Writing Up your Thesis

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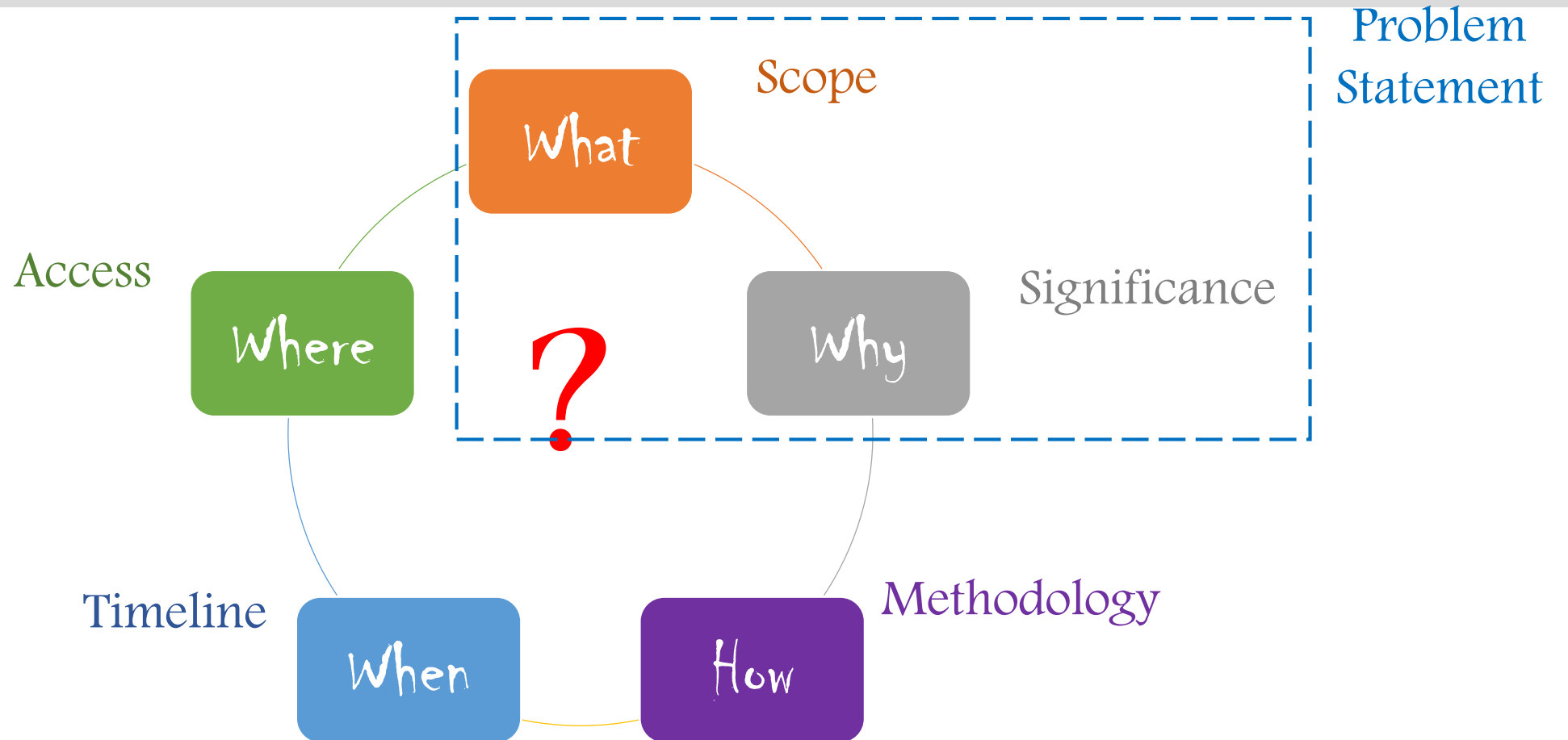
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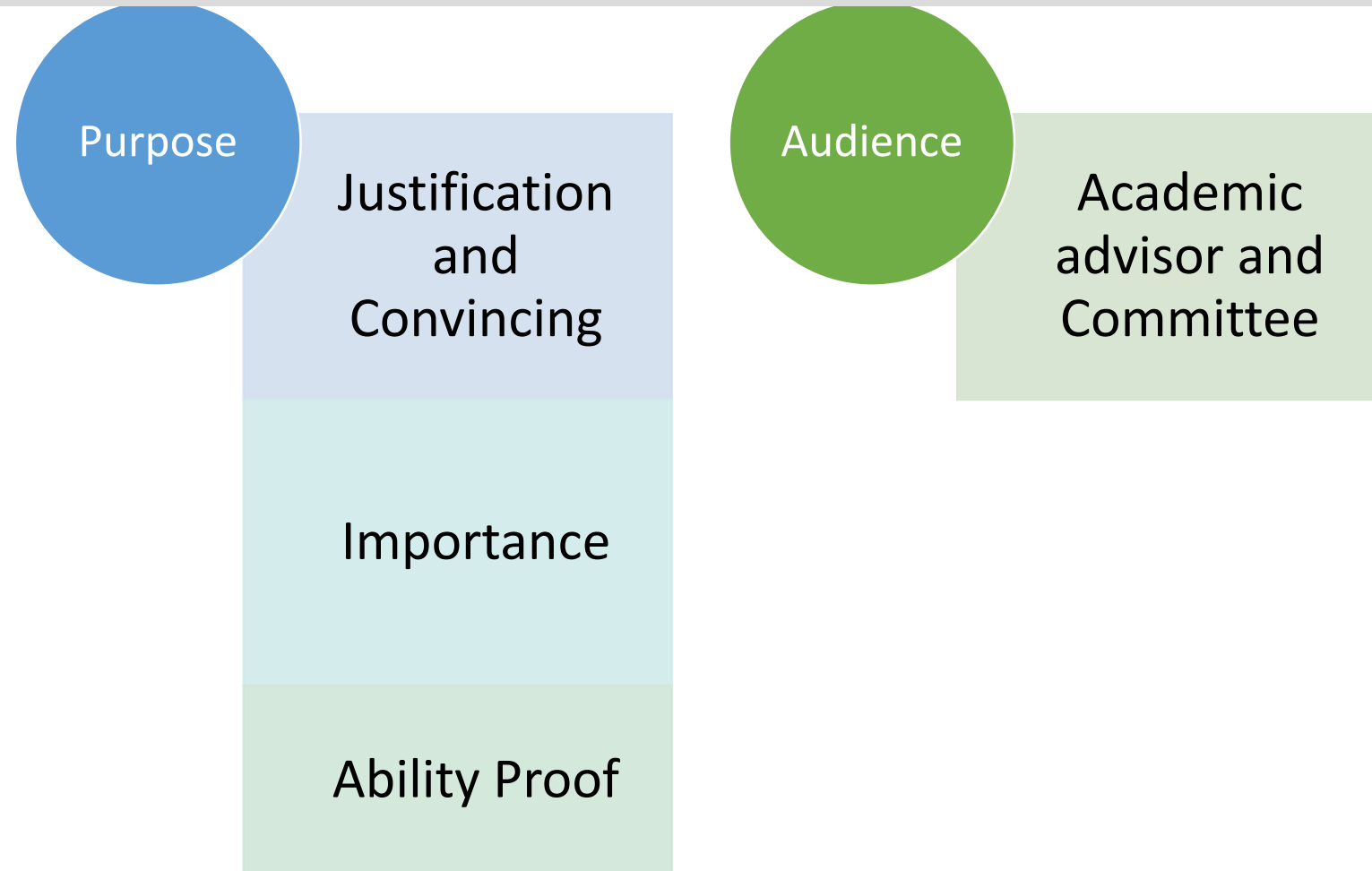Department of Mechanical Engineering, King Saud University, Saudi Arabia

