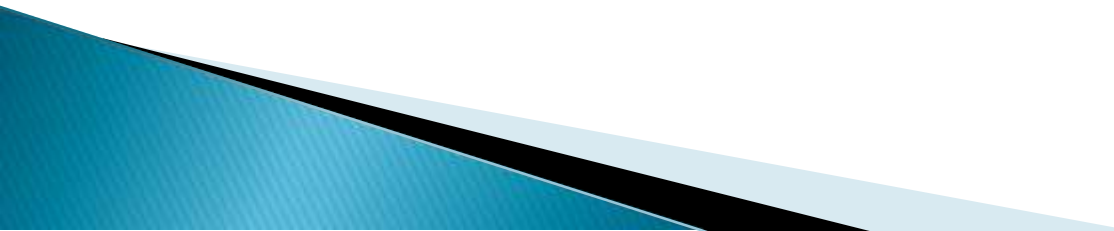# How to write a thesis

Prof. Dr. Nadhim Ghazal Noaman

Objectives

This lecture will help you:
- to start your thesis.
- to guide for proposal writing.
- To guide for whole thesis writing.

Steps To write a thesis

- 1- Identify a valuable and unique topic
- 2- Reviewing the relevant literatures
- 3- Craft a *convincing research proposal*
- 4- write up a strong introduction chapter
- 5- review the existing relevant literatures and compiling a literature review.
- 6- Design your *research strategy rigorously*.
- 7- present your findings
- 8- Discuss the implications and draw a conclusions

How to write a research proposal

What is Research Proposal?

✓ Is an outline (research plan) of your dissertation.

The purpose of this proposal is to:

▸ Define the question

▸ Identify the approach to solve the question

▸ Explain how it adds value to your field

▸ Persuade the experts and supervisors that you are the right person to carry out the research.

Structure of a Research Proposal

- Title (important keyword of your topic, reflect the content & approach)

- An Abstract: describe the issue, motivating other about the problem with rationales

- Specific objectives(the research question ... Aim and objectives).

- Overview and Significance .. Literature review... (Preliminary studies and competence of the investigators)

- *Design and Methodology* ....

- Draft of Appendixes ... full discussion (its contents, the scores, scales .....)

- Budget: all details (conflict of interest, ethical issues)

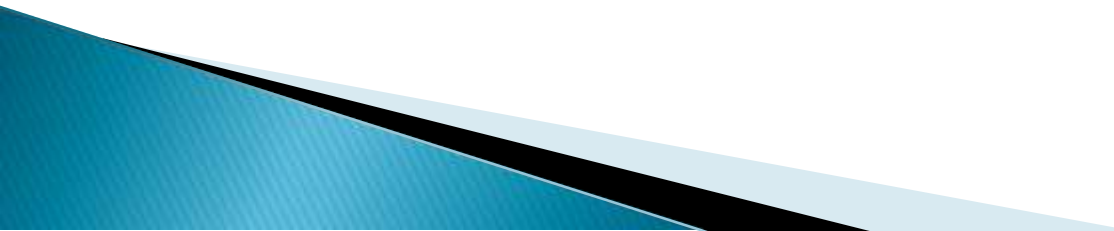- The cited References should appear at the end.

Design and Methodology in research proposal

- You should specify the <u>design and methods</u> that you will use for your actual research.
- <u>Rationale for adopting the methodology</u> with Aims and objectives
- Research <u>parameters</u>
- <u>Overall</u> *research strategy*
- *Setting,*
- *Study pop, sampling method,*
- *Measurement of key variables,*
- *Data collection methods (including draft research instruments i.e. interview protocol or survey tool)*
- Mention the <u>specific techniques</u> that you plan to adopt. The <u>type of resources</u> , the <u>methods you will use to collect and analyze the data</u>.
- <u>A timeline:</u> your work plan to achieve the research objectives within a time period.
- *data processing and analysis, the technique to ensure validity and reliability. Anticipated limitation if any and how to overcome.*

