods, Abstract, and, finally, Title.



Types of research papers



Analytical Research Paper

In an analytical research paper you pose a question and then collect relevant data from other researchers to analyze their different viewpoints.

- You focus on the findings and conclusions of other researchers and then make a personal conclusion about the topic. It is important to stay neutral and not show your own negative or positive position on the matter.



Argumentative (Persuasive) Research Paper

The argumentative paper presents two sides of a controversial issue in one paper. It is aimed at getting the reader on the side of your point of view. You should include and cite findings and arguments of different researchers on both sides of the issue, but then favor one side over the other and try to persuade the reader of your side. Your arguments should not be too emotional though, they still need to be supported with logical facts and statistical data.



Definition Paper

The definition paper solely describes facts or objective arguments without using any personal emotion or opinion of the author. Its only purpose is to provide information. You should include facts from a variety of sources, but leave those facts unanalyzed.



Compare and Contrast Paper

Compare and contrast papers are used to analyze the difference between two viewpoints, authors, subjects or stories. Make sure to sufficiently describe both sides in the paper, and then move on to comparing and contrasting both thesis and supporting one.



Cause and Effect Paper

Cause and effect papers are usually the first types of research papers that high school and college students are confronted with. They trace probable or expected results from a specific action and answer the main questions "Why?" and "What?", which reflect effects and causes. In business and education fields, cause and effect papers will help trace a range of results that could arise from a particular action or situation.



Interpretative Paper

An interpretative paper requires you to use knowledge that you have gained from a particular case study, for example a legal situation in law studies. You need to write the paper based on an established theoretical framework and use valid supporting data to back up your statement and conclusion.



Experimental Research Paper

This type of research paper basically describes a particular experiment in detail. It is common in fields like biology, chemistry or physics. Experiments are aimed to explain a certain outcome or phenomenon with certain actions. You need to describe your experiment with supporting data and then analyze it sufficiently.



Survey Research Paper

This research paper demands the conduction of a survey that includes asking questions to respondents. The conductor of the survey then collects all the information from the survey and analyzes it to present it in the research paper.

References



- [Link](#)
- [Link](#)
- [Publishing tips from a journal editor: selecting the right journal](#)
- [Watch out for predatory journals, and consider retract/replace, suggests medical journal group](#)
- [What is a predatory journal? A scoping review](#)
- [Why Organizations, Researchers & Patients Are Falling Prey to Predatory Journals](#) Presentation by Kelly Cobey.

Thank you
