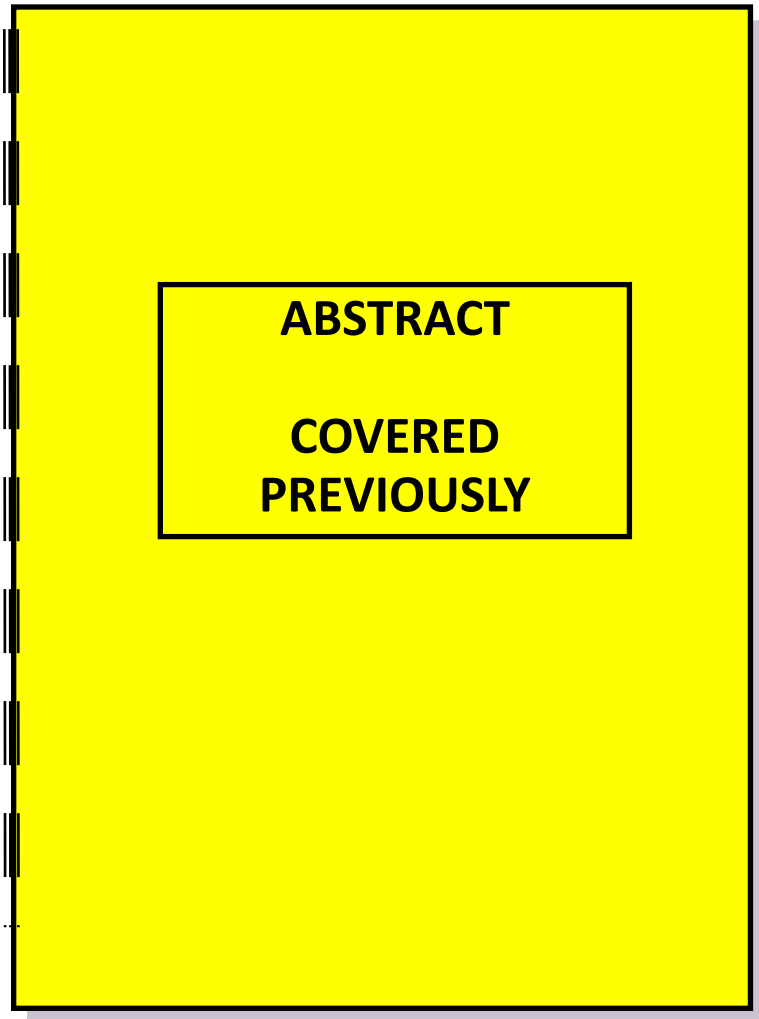




Thesis Structure

Structure

- **Title Page**
- **Table of Contents**
- **List of Tables**
- **List of Figures**
- **Abstract**
- **Declaration**
- **Acknowledgments**
- **Introduction**
- **Literature Review**
- **Methodology**
- **Results**
- **Discussion**
- **Conclusions**
- **Future Work**
- **Appendices**



ABSTRACT

**COVERED
PREVIOUSLY**

Abstract

- Should be short (150-250 words)
- Should contain key words for indexing
- Should stand on its own
- No references, No abbreviation, No citation of tables or figures, No unsubstantiated conclusions
- Should have the following sections
 - Introduction/Background (the problems and its significance)
 - Objectives
 - Materials & Methodology (approach to finding a solution)
 - Expected output
 - Conclusions

