

Section 5. Discussion as an IMRD component

Unit 1. Discussion: Structural analysis

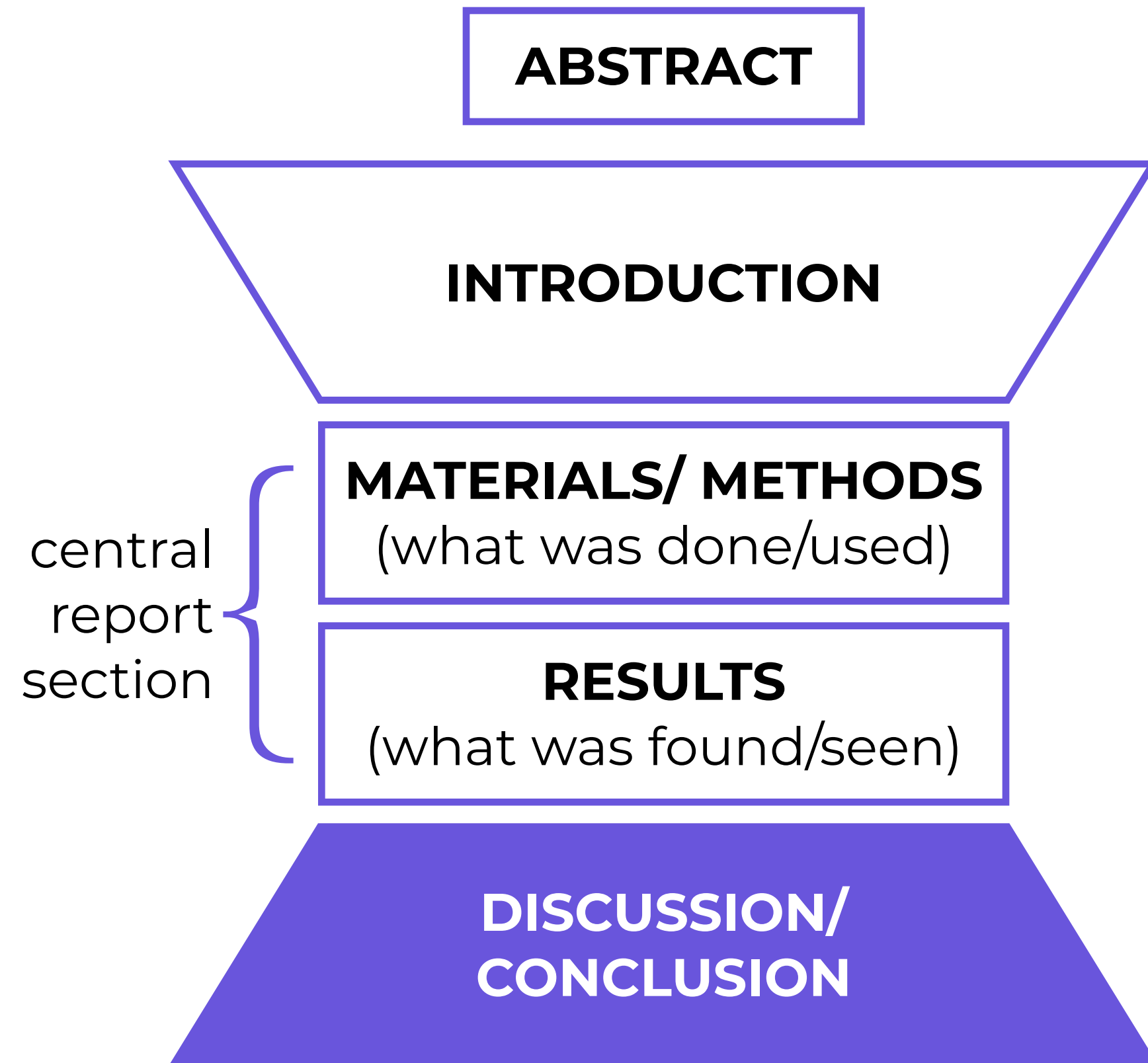
Outline

- Basic components of the Discussion section
- Its structural/functional analysis

