



# HOW TO WRITE (EFFECTIVE AND PRODUCTIVE) RESEARCH PAPER

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## Agenda

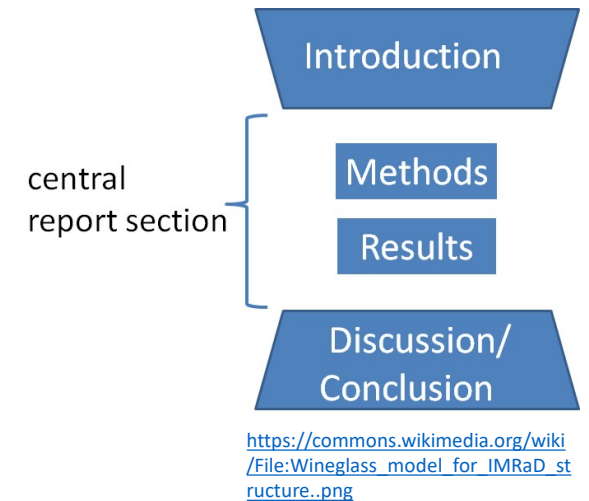
- Structure of paper. IMRaD
- Standards of data report (styles – APA)
- Academic Search Engine Optimization - ASEO



# Structure of paper (IMRaD)

A paper is typically organized into the following sections:

1. Title
2. Abstract
3. **I**ntroduction – Why the research was undertaken?
4. **M**ethods (and materials) – How and what was done?
5. **R**esults – What was found?  
**and**
6. **D**iscussion – What is the meaning?  
Conclusion  
Acknowledgments  
Summary
7. References



# Introduction

- Rational of the study
- Refer to previous work, papers etc.
- Current state of the knowledge (state of the art)
- Supply sufficient background information about the study (definitions of terms)
- Problem definition (claryfication why and what is studied)



## Methods

- Study design (research model)
- Research subject and study material
- What was done with the study material
- Observations and data definitions – aspect of measurement
- Sample size justifying
- Statistical methods and used IT tools for analysis



## Results

- Results of experiments (tests, tables, figures)
- Results of statistical analysis
- Findings (key findings)

## Discussion

- Interpretation of data, results
- Recapitulations and implications of findings
- Final summary, conclusion



## Standards, styles – APA

- American Psychological Association Style
- <https://www.apastyle.org/>
- Punctuation, spelling, capitalization, italics, abbreviations, numbers, metrication, statistical and mathematical copy, equations, tables, references...



# How to report data (APA)

Statistics (numbers, data) can be entered in the text, table or figure (graph).

- If three or fewer numbers are presented, try to enter them in a sentence.

"There was a significant effect of beverage type, Wilks' Lambda = 0.10,  $F(2,3) = 13.42$ ,  $p = .032$ .

Multivariate Test<sup>a</sup>

Effect	Value	F	Hypothesis df	Error df	Sig.
LEVEL Pillai's Trace	.899	13.421 <sup>a</sup>	2.000	3.000	.032
Wilks' Lambda	.101	13.421 <sup>a</sup>	2.000	3.000	.032
Hotelling's Trace	8.947	13.421 <sup>a</sup>	2.000	3.000	.032
Roy's Largest Root	8.947	13.421 <sup>a</sup>	2.000	3.000	.032

a. Exact statistic  
b.  
Design: Intercept  
Within Subjects Design: LEVEL

[http://statistics-help-for-students.com/How do I report a 1 way within subjects ANOVA in APA style.htm#.XKPhLpgzbiU](http://statistics-help-for-students.com/How_do_I_report_a_1_way_within_subjects_ANOVA_in_APA_style.htm#.XKPhLpgzbiU)

- If 4 to 20 numbers are presented, the table should be considered first.
- If more than 20 numbers are presented, the figure (graph) will be the most appropriate one form.





# Academic Search Engine Optimization - ASEO

How to improve  
academic  
positioning –  
visibility, recognition  
and citation rate

Structure of ASEO

Titel

Abstract

Keywords

References



## ASEO – Title

- Should be **short, descriptive** and **incorporate a keyword or phrase** related to your topic.
- Should **include 1 or 2 keywords** related to the topic and **appear within the first 65 characters** of the title.
- Consider moving a keyword or phrase from title to the **first or second** sentence of abstract.

*Only the first two sentences normally display in search engine results. Essential phrases and keywords should be at the beginning of the abstract.*

<https://openjournalsystems.com/academic-search-engine-optimization/>



## ASEO – Abstract

- Carefully craft the abstract **using the appropriate keywords and phrases** from your article.
- Look up specific popular keywords on **Google Trends** or the **Google Adwords keywords tool**.
- Repeat your keywords and phrases 3–6 times throughout the abstract but in a natural, contextual way.
- The **purpose** of your abstract is to **clearly and concisely express the key points of your research**, but **don't go overboard with repetition** as search engines may un-index the article as a result.

<https://openjournalsystems.com/academic-search-engine-optimization/>



## ASEO – Keywords

- Include keywords in the title (1–2 words), abstract (3–6 words), and **keyword fields (5–7 words)**. Keywords may be **phrases as well as single words**.
- Incorporate keywords in your headings. Headings can tip off search engines as to the structure and content of your article.
- Remember to **cite previous work**. This is very important as these citations of the past work influence how search engines will rank current and future work.
- **Refer to authors' names** and initials in a **consistent manner** throughout the paper. Refer to them in the same way they've been referred to in past online publications
- Keywords are not only important for SEO, they are also used by abstracting and indexing services as a mechanism to tag research content.

<https://openjournalssystem.com/academic-search-engine-optimization/>



# IMRaD + ASEO

A paper is typically organized into the following sections:

1. **T**itle
2. **A**bstract
3. **I**ntroduction
4. **M**ethods (and materials)
5. **R**esults  
**and**
6. **D**iscussion  
**R**eferences



## Internet sources

- 30 tips for successful academic research and writing  
<https://simplysociology.wordpress.com/2012/11/19/30-tips-for-successful-academic-research-and-writing/>
  - how to report results in APA style (standard)  
<http://statistics-help-for-students.com/>
  - handbook about scientific writing – paper, grant application etc.  
<http://www.bushmanlab.org/assets/doc/ScientificWritingV39.pdf>
- about IMRAD
- [http://www.jpgmonline.com/documents/author/24/2\\_Aggarwal\\_10.pdf](http://www.jpgmonline.com/documents/author/24/2_Aggarwal_10.pdf)
  - [http://www.jpgmonline.com/wc\\_pdf/day1/1045\\_PA\\_IMRaD-3.pdf](http://www.jpgmonline.com/wc_pdf/day1/1045_PA_IMRaD-3.pdf)

Other tips and standards:

- <https://journals.sagepub.com/doi/pdf/10.1177/1090198116668519>
- <https://onlinelibrary.wiley.com/doi/pdf/10.1111/lang.12104>
- [https://www.researchgate.net/publication/263516510\\_Standards\\_for\\_Reporting\\_Qualitative\\_Research\\_A\\_Synthesis\\_of\\_Recommendations](https://www.researchgate.net/publication/263516510_Standards_for_Reporting_Qualitative_Research_A_Synthesis_of_Recommendations)
- [https://docear.org/papers/Academic%20Search%20Engine%20Optimization%20\(ASEO\)%20--%20preprint.pdf](https://docear.org/papers/Academic%20Search%20Engine%20Optimization%20(ASEO)%20--%20preprint.pdf)



*Thank you*