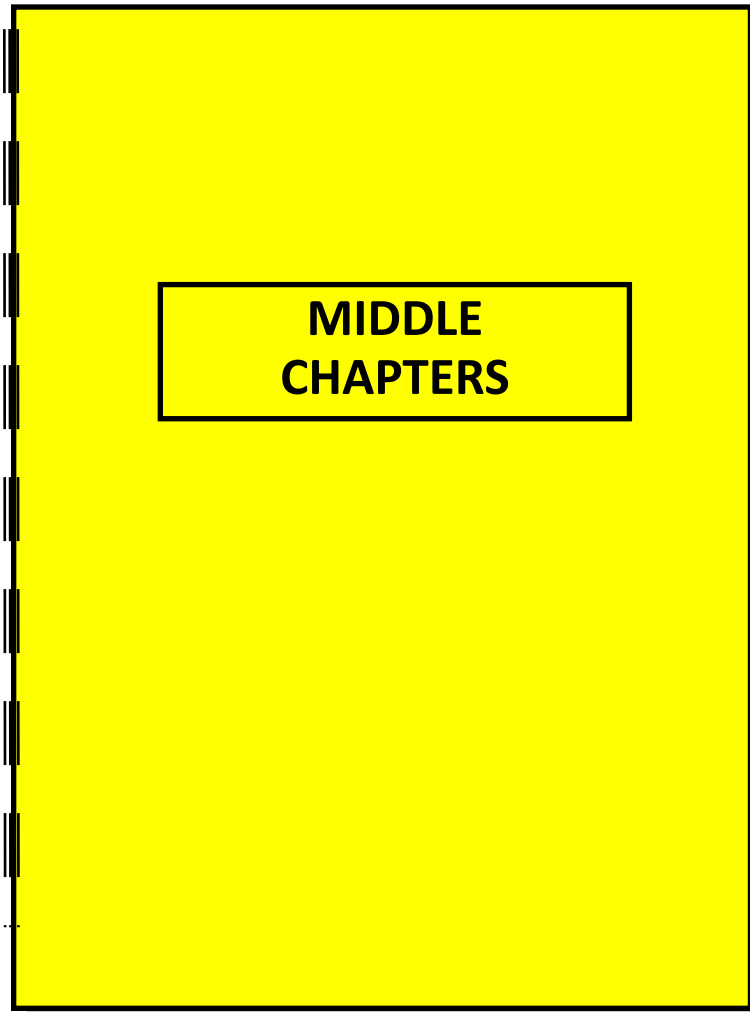
A yellow book cover with a black border. The word "INTRODUCTION" is centered in a black rectangular box. The left edge of the cover shows a series of black vertical lines representing a spine. The background features abstract, light green and white curved shapes.

INTRODUCTION

Introductory Chapter

Possible sections in this chapter :

- **Pendahuluan**
 - **Background**
 - **Research Problem**
 - **Research question**
 - **Objectives (tujuan)**
 - **Scope**



**MIDDLE
CHAPTERS**

Literature Review (State of the Art)

- **This chapter outlines the state of the art in your field, organised by ideas, research trends NOT chronologically or by author**
- **The objective of this chapter is to tell the reader that this is an important and interesting problem**
- **Literature Survey vs. Literature Review**
- **Bibliography vs. Literature Review**

Research Question (aka Problem Statement)

- The title of this slide is an example of the arts/science divide, in arts subjects this is generally called “*research question to be answered/addressed*” in science subjects (especially engineering) this is generally referred to as “*problem to be solved*”.

