Techniques of Research Paper Writing

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ABSTRACT : Few things strike more fear in academics than the accursed research paper, a term synonymous with long hours and hard work. Luckily there's a secret to help you get through them. As long as you know how to write a research paper properly, you'll find they're not so bad . . . or at least less painful. In this guide we concisely explain how to write an academic research paper step by step. We'll cover areas like how to start a research paper, how to write a research paper outline, how to use citations and evidence, and how to write a conclusion for a research paper. But before we get into the details, let's take a look at what a research paper is and how it's different from other writing.

KEYWORDS: academics, research paper, techniques, writing, citations, outline, conclusions, details

I.INTRODUCTION

A research paper is a type of academic writing that provides an in-depth analysis, evaluation, or interpretation of a single topic, based on empirical evidence. Research papers are similar to analytical essays, except that research papers emphasize the use of statistical data and preexisting research, along with a strict code for citations.

Research papers are a bedrock of modern science and the most effective way to share information across a wide network. However, most people are familiar with research papers from school; college courses often use them to test a student's knowledge of a particular area or their research skills in general.

Considering their gravity, research papers favor formal, even bland language that strips the writing of any bias. Researchers state their findings plainly and with corresponding evidence so that other researchers can consequently use the paper in their own research.

Keep in mind that writing a research paper is different from writing a research proposal. Essentially, research proposals are to acquire the funding needed to get the data to write a research paper.

The length of a research paper depends on the topic or assignment. Typically, research papers run around 4,000–6,000 words, but it's common to see short papers around 2,000 words or long papers over 10,000 words.

If you're writing a paper for school, the recommended length should be provided in the assignment. Otherwise, let your topic dictate the length: Complicated topics or extensive research will require more explanation.

Below is a step-by-step guide to writing a research paper, catered specifically for students rather than professional researchers. While some steps may not apply to your particular assignment, think of this as more of a general guideline to keep you on track.

1 Understand the assignment

For some of you this goes without saying, but you might be surprised at how many students start a research paper without even reading the assignment guidelines.

So your first step should be to review the assignment and carefully read the writing prompt. Specifically, look for technical requirements such as length, formatting requirements (single- vs. double-spacing, indentations, etc.) and citation style. Also pay attention to the particulars, such as whether or not you need to write an abstract or include a cover page.

Once you understand the assignment, the next steps in how to write a research paper follow the usual writing process, more or less. There are some extra steps involved because research papers have extra rules, but the gist of the writing process is the same.

2 Choose your topic

In open-ended assignments, the student must choose their own topic. While it may seem simple enough, choosing a topic is actually the most important decision you'll make in writing a research paper, since it determines everything that follows.

Your top priority in how to choose a research paper topic is whether it will provide enough content and substance for an entire research paper. You'll want to choose a topic with enough data and complexity to enable a rich discussion. However, you also want to avoid general topics and instead stick with topics specific enough that you can cover all the relevant information without cutting too much.

Try not to be robotic about choosing your topic, though; it's still best to pick something that you're personally interested in. Ideally, you'll find a topic that satisfies both requirements, something that provides a suitable amount of content and also keeps you engaged.

3 Gather preliminary research

The sooner you start researching, the better—after all, it's called a research paper for a reason.

To refine your topic and prepare your thesis statement, find out what research is available for your topic as soon as possible. Early research can help dispel any misconceptions you have about the topic and reveal the best paths and approaches to find more material.

Typically, you can find sources either online or in a library. If you're searching online, make sure you use credible sources like science journals or academic papers. Some search engines—mentioned below in the Tools and resources section—allow you to browse only accredited sources and academic databases.

Keep in mind the difference between primary and secondary sources as you search. Primary sources are firsthand accounts, like published articles or autobiographies; secondary sources are more removed, like critical reviews or secondhand biographies.

When gathering your research, it's better to skim sources instead of reading each potential source fully. If a source seems useful, set it aside to give it a full read later. Otherwise, you'll be stuck poring over sources that you ultimately won't use, and that time could be better spent finding a worthwhile source.

Sometimes you're required to submit a literature review, which explains your sources and presents them to an authority for confirmation. Even if no literature review is required, it's still helpful to compile an early list of potential sources—you'll be glad you did later.

4 Write a thesis statement

Using what you found in your preliminary research, write a thesis statement that succinctly summarizes what your research paper will be about. This is usually the first sentence in your paper, making it your reader's introduction to the topic.

A thesis statement is the best answer for how to start a research paper. Aside from preparing your reader, the thesis statement also makes it easier for other researchers to assess whether or not your paper is useful to them for their own research. Likewise, you should read the thesis statements of other research papers to decide how useful they are to you.

