A Short Guide on How to Write a Research Paper



What is a research paper?

A research paper is an academic form of writing in which you explain what you have learned after exploring a topic in-depth. Research papers require students and academics to (i) locate information about a topic (that is, to conduct research), (ii) take a stand on that topic, and (iii) provide support (or evidence) for that position in an organized manner.

The term research paper may also refer to a scholarly article that contains the results of original research or an evaluation of research conducted by others.

Why is it important?

To others

The fundamental basis for writing a research paper on a specific topic is to contribute to the existing pool of knowledge on that topic. Ideally, a research paper introduces a novel idea supported by existing knowledge and disseminates knowledge on a new finding related to either a known problem or a problem formulated by the researcher. It is to essentially say a certain problem is important and here's a way of solving it. This is usually backed up by results (by experimentation, simulation, observation, etc.). Papers are also written just to explain an observation, data analysis, or root cause analysis. It is important to note that every research paper must address the fundamental reason for its authorship - to contribute to the pool of knowledge on the topic.

To you

Writing a research paper can help you develop your academic writing skills. These skills are going to be useful for every academic endeavour you take - be it your undergraduate, postgraduate or doctoral studies. Your academic writing skills will also be useful if you pursue a career in a field even remotely related to academics. Writing a research paper will also help develop your critical evaluation and reasoning skills, as well as your ability to put your thoughts into words in a coherent and organised manner. In the process, you learn creativity and originality. You also develop a sense of satisfaction and achievement when you reach an academic milestone as important as writing a research paper.

Preparation before writing a research paper.

How to decide on a research topic?

The research topic is the first and arguably one of the most important steps in your writing process, as it provides the direction and the scope for the rest of your paper. A good research paper is scientifically original and significant and is manageable within the allotted time frame.



Remember, **it is vital that your research topic truly interests you.** Only then can you put in the necessary resources and effort to ensure a successful piece of academic writing.



Get a second (or a third, fourth) opinion. Talk to your teachers, instructors, classmates and friends about the topic. They might be able to give their two cents to help improve the research topic.

Narrow down your topic. As you do your research, you may find that a lot of information is available about a particular aspect of your topic. For example, if you started with the topic of 'Sustainability', you might narrow it down to 'the deforestation caused to make toilet paper'. Watch this video to get a better understanding of how to write and narrow down your topic.

Ensure that a sufficient amount of information and data is available for your chosen topic. For example, the research for a paper on 'the effects of subsidies and tax breaks on the promotion of electric vehicles in the USA' would benefit from numerous diverse sources of data. However, a paper on 'how the metaverse can help reduce income inequality in developing countries' would have relatively fewer credible sources of information.

Note: When you pick your topic, it's not set in stone. Picking and adjusting your topic is an integral part of the process of writing a research paper.

Writing your research question(s).

As the titles suggest, a research topic is a topic area on which your paper is based. For example, 'the deforestation caused to make toilet paper'. Within that broad topic, it is important to provide a clear overview of what you are trying to find and/or answer. Thus, questions arise out of a perceived knowledge deficit within a subject area or field. This is where we decide on our research question(s). Research question(s) define your approach to investigating your research topic.

For instance, continuing with our example of sustainability in toilet paper. We can try to formulate and answer these research questions: 'What is a sustainable rate of deforestation?' and 'Is bamboo-based toilet paper a sustainable alternative to traditional toilet paper?'

According to the University of Oxford, focusing on your individual research with a question that you are interested in answering gives you a goal to strive towards, a way to keep yourself in check to stay on track, and a means to define what your steps will be.

A good research question will:

- keep you interested
- keep you focused on a specific topic
- define what sorts of smaller questions you'll need to ask
- guide what sorts of reading you might need to do or data you need to gather
- guide you to whom to speak to for advice.

Never hesitate to ask your supervisor/tutor to help you with formulating your research question(s).

Making an outline of your research paper:

Once you decide on a topic, the next steps are based on writing the paper. Writing research papers require you to come up with sophisticated, complex, and sometimes very creative ways of structuring your ideas. Taking the time to draft an outline can help you determine if your ideas connect to each other, what order of ideas works best, where gaps in your thinking may exist, or whether you have sufficient evidence to support each of your points. It is also an effective way to think about the time you will need to complete each part of your paper before you begin writing.