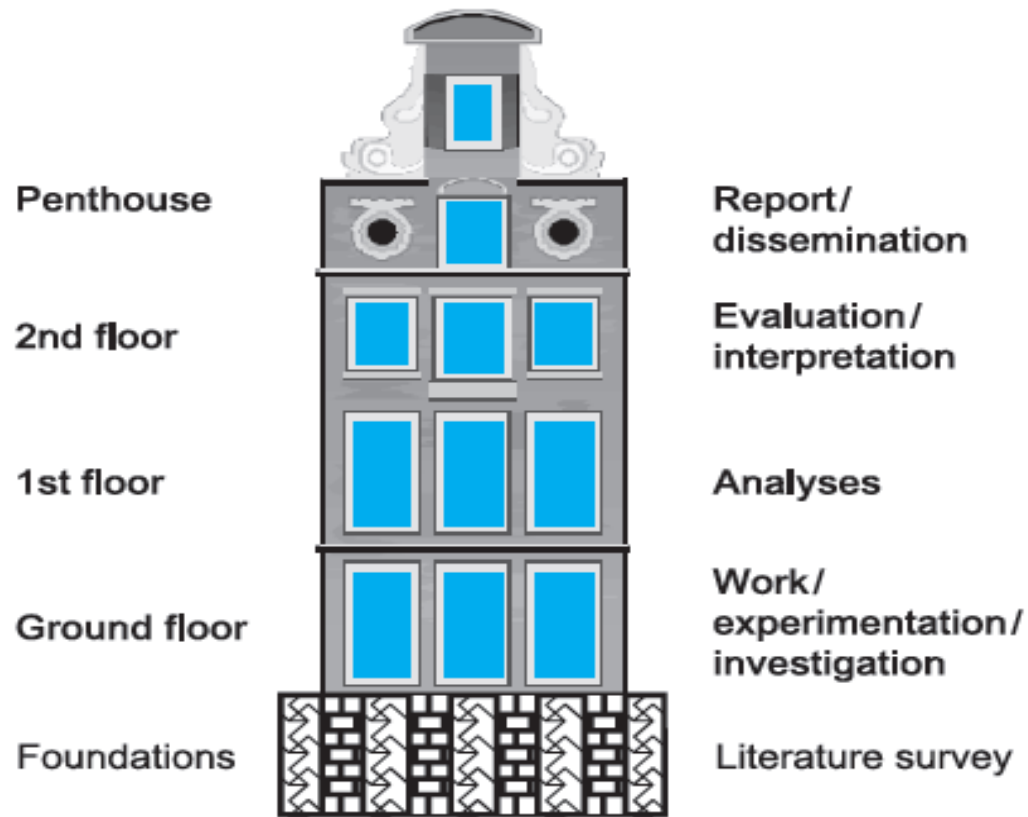


Figure 5.1 The importance of the literature survey

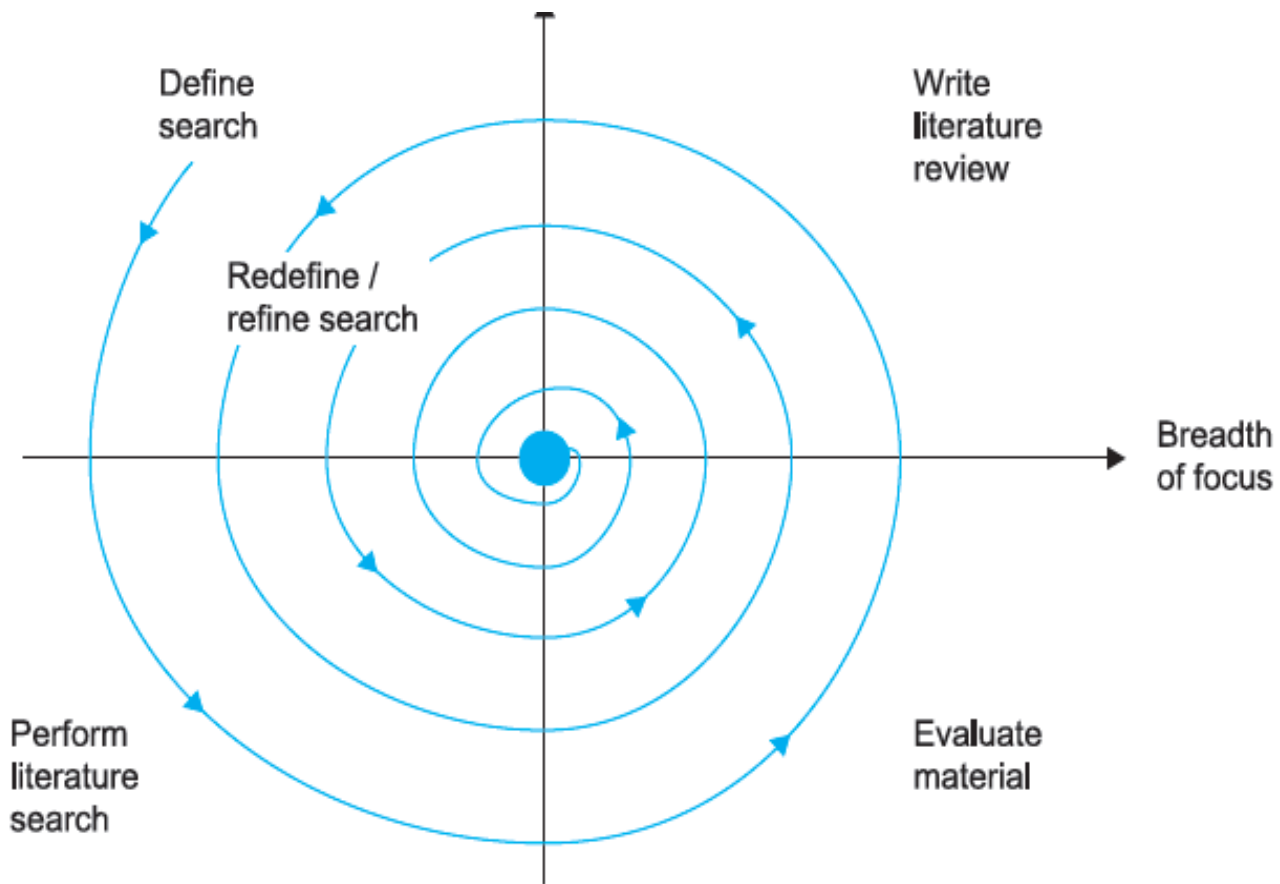


Figure 5.5 The literature survey process

Literature Review

- In a literature review you are required to present:
 - established findings
 - conflicting evidence
 - gapsin the body of scholarship relating to your topic.

Why Review Literature

- **Why are you asked to write a literature review?**
- You are asked to write literature reviews in some of your courses so that you can demonstrate to your lecturers that you are able to:
 - determine what has already been written on a topic
 - identify previous approaches to the topic
 - identify central issues in the field
 - integrate what previous researchers have found
 - identify important issues still unresolved.

Literature Review

- **What steps must you take in preparing to write a literature review?**
- There are a number of steps to undertake before you write the literature review. You need to:
 - formulate a problem in your field of study
 - familiarise yourself with a broad range of texts that deal with that problem
 - decide on the texts you wish to include in your review
 - decide on the most appropriate way to classify the texts
 - identify the key issues
 - critically analyse what you have read
 - identify important issues that are still unresolved
 - write a draft of the review
 - read and think about what you have written and then rewrite.

Research Question (Problem Statement)

In this chapter you need to

- **state the research question, clearly and concisely**
- **demonstrate that this particular research has not been answered (why current approaches fail)**
- **Discuss why this is a worthwhile question (including applications where it may be used)**
- **try to include enough information so that a future researcher could continue your research once you are done.**
- **You have to demonstrate your familiarity with the important researchers in your field here.**

Methodology

- **Research Methods**
- **Software Development**
- **Organizational Methods**

RESULTS

The results section contains the summaries and analyses of the measures obtained in the study. This is where the "answers" to the research questions are found.

The following questions will help you evaluate the results:

- What are the main results of the study?
- Can the results be used to answer the research question(s)?
- Can the results be generalized beyond the context of the study?

You need to understand what the results are before you can think critically about them. This can be a tough task if you don't know how to interpret the results. A good way to start to understand the results is to study the figures and tables. Then read the text for the researchers' interpretations.

DISCUSSION

The discussion section contains the interpretations and implications of the study. There may be more than one study in the report; in this case, there are usually separate Method and Results sections for each study followed by a general discussion that ties all the research together.

The discussion section should start with a summary of the most important results and then follow with a discussion of how the results address the research questions.

Consider these questions as you write the discussion section:

- What conclusions do the researchers draw from their results?
- Are the conclusions important?
- Why or why not?

Cont'd ...