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Agenda

- 5 W's
- Chapter-by-Chapter, Almost!
- Comments

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First Step: The Proposal

Purpose

Justification and Convincing

Importance

Ability Proof

Audience

Academic advisor and Committee

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General Advice

- Set a writing time/schedule.

- Begin with wide angle (free-writing).

- Always be ready to pen relevant thoughts.

- Audio recording parts of your writing.

- Compose all parts from different places in one file.

- Start with more "clear cut" sections first.

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- Realize that the proposal will be revised

- The proposal is an introduction to your thesis.

- The proposal is not a binding contract. It should not limit ideas.

- Ask colleagues to form a writing group.

- **Talk to your advisor!**

Contents

Proposal
- Title
- Abstract
- Introduction
- Problem Statement/Objectives
- Literature Review
- Methodology (Experimental Work)
- References

Thesis
- Title
- Abstract
- Introduction
- Problem Statement/Objectives
- Literature Review
- Methodology (Experimental Work)
- Results and Discussion
- Conclusion and Recommendation
- References
- Appendices

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- Orient your readers to your research topic.
- Indicate the type of study you will conduct.

- Gives the context and motivation of the research
- Starts with a broad perspective on the research topic, than gradually narrowing the focus to the central problem and research question.

Introduction

What do we know about the topic?

- Comprehensive & critical review of the major findings in the area

What we don't know (gap in knowledge)?

- Identifying knowledge gaps and their importance to be studied.

What is your Problem Statement and Research Objectives?