Finding and Organising Resources

Academic resources are the foundation of your research. Conducting basic library research is the first step toward finding relevant resources for your research. Remember to consult a variety of sources: books, journal articles, thesis papers, and credible databases from institutions like the World Bank, International Monetary Fund, national government databases, UNESCO etc.

Additionally, you should also review credible non-academic sources such as newspaper articles (from organisations like BBC and TedEx), blogs, podcasts and videos for any additional information you might need.

Remember to double-check any information from non-academic sources before you cite them in your paper.

Lastly, try maintaining a system for taking notes and organising sources according to their relative importance.

Time distribution

Academic writing requires time and preparation. There are no two ways about it. Thus, instead of downing 6 cups of coffee and pulling 3 sleepless all-nighters before the deadline, it is recommended that you plan ahead of time and stick to that plan.

Here are some basic steps that academic writers plan for and follow when writing a research paper:

- Decide an idea/theme that you want your topic to be based on(Example: 'Sustainability in Supply Chain Management' or 'Effects of early onset Schizophrenia'.
- Find academic sources
- Read and research sources
- Take notes from the sources

- Develop, narrow and finalise the topic based on what you researched on the chosen theme (Example: 'Sustainable logistics in supply chain management - a focus on renewable fuels in road transport' or 'How Schizophrenia affects a Child's Developing Brain).
- Write a draft.
- Give your draft for others to read - get a second (or third, or fourth) opinion.
- Based on the feedback you receive, write a second draft.
- Get your tutor/supervisor's feedback (essentially, a professional opinion).
- Proofread, proofread, proofread.
- Time for submission!

Available time is broadly distributed amongst these steps. Even though sticking to a plan is a good practice, it might not always be possible due to circumstances not in our control (like an illness or a family commitment). Thus, it is important to be flexible - within reason - with your time management.

Sections of a general research paper

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Abstract

An abstract is a short summary of your research paper that usually serves the following purposes:

- Give the reader a gist of your paper so as to help them decide whether they should read the entire paper.
- Present an overview of the most important arguments, analyses and recommendations made in your paper.

Introduction

The research paper introduction should address three questions: What, why, and how? After finishing the introduction, the reader should know what the paper is about, why it is worth reading, and how you'll build your arguments.

Glossary

A glossary is an often underappreciated section of a paper and is intended to assist you in understanding commonly used abbreviated terms and concepts when reading, interpreting, and evaluating scholarly research. For example, when writing a paper on substance abuse and its effects, using definitions provided by the Diagnostic and Statistical Manual of Mental Disorders is common.

For instance: "According to the Diagnostic and Statistical Manual of Mental Disorders (5th Edition), criteria for substance abuse or addiction include craving the use of a substance, the want to stop but not managing to … and using the substances even when it puts you in danger".

However, you are not required to waste precious word count every time you cite this source by writing it in full. You can instead include a Glossary at the beginning of the paper, usually right after the table of contents in the following format.

DSM 5	Diagnostic and Statistical Manual (5th Edition)
PTSD	Post Traumatic Stress Disorder

Inclusion of a glossary will allow you to write the same sentence mentioned before as: "According to the DSM 5, criteria for substance abuse or addiction include craving the use of a substance, the want to stop but not managing to … and using the substances even when it puts you in danger". Including a glossary is considered good practice in academic writing. Best of all, it's word count deductible i.e., it's not counted towards the final word count!

Literature review

What is a literature review?

A literature review is both a summary and explanation of the complete and current state of knowledge on a topic as found in academic books and journal articles.

The specific purpose and length of the literature review will vary. As a rule of thumb, a literature review accounts for around 25-30% of the word count allotted for the main body of the research paper. One way to understand what a literature review is is to read published literature reviews or the literature review chapter of theses and dissertations in your own subject area. Analyze the structure of their arguments and note the way they address the issues.

Here are the purposes of a literature review:

- To summarize, evaluate, and compare articles or studies that are relevant and important to your topic
- To highlight key findings
- To identify inconsistencies, gaps, and contradictions in the literature
- To provide an analysis of the methodologies and approaches of other researchers
- To provide clues as to where future research is heading or recommend areas on which to focus
- To ensure you do not duplicate work that has already been done

Important note: Prioritize analysis over description.

Look at the following two passages and note that Student A merely describes the literature, whereas Student B takes a more analytical and evaluative approach by comparing and contrasting. You can also see that this evaluative approach is well signalled by linguistic markers indicating logical connections (words such as "however," "moreover") and phrases such as "substantiates the claim that," which indicate supporting evidence and Student B's ability to synthesize knowledge.