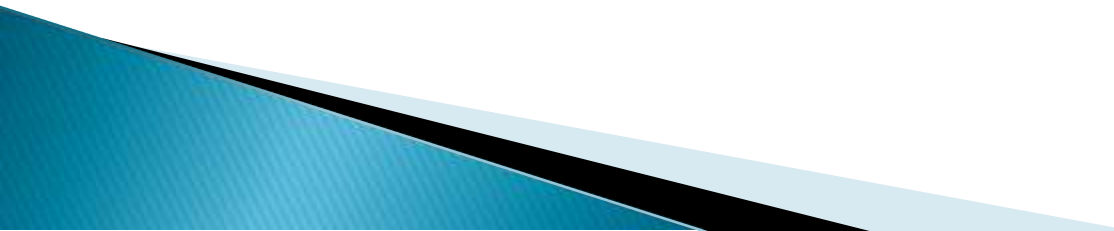# Characteristics Of Good Proposals

- Self- Informative title

- Self –sufficient abstract

- Specific aim or the research question clearly

  - Rigorous, and determined objectives

  - Relevant background and significance of the study.

  - Realistic time table appropriate to the work or budget.

- Good pilot study for quality control

- Fair sample size

- Ethical issues need to address

- Ensure that your proposal sounds persuasive, all expression and grammar should be in the correct way.

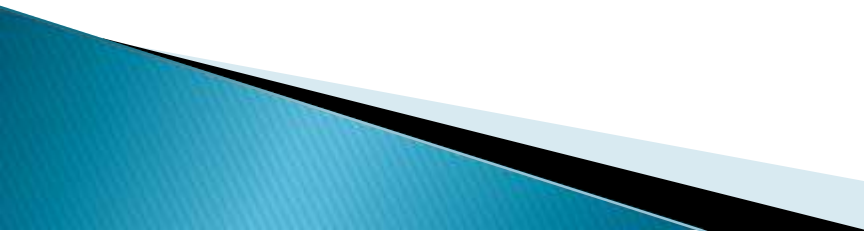- *Quality of the presentation*

Quality of the presentation

- Concise, well- structured and well-organized

- Clear diagrams, graphs and tables

- Neat and free of errors
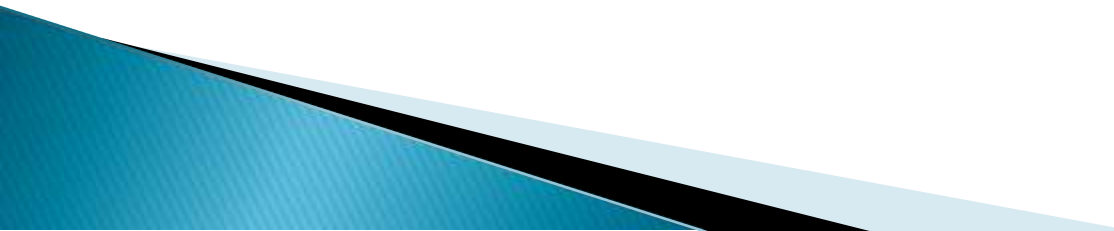
How to write a thesis

General structure of thesis

- Introduction (what question was asked?)

- Methods (how was it studied?)

- Results (what was found?)

- Discussion (what do the findings mean?)

The cover page

- The title
- Description of the degree
- Name (and qualification) of the student
- Name (and qualification) of the supervisor
- Year
- Arabic cover page (and others)

The title

▸ *Should be:*

– As short as possible
– Simple and in easy understood words
– Represent the research question (objective)
– Convey what the paper is about
– Draw the attention of the readers
– Interesting and exciting
– Be alert that it matches the conclusion

Abstract and summary

- Structured and unstructured abstract

- It should describe succinctly:
  – Why what was done was done
  –   What was done
  – What was found
  – What was concluded

Abstract

- Structured:

  - Background
  - Objective(s)
  - Methods
  - Results
  - Conclusion

Abstract and summary

▸ It should:

- Contain the essence of the whole paper
- Stand alone
- Stick to a maximum of 150 words for the unstructured abstract and 250 for the structured
- Be clear, concise, readable and informative
- Avoid unnecessary details
- Avoid abbreviations
- Do not mention references

Lists:

- of contents
- of abbreviations (if applicable)
- of tables

The introduction should be:

