



# SNS COLLEGE OF TECHNOLOGY

(An Autonomous Institution)

Re-accredited by NAAC with A+ grade, Accredited by NBA(CSE, IT, ECE, EEE & Mechanical)

Approved by AICTE, New Delhi, Recognized by UGC, Affiliated to Anna University, Chennai



## INTRODUCTION

**COURSE** : 23CAT705- RESEARCH METHODOLOGY

**UNIT I** : RESEARCH DESIGN

**CLASS** : II MCA / III SEMESTER



# Research Methodology

**Unit I : RESEARCH DESIGN**

**Unit 2 : DESCRIPTIVE STATISTICS**

**Unit 3 : ANALYTICAL STATISTICS**

**Unit 4 : COMPUTER APPLICATION AND DATA ANALYSIS**

**Unit 5 : REPORT WRITING AND RELATED TECHNIQUES**



# Research Methodology

Literature Review - Identification and Formulation of Research Problem – Types of Research Design; Exploratory, Descriptive and Experimental Research – Formulation of Hypothesis - Sample Design - Types of Data – Data Sources – Methods of Data Collection - Construction of Schedules and Questionnaire – Pilot Study

Processing Data - Editing, Coding and Tabulating Presentation of Data; Diagrammatic and Graphic Representation of Data. Analysis of Data; Mean, Median, Mode Weighted Average and its Merits and Demerits – Dispersion; Range, Standard Deviation, Co-efficient of Variation, Lorenz Curve and Gini Ratio



# Research Methodology

Correlation; Simple, Partial and Multiple – Pearson's Co-efficient of Correlation and Rank Correlation – Regression; Simple, Linear and Non-linear Regression – Multiple Regression; Probit Model and Logit Model - Time Series Analysis; Components and Uses – Methods of Estimating Trend and Seasonal Variations - Testing of Hypotheses; Large and Small Samples - Parametric and Non-Parametric Tests

Data Mining and Processing – Model Building – Software Application in Economic Analysis - Interpretation of SPSS Package Output Relevant for Multivariate Analysis and Logit Model – Estimation of BCR, NPV and IRR

Ethics in Report Writing - Planning of a Research Report – Presenting Literature Review - Stages of Writing Report – Layout of the Research Report – Precaution for Writing Research Reports – Citations - Footnotes – Endnotes – Bibliography – Proof Correction – Finalisation of Thesis - h-index - i10-index - Impact Factor – Citation index of Journals



## Research Problem

# Research Problem

A question that a researcher want to answer or the problem to solve

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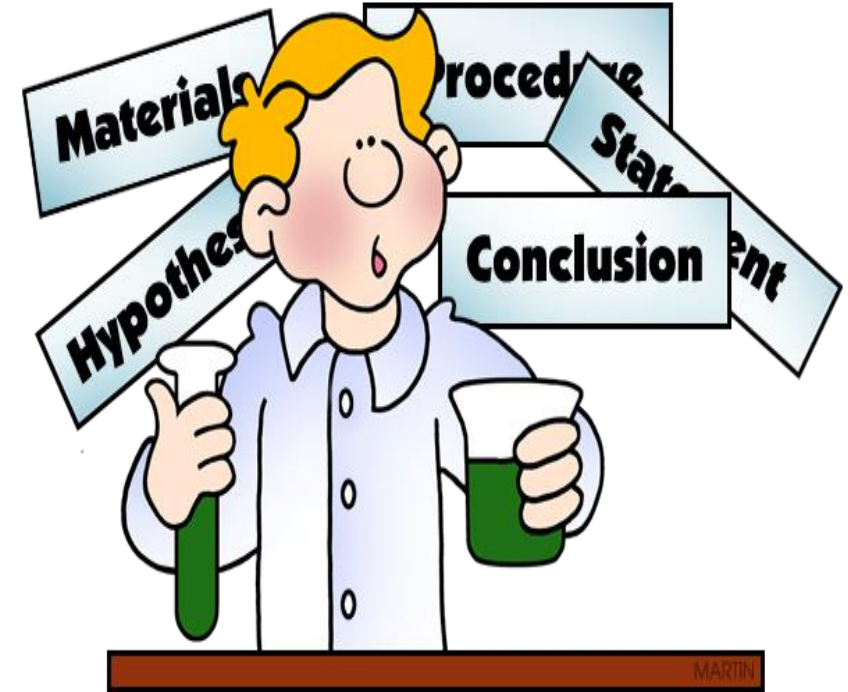
*Issue or concern presents and justify in a Research Study*



