



RESEARCH ARTICLE

RESULTS AND

DISCUSSION SEPARATED

Welcome To The Research Article Workbook

This workbook is meant to help give you structure to writing your research article. You can choose to write the answers to these questions in this workbook or print this workbook out and handwrite your responses.

For the “Write Your” sections of the workbook, you can start writing the first draft of your research article in a separate document or write your answers in this notebook and then combine the responses together in a document afterwards.

Once you have completed the workbook and curated your first draft, focus on editing your draft for cohesion, grammar and spelling, and logical organization. Then, you should submit your draft to all co-authors before submitting it to your top journal.

Best of luck on your research article!

Dr. Alana Rister

Science Grad School Coach

Tech Guide

There are several softwares that can be helpful to make your research writing experience easier. Below I am sharing a few different softwares that may be worth considering; however, you do not need to pay for any software to be able to write a great article!

*Designates an affiliate/referral link or discount code

Reference Managers

Zotero (Highly recommended): <https://www.zotero.org/>

Mendeley: <https://www.mendeley.com/>

EndNote: <https://endnote.com/>

Find Sources and Literature

SciSpace: <https://bit.ly/3NmxFST>* (SCIGRAD - Get 40% Off the Annual Premium Plan Or SCIGRAD20 to get 20% off the monthly plan*)

Elicit: <https://elicit.com/referral/v1.f425ca578401e8bdb3cccd32b415c440>*

Google Scholar: <https://scholar.google.com/>

Sourcely: <https://www.sourcely.net/> (SGCMONTHLY20 - 20% off Monthly Plan; SGCYEARLY40 - 40% off the yearly plan*)

Semantic Scholar: <https://www.semanticscholar.org/>

AI Writers

Jenni AI: <https://jenni.ai/?via=SciGradCoach>* (GRADSCHOOL - for 20% off*)

Yomu AI: <https://www.yomu.ai/> (SGCMONTHLY20 - 20% off Monthly Plan; SGCYEARLY40 - 40% off the yearly plan*)

PaperPal: <https://researcher.life/> (ALANA10*)

Create Your Research Story

Use this guide to help you walk through how to create your figure outline for your research paper.

1: Identify Hypotheses and Conclusions

What hypotheses did you have during your research project?

What conclusions have you identified from your research project?

2: Create Your Figures

For each hypothesis and/or conclusion, what is the best way to illustrate them?

3: Organize Your Figures

Which figures fit well together in a single figure panel?

List your figures in chronological order of when you studied them.

What is the most logical way to present your figures?

Select Your Journal

Use this guide to help you walk through how to choose your optimal journal for your paper.

1: Create Your Journal List

Where have similar papers been submitted to?

Do your field's society and associations have journals?

2: What Journals fit your story?

Look at:

- **The journal's description**
- **The journal's author guidelines**
- **Recent papers from that journal**

Which journals best match your story?

3: Rank Journals based on Impact

Rank your journals based on impact to your ideal audience. You can use the impact factor, but also think about who the articles the paper accepts impacts. Rank your journals based which ones match the impact of your story.

4: Select Your Journal

What is your top ranked journal?

5: Pre-prepare Your Manuscript

What documents does your journal require?

What are the formatting requirements of your journal?

What is the citation style of your journal? Have you downloaded it for your reference manager?

What are the length requirements for your journal?

Create Your Discussion Points

Use this guide to help you walk through how to create your discussion points for your research article.

1: Create Your Story

List the different conclusions from your figure outline process.

For each conclusion, make notes about how the results specifically support the conclusion (use your figure outline).

For each conclusion, make notes about how the conclusion is supporting the overall conclusion of your paper.

Conclusion Worksheet

Fill out this form for each conclusion! Include citations in these answers!

Explain the scientific reasoning behind the results that you found. Why did you get these results? Why is this result important?

How do your results compare to previous literature? Does previous research support your results? Does a previous paper get contrasting results?

Research Paper Outline

Use this guide to help you walk through how to create your research article outline.

1: Determine Your Sections

Are there any outline/section requirements in your Journal's Author Guidelines?

What sections do recent papers in your chosen Journal have?

Are there field-specific guidelines about how to structure your article?

2: Outline Your Results

For each figure, create a section header that illustrates the data you will discuss.

Do any figures need to be combined into a single section? If so create the new section header name!

Are there any results sections that you need in your paper that did not have an associated figure in your figure outline? If so, list the section header!

List your Results section headers in order. Follow the order from your figure outline, but include any new sections in their proper place.

3: Outline Your Introduction

Why is your field important? If you are struggling with this, just add a bullet point “Importance” to the final question of this section. We will cover it in more detail in the write your introduction section lesson.

What are the major topics in your research that your reader needs background on?

What are the previous papers or discoveries that led to your research in this paper?

What problem is your paper solving?

List each of these general topics in a way that makes logical sense to explain to the reader. Add to the end of your list a paragraph to explain what you are doing in your paper.

4: Outline Your Methods

Outline the sections below as they relate to your paper. You will write

How did you collect your sample that was analyzed to generate the data in your study?