A good thesis statement mentions all the important parts of the discussion without disclosing too many of the details. If you're having trouble putting it into words, try to phrase your topic as a question and then answer it.

For example, if your research paper topic is about separating students with ADHD from other students, you'd first ask yourself, "Does separating students with ADHD improve their learning?" The answer—based on your preliminary research—is a good basis for your thesis statement.

5 Determine supporting evidence

At this stage of how to write an academic research paper, it's time to knuckle down and do the actual research. Here's when you go through all the sources you collected earlier and find the specific information you'd like to use in your paper.

Normally, you find your supporting evidence by reading each source and taking notes. Isolate only the information that's directly relevant to your topic; don't bog down your paper with tangents or unnecessary context, however interesting they may be. And always write down page numbers, not only for you to find the information later, but also because you'll need them for your citations.

Aside from highlighting text and writing notes, another common tactic is to use bibliography cards. These are simple index cards with a fact or direct quotation on one side and the bibliographical information (source citation, page numbers, subtopic category) on the other. While bibliography cards are not necessary, some students find them useful for staying organized, especially when it's time to write an outline.

6 Write a research paper outline

A lot of students want to know how to write a research paper outline. More than informal essays, research papers require a methodical and systematic structure to make sure all issues are addressed, and that makes outlines especially important.

First make a list of all the important categories and subtopics you need to cover—an outline for your outline! Consider all the information you gathered when compiling your supporting evidence and ask yourself what the best way to separate and categorize everything is.

Once you have a list of what you want to talk about, consider the best order to present the information. Which subtopics are related and should go next to each other? Are there any subtopics that don't make sense if they're presented out of sequence? If your information is fairly straightforward, feel free to take a chronological approach and present the information in the order it happened.

Because research papers can get complicated, consider breaking your outline into paragraphs. For starters, this helps you stay organized if you have a lot of information to cover. Moreover, it gives you greater control over the flow and direction of the research paper. It's always better to fix structural problems in the outline phase than later after everything's already been written.

Don't forget to include your supporting evidence in the outline as well. Chances are you'll have a lot you want to include, so putting it in your outline helps prevent some things from falling through the cracks.

7 Write the first draft

Once your outline is finished, it's time to start actually writing your research paper. This is by far the longest and most involved step, but if you've properly prepared your sources and written a thorough outline, everything should run smoothly.

If you don't know how to write an introduction for a research paper, the beginning can be difficult. That's why writing your thesis statement beforehand is crucial. Open with your thesis statement and then fill out the rest of your introduction with the secondary information—save the details for the body of your research paper, which comes next.

The body contains the bulk of your research paper. Unlike essays, research papers usually divide the body into sections with separate headers to facilitate browsing and scanning. Use the divisions in your outline as a guide.

Follow along your outline and go paragraph by paragraph. Because this is just the first draft, don't worry about getting each word perfect. Later you'll be able to revise and fine-tune your writing, but for now focus simply on saying everything that needs to be said. In other words, it's OK to make mistakes since you'll go back later to correct them.

One of the most common problems with writing long works like research papers is connecting paragraphs to each other. The longer your writing is, the harder it is to tie everything together smoothly. Use transition sentences to improve the flow of your paper, especially for the first and last sentences in a paragraph.

Even after the body is written, you still need to know how to write a conclusion for a research paper. Just like an essay conclusion, your research paper conclusion should restate your thesis, reiterate your main evidence, and summarize your findings in a way that's easy to understand.

Don't add any new information in your conclusion, but feel free to say your own personal perspective or interpretation if it helps the reader understand the big picture.

8 Cite your sources correctly

Citations are part of what sets research papers apart from more casual nonfiction like personal essays. Citing your sources both validates your data and also links your research paper to the greater scientific community. Because of their importance, citations must follow precise formatting rules . . . problem is, there's more than one set of rules!

You need to check with the assignment to see which formatting style is required. Typically, academic research papers follow one of two formatting styles for citing sources:

- MLA (Modern Language Association)

- APA (American Psychological Association)

The links above explain the specific formatting guidelines for each style, along with an automatic citation generator to help you get started.

In addition to MLA and APA styles, you occasionally see requirements for CMOS (The Chicago Manual of Style), AMA (American Medical Association) and IEEE (Institute of Electrical and Electronics Engineers).

Edit and proofread

Last but not least, you want to go through your research paper to correct all the mistakes by proofreading. We recommend going over it twice: once for structural issues such as adding/deleting parts or rearranging paragraphs and once for word choice, grammatical, and spelling mistakes. Doing two different editing sessions helps you focus on one area at a time instead of doing them both at once.

To help you catch everything, here's a quick checklist to keep in mind while you edit:

Structural edit:

- Is your thesis statement clear and concise?