Student A

Smith (2000) concludes that personal privacy in their living quarters is the most important factor in nursing home residents' perception of their autonomy. He suggests that the physical environment in the more public spaces of the building did not have much impact on their perceptions. Neither the layout of the building nor the activities available seem to make much difference. Jones and Johnstone make the claim that the need to control one's environment is a fundamental need of life (2001), and suggest that the approach of most institutions, which is to provide total care, may be as bad as no care at all. If people have no choices or think that they have none, they become depressed.

Student B

After studying residents and staff from two intermediate care facilities in Calgary, Alberta, Smith (2000) came to the conclusion that except for the amount of personal privacy available to residents, the physical environment of these institutions had minimal if any effect on their perceptions of control (autonomy). However, French (1998) and Haroon (2000) found that the availability of private areas is not the only aspect of the physical environment that determines residents' autonomy. Haroon interviewed 115 residents from 32 different nursing homes known to have different levels of autonomy (2000). It was found that physical structures, such as standardized furniture, heating that could not be individually regulated, and no possession of a house key for residents limited their feelings of independence. Moreover, Hope (2002), who interviewed 225 residents from various nursing homes, substantiates the claim that characteristics of the institutional environment such as the extent of resources in the facility, as well as its location, are features which residents have indicated as being of great importance to their independence.

When you get a choice between writing a descriptive or an analytical literature review, always choose analytical.

Methodology

Writing a methodology is an essential part of presenting research findings. Your methodology is a detailed description of the research process you used to support your findings and it explains your techniques. It is a roadmap for how you reached your conclusions. A well-written methodology not only describes the methods you used but also provides a justification for why you chose the methods you used.

Sharing your methodology gives legitimacy to your research. An unreliable or erroneous methodology produces unreliable or erroneous results. The reader of your research expects you to have followed accepted practices so that the conclusions you reach are

valid. The methodology you discuss needs to be repeatable, meaning anyone who uses the methods you write about should reach the same conclusions you reached.

A methodology usually has some or all of the following points:

- Restate your thesis or research problem
- Explain the approach you chose - a research approach is usually either qualitative or quantitative, or sometimes a blended approach.
- Explain any uncommon methodology you use
- Describe how you collected the data you used - this is usually between choosing a primary or a secondary method. Simply put, primary research is information gathered through self-conducted research methods (like interviews and surveys), while secondary research is information gathered from previously conducted studies (like reports, databases etc). A hybrid of the two methods is often used.
- Explain the methods you used to analyze the data you collected
- Evaluate and justify the methodological choices you made
- Discuss any obstacles you faced in collecting and/or analysing the data, and their solutions
- Cite all sources you used to determine your choice of methodology

Results

Once you've finished collecting and analyzing your data, you can begin writing up the results. This is where you report the main findings of your research. All relevant results should be reported concisely and objectively in a logical order. You may use tables and graphs to illustrate specific findings.

Remember: A picture speaks a thousand words! Try to include as many Figures (graphs, charts, tables etc) as required to support your arguments and make it easier for the reader to grasp what you are presenting.

Don't include subjective interpretations of why you found these results or what they mean – your evaluation should be saved for the discussion section.

It's important to report the results of your study before you start discussing their meaning. This gives the reader a clear idea of exactly what you found and keeps the data itself separate from your interpretation of it.

Remember, the results should be written in the past tense. The length of this chapter depends on how much data you collected and analyzed, but it should be written as concisely as possible. Only include results that are relevant to answering your research questions.

Here is an example of a results section in a research paper that used a quantitative methodology.

Example: Reporting survey results

A two-sample *t*-test was used to test the hypothesis that higher social distance from environmental problems would reduce the intent to donate to environmental organizations, with donation intention (recorded as a score from 1 to 10) as the outcome variable and social distance (categorized as either a low or high level of social distance) as the predictor variable.

Social distance was found to be positively correlated with donation intention, $t(98) = 12.19$, $p < .001$, with the donation intention of the high social distance group 0.28 points higher, on average, than the low social distance group (see figure 1). This contradicts the initial hypothesis that social distance would decrease donation intention, and in fact suggests a small effect in the opposite direction.