- State the problem to be solved and your research objectives.

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- Answer one or both of the questions:

  ➔ What is the gap that needs to be filled?

  ➔ What is the problem that needs to be solved?

- State the problem clearly early in your thesis (usually at the end of the "Introduction" Chapter.

- Limit the variables you address in stating your problem or question.

The rest of the thesis should:

- Echo a thesis statement in every sentence;
- Prove that the thesis statement is correct;
- Repeat a rephrased thesis statement in the conclusion.

- Explain the aims of the study.

- Show your original contributions.

- Include a rationale for the study.

- Be clear about what your study will **not** address.

- Could State limitations of the research.

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Characteristics:

- Addresses the prompt clearly
- Makes a claim, or
- Presents an argument
- Arguable (an opinion)

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Writing the literature review allows you to understand:

- How other scholars have written about your topic.

- The range of theories used to analyze materials or data

- How other scholars connect their specific research topics to larger issues, questions, or practices within the field.

- The best methodologies and research techniques for your particular topic.

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An Effective Literature Review should

- Show your research background

- Critically assess important research trends or areas in your field.

- Identify the knowledge gaps in the field.

- Be a good start for current and/or future research projects.

- Introduce the overall methodological approach.

- Describe the specific methods of data collection.

- State your Design of Experiment (DOE).

- Explain your analysis approach to interpret your results (i.e. statistical analysis, theoretical framework).

- If needed, give background about unfamiliar methodologies.

- Address expected limitations.

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Tips on Drafting Methodology

- Break down your methodology into subsections, which may include:
  - ✓ Materials, design, apparatus, instrumentation, process, analysis, etc.
- Remember that your methods section may also require supporting literature.
- Anticipate the audience's methodological concerns.
  - ✓ Acknowledge major problems/limitations.
  - ✓ Justify your choice of approach

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You need to:

- Consult your advisor.

- Be aware of important dates for submitting and defending thesis.

- Do not be overly ambitious.

- Remember that your proposed timeline demonstrates your awareness of the various elements of the study.

- It contained all data and analyses required to fulfill the objectives of the thesis
- Results Describe specific trends, significant effect, similarity/contrast, exception, limitation, etc.

- It serves to weave a coherent story and must communicate the findings to the reader in a logical, transparent manner.
- Clear, neat graphs, charts, photographs, and drawings can quickly convey the primary findings of research

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Graph and Tables

- Tables can be used to display precise numeric values
- Figures are better for visualization of trends and proportions
- Figure legends should provide a clear description of the figure
- Explain each symbol in the figure (Legends)
- Labels should be clear.

Graph and Tables

- Tables should be self-explanatory
- Text should summarize/highlight table content (not to repeat)
- Arrange data in logical manner (in table)
- Cross-check reference to figures/tables in the text
- Give proper credit to figures/tables taken from other sources

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Common Mistakes

- The same data are presented in figure (graph) and table
- Data presented in the table are simply stated (without describing the trend, making comparison, highlighting anomaly, etc.)
- Table and figures not mentioned in text.
- Unusual trend in data is ignored (not highlighted)

Discussion section

- Communicate the significance of your findings
- Indicate how they support your objectives
- Describe how these results advance the field of study

How to Discuss?

➢ How thorough is your discussion & interpretation?

- Have the main point to emerge from the results been picked for discussion?

- Are there links made to the literature?

- Is there enough evidence in your data to attempt at theory building or reconceptualization of the problems?

- Give supporting evidence/information from previous works

- Sources of errors!