- Is your paper well-organized, and does it flow from beginning to end with logical transitions?

- Do your ideas follow a logical sequence in each paragraph?

- Have you used concrete details and facts and avoided generalizations?

- Do your arguments support and prove your thesis?

- Have you avoided repetition?

- Are your sources properly cited?

- Have you checked for accidental plagiarism?

Word choice, grammar, and spelling edit:

- Is your language clear and specific?

- Do your sentences flow smoothly and clearly?

- Have you avoided filler words and phrases?

- Have you checked for proper grammar, spelling, and punctuation?

Some people find it useful to read their paper out loud to catch problems they might miss when reading in their head. Another solution is to have someone else read your paper and point out areas for improvement and/or technical mistakes.

Revising is a separate skill from writing, and being good at one doesn't necessarily make you good at the other. If you want to improve your revision skills, read our guide on self-editing, which includes a more complete checklist and advanced tips on improving your revisions.

Technical issues like grammatical mistakes and misspelled words can be handled effortlessly if you use a spellchecker with your word processor, or even better, a digital writing assistant that also suggests improvements for word choice and tone, like Grammarly (we explain more in the Tools and resources section below).

Tools and resources

If you want to know more about how to write a research paper, or if you want some help with each step, take a look at the tools and resources below.

Google Scholar

This is Google's own search engine, which is dedicated exclusively to academic papers. It's a great way to find new research and sources. Plus, it's free to use.

Zotero

Zotero is a freemium, open-source research manager, a cross between an organizational CMS and a search engine for academic research. With it, you can browse the internet for research sources relevant to your topic and share them easily with colleagues. Also, it automatically generates citations.

FocusWriter

Writing long research papers is always a strain on your attention span. If you have trouble avoiding distractions during those long stretches, FocusWriter might be able to help. FocusWriter is a minimalist word processor that removes all the distracting icons and sticks only to what you type. You're also free to choose your own customized backgrounds, with other special features like timed alarms, daily goals, and optional typewriter sound effects.

Google Charts

This useful and free tool from Google lets you create simple charts and graphs based on whatever data you input. Charts and graphs are excellent visual aids for expressing numeric data, a perfect complement if you need to explain complicated evidential research.

Grammarly

Grammarly goes way beyond grammar, helping you hone word choice, checking your text for plagiarism, detecting your tone, and more. For foreign-language learners, it can make your English sound more fluent, and even those who speak English as their primary language benefit from Grammarly's suggestions.

II.DISCUSSION

Before writing the paper

1.   Find a topic.
   A.   Try to find a subject that really interests you.
   B.   While you explore the topic, narrow or broaden your target and focus on something that gives the most promising results.
   C.   Don't choose a huge subject if you have to write a 3 page long paper, and broaden your topic sufficiently if you have to submit at least 25 pages.
   D.   Consult your class instructor (and your classmates) about the topic.
2.   Explore the topic.
   A.   Find primary and secondary sources in the library.
   B.   Read and critically analyse them.
   C.   Take notes.
   D.   Compile surveys, collect data, gather materials for quantitative analysis (if these are good methods to investigate the topic more deeply).
   E.   Come up with new ideas about the topic. Try to formulate your ideas in a few sentences.
   F.   Write a short outline of your future paper.
      a.   Review your notes and other materials and enrich the outline.
      b.   Try to estimate how long the individual parts will be.
   G.   It is helpful if you can speak about your plan to a few friends (brainstorming) or to your professor.
      a.   Do others understand what you want to say?
      b.   Do they accept it as new knowledge or relevant and important for a paper?
      c.   Do they agree that your thoughts will result in a successful paper?

Methods, Thesis and Hypothesis

Methods

- Qualitative: gives answers on questions (how, why, when, who, what, etc.) by investigating an issue
- Quantitative:requires data and the analysis of data as well

Thesis

- the essence, the point of the research paper in one or two sentences.

Hypothesis

- a statement that can be proved or disproved.

Clarity, Precision and Academic Expression

Clarity

- Be specific.
- Avoid ambiguity.
- Use predominantly the active voice, not the passive.
- Deal with one issue in one paragraph.

Precision

- Be accurate.
- Double-check your data, references, citations and statements.

Academic Expression

- Don't use familiar style or colloquial/slang expressions.
- Write in full sentences.
- Check the meaning of the words if you don't know exactly what they mean.
- Avoid metaphors.