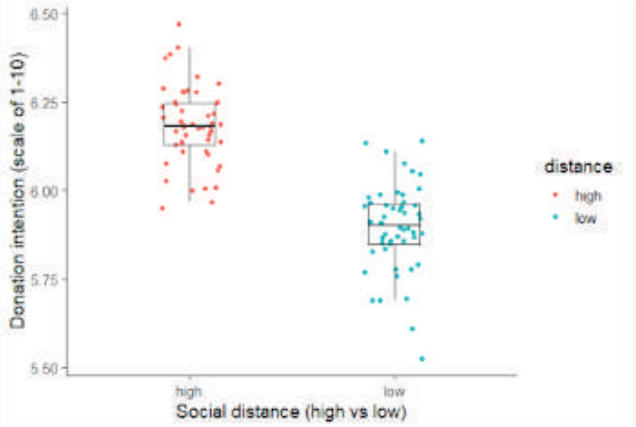


Figure 1: Intention to donate to environmental organizations based on social distance from impact of environmental damage.

Here is an example of a results section in a research paper that used a **qualitative methodology.**

Example: Reporting interview results

When asked about video games as a form of art, the respondents tended to believe that video games themselves are not an art form, but agreed that creativity is involved in their production. The criteria used to identify artistic video games included design, story, music, and creative teams. One respondent (male, 24) noted a difference in creativity between popular video game genres:

"I think that in role-playing games, there's more attention to character design, to world design, because the whole story is important and more attention is paid to certain game elements [...] so that perhaps you do need bigger teams of creative experts than in an average shooter or something."

It is clear from the responses that video game consumers consider some types of games to have more artistic potential than others.

Discussion

The discussion chapter is where you delve into the meaning, importance and relevance of your results. It should focus on explaining and evaluating what you found, showing how it relates to your literature review and research questions, and making an argument in support of your overall conclusion.

There are many different ways to write this section, but you can focus your discussion around four key elements:

- Interpretations: what do the results mean?
- Implications: why do the results matter?
- Limitations: what can't the results tell us?
- Recommendations: what practical actions or scientific studies should follow?

Depending on your field, you might not include a separate results chapter. If suitable and appropriate, the results are often woven together with the discussion into a 'Results & Discussion' section. If you're unsure of the best structure for your research, look at sample dissertations in your field or consult your supervisor.

Remember: The discussion is where you answer your research question(s).

Process

Start by summarizing the major findings that you discussed in detail in the Results section. Follow it up by giving your interpretation of the results, as well as the implications of these results. Your interpretation should be inspired by (but not limited to) the existing scholarly literature. This shows that you have incorporated the findings of other researchers and experts into your discussion.

The implications should show how your findings fit with existing knowledge, what new insights they contribute, and what consequences they have for theory or practice.

Try answering any or all of these questions:

- Do your results agree with previous research? If so, what do they add to it?
- Are your findings very different from other studies? If so, why might this be?
- Do the results support or challenge existing theories?
- Are there any practical implications?

Lastly, dedicate a section of your discussion to highlighting the limitations of your findings and the evaluation. Even the best research has some limitations, and acknowledging these is important to demonstrate your credibility. Limitations aren't about listing your errors, but about providing an accurate picture of what can and cannot be concluded from your study.

These might be due to your overall research design, specific methodological choices, or unanticipated obstacles that emerged during the research process. You should only mention limitations that are directly relevant to your research objectives, and evaluate how much impact they had on achieving the aims of the research.

For example, if your sample size was small or limited to a specific group of people, note that this limits the generalizability of the attained results. If you encountered problems when gathering or analyzing data, explain how these influenced the results. If there are potential variables that you were unable to control, acknowledge the effect these may have had.

What to avoid?

There are a few common mistakes to avoid when writing the discussion section of your dissertation. Common ones are:

- Don't introduce new results – you should only discuss the data that you have already reported in the results chapter.
- Don't make inflated claims – avoid overinterpretation and speculation that isn't supported by your data.
- Don't undermine your research – the discussion of limitations should aim to strengthen your credibility, not emphasize weaknesses or failures.

Conclusion

The conclusion is the very last part of your thesis or dissertation. Its main purposes are to:

- Clearly state the answer to the main research question
- Summarize and reflect on the research
- Make recommendations for future work on the topic
- Show how your research contributed to the existing pool of knowledge on the topic

The conclusion should be concise and engaging. Your aim should be to leave the reader with a clear understanding of the main discovery or argument that your research has addressed. The conclusion is an opportunity to remind the reader why you took the approach you did, what you expected to find, and how well the results matched your expectations.