- Brief and concise (between 7-10 pages)
- State clearly the research question
- Give an idea (background) about the subject
- Call attention to the importance of the issue
- Include the most interesting details
- Contain up to date information
- Specially rich with facts and numbers
- Cited from reliable references
- Lead the reader gradually to the objective(s) of the study (at the end of the introduction).
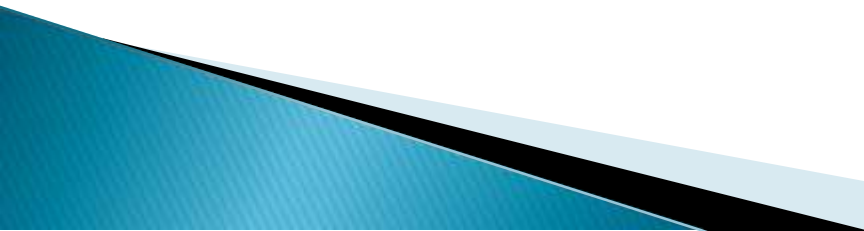
Methods

- Settings
- Study design
- The sample (who, what, where when, and how)
- Sample size
- The sampling technique
- Give accurate details of materials used
- Detailed procedures
- Give exact form of treatment and drug dosage (if any)
- The questionnaire (if applicable)
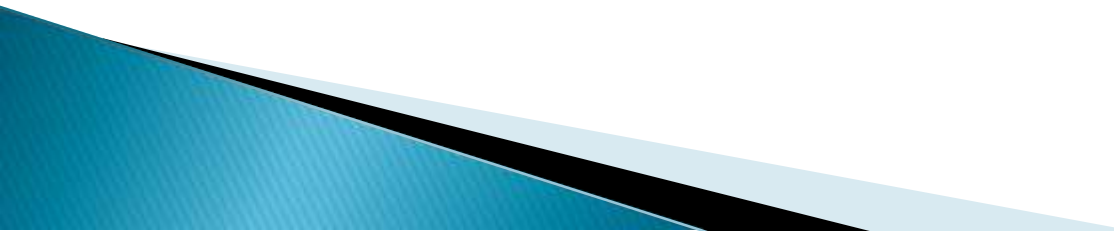- Statistics
- Test used - Program used - P value, …

Methods

- Other important points:

- Ethical issue
- Control and comparison groups
- Selected groups
- - Random and systematic errors
- - Blindness
- - Approval and consents
- Financial support

A good methods section can answer these questions:

- - Does the text describe what question was being asked?
- - Does it describe what was being tested?
- What is the degree of accuracy and precision of the measurements used for the variables?
- Were these trustworthy measurements recorded, analyzed, and interpreted correctly?
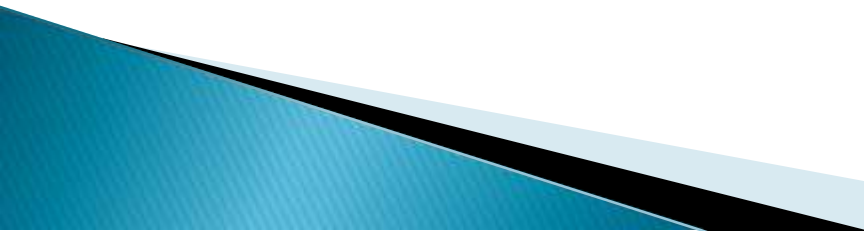- - Would a suitably qualified reader be able to repeat the experiment in the same way?

The Results

- Tell the end story of how you arrived at the answers.
- Establish initially how normal or abnormal your groups were and how comparable they were
- Even with a random allocation into groups; it is necessary to confirm that they are equivalent
  - Mention if your sample was homogenous
  - Describe the main characteristics of your sample
  - Don't be afraid of negative results
  - State the statistical significance
- Do not over-regard your results