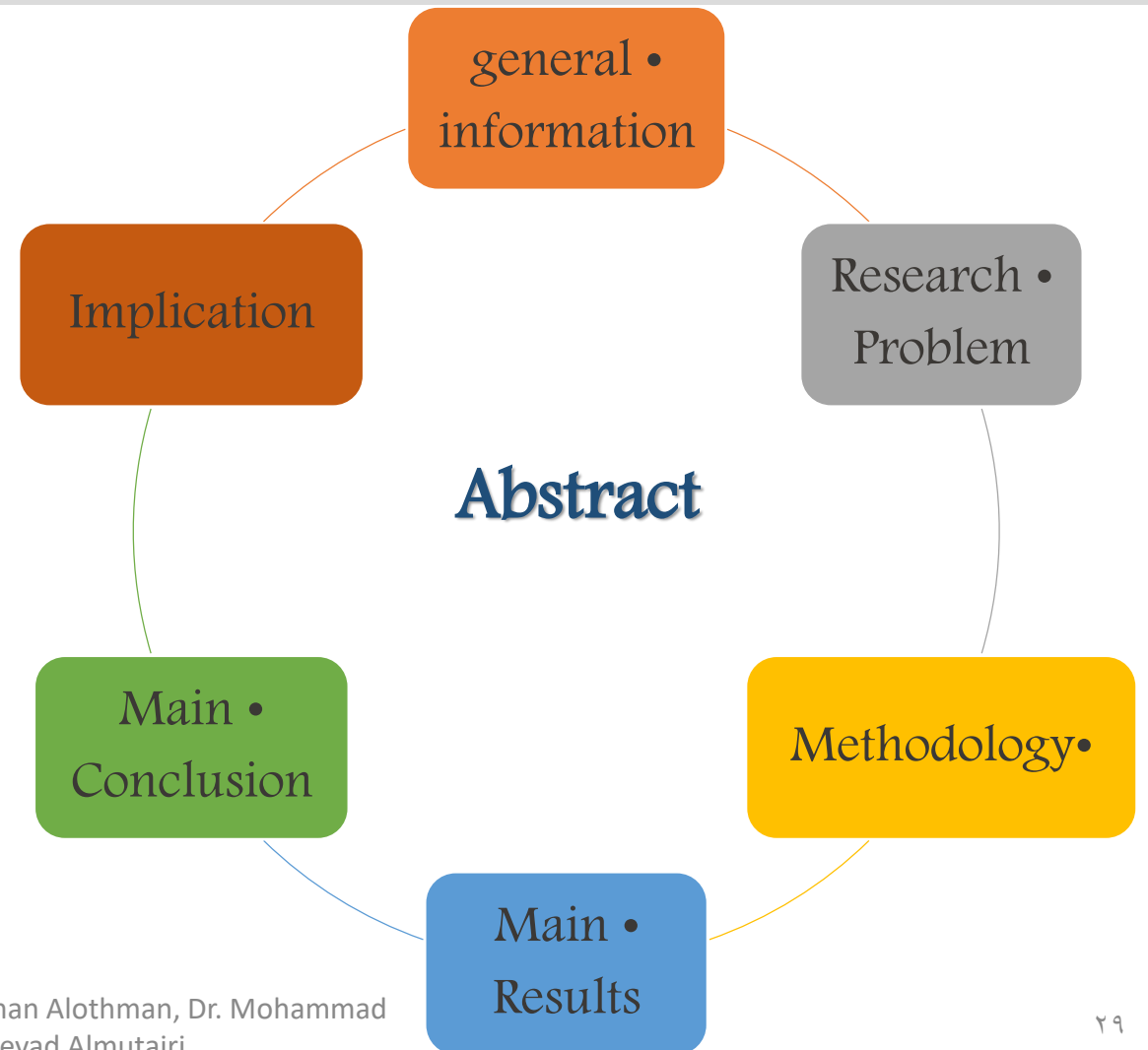Deanship of Scientific Research

How to write a conclusion?

- Strongest and most important statement from your work.
- Relate your conclusions to objectives.
- Summarize your new observations, new interpretations, and new insights.
- Highlight the contributions of new knowledge that your thesis has made.
- What are the practical (broader) implications of your work?

General Comments on Citation and Referencing:

- A general lack of referencing/missing references
- Inserting a citation for general a fact
- Not using reference management Tools
- Adding incorrect/incomplete data into the reference management software
- Using the incorrect version of the reference style. Check guidelines!

General Comments on Citation and Referencing:

- Referencing direct quotes incorrectly
- Failing to do a final check of all the citations and references
- No reference cited
- The reference is missing from the reference list or vice versa
- Not updating reference after proposal
- Outdated or Bad Resources
- Unnecessary Citations
- Understand what you write!

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general •
information

Research •
Problem

Implication

Abstract

Methodology•

Main •
Conclusion

Main •
Results

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Final Check:

- Remove unnecessary information, literature review, and detailed description of methods
- Revise Abstract so that the abstract conveys only the essential information
- Check to see if it meets the guidelines
- Make sure no grammar or spelling errors!
- Give the abstract to a colleague (preferably one who is not familiar with your work) to test readability and clearness.

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- Editing and proofreading
- Extra (or irrelative) information
- Organization
- Procrastination (Unnecessary postponement)
- Plagiarism/Similarity
- Required format General Framework for Thesis Writing, Deanship of Graduate Studies, KSU. (In Arabic)
- Academic Writing vs. Technical Writing.

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1. Title page
2. Summary or abstract
3. Acknowledgements
4. Table of contents
5. List of figures and tables
6. Nomenclature

Starting formatting section of the Thesis

7. Introduction
8. Aims and objectives
9. Theory
10. Methodology
11. Results
12. Discussion
13. Conclusion

Actual reporting of work

14. References
15. Appendices

Final formatting section of the thesis

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