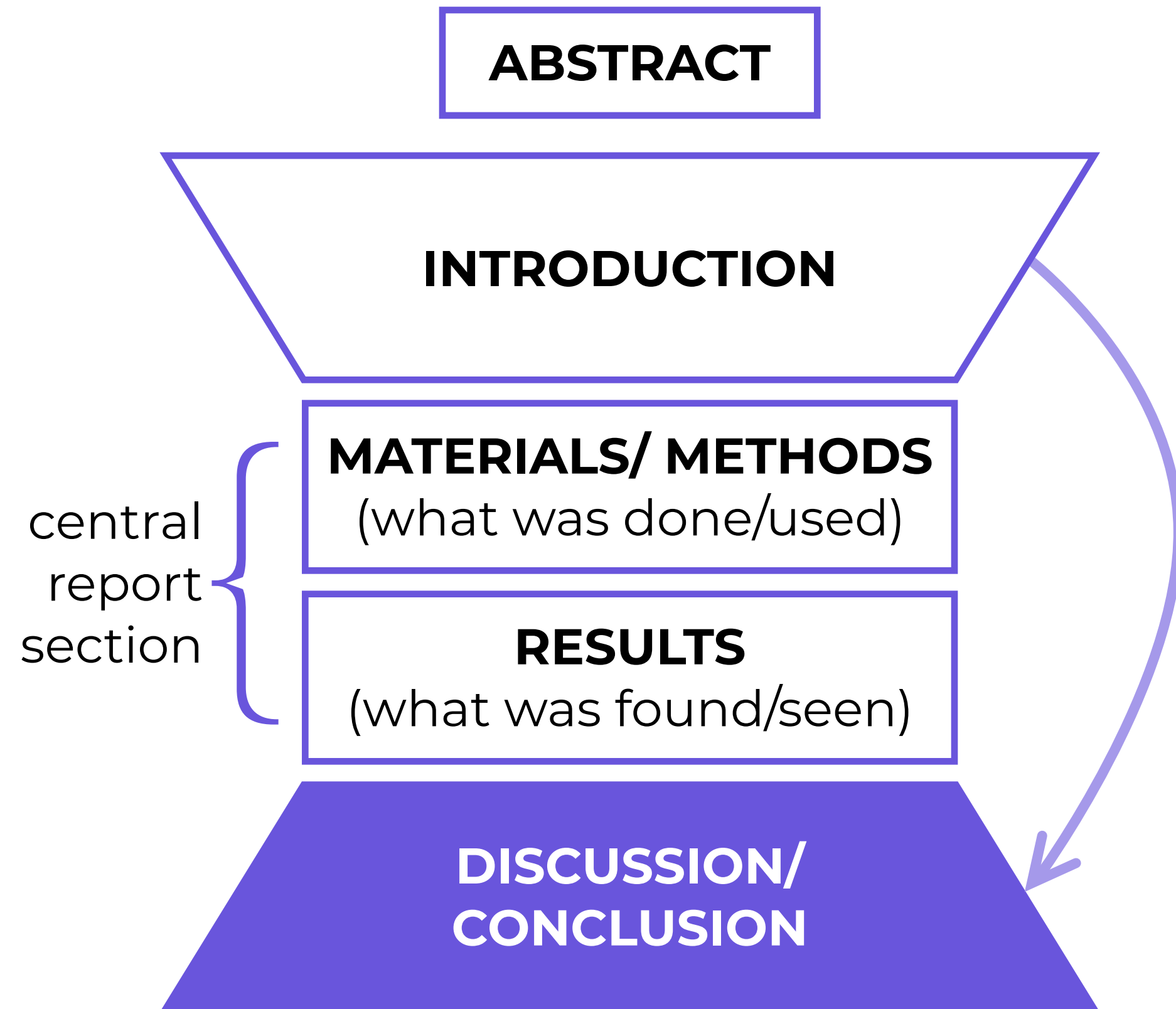
Variations in Discussion section titles

- Discussion
- Results and Discussion
- Conclusion
 - one or two paragraphs
 - focus on specific aspects of the Discussion