DISCUSSION Cont'd

Explain your results:

- Did your results support your hypothesis?
- Did your results relate to your objective?
- Did your results interpret in light of other published results on the subject?
- Did your results suggest directions for further research?
- Did your results discuss the limitations of your study?

This section, or area of the report, is also the place to make recommendations or state ideas for further research.

Solving the Research Question

- You need to convince the reader that the research question has been resolved, only discuss your research that pertains to the resolution of the problem, if you worked on techniques that were dead-ends, don't bother including these in the discussion (unless it is somehow relevant to the resolution).

Solving the Research Question

- Record any limitations, assumptions, etc. in methods used
- Report exactly under what conditions the results were obtained
- If wrote computer programs to solve the problem
 - => use my checksheet on software, comments, etc.
 - => record hardware, software versions, language versions, operation system versions, any relevant environmental configurations

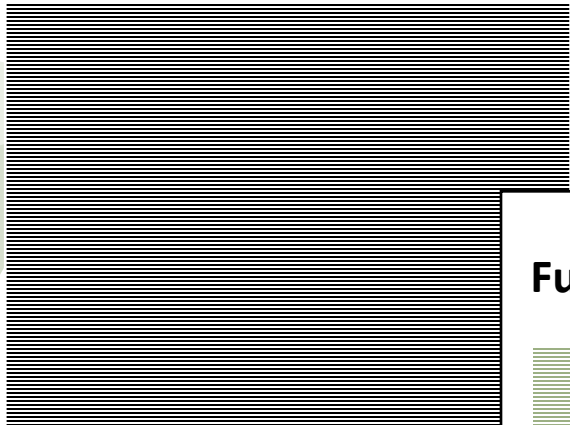


CONCLUSIONS

In a strong ending, you analyze results and give a future perspective

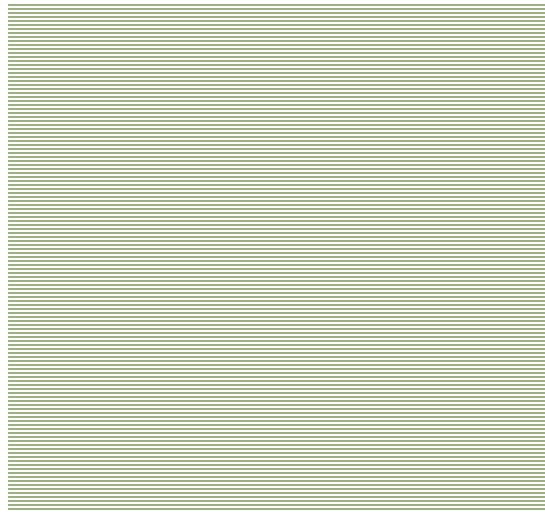
Conclusions

Analysis of Results



Analyze results from overall perspective

Future Perspective



*Several options:
Make recommendations
Discuss future work
Repeat limitations*

A yellow book cover with a black border. On the left side, there are several small black rectangular marks representing a binding. In the center, there is a black-bordered box containing the text "Linking it all together" in a bold, black, sans-serif font. The background features abstract, light green and white curved shapes.