Note: The conclusion should not introduce new data, interpretations, or arguments. Don't repeat a list of all the results that you already discussed, but synthesize them into a final takeaway that the reader will remember.

Here is an excerpt from a conclusion for a paper that set out to solve a problem using empirical evidence:

- This research aimed to identify effective fundraising strategies for environmental non-profit organizations. Based on a quantitative and qualitative analysis of donation intention in response to campaign materials, it can be concluded that social distance and temporal distance are important factors to consider when designing and targeting campaigns. The results indicate that potential donors are more receptive to images portraying a large social distance and a small temporal distance.

Here is an example of a conclusion for a paper that set out to make theoretical arguments based on case studies:

- By analyzing changing representations of migration and UK border policy in the past ten years, this thesis has shown how media discourse can, directly and indirectly, shape political decision-making.

Lastly, the conclusion is a good place for you to make recommendations for future research on the topic.

References

When you give facts, paraphrase and summarize ideas, or quote someone else's words, you must document your sources. As a rule, anything that is **not common knowledge** (like the fact that the earth revolves around the sun, or that capitalism is the prevalent global financial ideology) must be cited. The purpose of documentation is to give **credit to the author** and to allow your readers to look up your sources. Your paper is stronger because you can **prove that the information came from reliable sources**.

There are 2 instances where someone's work is referenced in a research paper

- In-text citations
- Within the Reference List (or, Bibliography)

In-text citations are used throughout a research paper to give credit to a source's information. These are short citations that quickly explain where the information came from. These in-text citations will also match with the full citation on the references page.

Keep in mind that every source mentioned in an in-text citation also needs to appear on the references page. If you looked at a source in your early research but didn't use any of the information in your paper or article, it is unnecessary to cite this source. Finally, make sure that all of your in-text citations and references are formatted correctly, and mentally note that there are slight differences between the popular citation styles.

For ease of understanding, we have discussed the APA style of referencing below.

Here is an example of an APA-style in-text citation:

- **At the end of the sentence:** Due to the negative impact of lockdowns on many businesses, the total loss can be to the extent of 0.5% of global GDP (Ayittey, 2020)
- **Within the sentence:** According to Zahedi and Rounaghi (2015), stock market returns are highly influenced by macroeconomic factors..

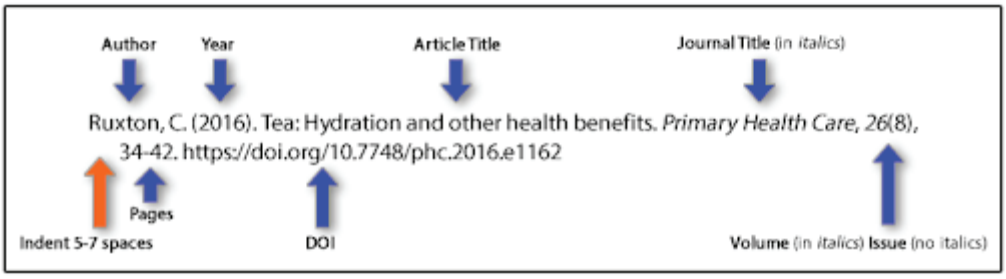
In the APA style of referencing, when we include a direct quote from a source, we include the page number. Here is an example of how to cite a direct quote in-text in the APA style:

- "As we read we construct the terrain of a book" (Hollmichel, 1967, p.7).
- As per Hollmichel (1967, p.7), "As we read we construct the terrain of a book".

Here is an example of an APA-style citation within the References section.

- Holt, D. B. (2002). Why do brands cause trouble? A dialectical theory of consumer culture and branding. Journal of Consumer Research, Issue 29, pp. 70–90

Note the general format here:



Check out this link for more information on how to cite different sources (like books, journal articles, podcasts, images etc) in the APA style.

Appendix

An appendix contains supplementary material that is not an essential part of the text itself but which may be helpful in providing a more comprehensive understanding of the research problem or it is information that is too cumbersome to be included in the body of the paper. It is usually good practice to include your raw data in an appendix, laying it out in a clear format so the reader can re-check your results.

Note: Any tables and figures included in the appendix should be numbered in a separate sequence from the main paper. Lastly, an appendix should be streamlined and not loaded with a lot of information.

Now that you have the basic format as well as the practices required to write a research paper, go ahead and achieve that important academic milestone!