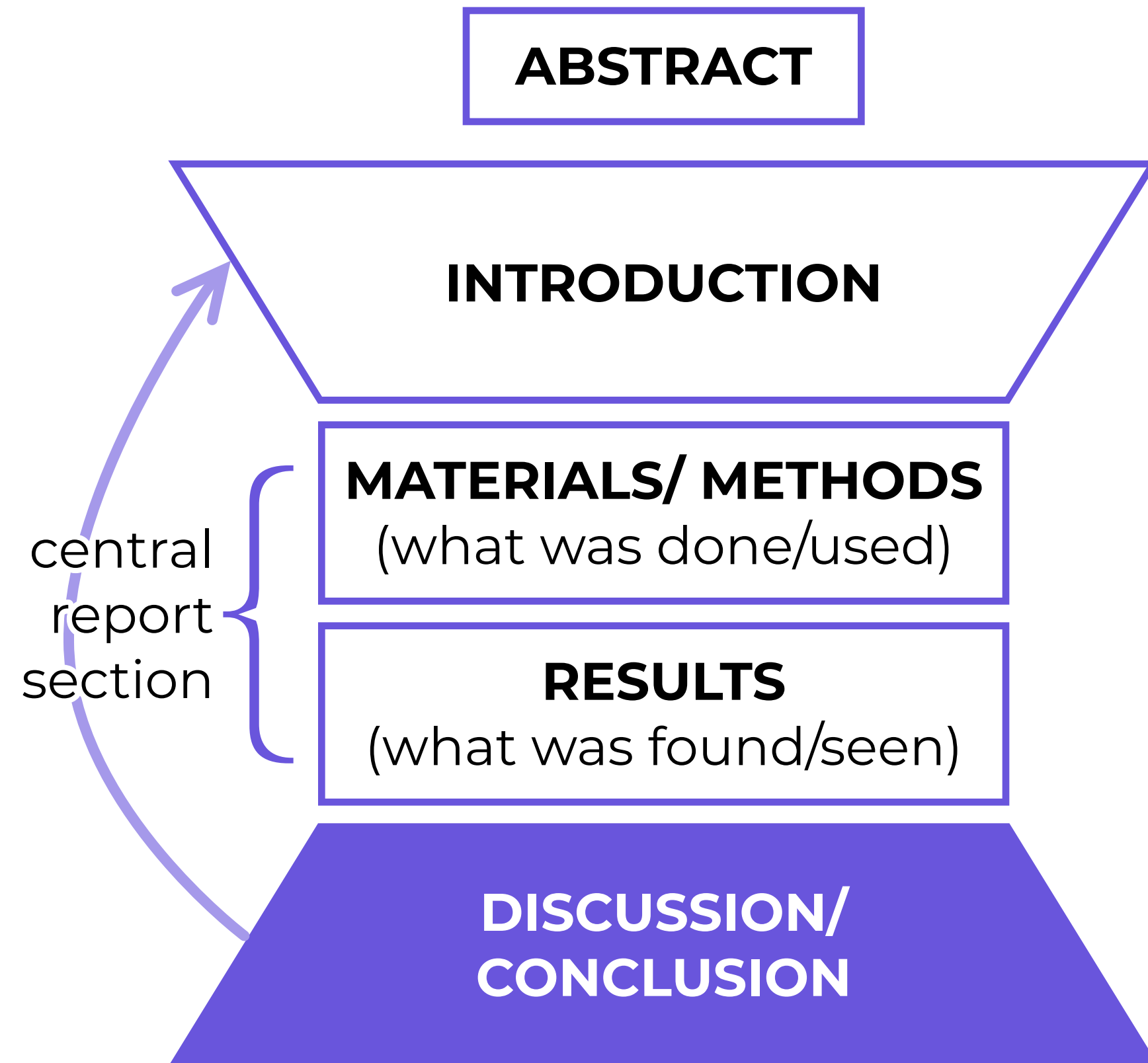
The structure of a Research paper