# Research



Search for knowledge



Art of scientific investigation



# Research



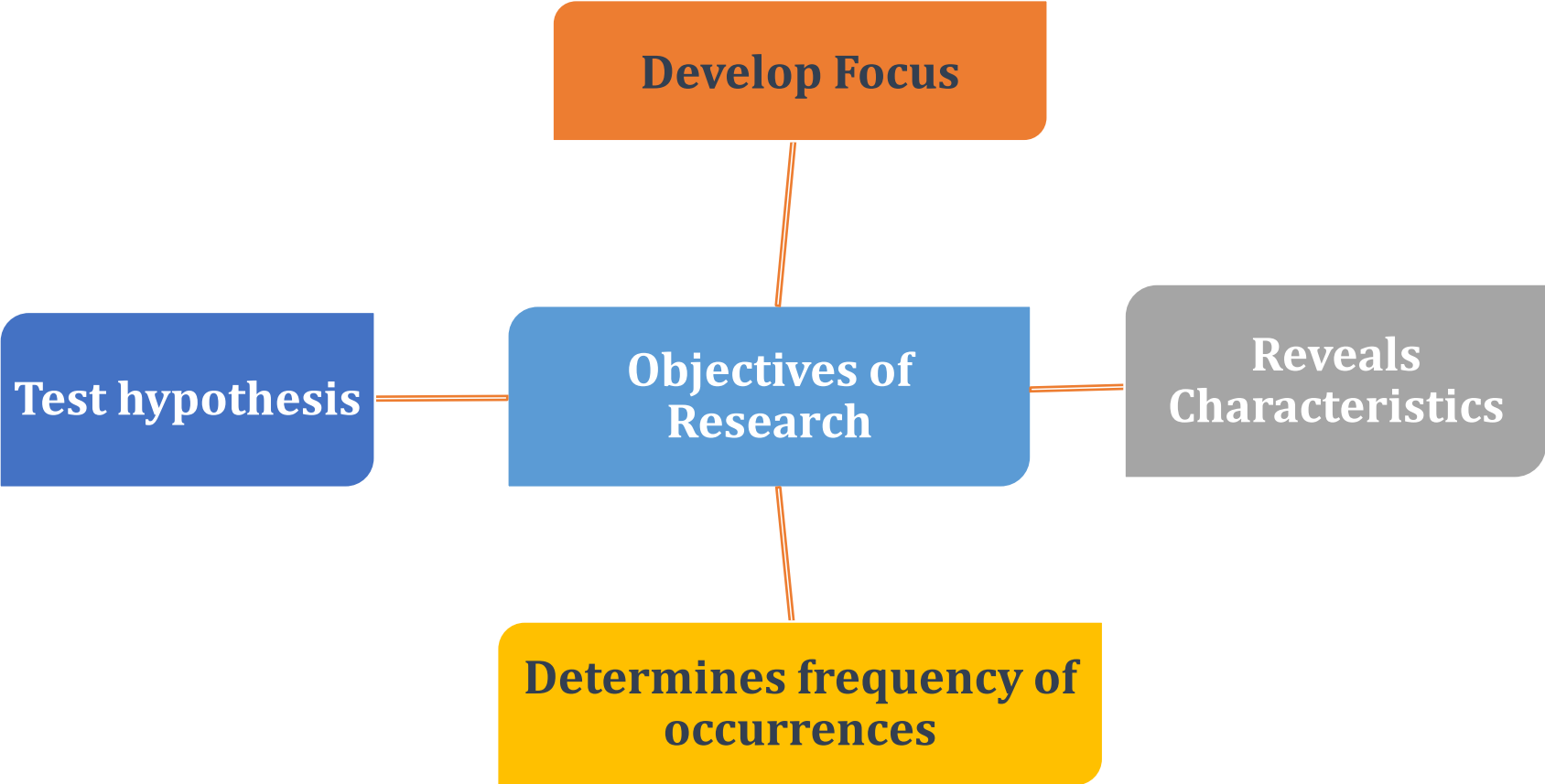
Systematized effort to gain new knowledge



A careful investigation or inquiry specially through search for new facts in any branch of knowledge