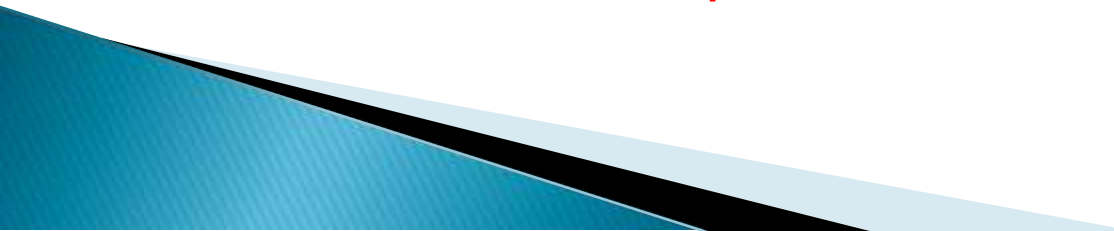# The tables

▸ Should be:
- Clear, well organized and neat of errors
- Simple and not complicated
- Self explanatory
- The title should be put above the table
- The title should answer the questions: what, who, where, and when
- Put in the right direction (dependent and independent variables)
- Mention the totals (and percentages if necessary)
- Mention the reference (if any)
- Mention the statistical values (Test of significance, P value, C.I., df,..)
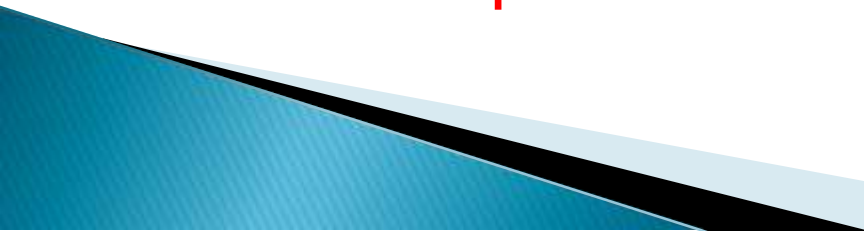- Better not to be too many

The statistics

- ‣ - Use the right test
- ‣ - Set the dependent and independent variables
- ‣ - Set the P value
- ‣ - Do not give results to a greater degree of accuracy than that of the measurement
- - Do not use percentages unless the groups contain more than 100 subjects
- ‣ - Be aware about the type of association
- ‣ - Be cautious about mentioning a (causal) relationship
- ‣ Consider the statistical power (sample size, randomization, No. of end-points,..)
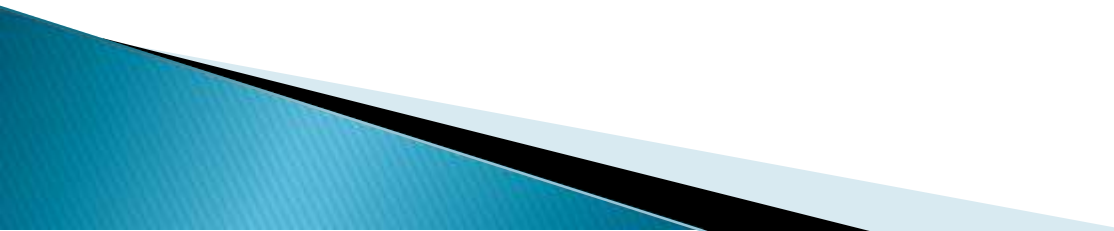- ‣ - Always mention the confidence interval

Illustrations

- The mind takes in pictorial information more quickly than written text

- Show the most significant results

- Make it in colors

- Make it simple and detailed

- For the audience (presentation) not for the thesis

Photographs, micrographs and graphics

- Photographs must include means to protect the anonymity of any patients

- Micrographs needs measures of scale

- Graphics: three dimensional representations (Bar graphs and pie charts) are irresistible.
- But use it as a last resort to bring out a point.
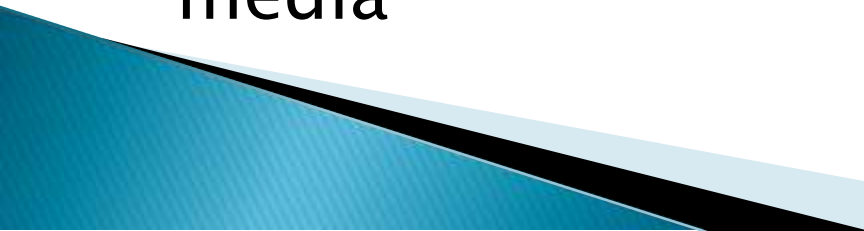
- All need professional production

Discussion

- The main findings (interpretation)

- Previous work (comparison)

- Discussion of methods

- What it means for practice (implications)

- The need for further studies

- Bias and Limitations

- Conclusions and recommendations

References

- Harvard: Harvard usually used in thesis, (authors. Year. Name of article. Journal. volume and no). (1st author, year) within text.

- Vancouver: Vancouver usually used in articles, (authers.name of articles. Journals. Volume and no). (no.) within text
- Citation?

References

- Is a good place to attract attention.
- Selection of high-quality resources.
- Ensure that you include all the resources that you feel are of high importance.
- The best approach is to include resources such as textbooks and journal articles rather than internet article and blogs
- use information ethically without evidence of plagiarism even for idea, text, graphics and media

Other important issues

- The Authors
- The printing
- The language
- Approvals
- Questionnaire
- Arabic title and abstract
- Others