

ELEMENTS & STRUCTURE OF SCIENTIFIC ARTICLES



IMRaD format (APA variant):

- [1] Title
- [2] Abstract
- [3] Keywords
- [4] Introduction
- [5] **M**ethod
- [6] **R**esults
- [7] **D**iscussion
- [8] Conclusion
- [9] Acknowledgments (optional)
- [10] References

Number of pages: 10 – 15 average (for PeJARD, the maximum number of pages is 16)



1. TITLE

- ❑ encapsulates what the paper is in just one or two lines; answers the question: What is the study all about?
- ❑ contains the most important words, phrases, ideas, processes in the paper
- ❑ normally mirrors the research goal/purpose (sometimes plus the design/method used)

Tips: balance the three considerations below –

- Comprehensive: Does it capture the essence/ give a thorough idea of what the paper is?
- Brief: not longer than 12 substantive words
- Catchy: Does it attract interest?



2. ABSTRACT

- summative statement on the following:
 1. the issue/problem and its context/background
 2. research goal/purpose (or central question)
 3. research method
 4. key results/findings
 5. conclusion, and/or implication of results
- self-contained, together with the title (i.e., just by reading these two, readers get a full view of the paper)
- 100 – 150 words average, preferably one paragraph
- **Note:** Don't include citations in the Abstract.



3. KEYWORDS

- highlights words/phrases that are central to the work but are not reflected in the title due to rule of brevity
- the field/s where your study may be situated (e.g., patient care, cancer, student performance, indigenous education, etc.)
- not more than ten words/phrases

Note: keywords increase the paper's chances of being accessed online by search engines



4. INTRODUCTION

- comprehensive presentation on the following but all rolled into a single, continuous essay (1-2 pages only):
 1. What is the state of knowledge on the topic/issue? (review of literature: setting the context/background/rationale)
 2. What problem does the study intend to address or investigate? (research problem or central research question)
 3. What does the study propose to do to address the problem? (research aim/goal)
 4. What specific question or hypothesis is raised, to be answered by the study? (research question/hypothesis)
 5. Why is the study important? (significance/contribution)
- **Movement of ideas:** from general to specific (state of knowledge/ background – research problem, goal/ objectives, research question/hypothesis – significance)



5. METHODOLOGY (Method/ Materials and Methods)

- elaborates in details on the HOW of the study (How was the study conducted? What data were used and how were these collected and analyzed?), which includes the following:
 - Study approach, design, type or method used
 - Research sample, participants, community, site
 - Data collection instruments/tools and/or techniques, Materials
 - Procedure/s for data-gathering/ collection
 - Data analysis
 - Ethical considerations, if any



6. RESULTS (sometimes labeled as FINDINGS in qualitative studies)

- presents the collected data in a systematic way (without interpreting them or explaining their connections to each other and to other literature or their implications)
- may come in subheadings representing the various segments of the study's data
- uses tables and figures to present data in an organized and summarized manner (there should be not too many tables and figures though)



7. DISCUSSION

- Interprets the data's meanings, and their connections to each other and to other literature
- Spells out the findings' implications to theory, methods or practice (or practical applications)
- Includes the limitations of the study/research design as well as recommendations for further research (usually in relation to the limitations noted)

Movement of ideas: from specific to general, i.e., the study's specific findings to their contributions to the broader literature or implications for practice

Variation: The Results and Discussion may come as a single section, though the separate sections are more common and preferred.



8. CONCLUSION

- wraps up the article's argument by restating the study's aims/goals or research questions/hypotheses and how these have been addressed
- no new data or insight is included here as these should have already been presented and discussed in the Discussion; the Conclusion just iterates the main take-home point/s or argument of the study
- limited to just a few sentences or a short paragraph

Variation (for those using strictly the IMRAD):

The concluding statements are found in the last paragraph/s of the Discussion, hence there is no subheading for Conclusion.



9. ACKNOWLEDGMENTS (optional)

- for those who helped **directly** in the study but do not qualify as co-authors, like research assistants; providers of material support, financial assistance; contributors of ideas; critics/reviewers; editor/s (not just for anyone to be thanked for)
- direct, one paragraph

Note:

- Ask permission first from the persons involved before listing down their names
- If no one helped **directly**, drop the Acknowledgments subheading



10. REFERENCES

- lists down the materials used or cited in the paper (those consulted but not cited are not included)

Tips:

- Ensure that all citations in the body of the text should have their corresponding references; conversely, all references listed should have a corresponding in-text citation.
- Write down complete bibliographical entries following the APA 7th ed. style guide



This presentation is meant as a writing guide for authors intending to submit their manuscripts for consideration by the Philippine e-Journal for Applied Research and Development.