**Linking it all
together**

Link chapters together

Chapter N

Introduction N.1

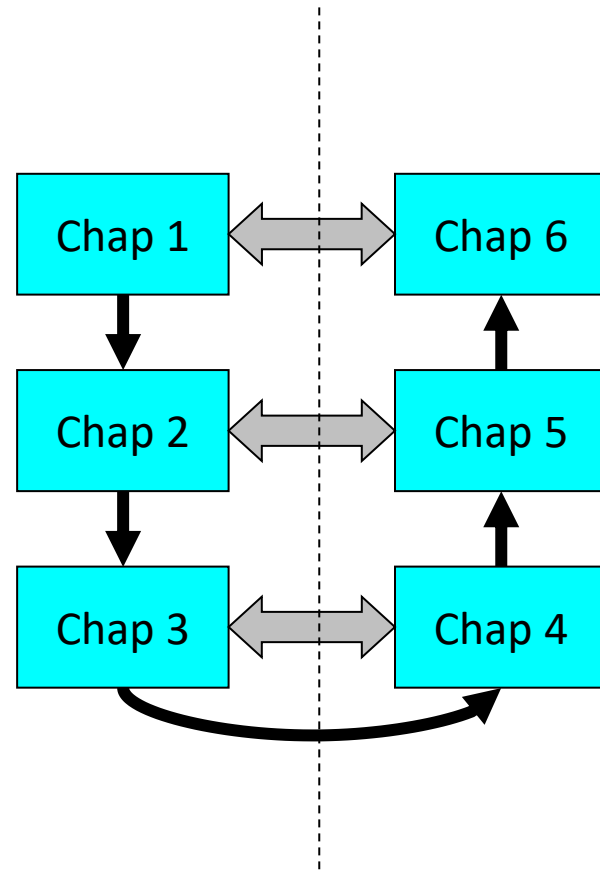
As has been discussed in the previous chapter ...

Conclusion N.X

In this chapter, the following topics were discussed...equipped with this information, in the next chapter it will be investigated how to apply this in ...

Mirroring of chapters :

- Chapter 1 = Chapter 6
- Chapter 2 = Chapter 5
- Chapter 3 = Chapter 4



Mirroring of chapters :

- All points raised in the ***Introduction*** chapter should be addressed in the ***Conclusions***.
- All sections in the ***Research Method (or Design)*** chapter should appear in the ***Data Analysis (or Implementation)*** chapter.
- All ***Literature Review*** section should be re-discussed in the ***Data Findings (or Testing and Evaluation)*** chapter

What is Research?

The word research derives from the French recherche.
Its literal meaning is:

*To **systematic** process of collecting and analyzing information (data) in order to discover of new knowledge or expand and verify of the existing one (e.g. theory - law)*

To do so, it is required a ..

Scientific Method

Scientific Method

Scientific method is the method involves the concepts of :

Objectivity - Acceptability - Inductive Reasoning - Deductive Reasoning

objectivity

Indicates the attempt to observe things as they are, without falsifying observations to accord with some preconceived world view.

acceptability

Acceptability is judged in terms of the degree to which observations and experimentations can be reproduced.