Writing the research paper

1. Write a detailed outline.
   A. Almost the rough content of every paragraph.
   B. The order of the various topics in your paper.
2. On the basis of the outline, start writing a part by planning the content, and then write it down.
3. Put a visible mark (which you will later delete) where you need to quote a source, and write in the citation when you finish writing that part or a bigger part.
4. When you are ready with a longer part, read it loud for yourself or somebody else.
   A. Does the text make sense?
   B. Could you explain what you wanted?
   C. Did you write good sentences?
   D. Is there something missing?
5. Check the spelling.
6. Complete the citations, bring them in standard format.

Format your paper

Use the guidelines that your instructor requires (MLA, Chicago, APA, Turabian, etc.).

- Adjust margins, spacing, paragraph indentation, place of page numbers, etc.
- Standardize the bibliography or footnotes according to the guidelines.

III.RESULTS

Typical Problems

(Based on English Composition 2 from Illinois Valley Community College):

- Weak organization
- Poor support and development of ideas
- Weak use of secondary sources
- Excessive errors
- Stylistic weakness

A Few Suggestions

When collecting materials, selecting research topic, and writing the paper:

- Be systematic and organized (e.g. keep your bibliography neat and organized; write your notes in a neat way, so that you can find them later on.
- Use your critical thinking ability when you read.
- Write down your thoughts (so that you can reconstruct them later).
- Stop when you have a really good idea and think about whether you could enlarge it to a whole research paper. If yes, take much longer notes.

- When you write down a quotation or summarize somebody else's thoughts in your notes or in the paper, cite the source (i.e. write down the author, title, publication place, year, page number).
- If you quote or summarize a thought from the internet, cite the internet source.
- Write an outline that is detailed enough to remind you about the content.
- Write in full sentences.
- Read your paper for yourself or, preferably, somebody else.
- When you finish writing, check the spelling;
- Use the citation form (MLA, Chicago, or other) that your instructor requires and use it everywhere.

Avoid Plagiarism

Plagiarism: somebody else's words or ideas presented without citation by an author

- Cite your source every time when you quote a part of somebody's work.
- Cite your source every time when you summarize a thought from somebody's work.
- Cite your source every time when you use a source (quote or summarize) from the Internet.

Consult the Citing Sources research guide for further details.

IV.CONCLUSIONS

Research papers are a bit different than other types of papers, like personal essays or lab reports. We've put together these step-by-step tips to help you navigate the process:

Select a topic you love (if you're given an option): Choose something you're interested in or curious about. Researching your information will be more enjoyable and you'll write with more enthusiasm.

Consider a form of prewriting: Try writing note cards out with your ideas on them, or mapping your ideas with a web diagram, or just talking your ideas through by yourself or with a friend. These steps will help your organization and creativity, which in turn will help you avoid plagiarism. If you are somewhat uncertain of what the paper's focus will be, conducting a broad area of research can be beneficial in narrowing a topic and selecting a specific area of preference.

Make an outline: This will give you a "blueprint" for your paper and keep your writing organized. See the Writing Center's handout on outlining if you need a sample.

Develop a Thesis: A thesis statement introduces the topic and primary focus of the overall paper. While this can seem somewhat daunting, it is imperative to develop at least a rough thesis before endeavoring to write the paper. It should be noted, however, that a thesis can be manipulated throughout the writing process to better suit the purpose of a paper. Prewriting and research are necessary accompaniments when composing a potential thesis statement.

Use transitions: Transitions should be a mix of the last sentences/ideas you wrote and what you're going to say next. See the Writing Center's handout on transitions for some ideas and sample phrases.

Balance your use of paraphrases, quotes, and your own sentences: A higher ratio of paraphrases and your own sentences over direct quotations is the academic ideal (an excess of quotes can compromise the quality of the paper and indicate a lack of understanding and/or effort). When using a direct quote, it will be expected that you know why and how it relates to your topic. Remember to avoid plagiarism – you need to cite any ideas that do not come from you. This will include paraphrases, quotes, and even some of your own sentences that are based on ideas in your sources.

Keep a list of your sources: There are few things more frustrating than having to track down a source weeks after you first accessed it. To save yourself time and potential frustration, keep a running bibliography as you write; cite each source as you use it. That way you'll have all the information you need right in front of you.

Know your style standards: Go into the paper knowing whether you're writing in MLA, APA, or another style. Check a handbook or another reference for in-text citation styles, works cited/references page styles, and heading or title page formats. Even page number standards change between MLA and APA, so be sure you're familiar with the style and its conventions. You should also

be aware of what style edition is required of the assignment; some professors prefer older editions, whereas others utilize the most recent.

Produce your finalized title last: Titles can be limiting; your writing can stray away from original thoughts. You can only be sure that your title is tailor-made for your paper if you compose it after the paper is complete. Note that some writers feel this approach works best for them concerning introductory paragraphs, concluding paragraphs, and thesis statements as well.

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