This may include solution preparation, animal experiments and care, study population, generation of a new method.

How did you analyze your sample and generate your data?

This may be instrumental analysis, survey administration, software use, code generation, etc. You may need to include multiple sections below.

How did you analyze your data?

Did you or do you plan to make any changes to the data or vizualizations that you did not already discuss above for publication?

5: Outline Your Discussion

For each results section you created above, create bullet points on the discussion points you would like to cover.

If you will have a discussion section as a separate section, then organize your points into a logical order. If you are struggling with developing discussion points, don't worry. We will go into more detail on this in the write your discussion section lesson. Just list what you can or just bullet point discussion in your outline.

6: Outline Your Paper

List your entire outline in order according to your chosen journal's preferences. Add a conclusion bullet point to the end of your outline or where the journal wants it.

Write Your Introduction

Use this guide to help you walk through how to write your introduction for your paper.

1: Outline of Your Introduction

Write down your outline from the Outline Your Paper action guide. Now brainstorm how you will transition from each of your sections of your introduction.

2: First Paragraph

Why is your field important?

What is an introductory sentence for your first topic/field?

What additional information do you need to tell your reader about this topic?

How will you transition to the next paragraph/section?

3: Additional topics (Duplicate to cover all topics)

What is an introductory sentence for your next topic/field?

What additional information do you need to tell your reader about this topic?

How will you transition to the next paragraph/section?

4: Previous Literature (Theme #1)

What is the first major finding in this theme?

What is the second major finding in this theme?

What is the third major finding in this theme?

Transition to the next literature topic?

5: Additional Literature Theme (Duplicate as necessary)

What is the first major finding in this theme and transition from the previous theme?

What is the second major finding in this theme?

What is the third major finding in this theme?

Transition to the next literature topic?

6: Final Literature Theme (Duplicate as necessary)

What is the first major finding in this theme and transition from the previous theme?

What is the second major finding in this theme?

What is the third major finding in this theme?

What problem will your paper solve?

7: Introduce Your Study

How is your research furthering your field?

What are the simplified methods that were performed in the paper? (1-2 sentences)

What are the major findings of your paper? (1-3 sentences)

What is the impact of your paper?

Write Your Methods

Use this guide to help you walk through how to write your methods section for your paper.
Please duplicate each section as you need.

1: Methods Outline

List your methods outline from the outline your paper action guide!

2: Sample Collection

For each sample, describe below how you collected your sample. Include where any materials were purchased from, inclusion and exclusion criteria, any animal care or experiments.

3: Sample Analysis/ Data Generation

What instrument was used?(The instrument could be a survey or non-equipment instruments)

What is a simplified protocol for how you used the instrument?

What specific parameters are important for your experiment?

Was there any data cleaning needed on the raw data before data analysis?

4: Data Analysis

Type of analysis performed.

What protocol did you use for this analysis?

Are there any equations you should include?

What did this analysis give you and the reader?

5: Data Visualization and Publication Preparation

How did you prepare your visualizations for publication?

Were there any other changes you made to your data for publication?

Write Your Results Section

Use this guide to help you walk through how to write your results section for your paper. Please duplicate each section as you need.

1: Results Outline

List your results from the outline your paper action guide!

For each section, list the major findings that you want to discuss.

2: Results Section Major Findings (Duplicate for each section!)

Why did you run an experiment/analysis?

What did you find? Include the evidence to support your conclusions here, including numbers and quotes.

What does this mean? Tell what the data means without all of the numbers and evidence.

Write Your Discussion Section

Use this guide to help you walk through how to write your discussion section for your paper.
Please duplicate each section as you need.

1: Results and Discussion Outline

List your results outline from the outline your paper action guide!

For each section, list the major discussion points you want to discuss.

2: Importance/Impact of your paper

What is the main conclusion or impact of your paper? (1-2 sentences)

3: Discussion of Your Results (Duplicate for each results section!)

What is the research gap that this results section fills?

What did you find? Fill the gap. Tell just the major conclusions from your results.

How does this data contribute or relate to previous research?

What does this mean? What is the conclusion or impact from these findings?

Transition to the next results section

4: Limitations

Identify the limitation(s) of your research.

How does this limitation affect the results or conclusions of the paper?

How would the limitations be solved or why can they not be solved?

Why is your research important despite the limitations?

5: Conclusions

Identify the impact of your research on your field.

Share the essential findings that support this impact or conclusion.

What are the future directions of this work?

What is the “Why” for your research and how does this research relate to it? Or What is the broadest impact of this research?

Write Your Abstract

Use this guide to help you walk through how to write your abstract for your paper.

1: Write Your Abstract

What is the importance of your field?

What is the background that a reader needs to know to understand the conclusion of your paper? (Limit this to 1-3 sentences!)

What is the research gap or question that your paper is trying to answer?

What are the methods that you employed to answer this question? (This should be 2 sentences or less.)

What are the 1-3 major findings or conclusions of your study?

What is the impact of this research?

What future research should come from this study?