

RESEARCH METHODOLOGY

Writing
Research Proposal
Research Report

What is it?

- Any proposal of Research should state
 - what is to be researched
 - why is it to be researched
 - how it is to be researched
 - what outputs are expected
 - what resources are needed/available
 - what will the schedule be

2/44

Some Points to Reconsider

- Research Proposal
 - Establishes and justify the need of research
 - Describes the topic's nature, extent and limits
 - (describes the theory/theoretical state of the art)
 - Proposes a method of approach and procedure
 - (schedule, resources and feasibility)
- Not a preliminary draft of research report!
- Evident Intent and promise of rigorous enquiry
- Roadmap to a Creative output

Thesis Research Proposal

- The Research proposal is a report that establishes, justifies the need of and describes the topic and nature of research, its extents and limitations that proposes an approach and procedure of study (observation, analysis and conclusion) that is feasible within the resources and time available

4/44

Research Proposal within 2000 words

Introduction	Introduction, Location, Background
Rationale of Research	Need and Importance of Research
Problem Statement	Problem in real life and Development objectives of Research
Research Purpose	Objectives, Research Questions, Hypothesis
Validity of Research	Literature review to clarify theoretically need for research
Conceptual Framework and Methodology	Research design, Conceptual framework, Paradigm and Methodology –Reasoning of choice, set up, data collection, data analysis. Tools and instruments.
Expected Outputs	
Schedule	
References	

Thesis/Research Report > Chapter 1/Section 1

- Introduction
- State of the theory: summary of knowledge, problems, gaps and disagreements in substance or methods (Need, importance, rationale)
- Concludes above into a problem statement
- Objectives/RQs/Hypotheses
- (Assumptions, definitions, limitations)

Thesis/Research report > Chapter 2/Section 2

Methods Chapter

- Describe the methodology and methods so that its quality, trustworthiness or validity is evident
- Arguments for choice of methods, if criticism expected
- Chronological and sequential description of actual steps TAKEN!

Thesis/Research Report > Chapter/Section 3

Data, Analysis and Results of Research

- Discrete organization
- Environment/Background of data collection
- Sequential format but case studies may present data&analysis together

Thesis/Research Report > Chapter 4/Section 4

Conclusions Chapter

- Discuss results of enquiry and take to theoretical domain- answer RQs/ test Hs
- Professional disciplines make Second set of conclusion on applicability and practice

Bibliography/Reference/Appendices

Contents of a Research Proposal

- **Introduction, Location, Background.**
- **Need and Importance** of research
- **Problem Statement** (basic review of the situation giving rise to the study)
- **Research Purpose** (Objectives, Research Question or Hypotheses)
- **Validity** (*review of literature and ongoing research* to establish the need for research)
- **Conceptual Framework and Methodology** (The research design, methods and tools)
- **Expected outputs,schedule, resources**
- **References**

Think about a Research Topic

Where Do Research Topic Come from?

- Practical Experience >> approach to practical problems >> problem of theory behind
 - Color Reproduction in Carpet Industry
 - Dam Erosion in Turbines in MHPS
 - Improvement of Algorithms in the Particle Tracking Velocimetry
 - Analysis of Unsteady Flow in Mountainous River

Where Do Research Topic Come from?

- Literature (Accrued knowledge)/Theory
 - Rethinking conclusions/ideas
 - Rethinking methods in research >> questionable research methods/controls/new additional variable
- RFPs/Problems of other Working agencies
 - Practical Experience/Theoretical questionings
 - (problem, context, approach, costs, etc.!)

Where Do Research Topic Come from?

- Simply thinking it up!
 - Did it really come out of the blue?
 - Brainstorming? Recollecting inspired thoughts?
- Storming of Issues in
 - Theory
 - Practice
 - Development

Deciding on a Topic

- Is it feasible?
 - Tradeoff between Rigor and Practicality
 - Possibility of exhaustiveness
 - Resources and Circumstances
 - Faculty/Faculty
 - Time that needs to be committed
 - Cooperation of others

A maxim

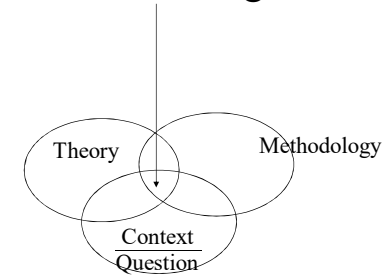
Well begun is half done

-Aristotle, quoting an old proverb

Research Design

- Design is interfacing
 - Theory, methodology and context/question
- Methodology
 - A system of methods and principles for doing something

Research Design



How experts define it

- An action plan for getting from here to there
 - Here > initial set of Research Questions to be answered
 - There > some set of conclusions/answers about these questions
 - Between Here and There > a number of steps including collection and analysis of relevant data
- Robert K Yin

Knowledge, Research Design and Philosophy (- Flowerdew & Martin)