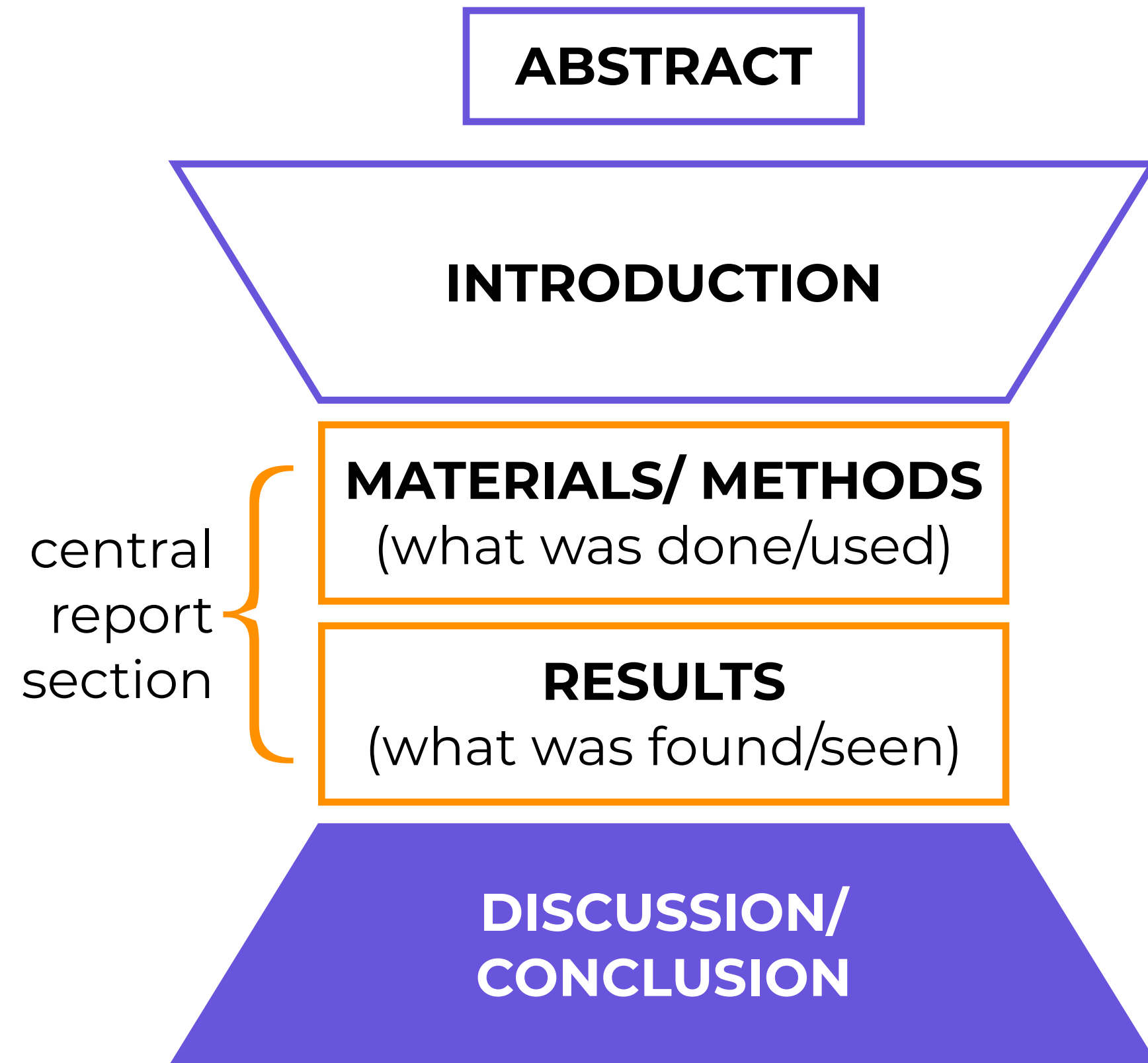
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