# Objectives of Research







# Motivation in Research



To get Research Degree



Get intellectual joy of doing some creative work

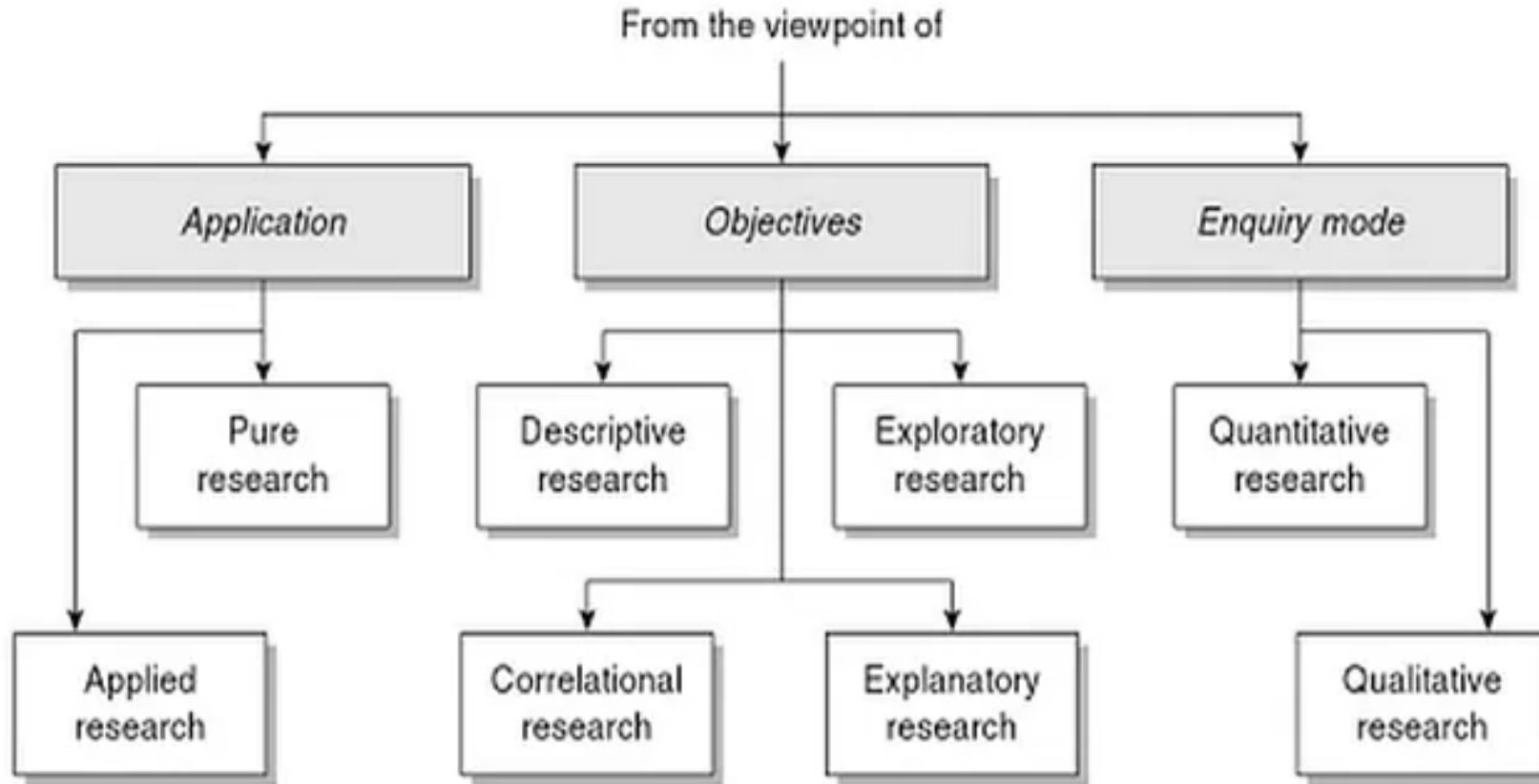


Face the challenge in solving the unsolved problems

To get respectability

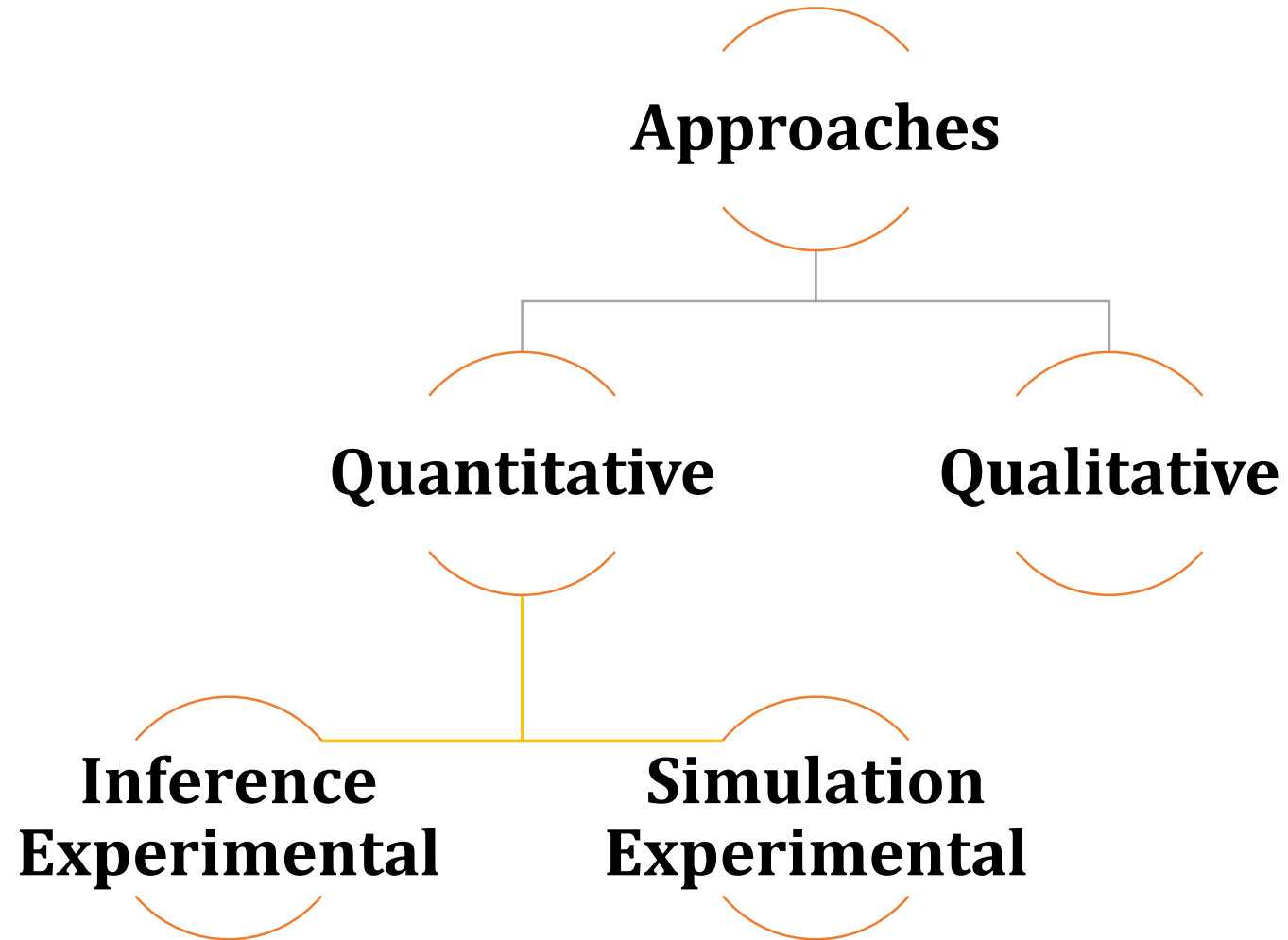


# Types of Research





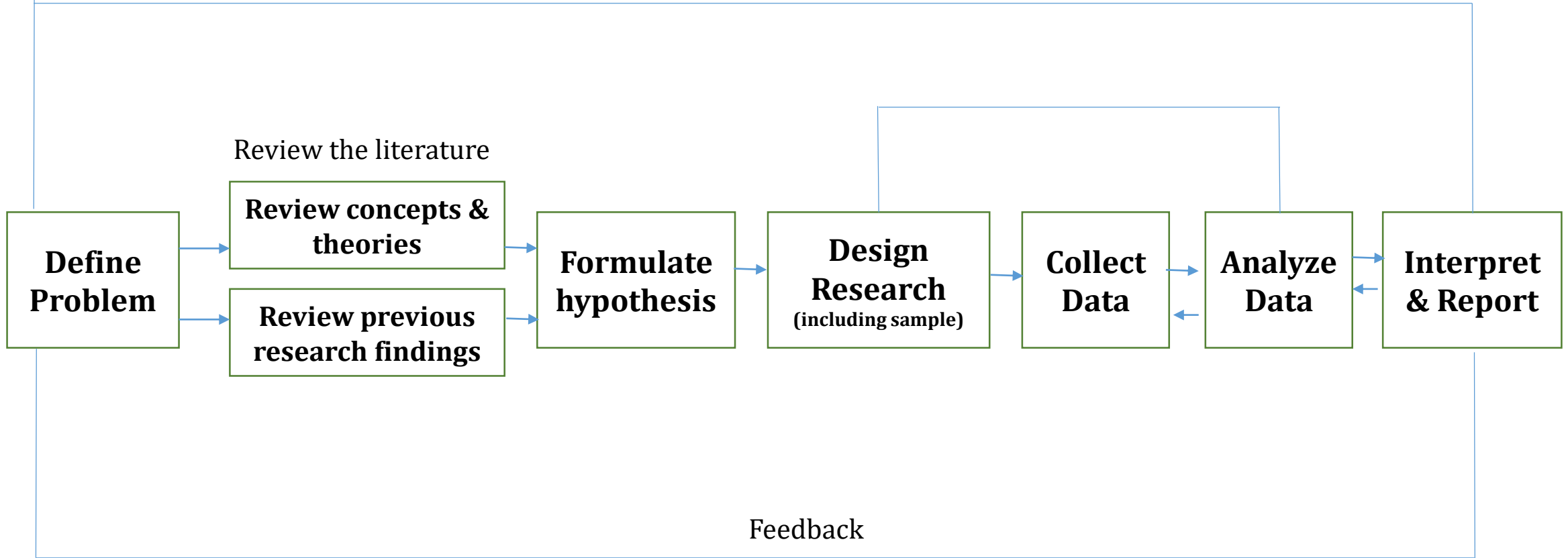
# Research Approaches





# Research Process

Feedback Forward





# Research Process

01

## Define Problem

Problems

- relate to states of nature
- relate to relationships between variable

03

## Development of working hypotheses

- Assumption made in order to draw out based on
  - Discussions with colleagues and experts
  - Examination of data and records