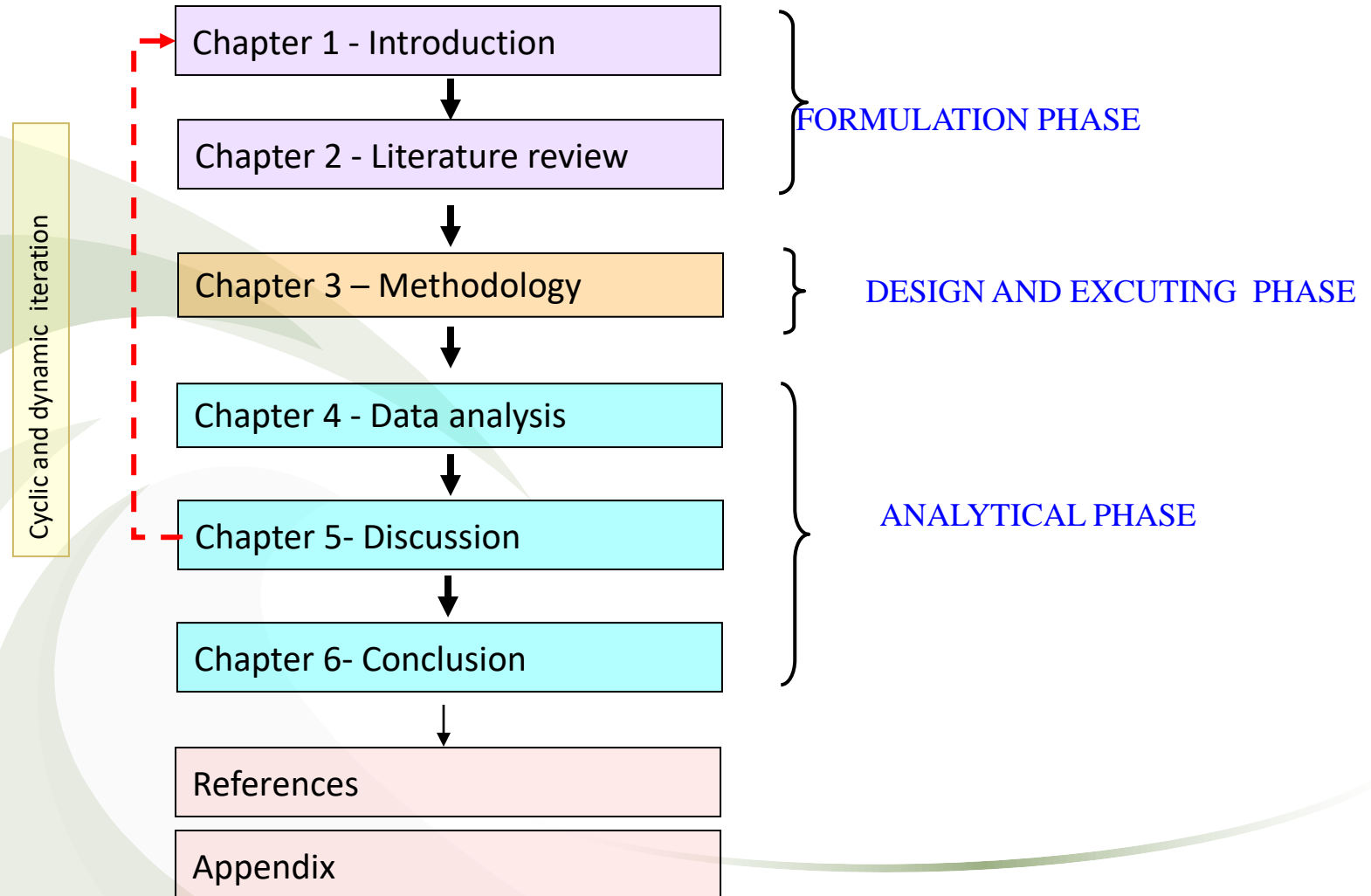
inductive reasoning

Reasoning from specific observations and experiments to more general hypotheses and theories

deductive reasoning

Reasoning from theories to account for specific experimental results

Common Research Process



Formulation Phase

Confirm need – Review literature - Define the problem – Develop questions and objectives – specify hypotheses – Develop theoretical model

Chapter 1 introduction

- 1.1 Introduction
- 1.2 Problem background
- 1.3 Problem statement
- 1.4 Research questions
- 1.5 Objective
- 1.6 Scope
- 1.7 Significant of the study

To guiding



Chapter 2 literature review

- 1.1 introduction
- 1.2 Definition of the terms (concepts)
- 1.3 Logical flow of ideas
- 1.4 Unbiased and comprehensive view of the previous research on the topic.
- 1.5 Identify areas of controversy in the literature
- 1.6 **Identify gaps in the literature**
- 1.7 Development of the theoretical framework

The Relationship between Problem statement Research Question, and Hypotheses

A problem statement is: a clear concise description of the issues that need to be created addressed and presented by the researcher.

lead to formulate
research question/s



A research question is: a statement that identifies the phenomenon to be studied. It must define the domain , the variables, and its relationship

lead To formulate
Hypotheses



A hypotheses is: a specific statement of prediction. It describes in concrete (rather than theoretical) terms what you expect will happen in your study.