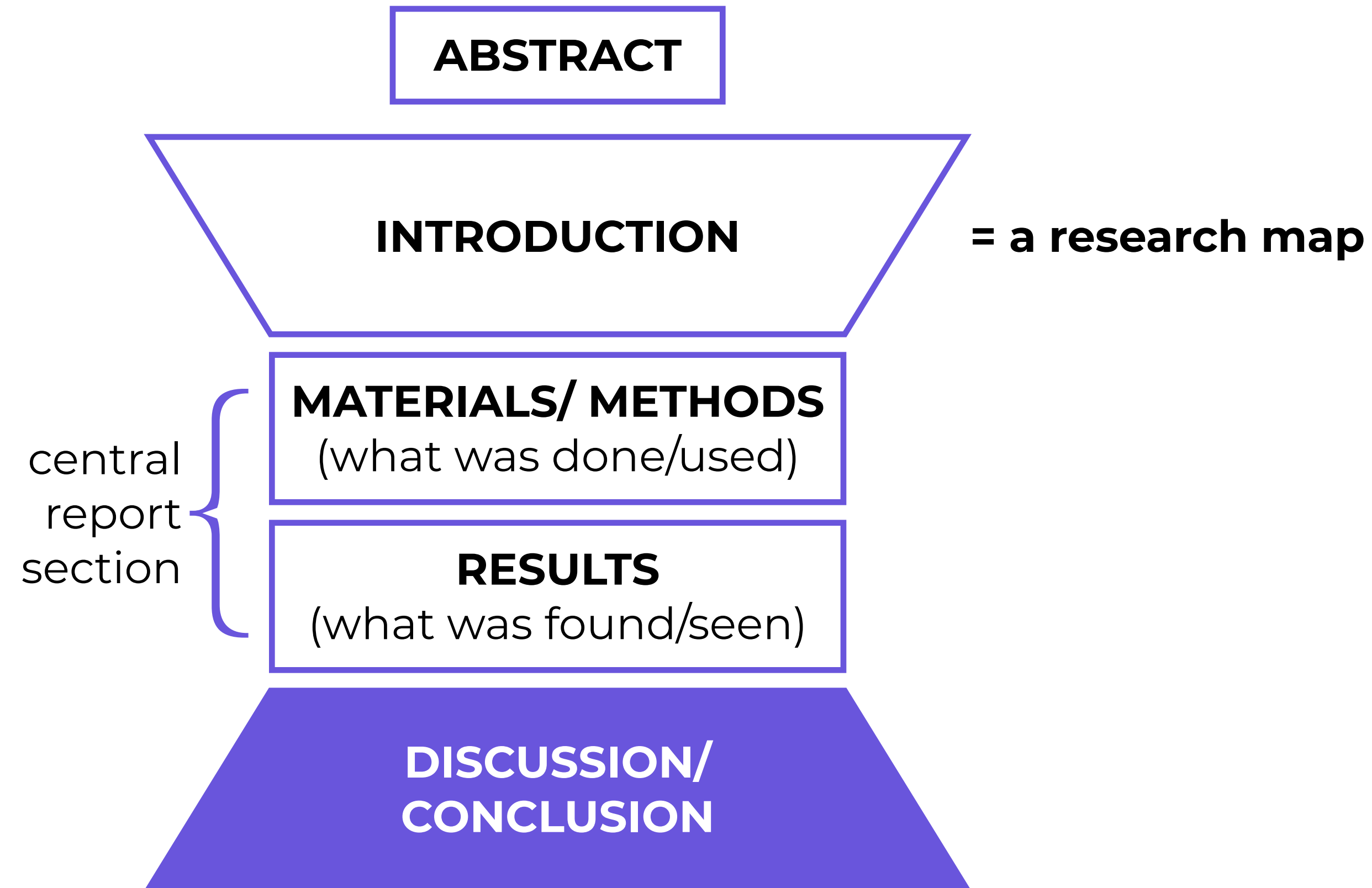
The structure of a Research paper