- Review of similar studies

02

## Extensive Literature Review

- Books
- Journals
- Conference proceedings
- Govt. reports

04

## Preparing research design

- Formal and informal methods
- Considerations
- means of obtaining the information;
- availability and skills of the researcher
- information organised and the reasoning leading to the selection;
- the time available cost factor relating



# Research Process

05

## Collecting Data

- Observation
- Personal interview
- Survey
- Questionnaires'

06

## Execution/Analysis of Data

- System
- Algorithms
- Procedures/strategies

07

## Interpretation & Reports

- Intro
- Summary of findings
- Main report
- conclusion



# Research Methods and Methodology



	Methods	Methodology
<b>Objective</b>	Find solution for research problem	Determine appropriateness of methods applied to ascertain solution
<b>Collection</b>	Tools/strategies to select a research technique	Analysis of methods and procedures of investigation
<b>Time to apply</b>	Applied later stages	Initial stage of research
<b>Comprises</b>	Different investigation techniques of study	Systematic approach to find a solution to research problem
<b>Encompasses</b>	Experiments, surveys, tests ...	Techniques used while conducting experiments, surveys, tests...



## Sources of problem



- Intuition
- Existing theories/previous research
- Personal/Practical Experience
- Society
- Brain storming/Peer consultation/Discussion with experts





