

Research Methods

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Purposes

- to develop competence and confidence in doing research
- to guide trainees to develop a research proposal
- to put pressure on students to start their MSc thesis

Tasks of a Trainee

- to take initiative and present to the supervisor
- to respond to questions, challenges and requests
- to explore alternatives for working effectively
- to plan and execute the research project within the prescribed time period

Tasks of a Supervisor

- to direct/guide/push
- to refine/focus ideas
- to challenge/correct
- to encourage/value
- to discuss/interact
- to evaluate/judge

Types of Research

- Basic Research
 - expand knowledge base
- Applied Research
 - to evaluate
 - to predict (forecast)
 - to make decision (design/fund/implement)

Doing Research

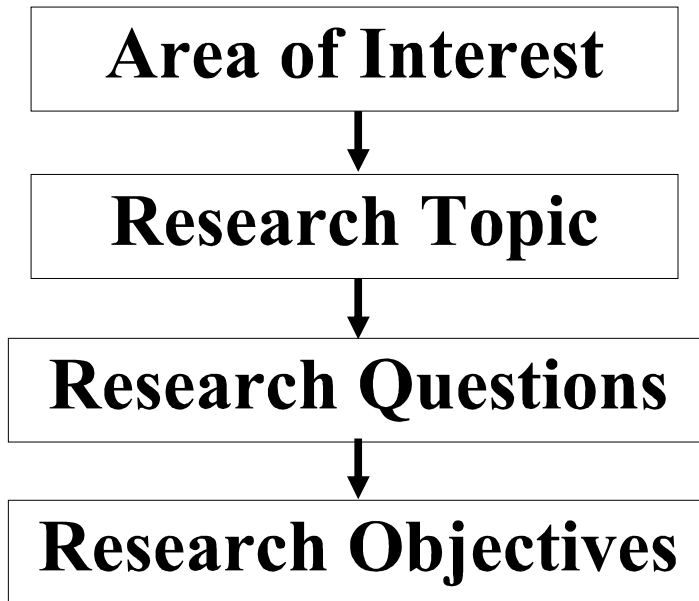
- Starting Research
- Managing Research
- Reporting Research

Common Problems

- selecting a research topic
- writing proposal
- gathering information
- analyzing literature
- working with supervisor
- managing time
- writing/presenting the report

Starting Research

- clarifying research problems
- formulating research questions
- establishing research objectives
- outlining research methods
- conducting literature review
- drafting a concept proposal



Research Topic (1)

- unsolved problems, e.g.,
 - domestic air cargo services
 - criteria for third-party logistics
 - feasibility of national freight management center
 - criteria for VMI

Area of Interest

Examples

- Inventory Control
- Routing Problems
- Multi-mode Transportation

Researchers' Discipline and Background Knowledge

Position of Institution

Funding agencies

Research Topic (2)

- personal aspirations, e.g.,
 - network externalities with neighbor countries
 - e-Logistics
 - optimal distribution pattern of airline hubs
 - RFID

Statement of Problem

Description of research topic

- Background information
- Evidence/prior research
- high priority
- magnitude of the impact

Research Questions (2)

Questions should be about

- Size or magnitude
- Order
- Probability (error and bias)
- Relationship or Causality

Research Questions (1)

Derived from the research objectives. They provide direction of the research methods, i.e.,

- hypothesis tests
- data requirement/acquisition
- data analysis/ interpretation

Research Questions (3)

Examples

- What is the probability of successes and risks?
- Is the center financially viable?
- Is the center economically viable?
- How should the public agencies involve to ensure efficiency and success?

Research Questions (4)

Don't ask

- How will the unit cost be measured?
- Where will the data be collected?
- What are the cost components?

Why? The answers to these questions should be stated in the Methodology section. Without them, the research will not be approved.

Research Objectives (2)

General Objectives (only one or two)

- to study the feasibility of national freight management center
- to study the role of related public agencies

Research Objectives (1)

What is to be achieved through research?

- provide basis for detailed design of the research
- allow evaluation of the research
- provide criteria to measure the outcomes

Research Objectives (3)

Specific Objectives

- to derive the cost function for investment and operation of the center
- to determine the factors affecting demand for the services
- to investigate needed regulatory changes

Literature Review



Conceptual Framework



Research Methods



Concept Proposal

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Literature Review (2)

Sources of Literature

- theses, dissertation
- journals
 - ScienceDirect
(www.sciencedirect.com)
- academic working papers, e.g.,
 - R. H. Smith Business School
(www.rhsmith.umd.edu)

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Literature Review (1)

- Served as the source of specific knowledge, research topic, conceptual framework and research methods.
- Only prior research works and advanced materials. Review of basic theories is pre-requisite of the research not a part of it.

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Literature Review (3)

Sources of Literature (cont'd)

- Publications of Country Government and International Organization
- Advanced textbooks or monographs
- Encyclopedia, Handbooks

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Conceptual Framework (1)

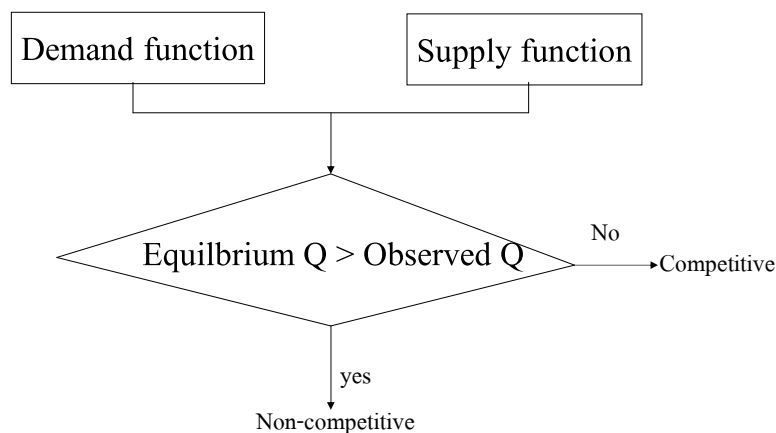
- Integration of ideas from reviewed literature and personal initiatives
- Statement or more preferable schematic diagram showing relationship or interaction between variables, data analysis and interpretation not the sequences or schedule of research execution

Research Methods

Served as Blueprint

- Timeframe/stages of execution
- Data Collection method and data sources (Measuring tools/Survey/ Interview)
- Analysis tools/Model/Graphs
- Calculation/Estimation method
- Hypothesis tests/Interpretation of results

Conceptual Framework (2)



Conceptual Proposal (1)

Served as the first written document to communicate the research idea with supervisor, colleagues and/or funding agencies before developing the detailed proposal

Conceptual Proposal (2)

Outline

- Research Title
- Statement of Problem
- Research Objectives
- Research Questions
- Conceptual Framework

Conceptual Proposal (3)

Outline (cont'd)

- Resource Required
 - Preliminary Budget
 - Organization and Members of Research Team
- References
 - list of reviewed literature