Components of Introduction

- I. Establishing the importance of the field:
 - Background facts/information (possibly from research)
 - Definition of the terminology in the title/key words
 - The problem area/current research focus
- II. Previous and/or current research and contributions
- III. Locating a gap in the research
 - The problem to be addressed
 - A prediction to be tested/a hypothesis
- IV. Brief outline of the paper

Revising key elements



What is the purpose of each sentence?

Ask yourselves:

What is the main verb tense?

What is this tense usually used for?

Is the tense the same as the previous sentence?

If not, why did the author change the tense?

What words did the author choose?

A sample Discussion section

The Impact of an Extended Stress Reduction Program on Quality of Alloys: Evidence for Long-Term Effectiveness and Future Considerations

Discussion

1 Previous research has demonstrated the effectiveness of interventions in improving the quality of alloys (QoA) and reducing stress in metals with various issues; Smith et al.¹⁸, for example, have shown that metals participating in intervention programs experienced improvements in QoA measures such as strength and durability. **2** However, these studies have either been of short duration or have not specifically focused on metals with stress-related disorders. **3** The aim of this study was to investigate the impact of an extended three-month stress reduction program on QoA among a group of metals being treated for stress-related issues, such as corrosion. **4** We found that participation in the three-month stress reduction program was associated with significant improvements in the skills required to enhance QoA in almost all cases. **5** These results extend those of Smith, confirming that a longer and more intensive period of stress reduction training tends to yield more effective skills compared to shorter-term interventions utilizing different methods. (Smith et al., 2011) **6** In addition, the improvements observed in our study were not influenced by factors such as composition or origin of the metals. **7** This therefore suggests that the benefits gained from stress reduction interventions may be applicable to a wide range of metals. **8** Importantly, this study is the first to our knowledge to investigate the effectiveness of extended interventions in metals with stress-related disorders. **9** Our results provide compelling evidence for the long-term involvement with such metals and suggest that this approach appears to be effective in counteracting stress that may exacerbate the issues. **10** However, it is important to acknowledge some limitations. **11** Although our hypotheses were statistically supported, the sample was not reassessed once the program was over. **12** Therefore, future research should include follow-up studies designed to evaluate the long-term retention of skills and their continued impact on QoA in metals.

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Sentence 1:
revisiting previous
research

Why revisit previous research?

- Overview of the section with general statements
- Referencing previous sections for continuity

Strategies for establishing context in Discussion/Conclusion

- Revisit Introduction
 - Restate the aims of the paper
 - Provide crucial background information
- Return to Methodology:
 - Review justification for steps
- Go back to Results:
 - Summarize outcomes achieved

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Sentence 2:
revisiting
the methodological
flaw from
Introduction

Why revisit the flaws?

- Reminds of prior methodological gaps
- Defines the paper's contribution
- Re-establish research motivation

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Sentence 3:
revisiting
the methodology
used in this study

Tenses in the Discussion section

- Past Simple
 - Present Simple
 - Present Perfect
- } describe the method
or the findings

In this study, Titanium **is used/has been used/was used** to define the size and shape of the turbulent structures.

We **use/have used** titanium to reconstruct the three-dimensional structure.

A sample Discussion section

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Sentence 4:
revisiting
and summarising
the results

Why revisit the results?

- Guides the reader beyond immediate result interpretation
- Directs attention towards broader conclusions and implications

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Sentence 5: showing the location of the current work into the overall «map» of this field's research

Diverse contributions in current study

- Different methodology for comparable results
- Confirmation of prior study's findings
- Contradiction and invalidation of prior study
- Introduction of a new methodology
- Extension and confirmation of earlier study's implications

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Sentence 6:
dwelling on an aspect
of the results
representing
a positive outcome
of this research

Distinguishing mapping from stating achievements

- **Similar** intentions
Both aim to highlight significance
- **Different** approaches
Varied content and focus in execution

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Sentence 7:
defining the meaning
and significance
of the study's findings

What to write in the Discussion section?

- Provide implications for why the results occurred
- Discuss the mechanisms behind findings and observations
- Relate results to the original question or problem
- Evaluate alignment with previous findings



Results section – the results themselves

Discussion section – the implications of the results

Language of Caution

Phrases: seems that, suggesting that,
indicating that

Modal verbs: may, could

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A sample Discussion section

The Impact of an Extended Stress Reduction Program on Quality of Alloys: Evidence for Long-Term Effectiveness and Future Considerations

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Sentence 9:
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positive outcome

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Sentence 12:
proposing
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Functions of the sample Discussion section

Sentence 1: revisiting previous research

Sentence 2: revisiting the methodological flaw from introduction

Sentence 3: revisiting the methodology used in this study

Sentence 4: revisiting and summarising the results

Sentence 5: showing the location of the current work into the overall «map»
this field's research

Sentence 6: dwelling on an aspect of the results representing a positive outcome
or contribution this field's research

Sentence 7: defining the meaning and significance of the study's findings

Sentence 8: highlighting this work's novelty

Sentence 9: elaborating on the implications of the findings, including potential applications

Sentences 10 and 11: outlining the constraints that ought to guide future research

Sentence 12: proposing a particular area for future research

Basic components

1. Revisiting previous sections and general or key results
2. Mapping (relationship to existing research)
3. Achievement/contribution and refining the implications
4. Limitations, current and future work and applications

Summary

- Discussion is a reverse order of elements in Introduction
- Discussion helps reader to distance from the main report
- Discussion suggests further steps for the research community