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## Literature Review

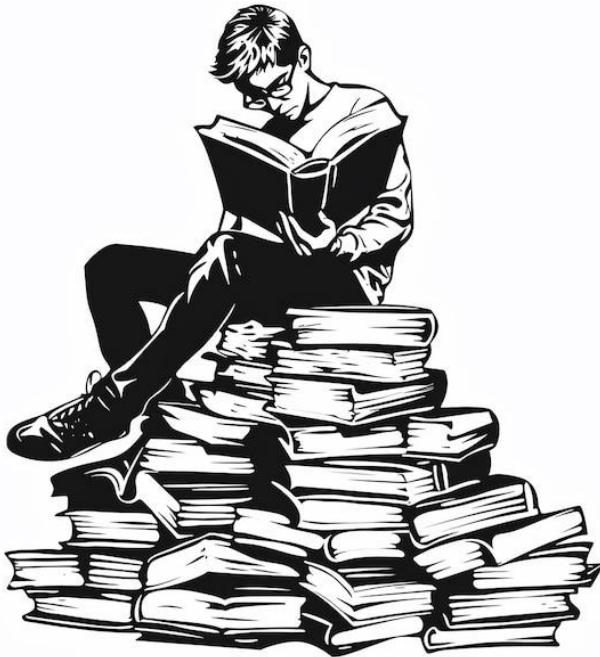
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# Literature Review



**Organized written representation of what has been published on a topic by scholars**



**Identification of problem or development of research questions**



## Literature Review - Characteristics



- Be Comprehensive
- Include up-to date reference
- Systematic
- Free from bias
- Reproducible
- Clearly searched and selected
- Well written, summary
- Accurate reference in the review



## Purpose of Literature Review

Gain a background knowledge of the research topic

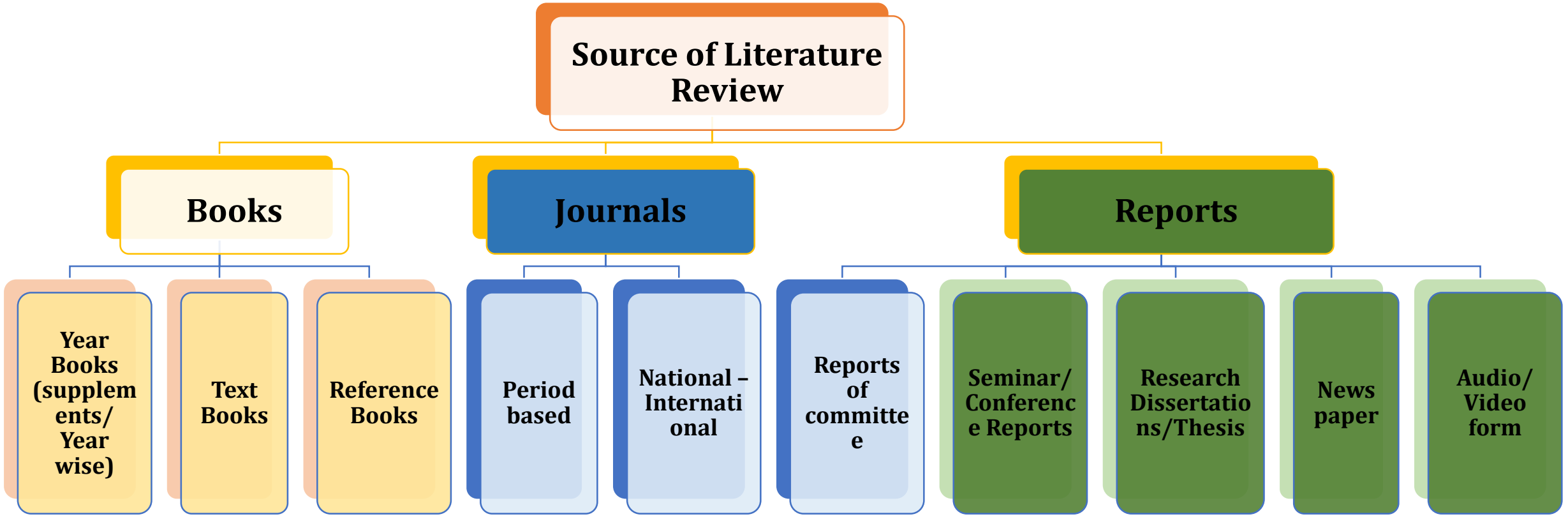
Identify the concepts relating to it, potential relationships between them and to formulate researchable hypotheses.

identify appropriate methodology, research design, methods, of measuring concepts and techniques of analysis.