Design and Execution Phase

It design based on: How the results will be achieve - How data will be collect - How data will be analyzed

1. Research Design

1.1 Research Approach (i.e. type of the research)

1.2 Research Method (qualitative/ quantitative / mix-method)

3. Data collection

3.1 Quantitative data collection

3.1.1 Survey (questionnaire)

3.1.1.1 Instrumentation

3.1.1.2 Pilot test

3.1.1.3 Sample size

3.1.2 Experimental apparatuses

3.2 Qualitative Data Collection

3.2.1 Interview / Documents / Observation

4. Data analysis

4.1 Quantitative data analysis (objective)

4.1 Qualitative data analysis (subjective)

5. External validity

6. Reliability

Analytical Phase

Data analysis is the processing of interpretation findings that looking at summarizing data with the intent to extract useful information and develop conclusions

Qualitative data analysis

(Interpretation of words and text)

- Qualitative data analysis describes and summarizes the mass of words generated by interviews or observational data. It allows researchers to seek relationships between various themes that have been identified
- Qualitative data analysis often contain content analysis that leads to emerge of themes and patterns.

Quantitative data analysis

(Interpretation of numerical data)

- Quantitative data analysis often contain descriptive statistics and inferential statistics
 - 1) Descriptive statistics include measures of central tendency
 - 2) Inferential statistics is a set of measurements can be regarded as measurements on a sample of items from a population Thus, it make inferences about the population from the sample.

Referensi

TUJUAN PENDIDIKAN PROGRAM DIPLOMA Menurut SK Mendiknas no 232/U/2000.

D I	DII	DIII	DIV
<p>diarahkan pada hasil lulusan yang menguasai :</p> <ul style="list-style-type: none"> • kemampuan dalam melaksanakan pekerjaan yang bersifat rutin, atau • memecahkan masalah yang sudah akrab sifat-sifat maupun kontekstualnya • di bawah bimbingan. 	<p>diarahkan pada hasil lulusan yang menguasai :</p> <ul style="list-style-type: none"> • kemampuan dalam melaksanakan pekerjaan yang bersifat rutin, atau • memecahkan masalah yang sudah akrab sifat-sifat maupun kontekstualnya • secara mandiri, baik dalam bentuk pelaksanaan maupun tanggung jawab pekerjaannya. 	<p>diarahkan pada hasil lulusan yang menguasai :</p> <ul style="list-style-type: none"> • kemampuan dalam bidang kerja yang bersifat rutin maupun yang • belum akrab dengan sifat-sifat maupun kontekstualnya, • secara mandiri dalam pelaksanaan maupun tanggung jawab pekerjaannya, • serta mampu melaksanakan pengawasan dan bimbingan atas dasar ketrampilan manajerial yang dimilikinya. 	<p>diarahkan pada hasil lulusan yang menguasai:</p> <ul style="list-style-type: none"> • kemampuan dalam melaksanakan pekerjaan yang kompleks, dengan • dasar kemampuan profesional tertentu, termasuk ketrampilan • merencanakan, melaksanakan kegiatan, memecahkan masalah dengan tanggung jawab mandiri pada tingkat tertentu, • memiliki ketrampilan manajerial, serta • mampu mengikuti perkembangan, pengetahuan, dan teknologi di dalam bidang keahliannya.

DEMENSI KEMAMPUAN	Program Sarjana (S1)	Program Magister (S2)	Program Doktor (S3)
Dimensi Ilmu	mampu menerapkan ilmu dalam kegiatan produktif dalam pelayanan masy.	mampu meningkatkan pelayanan masy. dengan penelitian dan pengembangan	mampu menciptakan konsep baru dalam bidang ilmunya melalui penelitian
Dimensi penelitian	mengerti peran dan kegiatan pengembangan ilmu melalui penelitian	mampu berperan serta dalam kegiatan pengembangan ilmu melalui penelitian	mampu memimpin suatu pengembangan ilmu melalui penelitian
Dimensi Wawasan	mampu mengantisipasi permasalahan dalam bidang keahliannya	mampu memecahkan permasalahan dalam bidang ilmu sejenis	mampu memecahkan permasalahan dengan pendekatan interdisipliner
Dimensi Sikap	cepat menyesuaikan diri dengan lingk. ilmiah yang ada. (inovatif)	mampu bekerja tak tergantung pada lingkungan ilmunya. (kreatif)	mampu mengubah lingk ilmunya dengan konsep yang dikembangkannya. (arif)