identify data sources used by other researchers

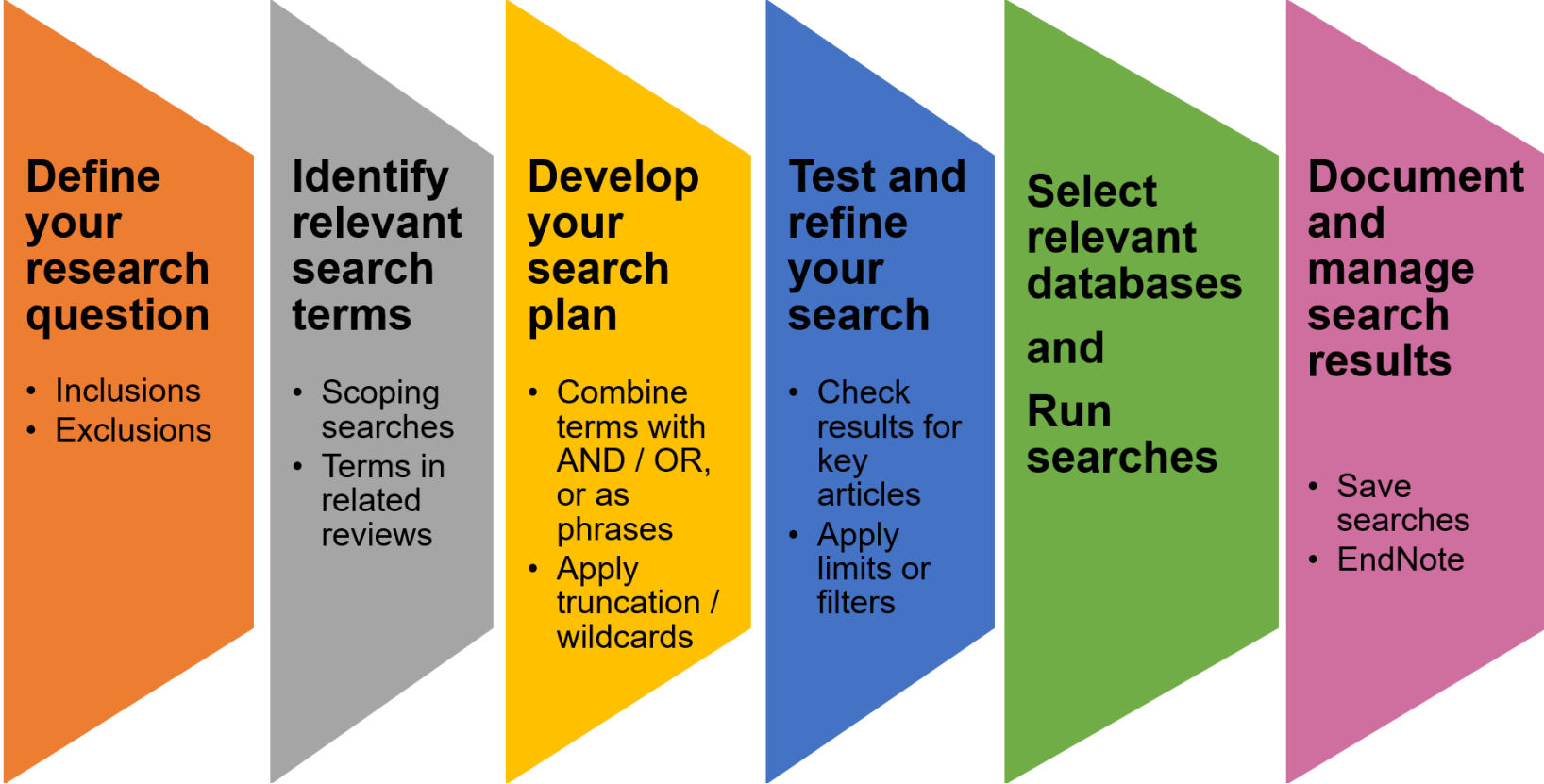


# Literature Review





# Literature Review Process





# Write Literature Review

## Introduction

- Focus and purpose

## Body

- Summarize & synthesize
- Analyze & interpret
- Critically evaluate
- Well structured para

## Conclusion

- Summarize key findings



## References

1. Kothari, C.R. & Garg, G. (2019). *Research Methodology: Methods and Techniques*. New Age International Publishers, New Delhi
2. Goode, W.J. & Hatt, P.K. (2022). *Methods in Social Research*. McGraw Hill, London
3. Bhandarkar, P.L. & Wilkinson, T.S. (2016). *Methodology and Techniques of Social Research*. Himalaya Publishing House, Mumbai.

**THANK  
YOU**